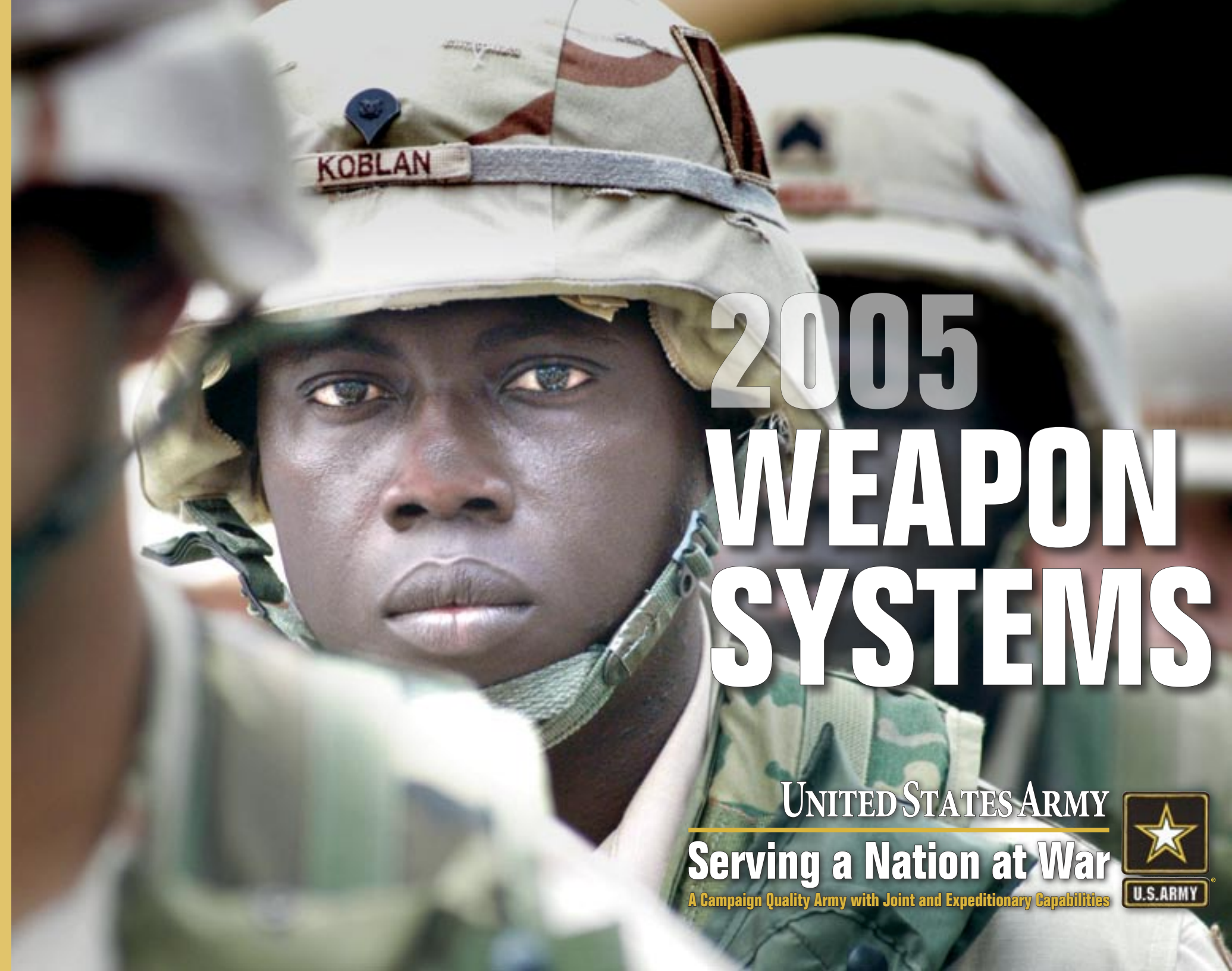


2005 UNITED STATES ARMY WEAPON SYSTEMS

2005 WEAPON SYSTEMS

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UNITED STATES ARMY
Serving a Nation at War
A Campaign Quality Army with Joint and Expeditionary Capabilities



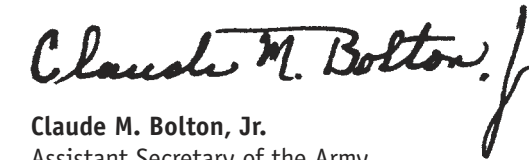
Dear Reader:

The weapon systems and equipment described in this reference book represent a significant part of our commitment to the security of the nation, the preparedness of the Soldier, and the readiness of the Army.

We serve the Soldier, the centerpiece of our combat systems. Our Soldiers are the key to an Army serving the nation at war, while undergoing the most dynamic transformation since World War II. Today, with more than 268,000 troops deployed around the world in more than 120 countries, our Army and its Soldiers stand ready to fulfill all current missions, including homeland security, even as we prepare to better face future needs. Investment in recapitalizing and modernizing the Current Force will help to ensure the Future Force and the continuation of the Army's dominance in the face of emerging threats.

The Army has embarked on a number of significant initiatives to meet increased demands. New capabilities have been fielded to support current operations. New efforts are getting equipment to our Soldiers faster than ever before. We are maintaining readiness and improving the capabilities of units returning from and preparing for deployment. Major restructuring efforts are underway to ensure that our Soldiers are better equipped and ready for future missions.

The following pages describe our investments in the successful acquisition and sustainment of weapon systems and equipment. As you use this informative resource, please remember that even the most technologically advanced platforms are useless without the skill and dedication of the American Soldier. Working with Congress, we will continue to keep our Soldiers well-equipped and the Army ready to meet today's requirements and tomorrow's challenges.



Claude M. Bolton, Jr.
Assistant Secretary of the Army
(Acquisition, Logistics and Technology)



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About the 2005 Edition of the United States Army Weapon Systems

Readers familiar with this publication will notice some changes this year that make **United States Army Weapon Systems** more readable, user-friendly, and attractive.

All systems are presented in alphabetical order; Science and Technology still appears in a separate chapter.

The layout has been redesigned to make information more immediately available. Each system or program has a two page spread. On the left-hand side, accompanying the images, is a statement describing how the system benefits the warfighter, the combatant commander, or the joint force.

On the right-hand page, a box has been added that contains four elements:

1. U.S. map with contractors' states highlighted
2. The top **contractors** working on the system: prime followed by subcontractors where possible
3. The Army's Modernization Strategy broken down by Investment Component, modernization, recapitalization, or maintenance:
 - **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 comprise the repair or replacement of end items, parts, assemblies, and sub-assemblies that wear out or break.
4. The **Acquisition Phases**, which are:
 - **Concept and 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:
 - o Concept exploration
 - o Decision review
 - o Component advanced development

- **System development and demonstration (SDD)** is the phase in which a system is developed, program risk is reduced, operational supportability and design producibility are ensured, and feasibility and affordability are demonstrated. This is also the phase in which system integration, interoperability, and utility are demonstrated. It includes:
 - o System integration
 - o System demonstration
 - o Interim progress review
- **Production and deployment** achieves an operational capability that satisfies mission needs. Components of this phase are:
 - o Low-rate initial production (LRIP)
 - o Full-rate production decision review
 - o Full-rate production and deployment
- **Operations and support** ensures that operational support performance requirements and sustainment of systems are met in the most cost-effective manner. Support varies but generally includes:
 - o Supply
 - o Maintenance
 - o Transportation
 - o Sustaining engineering
 - o Data management
 - o Configuration management
 - o Manpower
 - o Personnel
 - o Training
 - o Habitability
 - o Survivability
 - o Safety, Information technology supportability
 - o 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.

Foreign military sales information has been moved to an appendix at the back of the book. Sales are listed by system. For further information on acquisition phases, please see the Glossary.

All systems in alphabetical order

- Contractor information and location
- Investment component and acquisition phases

Stryker



Enables deployment of Stryker Brigade Combat Teams anywhere in the world via readily-deployable, combat-ready support vehicles capable of rapid movement.

DESCRIPTION AND SPECIFICATIONS

The Stryker is a family of eight-wheeled vehicles powered by 350-horsepower diesel engines. It incorporates a central tire inflation system, run-flat tires, and a vehicle height management system. Stryker consists of two types: the Infantry Carrier Vehicle (ICV) and the Mobile Gun System (MGS). The ICV is a troop transport vehicle capable of carrying nine infantry soldiers, their equipment, and a crew of two: driver and vehicle commander. The MGS is designed to support infantry. It has a 105mm turret gun and autoloader system designed to defeat bunkers and breach double-reinforced concrete walls.

There are eight other configurations based on the ICV that provide combat support capabilities:

- Reconnaissance Vehicle (RV)
- Mortar Carrier (MC)
- Commander's Vehicle (CV)
- Fire Support Vehicle (FSV)
- Engineer Squad Vehicle (ESV)
- Medical Evacuation Vehicle (MEV)
- Anti-Tank Guided Missile (ATGM) Vehicle
- Nuclear, Biological, and Chemical Reconnaissance Vehicle (NBCRV)

The ICV family (other than the MEV, ATGM, FSV, and RV) is armed with a remote weapons station that supports an M2 .50-caliber machine gun or MK19 automatic grenade launcher, the M6 countermeasures device (smoke grenade launcher), and an integrated thermal weapons sight. Stryker is capable of supporting a communications suite that integrates the Single Channel Ground and Airborne Radio System (SINGARS) radio family; Enhanced Position Location Reporting System (EPLRS); Force XXI Battle Command Brigade-and-Below (FBC2); Global Positioning System (GPS); and high-frequency and near-term digital radio systems.

Optimized for close, complex, or urban terrain, Stryker moves quickly and provides 360-degree protection against 14.5mm armor piercing threats.

It is deployable by C-130 aircraft and combat-capable upon arrival. The Stryker is capable of self-deployment by highway and self-recovery. It has a low noise level that reduces crew fatigue and enhances survivability.

The Stryker program leverages non-developmental items with common subsystems and components to quickly acquire and field these systems. Where appropriate, Stryker integrates existing government furnished materiel subsystems. The Stryker family of vehicles stresses performance and commonality that reduces the logistics footprint and minimizes sustainment costs. The 3rd Brigade, 2nd Infantry Division Strykers deployed in Iraq have driven over 3 million miles and maintained an operational readiness rate well above 90 percent.

Stryker Brigade Combat Teams (SBCTs) 1, 2, 3, and 4 require 317 Stryker variants. SBCTs 5 and beyond require 328 Stryker variants, because of an added Stryker-based retens and gateway capability. The current program requires more than 2,000 Strykers to field six SBCTs. In the FY05 budget, Congress provided additional funding and directed the Army to field a seventh SBCT.

PROGRAM STATUS

- **1QFY05-3QFY05** Continue fielding to SBCT3
- **1QFY05** Start Full Rate Production of Mortar Carrier

PROJECTED ACTIVITIES

- **2QFY05** Start Low Rate Initial Production for MGS and NBCRV
- **4QFY05** Start Fielding to SBCT4
- **FY05-06** Continued development and testing of MGS and NBCRV

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CONTRACTORS

General Dynamics Land Systems (Sterling Heights, MI; Lima, OH; Anniston, AL; London, Ontario)

INVESTMENT COMPONENT

Modernization

ACQUISITION PHASE

- Concept and Technology Development
- System Development and Demonstration
- Production and Deployment
- Operations and Support

WEAPON SYSTEMS 2005 227

Mission

- How the system benefits warfighters, combatant commanders, and support personnel

Today's Army at War and Transforming

Recent operations in Iraq and Afghanistan highlight the importance of the individual Soldier and the effectiveness of Army units. Improving the Soldier's overall capability is an enduring mandate for the Army. The Army at war, the Current Force, is undergoing dynamic transformation to the Future Force, a campaign quality Army with a joint and expeditionary mindset and the capabilities to match.

The Soldier is the centerpiece of the Army and indispensable to the Joint Force. Today's Soldier is adaptive, confident, and infused with values reflected in the term "warrior ethos."

All systems described in this book represent weapons or equipment that is critical to the Soldiers of the Current Force or the Future Force.

The Army is undergoing dynamic transformation to the Future Force, a campaign quality Army with a joint and expeditionary mindset and the capabilities to match.

While participating fully as a member of the Joint Force in the global war on terrorism, the Army is playing the most demanding role. The Army's 18 divisions, a large part of the remaining conventional forces, and most of our invaluable Special Operations Forces have seen operational action in the recent past. In 2004, the Army, along with its sister services, completed the largest rotation of forces since World War II. This effort involved the full participation of Active and Reserve Components (AC and RC) in support of the Army. More than 240,000 RC Soldiers have been activated to serve as an integral part of the ongoing operations. An average of almost 300,000 Soldiers has been

deployed and forward-stationed in 120 countries. More than 125,000 Army Soldiers in Iraq and Afghanistan are bearing the brunt of this war on the frontlines, and tens of thousands of Soldiers are serving in other critical areas of the world. The Army at home is providing the deployable base for future expeditionary missions and for vital homeland security tasks.

To achieve the Future Force while maintaining the excellence of the Current Force requires a balance of risk between current and future readiness. Balancing today's operational readiness with rapid improvement in capabilities for the future is a

critical part of the Army's transformation process. It requires continual assessment to ensure that plans and programs are aligned with overall requirements.

Current operational readiness is our Army's highest priority. During the last several years, the Army decided to accept a reasonable degree of risk to the readiness of our Current Force to permit investment in capabilities for the Future Force. Risk came in the form of reduction of modernization and recapitalization programs. In the last four budget requests to Congress, the Army made difficult choices to cancel and restructure existing programs in order to invest resources in the development of future capabilities. Some of these investments have already produced results; for example, the new Stryker Brigade Combat Team (SBCT) formations now being fielded, the first of which are currently deployed on the battlefield in Iraq. Others are

Current operational readiness is our Army's highest priority.



helping to develop emerging technologies and capabilities that will be applied to our force throughout the coming decade.

Transformative Actions

Systems to Watch: Ground

In 2003, the Army deployed the first SBCT, the 3rd Brigade, 2nd Infantry Division, to Operation Iraqi Freedom, delivering its enhanced capabilities to the Joint Force in record time: four years from broad concept to deployment. Exceptional support from Congress and the Office of the Secretary of Defense (OSD), along with close collaboration between the Army and industry made this achievement possible. Stryker brigades are the Army's first truly network-centric force, filling the capability gap between light- and heavy-force units with an infantry-rich, mobile force with improved battlespace awareness and battle-command technologies embedded. SBCTs enhance combat effectiveness and survivability by integrating data from manned

The Army is the single manager for conventional ammunition across the services and has numerous joint and international munitions programs in development.

and unmanned air and ground-base sensors and providing real-time, continuous situational understanding.

Air

With the termination of the Comanche RAH-66 helicopter program and the resources for those aircraft reallocated (through FY11), the Army has accelerated air crew protection and Aircraft Survivability Equipment (ASE). Air Warrior is a part of this effort, scheduled to go into full rate production in FY06.

Air Warrior enhances aircrew comfort, cockpit synergy, aircraft mission capability, and improves lethality, survivability, mobility, and sustainability through a new generation, integrated aircrew ensemble. The system maximizes safe aircraft operation and human performance while not encumbering the aircrew.

The Army is the first service to successfully pass initial operational test and evaluation with a UAV system. That system, the Shadow Tactical UAV, went from program initiation to a full-rate production decision in just 33 months. We now have four systems superbly supporting ground forces in Operation Iraqi Freedom that have flown more than 4,200 sorties and logged more than 17,000 mission hours in support of Operation Iraqi Freedom. Ground commanders consider these essential for their Brigade Combat Teams to provide on-call and responsive surveillance, force protection, and reconnaissance.

Munitions

From bullets to grenades, artillery rounds to missiles, from precision point target to area suppression, the Army provides a mix of munitions across Army, Joint, and International Forces that address training needs, the multiple targets and the myriad of environmental conditions faced by our Soldiers. The Army is the single manager for conventional ammunition across the services and has numerous Joint and International munitions programs in development. Managing the health of current stockpiles, while planning for their replacement, is essential for the success of Current and Future Forces. Many of these programs, Artillery Ammunition, Joint Common Missile, Excalibur, Guided Multiple Launch Rocket System, and others, appear in this book.

Information Technology

The situational dominance of our Future Force will depend upon a comprehensive, ever-present, and joint-interoperable command, control, communications, computers, intelligence, surveillance, and reconnaissance (C4ISR) architecture to enable the Joint Force Commander to conduct fully interdependent and network-centric warfare. The backbone of our Future Force and the future Joint Force, the Tactical Internet will enable the maneuver commander unprecedented coordination of battlefield effects.

Some IT systems are already making a difference on the battlefield. The Battle Command Sustainment Support System (BCS3) is the Army's award-winning maneuver sustainment command and control system, and a critical component of the Army Campaign Plan to connect logisticians by allowing them to see and track information from factory to foxhole. BCS3 uses a six-pound, commercial Windows operating system-based laptop to enable commanders, Soldiers, and logisticians to visualize items throughout the supply chain and project

supplies for different scenarios. Commanders can now see the logistical situation and can plan, rehearse, train, and execute on a single system.

The Aviation Combined Arms Tactical Trainer (AVCATT) enables Army aviation units to rehearse and participate in a unit-collective and combined-arms simulated battlefield environment through networked simulation training.

The Close Combat Tactical Trainer (CCTT) is the first member of a family of virtual trainers, and supports training of armor, mechanized infantry, and cavalry units, and is fully interoperable with AVCATT.

The Combat Service Support Automated Information Systems Interface (CAISI) allows combat service support (CSS) automation devices to network and electronically exchange information via tactical or commercial communications. CSS satellite communications (SATCOM) provide an easy-to-use, transportable commercial SATCOM link to extend broadband information exchange to anywhere in the world. CSS SATCOM eliminates the "sneaker net" or the often dangerous transport of re-supply or spare parts orders on floppy disks.





Important systems that will provide future enhanced capabilities include:

- Warfighter Information Network – Tactical (WIN-T), the communications network of our Future Force, is optimized for offensive and joint operations, and provides the combatant commander the capability to perform multiple missions simultaneously.
- Joint Tactical Radio System (JTRS) is a family of common, software-defined programmable radios that will become our Army's primary tactical radio for mobile communications.
- Distributed Common Ground System – Army (DCGS-A). DCGS-A is the Army component of the future Department of Defense (DOD) integrated, ground-based, ISR processing architecture composed of common hardware and software components enabling Joint, net-centric operations.
- Aerial Common Sensor (ACS). This airborne ISR system will use robust sensor-to-shooter links (such as DCGS-A ground stations) to provide commanders at every echelon the tailored, multi-sensor intelligence required for joint operations.

Future Combat Systems

The Future Combat Systems (FCS) comprises a C4ISR network and 18 manned and unmanned systems centered on the Soldier. FCS will provide our Soldiers greatly enhanced situational awareness. It will operate as a system of systems, networking existing systems, systems already under development, and systems to be developed to meet the needs of the FCS-equipped unit of action. The network will enable improved intelligence, surveillance, and reconnaissance (ISR), enhanced analytical tools, joint exchange of blue and red force tracking down to the tactical level, battle command, real time sensor-shooter linkages, and increased synergy between echelons and within small units. The Army is aggressively managing our FCS development effort and intends to achieve initial operational capability by the end of the decade.

Army Science and Technology

The Army Science and Technology (S&T) Program provides our Army superiority in both human and materiel systems to prevent technological surprise. The Army S&T program retains a dynamic portfolio of investments that are responsive to warfighter needs today and into the future. The priority for Army S&T is to pursue paradigm-shifting technologies that can alter the nature of the military competition to our advantage in the far term. In the near term, where feasible, we are exploiting opportunities to accelerate the transition of proven technology to our Current Force.

Accelerated Acquisition and Fielding

We have adapted and continue to improve our acquisition and fielding processes. In 2002, as Soldiers reported equipment shortages in Afghanistan and elsewhere, we implemented the Rapid Fielding Initiative (RFI) to ensure that all of our troops deploy with the latest available equipment. RFI now includes some 50 mission-essential items. To date, 27 brigade combat teams and 110,000 support troops have been fielded RFI equipment. Another 26 brigade combat teams are on track to be fielded.

Support from Congress has also enabled our Army to institute a Rapid Equipping Force (REF) initiative to work directly with operational commanders to find solutions to operational requirements. For example, REF established a coordinated effort to supply our forces with immediate solutions to counter Improvised Explosive Device (IED) threats. Currently, IED teams are on location providing expertise and materiel solutions to safeguard our Soldiers. We are acting aggressively to improve the armor protection of our armored and light-skinned vehicles.

RFI and REF provide timely support to the Army's relevant and ready forces and to combatant commanders, and facilitate Army transformation.

Chemical Demilitarization

The United States remains the world's leader in safely destroying stockpiled chemical weapons covered by the Chemical Weapons Convention. Late last year, we completed a significant task with the closing of the chemical weapons destruction facility at Johnston Atoll in the Pacific. Over the last decade, we successfully destroyed 4 million pounds

of nerve and blister agents configured in more than 412,000 individual items without any serious workplace incidents or releases to the environment. Today, we continue to destroy these aging, outdated weapons at three additional stockpile sites.

Conclusion

The U.S. Army was instrumental in the defeat of Saddam Hussein and the liberation of more than 46 million people, and it is a critical participant in Operation Enduring Freedom in Afghanistan and Operation Iraqi Freedom. This book presents a snapshot of the programs most important to today's Army and the Future Force.

The clear winner in successful acquisition and sustainment of weapon systems and equipment is the Soldier. We serve the Soldier. The most technologically advanced platforms are useless without the intellect, dedication, and remarkable sense of duty of the American Soldier. Adaptive, confident, and competent Soldiers, infused with the Army's values and warrior culture, fight wars and win the peace. Working with Congress, the Army will remain ready to meet today's challenges and continue to make significant strides toward the fielding of our Future Force.



2.75" Family of Rockets

Provides inexpensive air-to-ground precision fires to defeat soft and lightly armored targets (APKWS) and suppression, illumination, and direct/indirect fires to defeat area, materiel, and personnel targets (Hydra 70).



DESCRIPTION AND SPECIFICATIONS

The Advanced Precision Kill Weapon System (APKWS) and Hydra 70 comprise the family of 2.75 inch air-launched rockets employed by tri-service and special operating forces on both fixed-wing and rotary-wing aircraft. This highly modular rocket family incorporates a laser guidance section mated to a high explosive warhead for the APKWS variant, and several different mission-oriented warheads for the Hydra 70 variant, including high explosive, multipurpose submunition, red phosphorus smoke, flechette, variable illumination flare, and infrared illumination flare.

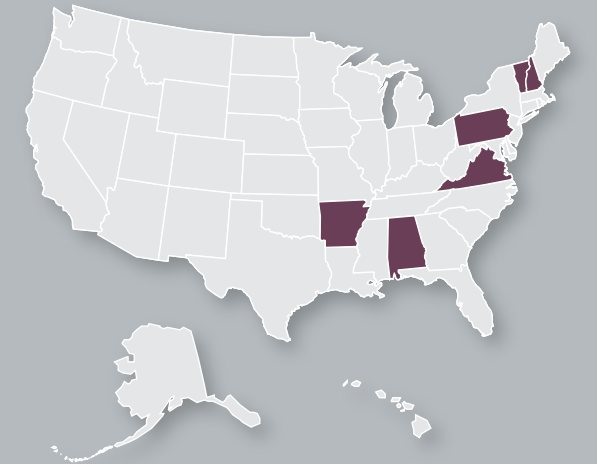
Diameter: 2.75 inches
Weight: APKWS 35 pounds, Hydra 70 23-27 pounds (depending on warhead)
Length: APKWS: 73 inches, Hydra 70 55-70 inches (depending on warhead)
Range: APKWS: 1,500-5,000 meters, Hydra 70 300-8,000 meters

PROGRAM STATUS

- **2QFY04-3QFY05** APKWS: Continue system development and demonstration (SDD) activities
- **Current** Hydra 70 fully fielded; fulfilling annual replenishment requirements for training and war reserve

PROJECTED ACTIVITIES

- **3QFY05** APKWS: Initiate low rate initial production
- **1QFY06** APKWS: Begin limited user test
- **Ongoing** Continue Hydra 70 sustainment (operations and support) activities



CONTRACTORS

Prime Systems-APKWS: General Dynamics Armament and Technical Products (GDATP) (Burlington, VT) and BAE Systems (Manchester, NH)
Hydra 70: General Dynamics Armament and Technical Products (GDATP) (Burlington, VT)
Grain: Alliant Techsystems (Radford, VA)
Warhead and rocket LAP: General Dynamics OTS (Camden, AR)
Fuzes: Action Manufacturing (Philadelphia, PA)
Fin and nozzle: General Dynamics (Anniston, AL)

INVESTMENT COMPONENT

Modernization

ACQUISITION PHASE

- System Development and Demonstration
- Operations and Support

Provides mobile, protected firepower for battlefield superiority.



DESCRIPTION AND SPECIFICATIONS

The Abrams tank modernization strategy comprises two variants, the M1A1 and M1A2, and supports the Army Campaign Plan by providing the lethality, survivability, and fightability necessary to defeat advanced threats well into the future. Abrams closes with and destroys enemy forces on the integrated battlefield using mobility, firepower, and shock effect. The 120mm main gun on the M1A1 and M1A2, combined with the powerful 1500-horsepower AGT turbine engine and special armor, make the Abrams tank particularly effective against large concentrations of heavy armor forces on a highly lethal battlefield.

Features of the M1A1 modernization program include increased armor protection, suspension improvements and a nuclear, biological, and chemical (NBC) protection system that increases survivability in a contaminated environment. An integrated applique computer, an embedded diagnostic system, a second-generation thermal sensor, and a far-target-designation capability can be incorporated on the M1A1.

The M1A2 modernization program includes a commander's independent thermal viewer, an improved commander's weapon station, position navigation equipment, distributed data and power architecture, embedded diagnostic system, and improved fire control system.

The M1A2 system enhancement program (SEP) adds second-generation thermal sensors and a thermal management system. The M1A2 SEP includes upgrades to processors/memory that enable the M1A2 to use the Army's common command and control software, enabling the rapid transfer of digital situational data and overlays.

The Abrams modernization strategy also includes the total integrated revitalization (TIGER) program, an intensive AGT 1500 engine rebuild effort consisting of engine data collection, transition of parts management to the contractor,

and implementation of commercial production practices of engine overhaul at Anniston Army Depot. The Abrams integrated management (AIM) overhaul program recapitalizes the high optempo of the M1A1 tank fleet. The Abrams parts obsolescence program tracks obsolete components to ensure the availability of spare parts and maintains a database of current parts to ensure that a complete package is intact for any new production.

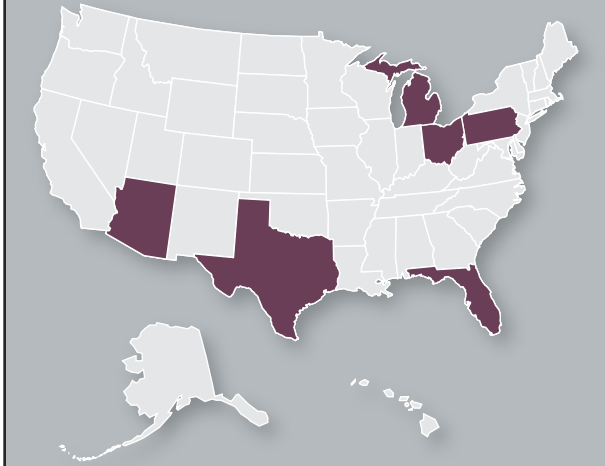
	M1/IPM1	M1A1	M1A2	M1A2 SEP
Length (feet):	32.04	32.04	32.04	32.04
Width (feet):	12.0	12.0	12.0	12.0
Height (feet):	7.79	8.0	8.0	8.0
Top speed (miles per hour):	45.0	41.5	41.5	42
Weight (tons):	61.4/62.8	67.6	68.4	69.5
Armament:	105mm	120mm	120mm	120mm
Crew:	4	4	4	4

PROGRAM STATUS

- **4QFY04** M1 to M1A2 SEP upgrade production complete
- **FY05** M1A2 to M1A2 SEP retrofit program continues for a total of 803 M1A2 SEP tanks, equipping 4th ID, 1st CAV, 3rd ACR, and the 11th ACR
- **FY99-08** AIM continues fielding to the 1st ID, 2nd ID, 1st AD, and the 3rd ID

PROJECTED ACTIVITIES

- **FY05** M1A2 SEP retrofit production continues. The Army's M1A2 SEP fleet requirement is 803 vehicles.
- **FY05** Continue fielding M1A2 SEPs to 4th ID and M1A1 AIM to the 2nd ID
- **FY05** Initiation of TIGER Phase II



CONTRACTORS

General Dynamics (Sterling Heights, MI; Warren, MI; Muskegon, MI; Scranton, PA; Lima, OH; Tallahassee, FL)
Honeywell (Phoenix, AZ)
Raytheon (McKinney, TX)

INVESTMENT COMPONENT

Recapitalization

ACQUISITION PHASE

- Production and Deployment

Advanced Field Artillery Tactical Data System (AFATDS)

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



DESCRIPTION AND SPECIFICATIONS

The Advanced Field Artillery Tactical Data System (AFATDS) performs the attack analysis necessary to determine optimal weapon-target pairing to provide automated planning, coordination, and control for maximum use of fire support assets (field artillery, mortars, close air support, naval gunfire, attack helicopters, and offensive electronic warfare).

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.

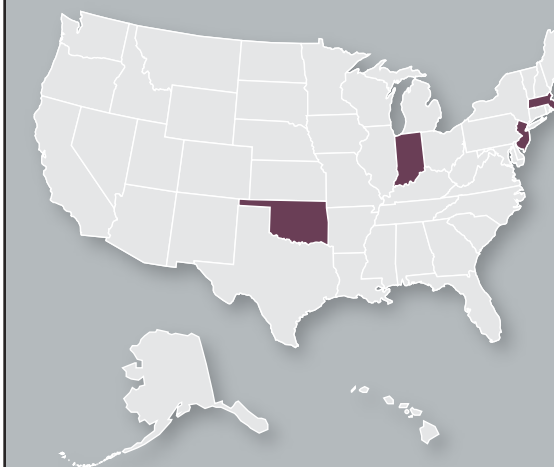
AFATDS performs the fire support command, control, and coordination requirements at all echelons of field artillery and maneuver, from echelons above corps to battery or platoon in support of all levels of conflict. The system is composed of common hardware and software employed in varying configurations at different operational facilities (or nodes) and unique system software interconnected by tactical communications in the form of a software-driven, automated network.

PROGRAM STATUS

- **2QFY04** AFATDS 6.3.2 materiel release and fielding
- **3QFY04** AFATDS 6.4 limited user test
- **1QFY05** Army Battle Command Systems 6.4 system-of-systems test

PROJECTED ACTIVITIES

- **3QFY05** AFATDS 6.4 materiel release and fielding



CONTRACTORS

Software: Raytheon (Ft. Wayne, IN)
Hardware: General Dynamics (Taunton, MA)
Technical Support: Computer Sciences Corporation (Tinton Falls, NJ)
New Equipment Training: Engineering Professional Services (Lawton, OK)
Testing: Titan Corp. (Lawton, OK)

INVESTMENT COMPONENT
Modernization

ACQUISITION PHASE
• Production and Deployment

Advanced Threat Infrared Countermeasures (ATIRCM)

Provides missile warning and electronic countermeasures against infrared guided missiles.



DESCRIPTION AND SPECIFICATIONS

The AN/ALQ-212 Advanced Threat Infrared Countermeasures (ATIRCM) is a modular system consisting of the AN/AAR-57 Common Missile Warning System (CMWS), infrared (IR) jam head, laser, electronic control unit, improved countermeasure dispenser, and improved countermeasure munitions.

CMWS is software programmable to respond to changing threats and provides automatic, passive missile detection, threat declaration, crew warning, false alarm suppression, and cues to other on-board systems, such as dispensers, which may be used for flare decoys. ATIRCM adds active, directional countermeasures via laser, arc lamp, and missile tracker.

As a modular system, the ATIRCM/CMWS can be installed in various configurations:

- With CMWS only, to provide missile warning
- With CMWS and the improved countermeasure dispenser, to decoy/defeat threat missiles
- With the laser and arc-lamp jam head, to create a complete multi-response system to defeat the full threat array

Current plans include integration and deployment of selected configurations on MH-60, MH-47, AH-64, UH-60, CH-47, C-12, RC-12, and UC-35 platforms.

System weight:

CMWS and improved countermeasure dispenser only:
55.7 pounds

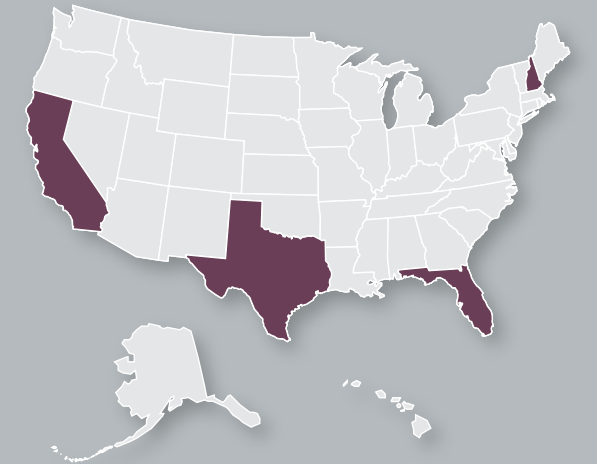
CMWS with ATIRCM: 130.1 pounds

PROGRAM STATUS

- **4QFY04** Live fire tests at Eglin Air Force Base, Florida
- **2QFY05** CMWS full rate production review

PROJECTED ACTIVITIES

- **3QFY05** ATIRCM/CMWS operational testing
- **4QFY05** Full-rate production of ATIRCM/CMWS
- **4QFY05** Special Operations Aviation ATIRCM/CMWS first unit equipped



CONTRACTORS

ATIRCM/CMWS, ICMD: BAE Systems (Nashua, NH; Austin, TX)

Laser: Northrop Grumman (Winter Haven, FL)

Tracker: Raytheon (Fullerton, CA)

INVESTMENT COMPONENT

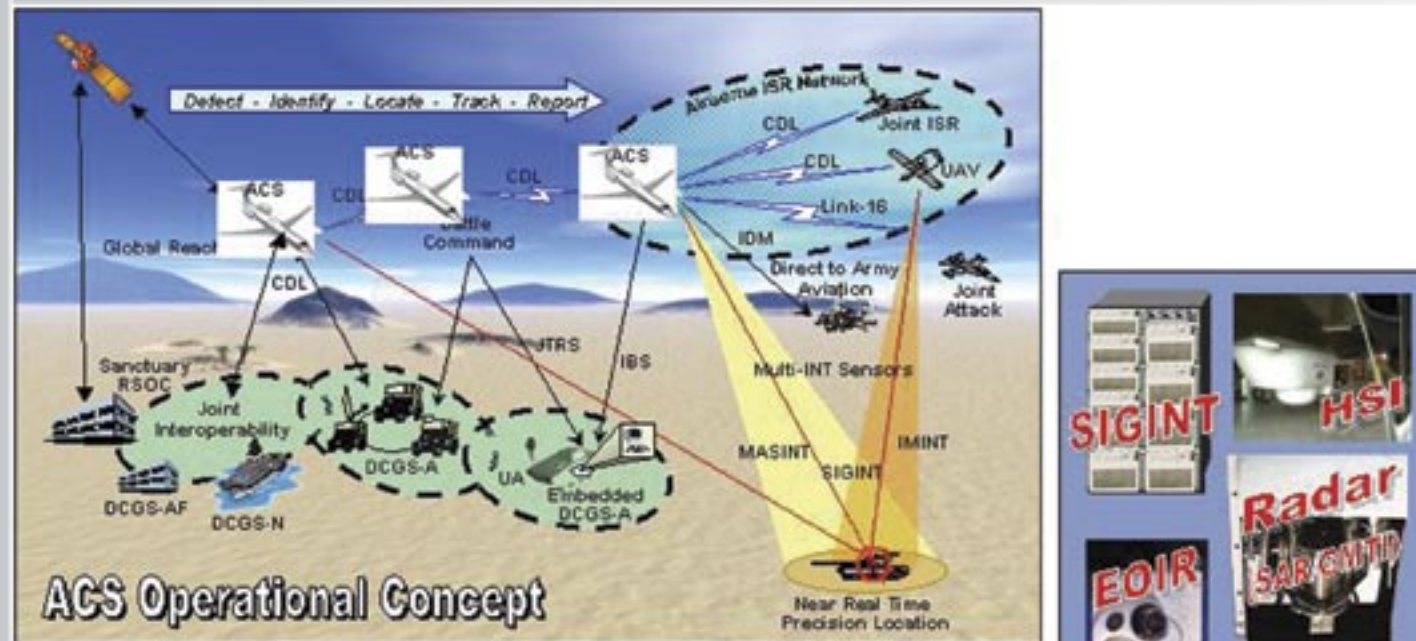
Modernization

ACQUISITION PHASE

- System Development and Demonstration

Aerial Common Sensor (ACS)

Provides commanders at every echelon tailored multi-sensor intelligence via a single, manned, airborne intelligence, surveillance, and reconnaissance system.



DESCRIPTION AND SPECIFICATIONS

Aerial Common Sensor (ACS) delivers the intelligence, surveillance, and reconnaissance (ISR) data required for dominant maneuver, precision engagement, and decision superiority by merging and enhancing the sensor capabilities of current ISR platforms, Airborne Reconnaissance Low (ARL) and Guardrail Common Sensor (GR/CS). ACS provides a larger area of coverage, supporting Future Force operational geometries and the greater lethality ranges of new weapons systems.

ACS transforms Army airborne ISR from a strategic-lift-intensive, maximum-deployment-time asset to a minimum-lift, minimal-deployment-time, global asset capable of operation immediately upon arrival into theater. Mission tailorable and scalable, this Army-led, joint Future Force airborne ISR system provides distributed, wide area, persistent surveillance and multi-intelligence precision targeting. ACS provides critical intelligence and combat information to and from the unit of employment/unit of action and the component commander via the Distributed Common Ground System (DCGS)-Army (the ground station component).

Using robust sensor-to-shooter and reachback links, ACS provides multi-sensor intelligence throughout a non-linear framework and non-contiguous battlespace providing real-time sensor-to-shooter information "in the crew seat." On-board battle command and communications relay packages ensure uninterrupted, joint integrated command, control, communications, and intelligence (C3I), fully interoperable with joint and national collectors, ground processing facilities and dissemination systems, meeting transformational, joint net-centric situational awareness requirements, as well as Army and Navy requirements for a worldwide, self-deployable single ISR system.

The ACS acquisition strategy leverages commercial and government off-the-shelf technologies into an open systems architecture, ensuring paced technology growth with Future Combat Systems (FCS) and against emerging threat capabilities while reducing total ownership cost.

ACS provides a multi-intelligence system to support warfighter requirements across the full spectrum of operations, from early/denied entry through crisis resolution, including:

- Critical precision signal intelligence (SIGINT) linkage into the Joint ISR Network
- Imagery intelligence (IMINT)
- Measurement/measuring and signature intelligence (MASINT)

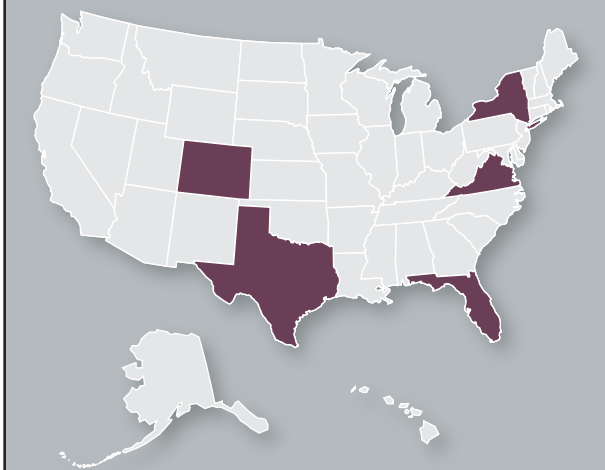
ACS will replace all five of the Army's Aerial Exploitation Battalions beginning in FY10. The Navy will replace the current EP-3 fleet with ACS beginning in 2012.

PROGRAM STATUS

- 3QFY04 Source selection
- 4QFY04 Milestone B and award of system development and demonstration (SDD) contract

PROJECTED ACTIVITIES

- 2QFY05 Preliminary design review
- 4QFY05 Critical design review



CONTRACTORS

- Lockheed Martin (Denver, CO)
- L-3 Communications (Greenville, TX)
- Harris (Palm Bay, FL)
- Argon (Fairfax, VA)
- BAE Systems (Green Lawn, NY)

INVESTMENT COMPONENT

Modernization

ACQUISITION PHASE

- System Development and Demonstration

Aerial Common Sensor (ACS)

Air Warrior (AW)

Enhances Army aircrew comfort, cockpit synergy, aircraft mission capability, and improves lethality, survivability, mobility, and sustainability through a new generation, integrated aircrew ensemble.



DESCRIPTION AND SPECIFICATIONS

Air Warrior provides advanced life support, ballistic protection, and chemical/ biological protection in a single system comprising rapidly tailorable, mission-configurable modules. Air Warrior addresses interoperability and has leveraged several joint service technology efforts to effectively integrate all functions into a single system. The system maximizes safe aircraft operation and human performance while not encumbering the aircrew. Components include:

- Microclimate cooling system
- Digital connectivity and situational awareness
- Wireless intercom
- Aircraft platform interface
- Chemical and biological protection
- Body armor
- Survival and escape and evasion tools
- Overwater survival items

Improvements to the Air Warrior system are incrementally provided via a three-phased, evolutionary acquisition program to solve equipment shortcomings:

- Block 2 Electronic Data Manager (EDM) is a miniature computer worn on the pilot's leg that provides two-way situational awareness—Blue Force Tracking plus GPS-based moving map, and digital mission planning capability to current aircraft fleet.
- Air Warrior Modular Integrated Helmet Display System (MIHDS) will be a Block 3 advanced capabilities program.

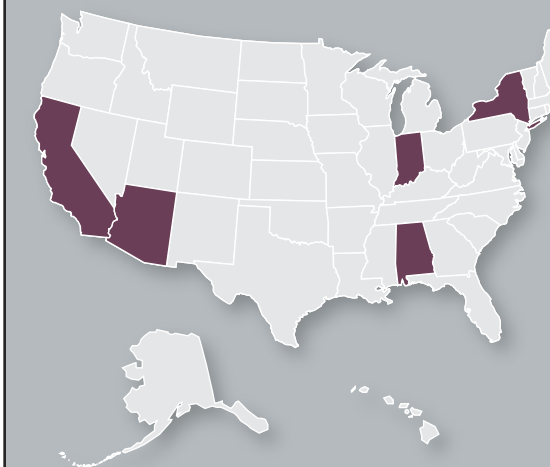
The Air Warrior system is the key ingredient to closing the performance gap that exists today between the aircrew and the aircraft. Air Warrior is answering the aviation warfighter challenges of today and tomorrow by developing affordable, responsive, deployable, versatile, lethal, survivable, and sustainable aircrew equipment.

PROGRAM STATUS

- **3QFY04** Block 1 fielding continues to deploying units
- **3QFY04** completed design and limited safety of flight qualification testing of the Spiral 2 EDM hardware and software
- **3QFY04** Initiated voice encryption for Aircraft Wireless Intercom System (AWIS) program
- **4QFY04** Completed developmental and operational testing on AWIS non-secure system
- **4QFY04** System integrator contract awarded
- **1QFY05** EDM issued to deployed units as display for Blue Force Tracking-Aviation

PROJECTED ACTIVITIES

- **2QFY05** Complete aircraft integration activities of the EDM on AH-64A, UH-60A/L, and CH-47D aircraft platforms
- **3QFY05** Perform formal developmental testing of the EDM on AH-64A, UH-60A/L and CH-47D aircraft platforms
- **1QFY06** Execute full rate production contract for the EDM



CONTRACTORS

General Dynamics (Phoenix, AZ)
 Carleton Technologies, Inc. (Orchard Park, NY)
 Simula (Phoenix, AZ)
 Raytheon (Indianapolis, IN)
 Westwind (Huntsville, AL)
 Telephonics Corp. (Farmingdale, NY)
 Secure Communications Systems, Inc. (Santa Ana, CA)

INVESTMENT COMPONENT

Modernization

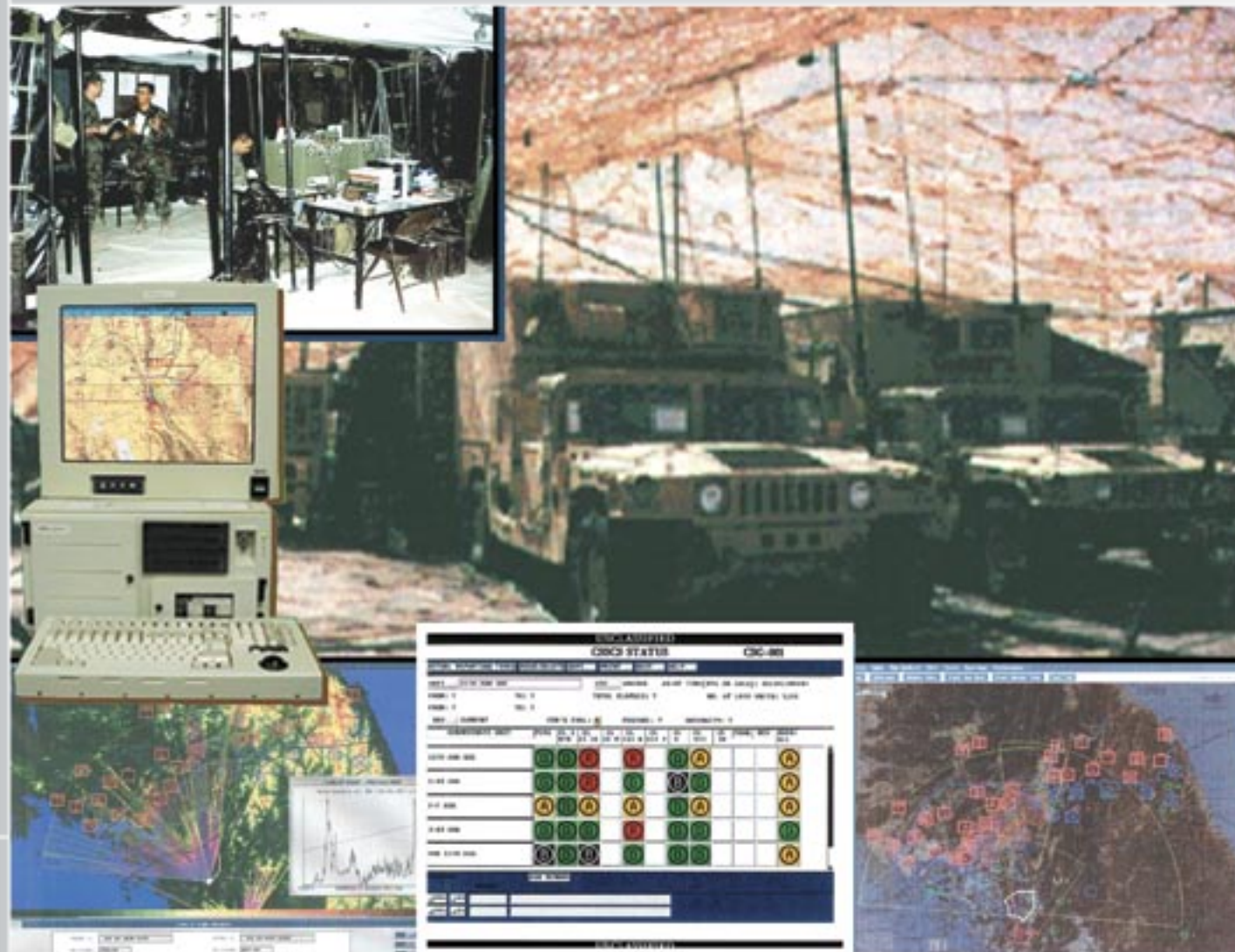
ACQUISITION PHASE

- Concept and Technology Development
- System Development and Demonstration
- Production and Deployment

Air Warrior (AW)

Air/Missile Defense Planning and Control System (AMDPCS)

Enables commanders to see the battlespace and plan for attack, and controls artillery engagements through a single, integrated system.



DESCRIPTION AND SPECIFICATIONS

The Air/Missile Defense Planning and Control System (AMDPCS) is the backbone of Army air defense. It combines a fire control system; common air and missile defense (AMD) planning; battlespace situational awareness; and joint, interoperable battle management; and command, control, communications, computers, and intelligence capability.

AMDPCS consists of sheltered systems with integrated communications equipment that provide air defense artillery brigades with a fire control system for monitoring and controlling engagement operations by subordinate battalions via the Air Defense System Integrator (ADSI).

AMDPCS provides a common air and missile defense staff planning and battlespace situational awareness tool to achieve a common tactical and operational air picture via the Air and Missile Defense Workstation (AMDWS). The AMDWS is fielded to AMD units at all echelons of command, battery through theater.

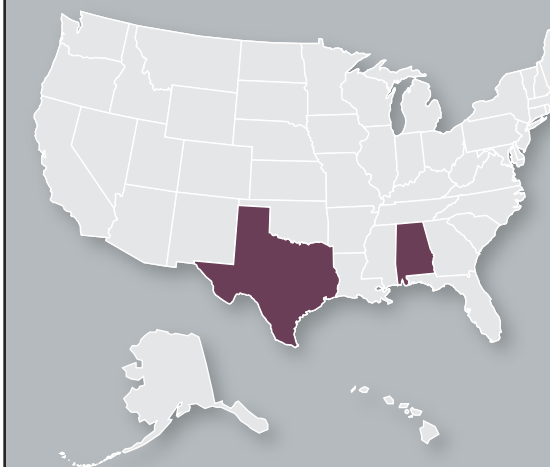
AMDPCS provides interoperability for Army AMD forces with the standard Army Battle Command Systems, providing the air situation input to the common operational picture. The AMDWS also provides interoperability with Joint Theater Air and Missile Defense (JTAMD) forces. AMDPCS enables active, passive, and attack operations coordination with the joint forces.

PROGRAM STATUS

- **3QFY04** AMDWS V6.4 delivery to central technical support facility
- **3QFY04** SBCT-3 delivery
- **4QFY04** Fielding to 2-263d South Carolina Army National Guard
- **1QFY05** Materiel release of AMDWS V6.4 and force fielding "good enough"

PROJECTED ACTIVITIES

- **3QFY05** Milestone C decision
- **4QFY05** 31st Brigade AMDPCS fielding



CONTRACTORS

Sheltered Systems: Northrop Grumman Mission Systems (Huntsville, AL)
Brown International (Huntsville, AL)
AMDWS Software: Northrop Grumman Mission Systems (Huntsville, AL)
ADSI Software and Hardware: APC (Austin, TX)

INVESTMENT COMPONENT

Modernization

ACQUISITION PHASE

- Production and Deployment

Airborne Reconnaissance Low (ARL)

Detects, locates, and reports threat activities using a variety of imagery, communications-intercept, and moving-target-indicator sensor payloads.



DESCRIPTION AND SPECIFICATIONS

The Airborne Reconnaissance Low (ARL) is a self-deploying, multi-function, day and night, all-weather reconnaissance, intelligence, echelons-above-corps asset. It consists of a modified DeHavilland DHC-7 fixed-wing aircraft equipped with communications intelligence (COMINT), imagery intelligence (IMINT), and synthetic aperture radar/moving target indicator (SAR/MTI) mission payloads. The payloads are controlled and operated via on-board open-architecture, multi-function workstations.

Intelligence collected on the ARL can be analyzed, recorded, and disseminated on the aircraft workstations in real time and/or stored on board for post-mission processing. During multi-aircraft missions, data can be shared between cooperating aircraft via ultra high frequency (UHF) air-to-air data links allowing multi-platform 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.

There are currently two configurations of the ARL system:

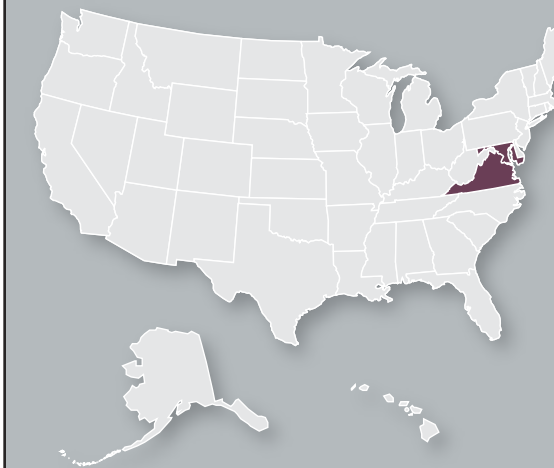
- The ARL-COMINT (ARL-C) configuration with a conventional communications intercept and direction finding (location) payload.
- The ARL-Multifunction (ARL-M) configuration equipped with a combination of IMINT, COMINT, and SAR/MTI payload and demonstrated hyperspectral imager applications and multi-INT data fusion capabilities.

PROGRAM STATUS

- **3QFY04** Government acceptance of the sixth ARL-M (M6)
- **3QFY04** Complete standardization of cockpit configurations on the two ARL-C (C1, C2) platforms
- **4QFY04** Install aircraft survivability equipment (ASE) upgrades on C1, C2, M4, and M5
- **4QFY04** Re-field M5 with upgraded COMINT capability. Eight ARL systems have been fielded to date (C1, C2, M1, M2, M3, M4, M5, and ARL-I). Two ARL-Ms and both ARL-Cs are stationed at Ft. Bliss, TX, and primarily support Southern Command requirements; three ARL-Ms provide support to PACOM (Korea); ARL-I is no longer in existence.
- **1QFY05** Field M6

PROJECTED ACTIVITIES

- **2QFY05** Complete ASE upgrades on M1, M2, M3 and M6
- **4QFY05** Field federated COMINT upgrades on M1, M2, M3, PACOM (Korea)



CONTRACTORS

Aircraft Survivability: Litton Advanced Systems (Gaithersburg, MD)
Engineering Support: CACI (Berryville, VA)

INVESTMENT COMPONENT
Modernization

ACQUISITION PHASE
• Production and Deployment

All Source Analysis System (ASAS)

Provides automated, fused, actionable intelligence to enable combat commanders to view the battlefield and effectively conduct the land battle.



DESCRIPTION AND SPECIFICATIONS

The All Source Analysis System (ASAS) receives and correlates information from national, strategic, and tactical intelligence sensors and sources. It automates sensor-to-shooter linkage by providing target nominations directly to supporting artillery units.

ASAS is a mission-critical system built on commercial laptop and desktop computers and is tactically deployable. Recently enhanced software enables units to track and link individuals, events, and organizations in stability and security operations critical to the war on terrorism and in support of Operations Iraqi and Enduring Freedom (OIF and OEF). It operates at compartmented, top-secret security levels and performs all source fusion, combining open sources with a variety of intelligence, including:

- Signals
- Counterintelligence
- Imagery
- Human
- Measurement and signature

ASAS supports all echelons and functions in all phases of military operations across the full spectrum of conflict. ASAS supports current operations and future planning, encompassing a family of systems, including:

- Compartmented all source workstation in the Analysis Control Element (ACE) found at division, corps, and echelons above corps
- Collateral Intelligence Fusion System (IFS) (formerly the Remote Workstation [RWS]) desktop configuration
- Intelligence Fusion Workstation (formerly the ASAS Light) laptop configuration, found at every echelon within the Army
- High Mobility Multipurpose Wheeled Vehicle (HMMWV)-mounted IFS with integrated

communications, Analysis Control Team-Enclave at brigade level

- Communications Control Set

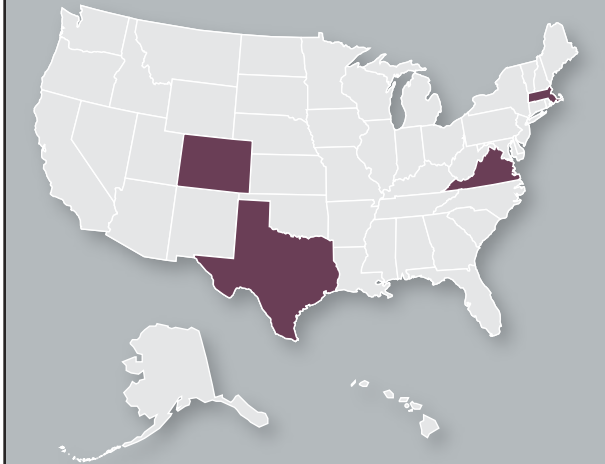
The ASAS program is a system of systems with Army Systems Acquisition Review Council permission to field by module. ASAS has modules in three acquisition phases, from development to deployment.

PROGRAM STATUS

- **1QFY05** Field Block II Intelligence Fusion workstation and apply Analysis Control Team-Enclave Modification Work Order
- **1QFY05** Apply Communications Control Set Modification Work Order IV
- **1QFY05** Conduct integration, evaluation, and testing of the Block II ACE
- **1QFY05** Field the Intelligence Fusion Workstation version 6.3 to units deploying to OIF
- **1QFY05** Field Block II ACE to 42nd ID and XVIII Airborne Corps under urgent materiel release in support of OIF

PROJECTED ACTIVITIES

- **2QFY05-1QFY06** Provide interim capabilities for intelligence fusion to DCGS-A
- **2QFY05-1QFY06** Continue fielding and training of ASAS Block II Intelligence Fusion Workstation with priority to deploying units
- **3QFY05** Apply Analysis Control Team-Enclave modification work order to replace handheld control unit-based RWS computers with Intelligence Fusion Workstation computers
- **3QFY05** Complete CCS Modification Work Order IV
- **4QFY05-1QFY06** Conduct the Block II Analysis Control Element operational test and a Milestone C review
- **1QFY06** Field Block II Analysis Control Element to first unit equipped (4th Infantry Division)



CONTRACTORS

Prime, Software Development for Analysis Control Element:

Lockheed Martin (Denver, CO)

Hardware: General Dynamics (Taunton, MA)

SETA Support: SYTEX, Inc. (McLean, VA)

Software Development for ASAS-Light:

Austin Info Systems (Austin, TX)

Fielding/Maintenance Support:

MANTECH (Killeen, TX)

INVESTMENT COMPONENT

Modernization

ACQUISITION PHASE

- System Development and Demonstration
- Production and Deployment
- Operations and Support

All Terrain Lifter Army System (ATLAS)

Provides a mobile, variable-reach, rough-terrain forklift capable of handling all classes of supply.



DESCRIPTION AND SPECIFICATIONS

The All Terrain Lifter Army System (ATLAS) is a C-130 air transportable, 10,000 pound capacity, variable-reach, rough-terrain forklift capable of stuffing/un-stuffing 20-foot International Standards Organization (ISO) containers and handling Air Force 463L pallets weighing up to 10,000 pounds. ATLAS supports units from the transportation, quartermaster, ordnance, missiles & munitions, engineer, aviation, and medical army branches. ATLAS's 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 21.5 feet reach, 6,000 pounds at 15 feet, and 10,000 pounds at 4 feet. It is equipped with two interchangeable fork carriages:

- 1) 6,000-pound carriage for stuffing and un-stuffing standard Army pallets with 24-inch load centers from 20-foot containers weighing up to 6,000 pounds
- 2) 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, which is essential to deployment of a continental U.S.-based Army and sustainment of a deployed force.

Length: 27.02 feet

Width: 8.35 feet

Height: 8.92 feet

Weight: 33,500 pounds

Power Train: 165 horsepower Cummins 6BT5.9-C165 diesel engine with Funk 1723 PowerShift (three-speed forward and reverse) mechanical transmission.

Cruising range: 10 hours of operations before refueling

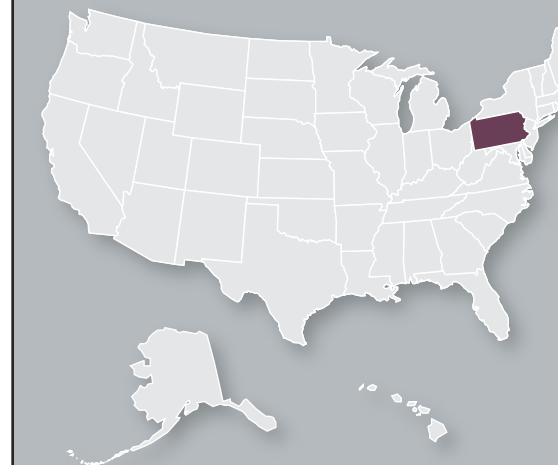
Road speed: 23 miles per hour

PROGRAM STATUS

- **4QFY04** Fielded Army prepositioned stockage (APS) cargo transfer companies in Korea and Japan
- **4QFY04** Awarded ATLAS reset contract to JLG Inc.
- **1QFY05** Fielded Afghanistan foreign military sales vehicles
- **1QFY05** Completed update of logistics support package (technical manuals, electronic technical manual, and provisioning)
- **1QFY05** Prepared Milestone C decisions package to support award of a second ATLAS production contract

PROJECTED ACTIVITIES

- **3QFY05** Complete Milestone C



CONTRACTORS

JLG Inc. (McConnellsburg, PA)

INVESTMENT COMPONENT

Modernization

ACQUISITION PHASE

- Production and Deployment

Analytical Laboratory System – System Enhancement Program (ALS-SEP)

Enables National Guard Weapons of Mass Destruction-Civil Support Teams to perform on-site analysis of unknown samples in support of first responders with a mobile laboratory.



DESCRIPTION AND SPECIFICATIONS

The Analytical Laboratory System (ALS) is a mobile analytical laboratory capable of providing the Civil Support Team (CST) a presumptive analysis for the presence of chemical, biological, or radiological contamination.

ALS is a system enhancement program (SEP) to replace the current Mobile Analytical Laboratory System and interim Dismounted Analytical Platform.

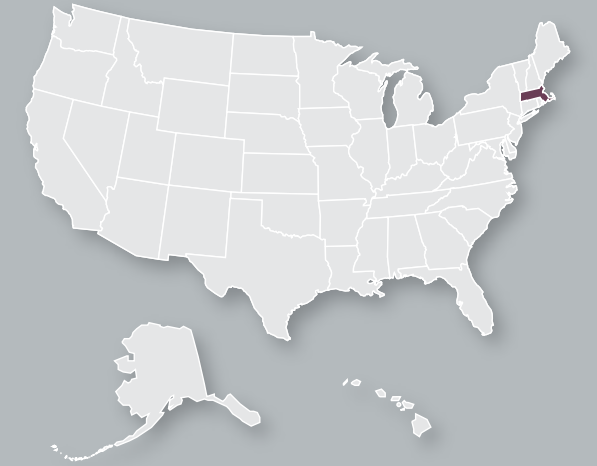
ALS provides advanced technologies with enhanced sensitivity and selectivity in the detection and identification of biological and chemical warfare agents and toxic industrial chemicals and materials.

PROGRAM STATUS

- 1QFY05 Component testing of ALS Block I
- 1QFY05 Field to Civil Support Teams

PROJECTED ACTIVITIES

- 2QFY05 Prototyping vehicle installation



CONTRACTORS

Wolf Coach, Inc., an L-3 Communications company (Auburn, MA)

INVESTMENT COMPONENT

Modernization

ACQUISITION PHASE

- Production and Deployment
- Operations and Support

Armored Security Vehicle (ASV)

Supports the entire spectrum of military police missions, as well as protects convoys in hostile areas.



DESCRIPTION AND SPECIFICATIONS

The M1117 Armored Security Vehicle (ASV) is a turreted, light armored, all-wheel drive vehicle that supports military police missions, such as rear area security, law and order operations, convoy protection, battlefield circulation, and enemy prisoner of war operations, over the entire spectrum of war and operations other than war.

ASV provides protection to the crew compartment, gunner's station, and the ammunition storage area. The turret is fully enclosed with both an MK-19 40mm grenade machine gun and a .50-caliber machine gun, and a multi-salvo smoke grenade launcher. The ASV provides ballistic protection for its four-person crew against up to .50-caliber armor-penetrating, blast protection against 12-pound mines to the wheels and 4-pound mine to the underbody, and overhead protection against 155mm artillery rounds. The ASV has a payload of 3,360 pounds and supports Army transformation with its 400 miles plus range, top speed of 70 miles per hour, and C-130 deployability.

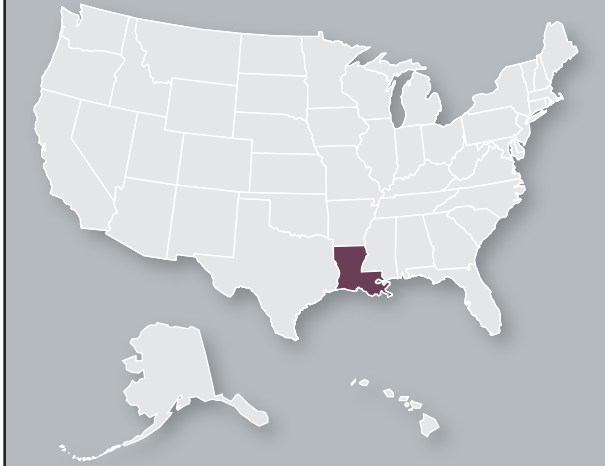
The ASV program had been scheduled for termination in FY06. However, recent combat operations in support of the War on Terror have proven the effectiveness of this system and therefore the Army has revived production to meet operational needs in theater. The ASV was recently selected by senior Army leaders as the end-state convoy protection platform, and production of the ASV is being accelerated to meet this as well as military police requirements.

PROGRAM STATUS

- **FY04–05** Continued fielding of ASV to corps support military police companies

PROJECTED ACTIVITIES

- **1QFY06** Complete current fielding



CONTRACTORS

Textron Marine and Land Systems
(New Orleans, LA)

INVESTMENT COMPONENT

Modernization

ACQUISITION PHASE

- Concept and Technology Development
- System Development and Demonstration
- Production and Deployment
- Operations and Support

Armored Security Vehicle (ASV)

Army Airborne Command and Control System (A2C2S)

Enables commanders from the brigade combat team to the unit of employment to perform battle command functions while on the move from an airborne platform through continuous situational awareness and robust communications.



DESCRIPTION AND SPECIFICATIONS

The Army's current utility helicopter, the UH-60L Black Hawk (and newer models), will host the Army Airborne Command and Control System (A2C2S). This Battle Command system will consist of two components: an A-Kit and a B-Kit. The A-Kit is permanently affixed to the airframe consisting of antennas, wiring, and aircraft interfaces (power, structural, etc.) to enable the B-Kit to be installed in the host platform. The B-Kit consists of operator positions/workstations, computer systems, and necessary communications devices to host and support the digital battle command process. Sub-components of the B-Kit include the Maneuver Commander's Environment and an integrated suite of radio communications equipment. The Maneuver Commander's Environment are those components that the system operators physically interact with during mission execution. The Multi-Processor Unit, part of the Maneuver Commander's Environment, hosts selected ABCS software programs and other software applications. Through the use of these selected Army Battle Command System programs and the Tactical Internet, commanders can access, manipulate, store, manage, and analyze situational awareness information, intelligence data, and mission plans. In addition to line-of-sight combat net radios, including Single Channel Ground Airborne Radio System, Advanced System Improvement Program, and HAVEQUICK II, A2C2S capabilities support deep operations with non-line-of-sight radios, high frequency, and Demand Assigned Multiple Access Satellite Communications.

These capabilities enable warfighters to exercise battle command of assigned and attached elements and to coordinate with adjacent, supported, and supporting forces via voice and data equipment with battlefield information processing and connectivity. As a complementary system to the Future Combat System, A2C2S is critical in the following operational roles:

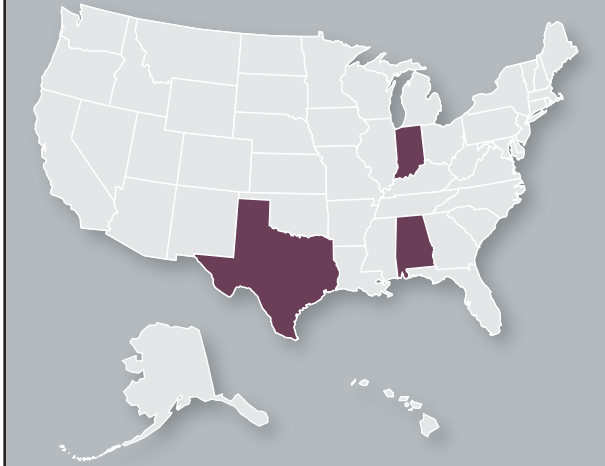
- Airborne battle command on-the-move
- Extended operations as a ground tactical command post
- Jump tactical operations center, early entry command post
- Homeland defense/first responder for national disaster relief

PROGRAM STATUS

- **4QFY04** Reset two A2C2S in support of OIF

PROJECTED ACTIVITIES

- **2QFY05** Integration of broadband satellite communications
- **4QFY05** Full rate production



CONTRACTORS

Raytheon
(Huntsville, AL; Waco, TX; Ft. Wayne, IN)
Program Support: CAS (Huntsville, AL)

INVESTMENT COMPONENT

Modernization

ACQUISITION PHASE

- Production and Deployment

Army Data Distribution System (ADDS)/Enhanced Position Location Reporting System (EPLRS)

Provides embedded situational awareness and position navigation for the warfighter using mobile, digitized, wireless data communications.



DESCRIPTION AND SPECIFICATIONS

The Enhanced Position Location Reporting System (EPLRS) supports the Army's digitized divisions and Stryker Brigade Combat Teams (SBCTs). EPLRS is the backbone of the Army's Tactical Internet, providing data distribution and position navigation services in near-real-time for the warfighter at brigade-and-below level, in support of Army Battle Command Systems (ABCS) and the Force XXI Battle Command Brigade-and-Below (FBCB2) program.

EPLRS consists of a network control station and the EPLRS radio, which can be configured as a manpack unit, a surface vehicle unit, and an airborne vehicle unit. EPLRS uses a time-division, multiple-access communications architecture to avoid transmission contention. In addition, it uses frequency hopping and error detection and correction with interleaving. Spread-spectrum technology provides jamming resistance.

EPLRS is designed to be used as a common system for the Army, Air Force, Navy, and Marine Corps. Improvements to EPLRS include message reliability, more efficient available bandwidth, and field-programmable software.

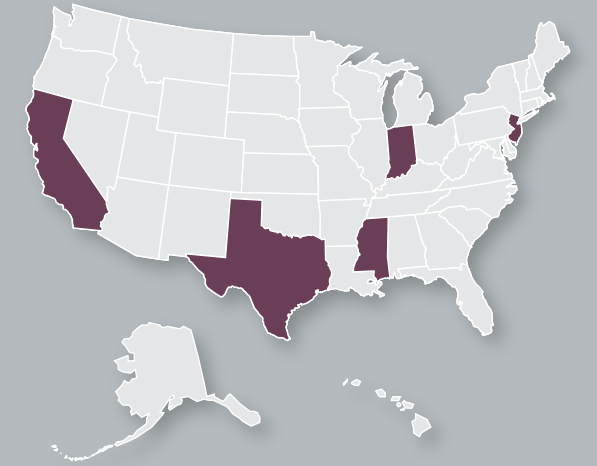
Weight: 40 pounds (vehicular, as shown);
25 pounds (manpack)

PROGRAM STATUS

- **2QFY04** Contract award for 711 EPLRS radios.
- **2QFY04** Fielding ongoing to the 3rd SBCT.

PROJECTED ACTIVITIES

- **FY05-07** Continue fielding to ARNG Air Defense Artillery Units, SBCTs 3-6, 3rd ACR, and III Corps Troops
- **FY05-07** Field EPLRS retrofit kits (increases throughput to 288 Kbps) to 1st CAV, 4th ID, and 3rd ID



CONTRACTORS

Radio Design/Production:
Raytheon (Fullerton, CA; Forest, MS;
Ft. Wayne, IN; Garland, TX)

Engineering Support: British Aerospace
Engineering (BAE) Systems
(West Long Branch, NJ)

Fielding: Innolog (Wall Township, NJ)
Engineering Professional Services (EPS)
(Shrewsbury, NJ)

INVESTMENT COMPONENT
Modernization

ACQUISITION PHASE
• Production and Deployment

Army Key Management System (AKMS)

Provides planners and operators with automated, secure communications at both the theater/tactical and strategic/sustaining base levels.



DESCRIPTION AND SPECIFICATIONS

The Army Key Management System (AKMS) automates the functions of communications security (COMSEC) key management control and distribution, electronic counter-countermeasures generation and distribution, and signal operating instructions management. AKMS will electronically generate and distribute Army key, thereby limiting adversarial access to and reducing vulnerability of Army command, control, communications, computers, and intelligence systems.

AKMS is made up of three vital elements:

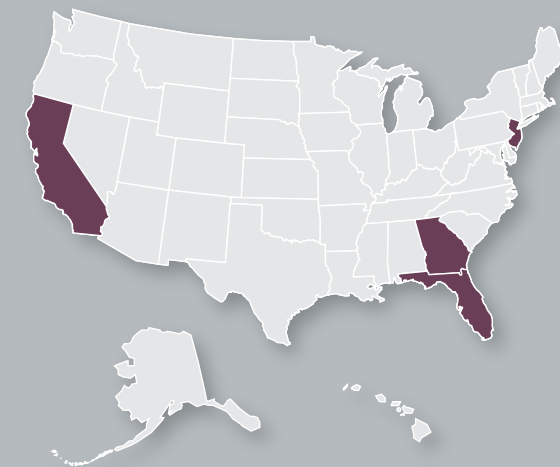
1. Local COMSEC management software (LCMS), which performs COMSEC accounting and electronic key generation and distribution.
2. Automated Communications Engineering Software (ACES), which is the frequency management portion of AKMS and will be designated by the Military Communications Electronics Board as the joint standard for use by all services in development of frequency management and cryptographic net planning. ACES will replace the legacy Revised Battlefield Electronic Communications-Electronic Operating Instructions System (RBECS) and will become the joint electronic interface to all spectrum management, Integrated System Control, Spectrum XXI, RBECS, Operational Tasking Command, Air Tasking Order (ATO), and Space ATO workstations.
3. The Simple Key Loader, which replaces the Data Transfer Device. The small design allows easy key transfers and provides the interface between LCMS, ACES, and End Crypto Units.

PROGRAM STATUS

- 3QFY04 LCMS Tier 1 initial operational capability
- 3QFY04 ACES V1.6 Block 2I

PROJECTED ACTIVITIES

- 3QFY05 Completion of ACES fieldings
- 3QFY05 Simple Key Loader initial operational capability



CONTRACTORS

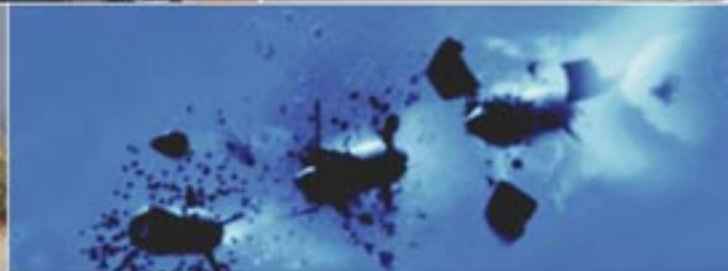
Software:
 SAIC (San Diego, CA)
 Information Systems Support, Inc. (Tinton Falls, NJ)
 Inter4 (San Francisco, CA)
 Sypris (Tampa, FL)
 CSS (Augusta, GA)

INVESTMENT COMPONENT
 Modernization

ACQUISITION PHASE
 • Production and Deployment

Army Tactical Missile System (ATACMS)

Delays and disrupts threat forces and long-range weapons with long-range, surface-to-surface fire support before these threats can influence the close battle.



DESCRIPTION AND SPECIFICATIONS

The Army Tactical Missile System (ATACMS) is the Army's only long-range, all-weather, fire support weapon system. The ATACMS missile is fired from the M270A1 Multiple Launch Rocket System (MLRS) launcher and the High Mobility Artillery Rocket System (HIMARS) to engage targets at ranges well beyond the capability of existing cannons and rockets.

- ATACMS Block 1 Range: Approximately 165 kilometers
- ATACMS Block IA Range: Approximately 300 kilometers

Blocks I and IA are ground-launched missile systems consisting of a surface-to-surface guided missile with an anti-personnel/anti-materiel (APAM) warhead. The ATACMS with APAM attacks soft targets at extended ranges. Targets include:

- Surface-to-surface missile sites
- Site defense systems
- Logistics elements
- Command, control, and communications complexes

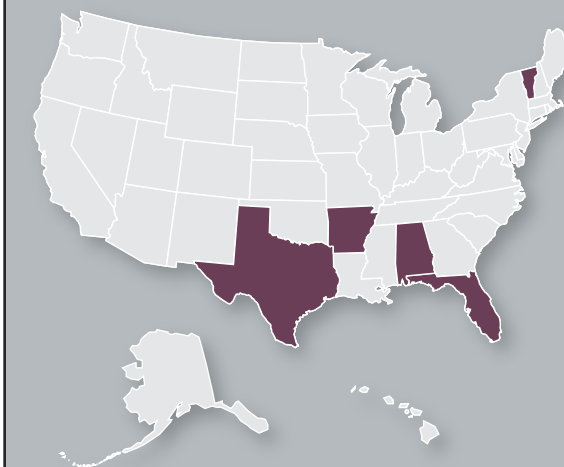
The ATACMS Quick Reaction Unitary (QRU) engages point targets with minimal collateral damage, at ranges comparable to the ATACMS Block IA.

PROGRAM STATUS

- **4QFY04** Complete deliveries of ATACMS Block IA foreign military sale to Korea
- **1QFY05** Begin deliveries of ATACMS QRU missiles from FY03 Operation Iraqi Freedom supplemental

PROJECTED ACTIVITIES

- **2QFY05** Award ATACMS QRU contract
- **2QFY05** Take deliveries of ATACMS QRU missiles



CONTRACTORS

Prime: Lockheed Martin (Dallas, TX; Horizon City, TX)
PM Support: Southeastern Testing Association (SETA) (Huntsville, AL)
Guidance Section/Improved Guidance Section: General Electric (Clearwater, FL)
 Aerojet (Camden, AR)
Control Actuator Section: BF Goodrich (Vergennes, VT)

INVESTMENT COMPONENT
 Modernization

ACQUISITION PHASE
 • Production and Deployment

Artillery Ammunition

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



DESCRIPTION AND SPECIFICATIONS

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 on the base. Fuzed 105mm projectiles are issued in a package containing the fuze, projectile, propellant, and primer. Unfuzed 105mm projectiles are issued in a package containing the projectile, propellant, and primer. The fuze is issued separately.

Separate-loading ammunition, used in 155mm howitzers, has separately issued projectiles, fuzes, propellants, and primers, which are loaded into the cannon separately.

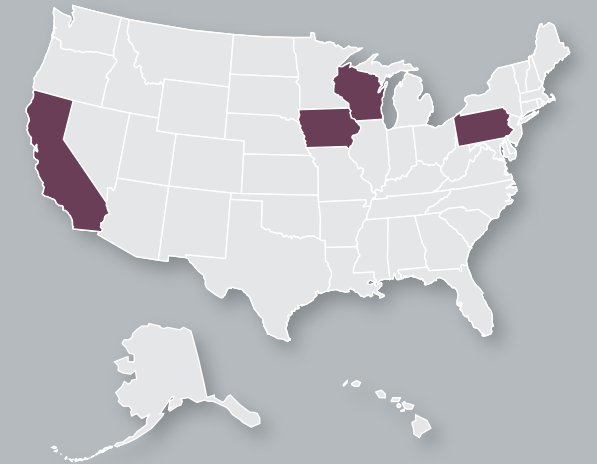
The artillery ammunition program includes fuzes for cargo-carrying projectiles, such as smoke, illumination, dual purpose improved conventional munitions (DPICM), and bursting projectiles, such as high explosive. This program also includes bag propellant for the 105mm semi-fixed projectiles and modular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

PROGRAM STATUS

- **Current** Production and fielding

PROJECTED ACTIVITIES

- **FY05** M915 105mm DPICM begin low-rate initial production
- **FY05** MACS M232A1 high zone optimized for the 155mm/.39-caliber howitzer-type classification



CONTRACTORS

Chamberlain (Scranton, PA)
 SNC Technologies (LeGardeur, Canada)
 American Ordnance (Middletown, IA)
 Alliant Techsystems (Janesville, WI)
 Armtec Defense (Palm Springs, CA)

INVESTMENT COMPONENT

Modernization

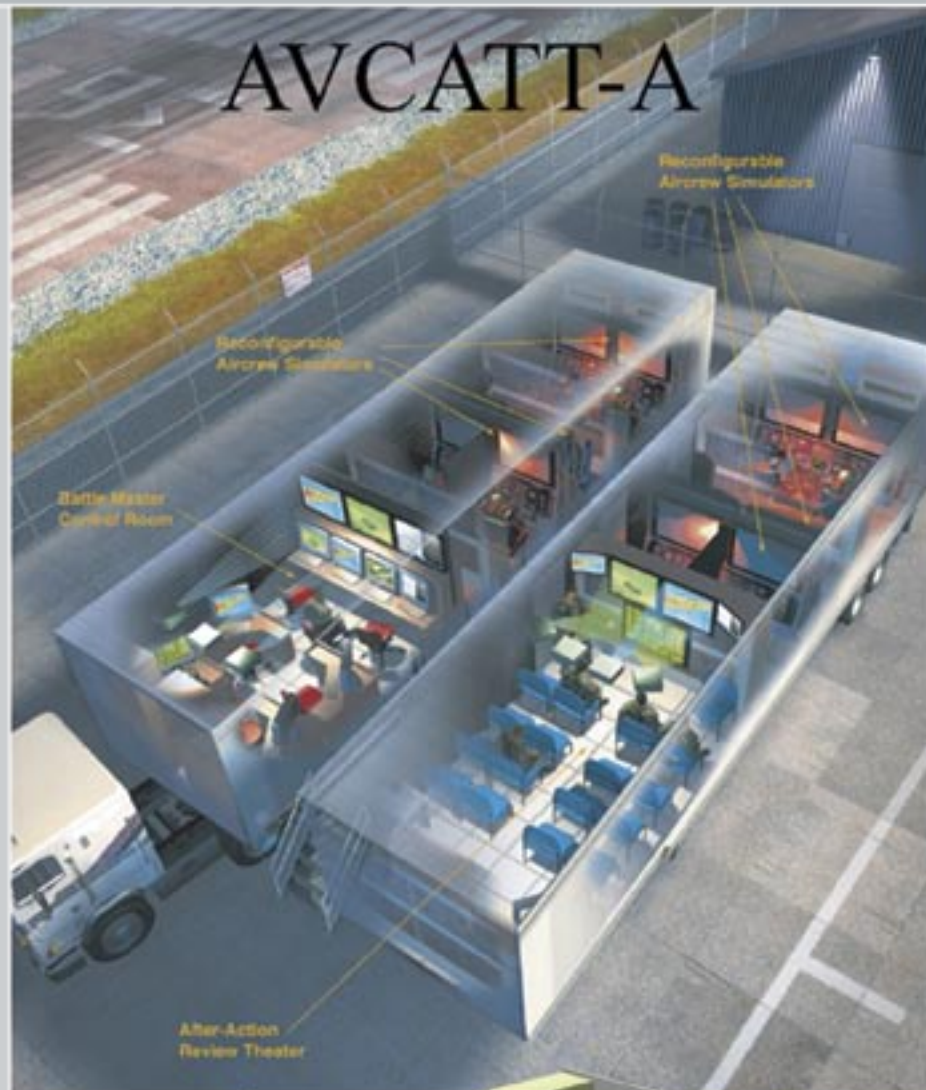
ACQUISITION PHASE

- Production and Deployment

Aviation Combined Arms Tactical Trainer-ARMS (AVCATT-A)

Enables Army aviation units to rehearse and participate in a unit-collective and combined-arms simulated battlefield environment through networked simulation training.

2 Trailer Suite



AVCATT-AAR



AVCATT-BMC

DESCRIPTION AND SPECIFICATIONS

The Aviation Combined Arms Tactical Trainer-Aviation Reconfigurable Manned Simulator (AVCATT-A) is a dynamic, alternative instructional concept that meets institutional, organizational, and sustainment aviation training requirements for Active and Reserve Army aviation units worldwide in combined arms collective training and mission rehearsal.

AVCATT-A is a critical element of the Combined Arms Training Strategy. AVCATT-A will be distributive interactive simulation-compliant, and compatible and interoperable with other synthetic environment systems.

Elements that are present on the modern, high-intensity battlefield, such as the combat support and combat service support elements, are an integral part of the simulation database. AVCATT-A is designed to provide realistic, high-intensity collective and combined arms training to aviation units, including but not limited to the following core tasks:

- Armed reconnaissance (area, zone, route)
- Deliberate attack
- Covering force operations
- Downed aircrew recovery operations
- Joint air attack team
- Hasty attack
- Air assault operations

The AVCATT-A single suite of equipment consists of two mobile trailers housing six reconfigurable networked simulators that currently support the Apache, Apache Longbow, Kiowa Warrior, Chinook, and Blackhawk. AVCATT-A supports role-player and semi-automated blue and opposing forces. An after-action-review theater is also provided as part of each suite.

AVCATT-A is fully mobile, capable of using commercial and generator power, and is transportable worldwide. The AVCATT-A system

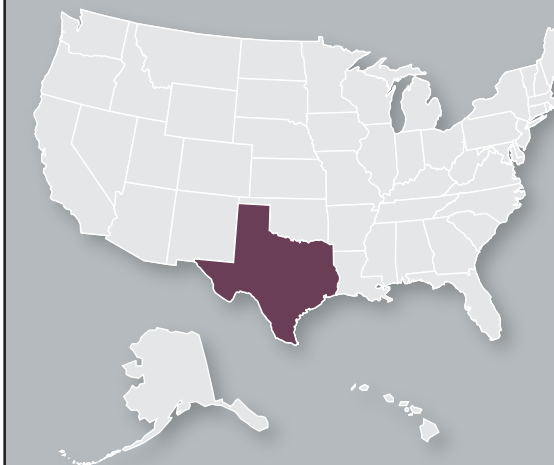
will permit various aviation units to conduct collective task training on a real-time, computerized battlefield in a combined arms scenario.

PROGRAM STATUS

- **1QFY04** First unit equipped
- **1QFY04** Full-rate production decision
- **4QFY04** Fielding of first six suites complete; includes support to Army National Guard as well as U.S. forces in Germany and Korea.

PROJECTED ACTIVITIES

- **2QFY05** Begin Longbow Block II concurrency upgrade
- **3QFY05** Enhanced terrain databases for Iraq and Afghanistan available for aircrew training.
- **3QFY05** Kiowa Warrior aircraft concurrency upgrade/Control and Display System 4 (CDS4).



CONTRACTORS

L-3 Communications (Arlington, TX)

INVESTMENT COMPONENT

Modernization

ACQUISITION PHASE

- Production and Deployment

Battle Command Sustainment Support System (BCS3)

Provides current, map-based information in a user-friendly operating environment for logistics decision support systems for warfighters on the battlefield.



DESCRIPTION AND SPECIFICATIONS

The Battle Command Sustainment Support System (BCS3) is the Army's award-winning maneuver sustainment command and control system. It is a critical component of the Army Campaign Plan to connect logisticians by allowing them to see and track information from factory to foxhole.

BCS3 integrates situational awareness of key combat service support mission areas, including arming the force and fueling. BCS3 also provides movement planning and de-confliction of convoys and monitors movement of personnel, equipment, and supplies equipped with satellite-based tracking systems.

BCS3 uses a commercial, off-the-shelf software technology insertion created by merging the best of previous and current system functionality. Using a six-pound, commercial Windows-based laptop, Soldiers and logisticians can visualize items throughout the supply chain. With its map-based display, BCS3 allows users to project supplies for different scenarios and moves data seamlessly from unclassified to classified networks in a National Security Agency-certified manner.

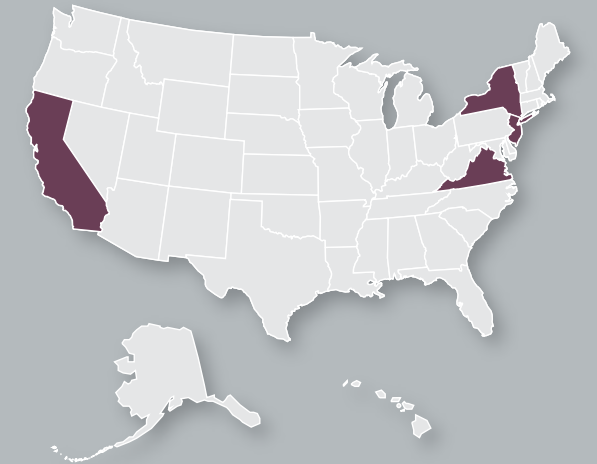
Commanders can now see the logistical situation and plan, rehearse, train, and execute on a single system. Its network-centric architecture meets the full spectrum of operations at echelons brigade and above. BCS3 interfaces with the Army Battle Command System battlefield functional areas, as well as external higher and lower command and control systems. It also integrates with management information systems for personnel, supply, and transportation at all echelons.

PROGRAM STATUS

- **3QFY04** BCS3 system integration, testing, and fielding of initial version
- **1QFY05** Initial BCS3 version fielded to Operation Iraqi Freedom units

PROJECTED ACTIVITIES

- **2QFY05** Fielding to 2nd Marine Expeditionary Force
- **3QFY05** BCS3 (ABCS 6.4 version) operational assessment



CONTRACTORS

Software:

Tapestry Solutions (San Diego, CA)
Northrop Grumman Corporation (Carson, CA)

Hardware:

I-Gov (McLean, VA)
IBM (Armonk, NY)

Technical/Program Support:

CherryRoad Technologies (Vienna, VA)
L-3 Communications (Chantilly, VA)
The Wexford Group Int'l. (Vienna, VA)

New Equipment Training:

Lockheed Martin (Tinton Falls, NJ)

Testing:

CherryRoad Technologies (Vienna, VA)
Tapestry Solutions (San Diego, CA)
Northrop Grumman Corporation (Carson, VA)

INVESTMENT COMPONENT

Modernization

ACQUISITION PHASE

- Production and Deployment

Biological Vaccine Program – Anthrax Vaccine Adsorbed (AVA)

Protects warfighters and enhances their ability to operate in a biological warfare environment through the development, testing, licensure, production, and storage of anthrax vaccine.



DESCRIPTION AND SPECIFICATIONS

The Anthrax Vaccine Adsorbed (AVA) production program is the only U.S. Food and Drug Administration-licensed vaccine available for protection against anthrax. Immunization will protect each Soldier against anthrax exposure, thereby allowing commanders to continue operations in a biological warfare environment.

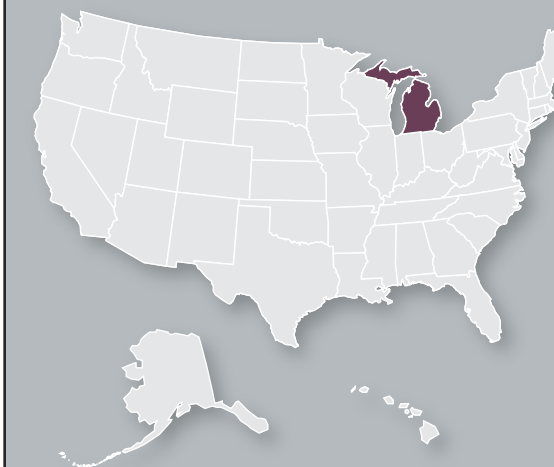
Total immunization protection requires a six-shot regimen over 18 months.

PROGRAM STATUS

- **Current** Production to meet Department of Defense (DOD) anthrax vaccine immunization program requirements
- **4QFY04** BioPort indemnified for new contract

PROJECTED ACTIVITIES

- **Ongoing** Continue producing AVA vaccine to meet expanded DOD requirements



CONTRACTORS

BioPort Corporation (Lansing, MI)

INVESTMENT COMPONENT

Modernization

ACQUISITION PHASE

- Production and Deployment

Biological Vaccine Program – Anthrax Vaccine Adsorbed (AVA)



Black Hawk

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



DESCRIPTION AND SPECIFICATIONS

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 three basic versions of the UH-60: the original UH-60A, the current UH-60L, which has greater gross weight capability, higher cruise speed, rate of climb and external load, and the UH-60M, which, among other improvements, includes the improved GE-701D engine, which provides higher cruise speed, rate of climb, and internal load than the UH-60A and L versions.

On the asymmetric battlefield, the Black Hawk provides the commander the agility 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 protect crew and passengers by crushing progressively on impact.

The Army has put into place programs to extend the life of the UH-60, by providing it with the capabilities needed on the future battlefield. The UH-60M program will incorporate a digitized cockpit and improved handling characteristics, and will extend the service life of the system. The UH-60A recapitalization/rebuild program will be applied to a number of older aircraft while awaiting introduction of the UH-60M aircraft into the fleet, and will gain immediate reliability improvements and slow the fleet aging process.

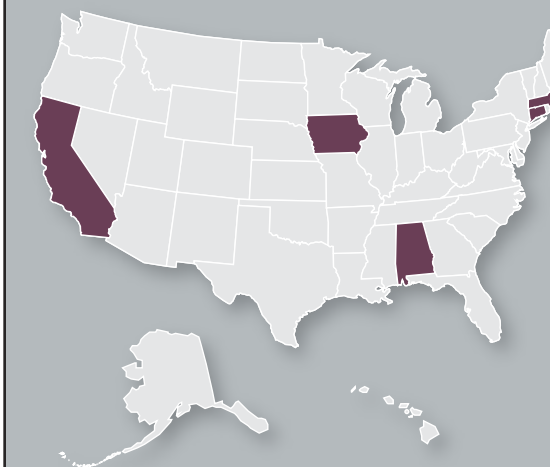
	UH-60A	UH-60L	UH-60M
Max gross weight: (pounds)	20,250	22,000	22,000
Cruise speed: (knots)	149	150	152
Rate climb (feet per minute):	814	1,315	1,646
Engines (2 each):	GE-700	GE-701C	GE-701D
External load: (pounds)	8,000	9,000	9,000
Internal load: (troops/pounds)	11/2,640	11/2,640	11/3,190
Crew:	Two pilots, two crew chiefs		
Armament:	Two 7.62mm machine guns		

PROGRAM STATUS

- **3QFY04** Limited user test to provide test data for Milestone C production decision

PROJECTED ACTIVITIES

- **2QFY05** UH-60M Milestone C production decision, Defense Advisory Board
- **2QFY05** Award low-rate initial production contract



CONTRACTORS

United Technologies (Stratford, CT)
 General Electric (Lynn, MA)
 GNK Westland (Tallahassee, AL)
 Rockwell Collins (Cedar Rapids, IA)
 Parker Hannifin (Irvine, CA)

INVESTMENT COMPONENT

Recapitalization

ACQUISITION PHASE

- System Development and Demonstration
- Production and Deployment
- Operations and Support

Bradley Upgrade

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 AND SPECIFICATIONS

The Bradley M2A3 Infantry/M3A3 Cavalry Fighting Vehicle (IFV/CFV) features two second-generation, forward-looking infrared (FLIR) sensors in the Improved Bradley Acquisition Subsystem (IBAS), and the Commander's Independent Viewer (CIV) provides "hunter-killer target handoff" capability with ballistic fire control system. Bradley also includes 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 situational awareness. Bradley's position navigation with Global Positioning System, inertial navigation, and enhanced squad situational awareness includes a squad leader display integrated into vehicle digital images and IC3.

Length: 21.5 feet

Width: 10.75 feet without armor tiles; 11.83 feet with armor tiles

Height: 11.8 feet

Weight: 67,000 pounds combat loaded; 72,000 pounds with armor tiles

Power train: 600 hp Cummins VTA-903T diesel engine with GM-Allison HMPT-500-3EC hydro-mechanical automatic transmission

Cruising range: 250 miles

Road speed: 38 mph

Crew: M2A3: 10 (3 crew; 7 dismounts); M3A3: 5 (3 crew; 2 dismounts)

Vehicle armament: 25mm Bushmaster cannon; TOW II missile system; 7.62mm M240C machine gun

Current models/variants:

- Bradley M2/M3 A0, A2, A2 Operation Desert Storm (ODS)
- A2 ODS-E (Engineer Vehicle) Operation Iraqi Freedom (OIF)
- A3 IFV/CFVs, Bradley Commander's Vehicle (BCV)

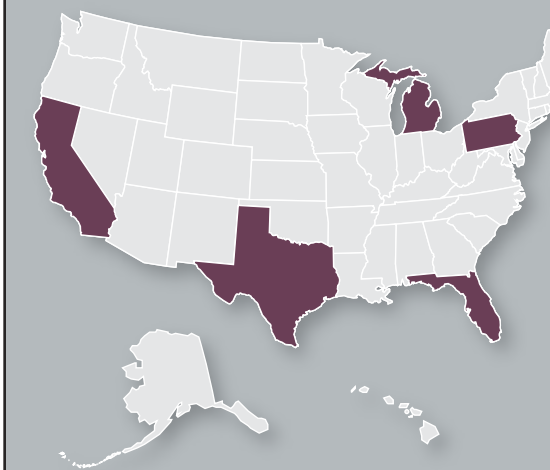
- M7 ODS
- A3 Bradley Fire Support Team (BFIST)
- M6 Bradley Linebacker
- MANPADS Under Armor (MUA)

PROGRAM STATUS

- **Current** Fieldings to the 1st Cavalry Division and the 4th Infantry Division (ongoing). The 3rd Armored Cavalry Regiment will be issued M3A2 OIF with second generation FLIR and FBCB2
- **Current** Bradley A2 to A2 ODS modification for the active Army continues; conversion of Bradley A0 to A2 ODS for the Army National Guard (ARNG); A2 to A3 remanufacture effort; A3 in full-rate production
- **1QFY03** Bradley A3 fielded to the 1st Cavalry Division
- **2QFY03** Awarded the last year of the A3 multi-year contract
- **FY03** Continued modification of Bradley A2s to A2 ODS and fielding for the Army National Guard
- **FY03** Continued A3 fielding to 1st Cavalry Division
- **FY04** Quantity of A3s reduced from 1,037 to 595 during the FY04-09 POM
- **FY04** Purchase M3A2 OIF variant for the 3rd ACR

PROJECTED ACTIVITIES

- **FY05** Continued life cycle support for the war on terrorism



CONTRACTORS

United Defense, LP (San Jose, CA; Fayette, PA; York, PA)
Raytheon (McKinney, TX)
DRS Technologies (Palm Bay, FL)
EFW (Ft. Worth, TX)
General Dynamics (Tallahassee, FL; Muskegon, MI)

INVESTMENT COMPONENT

Recapitalization

ACQUISITION PHASE

- Production and Deployment
- Operations and Support

Chemical Biological Protective Shelter (CBPS)

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 hardened facility.



DESCRIPTION AND SPECIFICATIONS

The Chemical Biological Protective Shelter (CBPS) is a highly-mobile, self-contained system designed to replace the M51 Collective Protection Shelter. CBPS consists of a Lightweight Multi-purpose Shelter (LMS) mounted on an expanded capacity variant (ECV) High Mobility Multi-Purpose Wheeled Vehicle (HMMWV) and a 300-square-foot, airbeam-supported soft shelter. CBPS provides a contamination-free, environmentally-controlled working area for medical, combat service, and combat service support personnel to obtain relief from the need to wear chemical-biological 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 of the LMS by a towed high-mobility trailer.

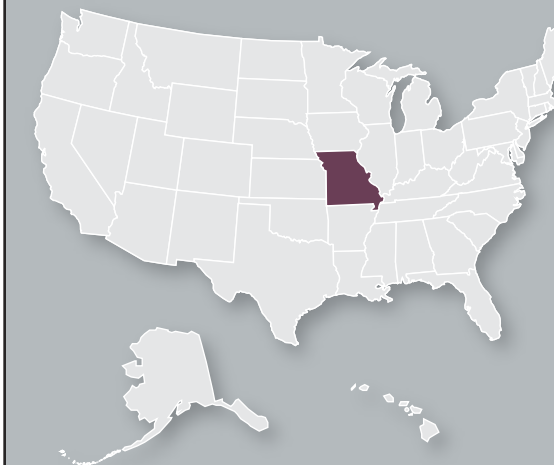
CBPS will be assigned to the trauma treatment teams/squads of the maneuver battalions, the medical companies of the forward and division support battalions, non-divisional medical treatment teams/squads, division and corps medical companies, and the forward surgical teams.

PROGRAM STATUS

- **1QFY04** An integrated product team was formed to develop a non-hydraulic engineering change to eliminate the hydraulic system that powers the environmental support system.

PROJECTED ACTIVITIES

- **FY05** Field systems
- **FY06** Procure and field with new competitive contract
- **4QFY11** Production complete



CONTRACTORS

Engineering Air Systems, Inc. (St Louis, MO)

INVESTMENT COMPONENT

Modernization

ACQUISITION PHASE

- Operations and Support

Chemical Demilitarization

Safely destroys all chemical warfare and related materiel, while ensuring maximum protection for the public, workers, and environment.



DESCRIPTION AND SPECIFICATIONS

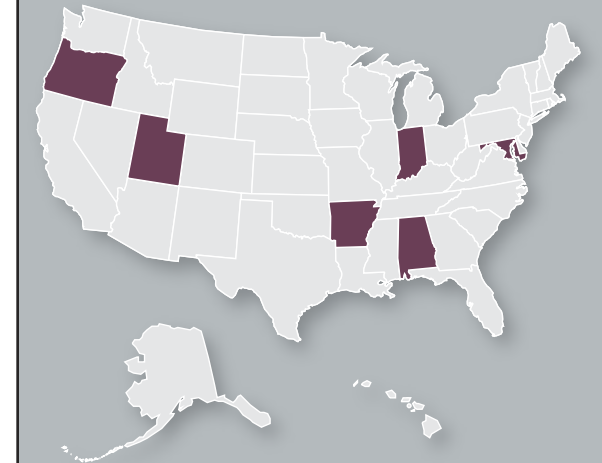
The Chemical Materials Agency (CMA) is responsible for the destruction of chemical agents and munitions; disposal facility design, construction, systemization, operations, and closure except at the stockpiles in Colorado and Kentucky; and emergency preparedness activities at chemical weapons storage depots. CMA is also responsible for disposal of binary chemical munitions and non-stockpile chemical materiel; destruction of former chemical weapons production facilities; assessment and destruction of recovered chemical materiel; and provision of all Department of Defense-approved support to international chemical demilitarization programs.

PROGRAM STATUS

- **4QFY04** Destroyed 50 percent of stockpile at Tooele, UT.
- **4QFY04** Began chemical agent disposal operations at Umatilla, OR.
- **4QFY04** Safely destroyed approximately 31 percent of the original U.S. chemical agent stockpile.
- **4QFY04** Explosive Destruction System completed destruction of all H (mustard) and G (nerve). Recovered chemical warfare materiel at Dugway Proving Ground, UT.
- **1QFY05** Explosive Destruction System destroyed H (mustard) munitions at Dover AFB, DE.
- **1QFY05** Chemical disposal facility at Newport, IN ready to begin agent destruction operations.

PROJECTED ACTIVITIES

- **2QFY05** Complete destruction of the chemical agent at Aberdeen, MD.
- **2QFY05** Complete Pine Bluff Binary Destruction Facility construction and process equipment installation.
- **2QFY05** Begin chemical agent disposal operations at Pine Bluff, AR.
- **2QFY05** Begin Rapid Response System operations at Pine Bluff Arsenal, AR.
- **2QFY05** Deploy Explosive Destruction System to support start of munitions assessment operations at Pine Bluff Munitions Assessment System.



CONTRACTORS

- EG&G (Tooele, UT)
- Washington Demilitarization Company (Umatilla, OR; Pine Bluff, AR)
- Washington Group International (Anniston, AL)
- Parsons Infrastructure & Technology (Newport, IN)
- Bechtel Aberdeen (Edgewood, MD)

INVESTMENT COMPONENT

Modernization

ACQUISITION PHASE

- Operations and Support

Transports ground forces, supplies, ammunition, and other battle-critical cargo in support of worldwide combat and contingency operations.



DESCRIPTION AND SPECIFICATIONS

As the Army's only Future Force heavy-lift helicopter capable of intra-theater cargo movement of payloads up to 16,000 pounds in a high, hot environment, the CH-47 Chinook/Improved Cargo Helicopter (CH-47F) is an essential component of the Army vision. The CH-47F program includes the remanufacture of all CH-47Ds in the current fleet and a production line of new build aircraft to meet the total Chinook fielding requirement. The major systems upgrades include the installation of a new, fully digitized cockpit, all-new airframe components and vibration reduction structural changes in the cockpit section. The remanufactured CH-47F will also include full recapitalization of all major dynamic components to bring them to near-zero hours. Additionally, the program will remanufacture the Army's MH-47D/E fleet to the MH-47G configuration.

The CH-47F Common Avionics Architecture System (CAAS) digital cockpit will provide future growth potential and include a digital data bus that permits installation of enhanced communications and navigation equipment for improved situational awareness, mission performance, and survivability. New airframe structural components and modifications will reduce harmful vibrations, improving operation, support efficiency, and crew endurance. Other airframe modifications reduce by approximately 60 percent the time required for aircraft tear down and build-up after C-5/C-17 deployment. These modifications significantly enhance the Chinook's strategic deployment capability.

The CH-47F program will incorporate the more powerful and reliable T55-GA-714A engine and extended range fuel system currently being fielded to the CH-47D fleet. The T55-GA-714A engine improves fuel efficiency and enhances lift performance by approximately 3,900 pounds. An improved, crashworthy, extended range fuel system

will enable Chinook self-deployment and extend its operational radius. A program is also underway to reduce operation and support costs through the development of a low-maintenance rotor hub.

- Max gross weight:** 50,000 pounds
- Max cruise speed:** 170 knots/184 miles per hour
- 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, co-pilot, and flight engineer)

PROGRAM STATUS

CH-47F:

- **3QFY04** First low rate initial production CH-47F delivered
- **1QFY05** Full rate production decision

T55-GA-714A Engine:

- **4QFY04** Depot maintenance work requirement verification completed (DMWR)
- **4QFY04** Total of 230 CH-47D aircraft converted (over 50 percent complete)

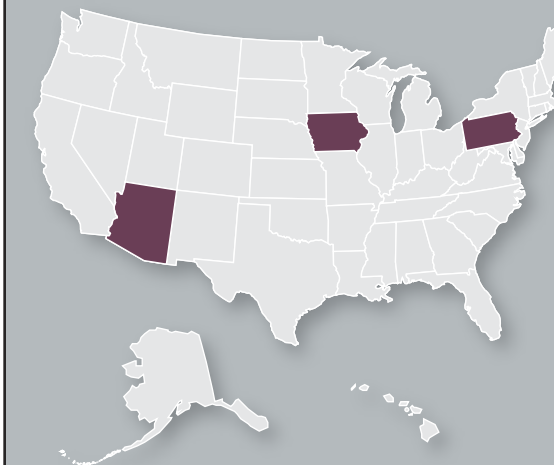
PROJECTED ACTIVITIES

CH-47F:

- **2QFY05** Full rate production lot 3 contract award
- **3QFY05** First flight CH-47F CAAS
- **3QFY06** Initial operational test phase II
- **1QFY07** Initial operational test phase III
- **3QFY07** First unit equipped

T55-GA-714A Engine:

- **3QFY05** Final DMWR delivered
- **4QFY05** Projected total of 280 CH-47D aircraft converted (approximately 65 percent complete)
- **2QFY08** Scheduled completion



CONTRACTORS

- Aircraft:** Boeing (Philadelphia, PA)
- Cockpit Upgrade:** Rockwell Collins (Cedar Rapids, IA)
- Engine Upgrade:** Honeywell (Phoenix, AZ)
- ERFS II:** Robertson Aviation (Tempe, AZ)

INVESTMENT COMPONENT

Recapitalization

ACQUISITION PHASE

- Production and Deployment

Close Combat Tactical Trainer (CCTT)

Provides armor, mechanized infantry, and cavalry units with a virtual, collective, training simulator.

CCTT SYSTEM CONFIGURATION

HIGH FIDELITY MANNED SIMULATORS

- M1 (Variant)
- M1A2 SEP
- M113
- BFIST
- HMMWV
- M2 (Variant)
- DSM'T INF
- Interoperable Simulators

AFTER ACTION REVIEW

- DATA LOGGER

INITIALIZATION & MAINTENANCE

- MAINTENANCE CONSOLE (MC)
- MASTER CONTROL CONSOLE (MCC)

TACTICAL WORKSTATIONS

- MORTAR FIRE DIRECTION CENTER
- UNIT MAINTENANCE COMMAND POST
- COMBAT TRAIN (LOG) COMMAND POST
- TACTICAL AIR COMMAND POST
- FIELD ARTILLERY BN TOC
- COMBAT ENGINEER SUPPORT
- BRIGADE HQ
- BATTALION TF TOC

SEMI-AUTOMATED FORCES (SAF) WORKSTATIONS

- ENEMY
- FRIENDLY

TERRAIN DATABASES

- Desert (NTC)
- Temperate (Germany)
- Ft Hood, TX
- Kosovo
- Korea

DESCRIPTION AND SPECIFICATIONS

Close Combat Tactical Trainer (CCTT) is the first member of the Combined Arms Tactical Trainer (CATT) family of virtual, distributed interactive simulations for collective training. It supports training of armor, mechanized infantry, and cavalry units from platoon through battalion/squadron echelon, including the staff, and is fully interoperable with the Aviation Combined Arms Tactical Trainer (AVCATT).

The primary training audience operates from both full-crew simulators and mock-up command posts. Crewed simulators—the Abrams M1A1, M1A1D, M1A2, M1A2 SEP, M2/3A2, M2/3A20DS/D, M2/3A3, Bradley FIST-V, BFIST, M113A3 armored personnel carrier, M93 Fox, Dismounted Infantry Manned Module (DIMM), and High Mobility Multipurpose Wheeled Vehicle (HMMWV)—are of sufficient fidelity for individuals and crews to accomplish their collective missions.

Infantry platoon and squad leaders can also exit the Bradley Fighting Vehicle and move to dismounted infantry manned modules with control of virtual dismounted elements. Ft. Hood CCTTs are equipped with Force XXI Battle Command Brigade-and-Below (FBCB2) in support of III Corps Digitized Division. The training audience uses computer workstations located in mock-up command posts to provide artillery, mortar, combat engineers, and logistics units to the synthetic battlefield.

Semi-automated forces workstations provide additional supporting units (such as aviation and air defense artillery) and all opposing forces. Thus, while maneuver units (combat crews and battalion-level staff members) constitute the CCTT primary training audience, all battlefield operating systems are represented to ensure effective simulation within a combined arms training environment that encompasses daylight, night, and fog conditions. CCTT's visual and terrain databases currently support desert (National Training Center); temperate (Germany); Ft. Hood, TX; Kosovo; Korea; Grafenfels,

Germany; Ft. Riley, KS; Ft. Carson, CO; Ft. Stewart, GA; Pinon Canyon, CO; and Baghdad, Iraq. Mobile versions of CCTT are fielding to Army National Guard units and units in U.S. Army, Europe.

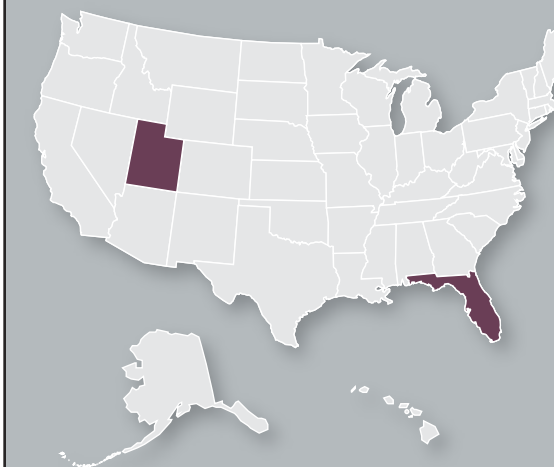
CCTT is operational at nine fixed sites: Ft. Hood (two); Ft. Knox, KY; Ft. Benning, GA; Ft. Stewart, GA; Ft. Riley, KS; Ft. Carson, CO; Grafenwoehr, Germany; and Camp Casey, South Korea. Mobile Platoon sets have been fielded to the Army National Guard at Knoxville, TN (two), Leesburg, SC (two), Beauregard, LA (two), and Los Alamitos, CA (one). A mobile platoon set has been fielded to Friedberg and Baumholder, Germany.

PROGRAM STATUS

- **4QFY04** Improvement of close air support and joint interoperability capabilities in CCTT to support joint close air support training. Contract awarded July 1, 2004.
- **1QFY05** Field three new terrain databases for homestation training to Ft. Stewart, Ft. Carson, and Pinon Canyon, CO.
- **1QFY05** Continue the seventh year of full-rate production of CCTT modules (continental U.S. and outside continental U.S.) and additional mobile sets. Begin the full-rate production of digitizing the CCTT sites.

PROJECTED ACTIVITIES

- **2QFY05** Support live, virtual, and constructive training at Grafenwoehr.
- **2QFY05** Field improvement of close air support and joint interoperability capabilities in CCTT to support joint close air support training at Ft. Hood, TX.
- **3QFY05** Field the Mobile Theater After Action Review Station to Friedberg, Germany.
- **FY05 and Beyond** Continue CCTT weapons systems currency and interoperability efforts and continue CCTT trainer unique performance improvement (technology refreshment) upgrades.



CONTRACTORS

Lockheed Martin (Orlando, FL)
Evans and Sutherland (Salt Lake City, UT)
Advanced Systems Technology, Inc. (Orlando, FL)

INVESTMENT COMPONENT

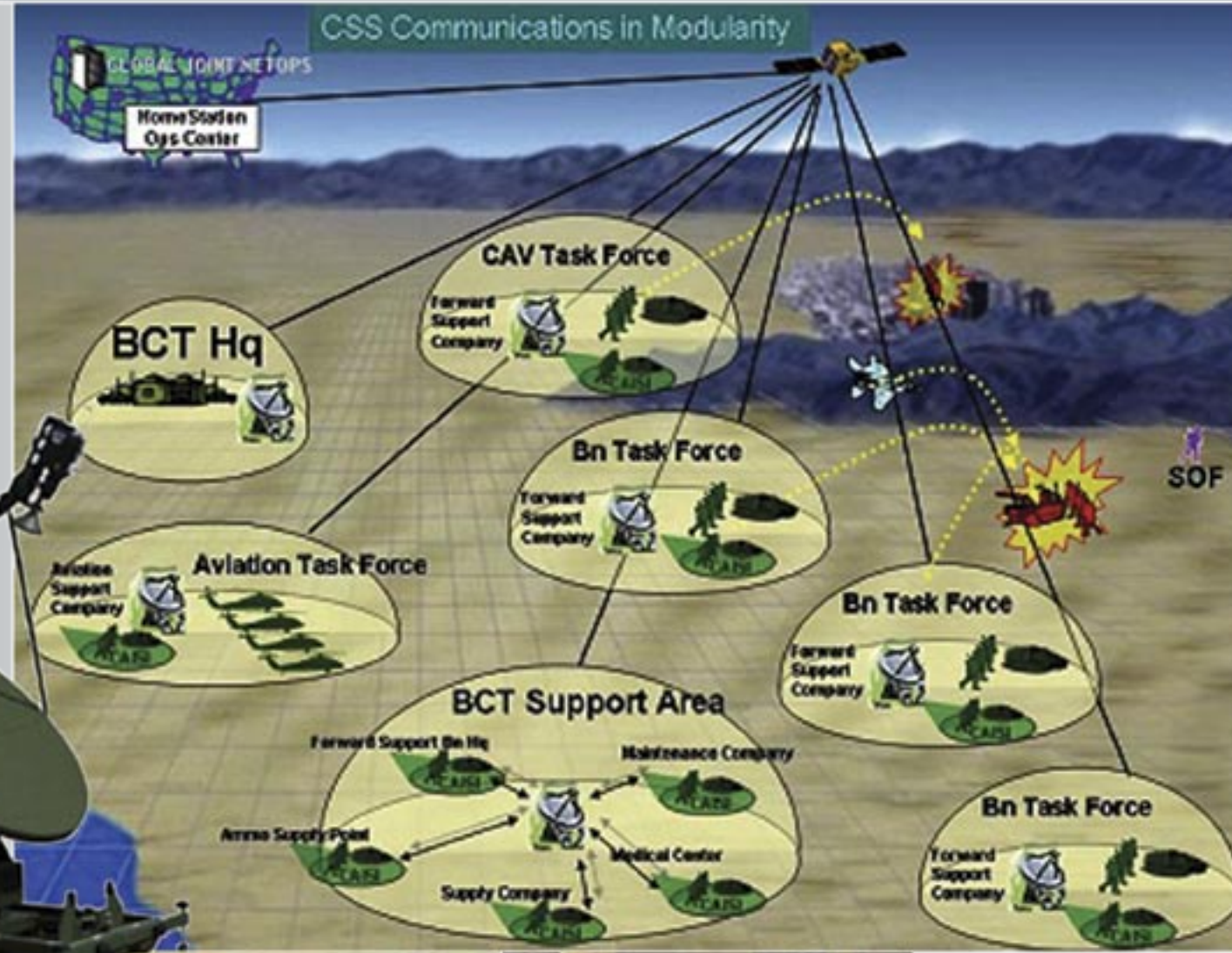
Modernization

ACQUISITION PHASE

- Concept and Technology Development
- System Development and Demonstration
- Production and Deployment
- Operations and Support

Combat Service Support Automated Information System Interface (CAISI)

Enhances Soldier safety and connects Soldiers with vital supplies through wireless, satellite communications.



DESCRIPTION AND SPECIFICATIONS

Combat Service Support Automated Information Systems Interface (CAISI) allows combat service support (CSS) automation devices to network within support areas and to electronically exchange information via tactical or commercial communications. CSS satellite communications (SATCOM) provide an easy-to-use, transportable commercial SATCOM link to extend broadband information exchange to anywhere in the world, and provide full integration in the Global Information Grid (GIG).

CAISI is a deployable wireless LAN infrastructure that can link up to 40 tents, vans, or shelters in a deployed seven-square kilometer area. It includes FIPS 140-approved encryption (Federal Information Processing Standards security requirements) for sensitive but unclassified traffic. CSS SATCOM uses commercial off-the-shelf auto-pointing remote satellite terminal hardware repackaged in fly-away transit cases. Four fixed-site, contractor-operated commercial teleports provide global coverage. CSS SATCOM supports operations at quick halt and rapid movement within the battle space, and eliminates the "sneaker net," or the often dangerous transport of re-supply or spare parts orders on floppy disks.

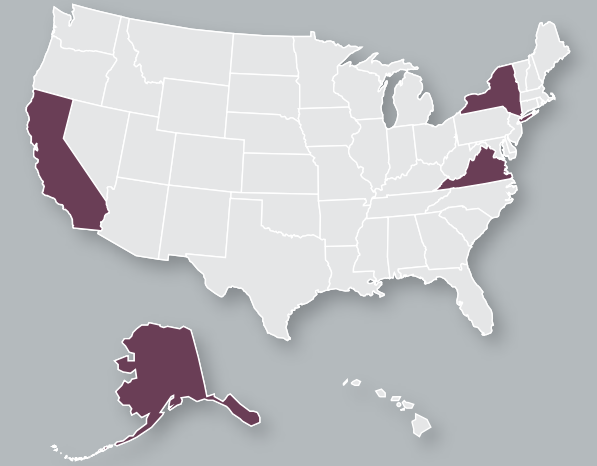
CSS SATCOM is totally Internet Protocol (IP)-based and connected to the Army's LandWarNet and the DOD GIG. CAISI and CSS SATCOM are operated by combat service support personnel.

PROGRAM STATUS

- **3Q-4QFY04** CAISI fielded to National Guard and Reserve units deploying to southwest Asia, and to Ft. Carson, CO, Ft. Hood, TX, and Stryker Brigade Combat Team 3 in Alaska
- **3Q-4QFY04** CSS SATCOM established two regional teleports to support southwest Asia, began remote satellite terminal production, and fielded to the first unit, 3rd Infantry Division
- **1QFY05** CAISI fielding to Ft. Drum, NY, Camp Lejeune, NC, and Ft. Campbell, KY
- **1QFY05** Begin research for FIPS 140-2 Level 2 system upgrades.
- **1QFY05** CSS SATCOM fielding for the 101st Airborne and 10th Mountain Divisions. All fieldings are synchronized and support Army modularity.

PROJECTED ACTIVITIES

- **3QFY05** Continue CAISI system upgrade research and field to Ft. Hood, TX.
- **3QFY05** CSS SATCOM begins to establish two additional regional teleports, implements Voice Over Internet Protocol (VOIP) and fields to the 4th Infantry Division
- **FY06** Begin CAISI fielding to remaining Army Reserve and National Guard. Begin planning for new version. Complete initial CSS SATCOM production. Complete fielding to 4th Infantry Division will continue
- **FY08** Complete Army fielding



CONTRACTORS

CAISI:

IT Equipment:

Computer Giant (New York, NY)
LTI DATACOM (Reston, VA)
APPTIS (Chantilly, VA)

Project Support/ Training:

Titan Corp. (San Diego, CA)

CSS SATCOM:

Satellite Hubs & Infrastructure:

Global Communications Solutions (Victor, NY)

Remote Satellite Terminal:

EyakTek (Anchorage, AK)

Fielding, Training, Program Support:

Signal Solutions (Fairfax, VA)

INVESTMENT COMPONENT

Modernization

ACQUISITION PHASE

- Production and Deployment

Common Hardware Systems (CHS)

Improves interoperability and connectivity on the battlefield through common hardware and standardized command and control automation.



DESCRIPTION AND SPECIFICATIONS

The Common Hardware Systems (CHS) program provides common hardware systems for the Army Battle Command System programs, including Tactical Operations Centers and air and missile defense programs through centralized purchases of computing hardware, standardized protocols, and reusable, common, commercial software. The program provides equipment to more than 80 Army and Department of Defense customers, as well as contractor-provided worldwide repair, maintenance, and logistics support through strategically located regional support centers for tactical military units.

This program provides commercial, ruggedized, and near military specification hardware versions of computers, peripherals, and networking devices. It also provides commercial, industry-based logistics support that meets the unique requirements of the tactical military units. CHS software incorporates:

- General purpose operation environments
- Database management system
- Integrated business packages
- Graphics software
- Malicious software detection and prevention
- Purging software
- Data collaboration
- Password generation
- E-mail
- Commercial communications software
- Network management

CHS hardware includes:

- Super High Capacity Computer Unit (SHCU)
- High Capacity Computer Unit (HCU)
- Transportable Computer Unit (TCU)
- Standalone Computer Unit (SCU)
- Handheld Terminal Unit (HTU)
- UNIX Laptop
- Notebook Computer Unit (NCU)
- Four-Slice Multiple Processor Unit (4S MPU-2)
- AIS 3U CISC server
- Other high-end servers

CHS hardware Version 1 includes commercial workstations, peripherals and networking products. Version 2 includes ruggedized workstations, peripherals and networking products. Version 3 includes near-military specification rugged handheld unit.

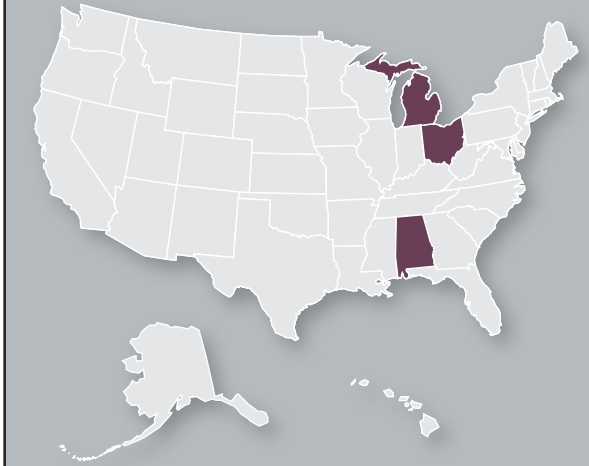
PROGRAM STATUS

- **3QFY04** Southwest Asia CHS repair and maintenance facility operational at Camp Victory, Iraq

PROJECTED ACTIVITIES

- **FY03-FY13** CHS-3 hardware and software deliveries continue
- **3QFY05** CHS-2 contract expires; CHS-3 follow-on contract begins

	SHCU	HCU	TCU	SCU	HTU	UNIX Laptop
Processor:	UltraSparc IIIi	UltraSparc IIIi	UltraSparc IIIi	Pentium III	Celeron	UltraSPARC IIi
MHz clock:	1.28 GHz	1.28 GHz	1.06 GHz	1 GHz	650 MHz	650 MHz
RAM:	32 GB	16 GB	8 GB	2 GB	512 MB	2 GB
	NCU	4S MPU-2	AIS Server			
Processor:	Pentium M	Dual Xeon Server, Pentium & Sparc	Dual Xeon			
MHz clock:	1.6 GHz	650 MHz to 2GHz	3.06 GHz			
RAM:	512 MB	1 to 8 GB	12 GB			



CONTRACTORS

General Dynamics Land Systems (Sterling Heights, MI; Lima, OH; Anniston, AL; London, Ontario)

INVESTMENT COMPONENT

Modernization

ACQUISITION PHASE

- Concept and Technology Development
- System Development and Demonstration
- Production and Deployment
- Operations and Support

Construction Equipment Service Life Extension Program (CE SLEP)

Provides expeditionary capabilities for early entry airfield construction with airborne/air assault equipment, base camp construction and maintenance, main supply route construction and maintenance, bridging site preparation, national emergency response, and stability and security operations.



DESCRIPTION AND SPECIFICATIONS

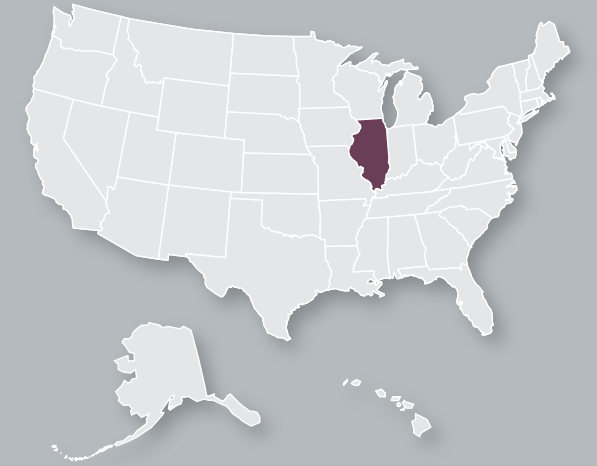
The Construction Equipment Service Life Extension Program (CE SLEP) returns vehicles to a like-new condition that meets their original purchase description. The CE SLEP extends the life of the vehicle 10 to 15 years. Some of the vehicles currently being refurbished are dozers, scrapers, graders, loaders, and water distributors.

PROGRAM STATUS

- 3QFY04-1QFY05 Refurbish dozers and scrapers

PROJECTED ACTIVITIES

- 2QFY05-1QFY06 Refurbish dozers, scrapers and heavy graders



CONTRACTORS

Caterpillar Defense and Federal Products (Peoria, IL)

INVESTMENT COMPONENT

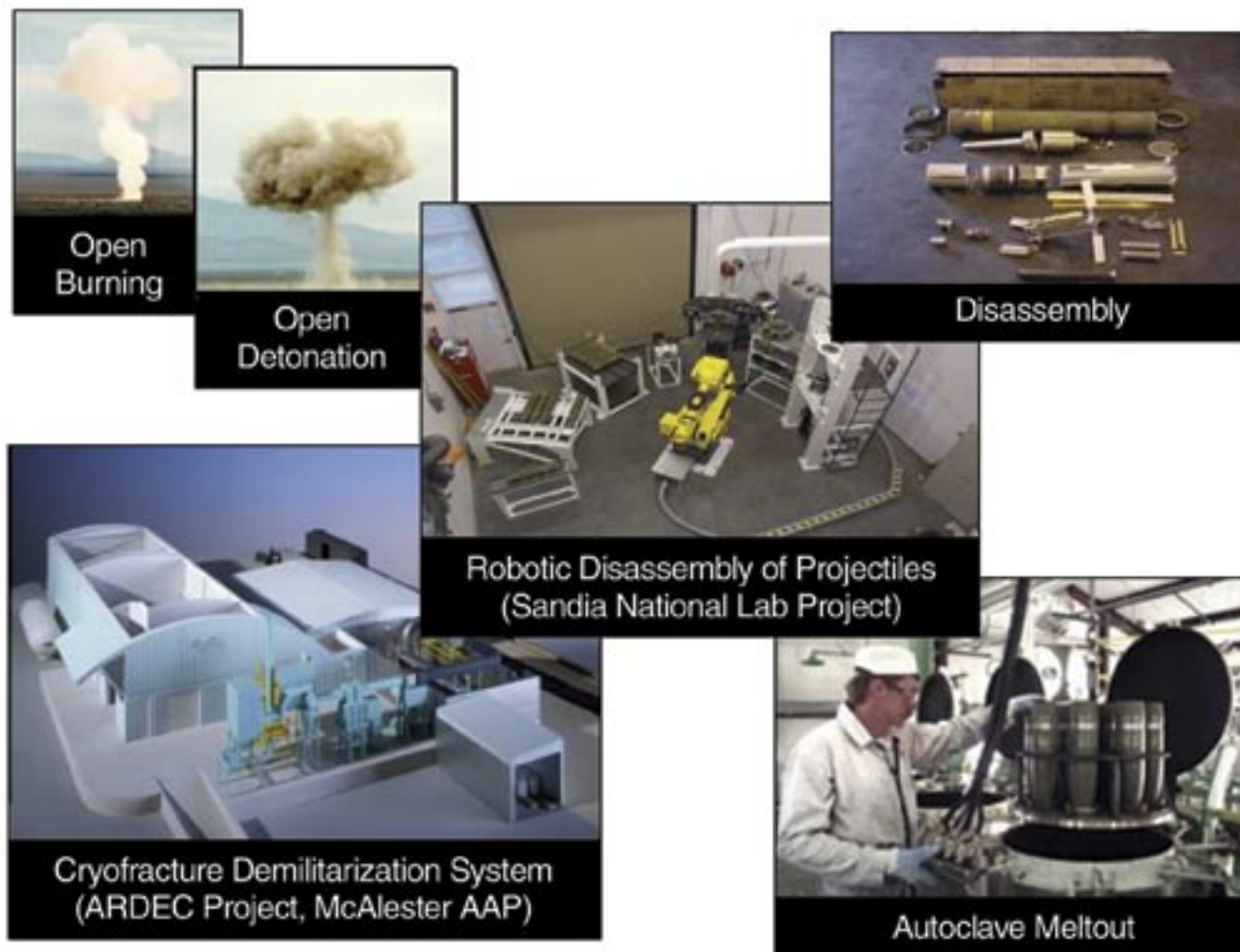
Modernization

ACQUISITION PHASE

- Operations and Support

Conventional Ammunition Demilitarization

Manages the demilitarization and disposal lifecycle of conventional munitions (ammunition, missiles, and missile components) for all Department of Defense and U.S. Government agencies.



DESCRIPTION AND SPECIFICATIONS

Conventional Ammunition Demilitarization employs closed disposal technologies (resource recovery and recycling, reuse, and other processes) and open burn/open detonation processes. The program uses government depots and commercial contractors within the U.S. and overseas, and supports military readiness as a supplier of necessary components in new production and maintenance operations. Critical explosives such as trinitrotoluene, or TNT, and tritonal, as well as components such as depleted-uranium penetrators and supplementary charges, are removed during demilitarization and reused in new production.

Storage of stocks awaiting demilitarization and disposal is inefficient, resulting in higher costs, unnecessary commitment of resources, and schedule delays, while creating potential terrorist targets of opportunity. Environmental regulations make impractical the indefinite storage of obsolete items, which could result in an increase in future demilitarization liability.

Funding for FY05 and FY06 will provide for:

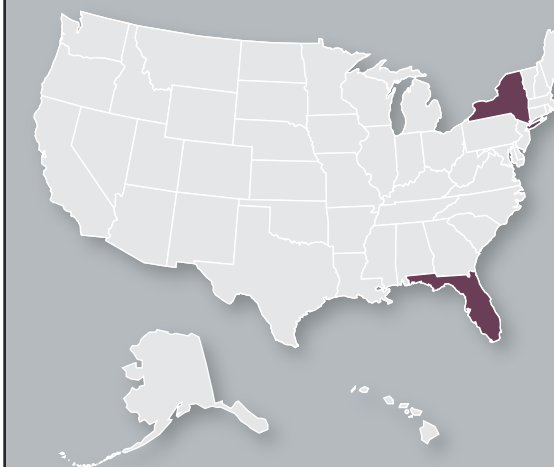
- Demilitarization through closed disposal technologies and open burn/open detonation
- Army and Department of Defense joint research and development of demilitarization technology
- Worldwide support requiring Ammunition Peculiar Equipment
- Explosive safety efforts

PROGRAM STATUS

- **4QFY2004**
 - o Demilitarization inventory (in short tons): 397,367
 - o Tons demilitarized: 41,369
 - o Tons received: 56,752
- **FY05** Award of commercial contract to a single prime for a base year and four option years

PROJECTED ACTIVITIES

- **4QFY06** Support for the Joint U.S.-Korea Munitions Demilitarization Facility
- **Ongoing** Demilitarization of persistent conventional mines as directed by presidential policy



CONTRACTORS

PM/Nammo (New York, NY)
General Dynamics Ordnance and Tactical Systems (St. Petersburg, FL)

INVESTMENT COMPONENT

Modernization

ACQUISITION PHASE

- Operations and Support

Provides Soldiers and maneuver commanders a full range of Countermine capabilities and immediate solutions to counter improvised explosive devices.



DESCRIPTION AND SPECIFICATIONS

The Countermine program is pursuing immediate solutions to the improvised explosive device (IED) problem in Operations Enduring Freedom (OEF) and Iraqi Freedom (OIF), as well as measures to counter conventional mines. It comprises several different systems:

- Airborne Standoff Minefield Detection System (ASTAMIDS) detects and locates minefields and obstacles from aerial platforms.
- AN/PSS-14 Mine Detecting Set is a handheld multi-sensor mine detector deployed both in OEF and OIF.
- Ground Standoff Mine Detection System Future Combat System (GSTAMIDS FCS) is a mine detection and neutralization system designed to integrate onto FCS unmanned ground vehicles. Block 0 is in use in OIF.
- Mongoose Explosive Standoff Minefield Clearer clears lanes for mounted troops through a rocket-deployed array of shaped-charge munitions that can be launched across minefields and command-detonated.
- Anti-Personnel Obstacle Breaching System (APOBS) is a rocket-propelled line charge used to clear wire obstacles and anti-personnel mines.

The following equipment is in use in OEF/OIF:

- Aardvark Mk IV Medium Flail is a half-track vehicle with a mechanical flail system that destroys mines.
- Hydrema 910 Mine Clearing Vehicle is a medium flail designed to destroy all types of mines.
- Berm Sifter is a mechanical sifter mounted on a military front-end loader that sifts mines from earth berms.
- Checkmate Mine Safety Shoes are distributed-pressure designed shoes that will not detonate anti-personnel mines.

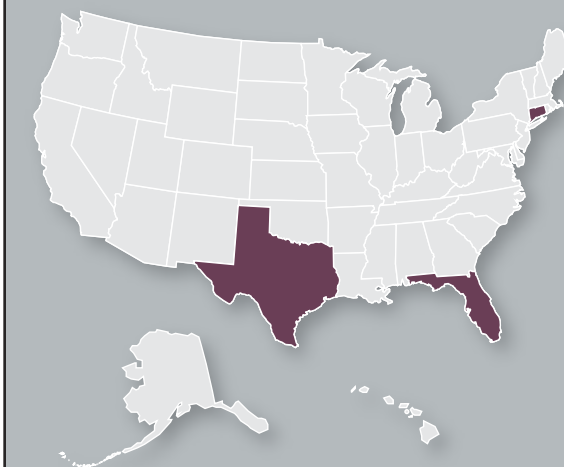
- MineLab F1A4 Handheld Mine Detector is an Australian-built detector that senses metal mine components.
- Mine Clearing Armor Protection (MCAP) kit protects the D9 dozer during mine removal.
- Interim Vehicle Mounted Mine Detector (IVMMD) is a two-vehicle system with metal detectors and proofing trailers used for route clearance operations to protect Soldiers from mine blasts and IEDs.
- Buffalo Heavy Mine Protected Vehicle is used for countermine IED missions and protects Soldiers from mine and IED blasts.
- Alvis RG-31 Medium Mine Protected Vehicle is used for command and control of clearance operations and protects Soldiers from mine blasts and IED detonations.

PROGRAM STATUS

- APOBS is in production.
- Awarded the GSTAMIDS FCS development contract.

PROJECTED ACTIVITIES

- **2QFY05** Begin full rate production for AN/PSS-14.
- **3QFY05** Field additional Buffaloes, IVMMD's and RG31s to OEF/OIF.



CONTRACTORS

- **ASTAMIDS:** Northrop Grumman (Melbourne, FL)
- **GSTAMIDS:** FCS and Mongoose: BAE Systems (Austin, TX)
- **AN/PSS-14:** CyTerra Corporation (Waltham, MA; Orlando, FL)
- **APOBS:** Ensign Bickford Aerospace and Defense (Simsbury, CT)

INVESTMENT COMPONENT

Modernization

ACQUISITION PHASE

- Concept and Technology Development
- System Development and Demonstration
- Production and Deployment

Defense Satellite Communications System (DSCS)

Provides secure voice and data communications and intelligence transfer to deployed forces worldwide.



DESCRIPTION AND SPECIFICATIONS

The Defense Satellite Communications System (DSCS) provides super-high-frequency, beyond-line-of-sight communications and a critical conduit for intelligence information transfer. DSCS consists of a geosynchronously orbiting satellite network, fixed enterprise military satellite terminals, baseband, payload control systems, and related equipment. DSCS also provides reachback capability to sanctuary for deployed forces (teleport and standard tactical entry point sites). DSCS modernization efforts provide tactical warfighters with reachback access to Defense Information Systems network services, ensure survivable communications for critical nuclear command and control, and support the Army's mission of payload and network control on super high frequency wideband communications satellites.

DSCS is designed to satisfy long-term communication needs of warfighters and combatant commanders, as well as command, control, communications, and intelligence requirements. DSCS provides the equipment that the U.S. Army Space and Missile Defense Command uses to perform its payload and network control mission on wideband satellites. DSCS also provides an anti-jam and anti-scintillation capability for key strategic forces.

The DSCS program includes modernization of enterprise terminals, baseband, and payload and network control systems required to support warfighter use of these satellites.

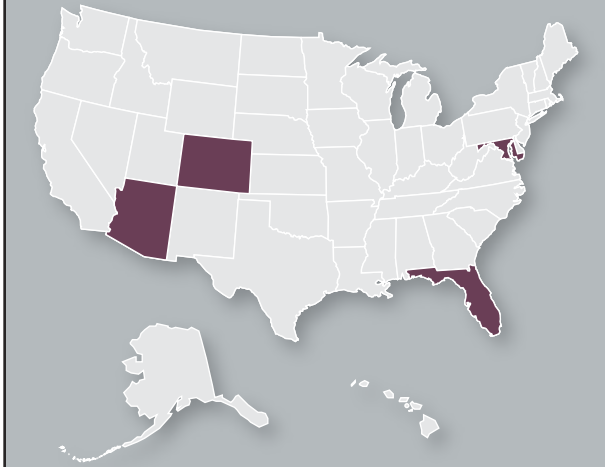
The Department of Defense will begin to launch Wideband Gapfiller Satellites (WGS) to provide warfighters with greatly increased capacity and a new Ka-band capability in December 2005.

PROGRAM STATUS

- **3QFY04** Currently deployed worldwide. Modernization efforts to support WGS and Transformational Satellite continue.
- **4QFY04** AN/GSC-52 modernization program continues to extend life for these terminals to 2015.
- **4QFY04** Installations, deinstallations, and relocations of fixed strategic ground terminals and baseband continue as required by combatant commanders and validated by Joint Staff.
- **4QFY04** Awarded contract for multiplexer integration and Defense Satellite Communications Subsystem automation system follow-on production, depot support, and post production software center support.
- **4QFY04** Completed first article test and system integration test for Global Terrestrial Critical Control Circuit system.

PROJECTED ACTIVITIES

- **3QFY05** Begin enhanced bandwidth efficient modem production deliveries.
- **4QFY05** Complete teleport generation I installations for initial operational capability 2.
- **4QFY05** Begin installation of fixed Ka-band terminals.



CONTRACTORS

Satellite Equipment:

ITT Industries (Colorado Springs, CO)

Installation Kits:

Harris Corporation (Melbourne, FL)

DSCS Integrate Management System and DSCS Objective Control System

Software:

John Hopkins University Applied Physics Laboratory (Laurel, MD)

Engineering Support:

U.S. Army Information Systems Engineering Command (Ft. Huachuca, AZ)

Software:

Northrop Grumman (Orlando, FL)

INVESTMENT COMPONENT

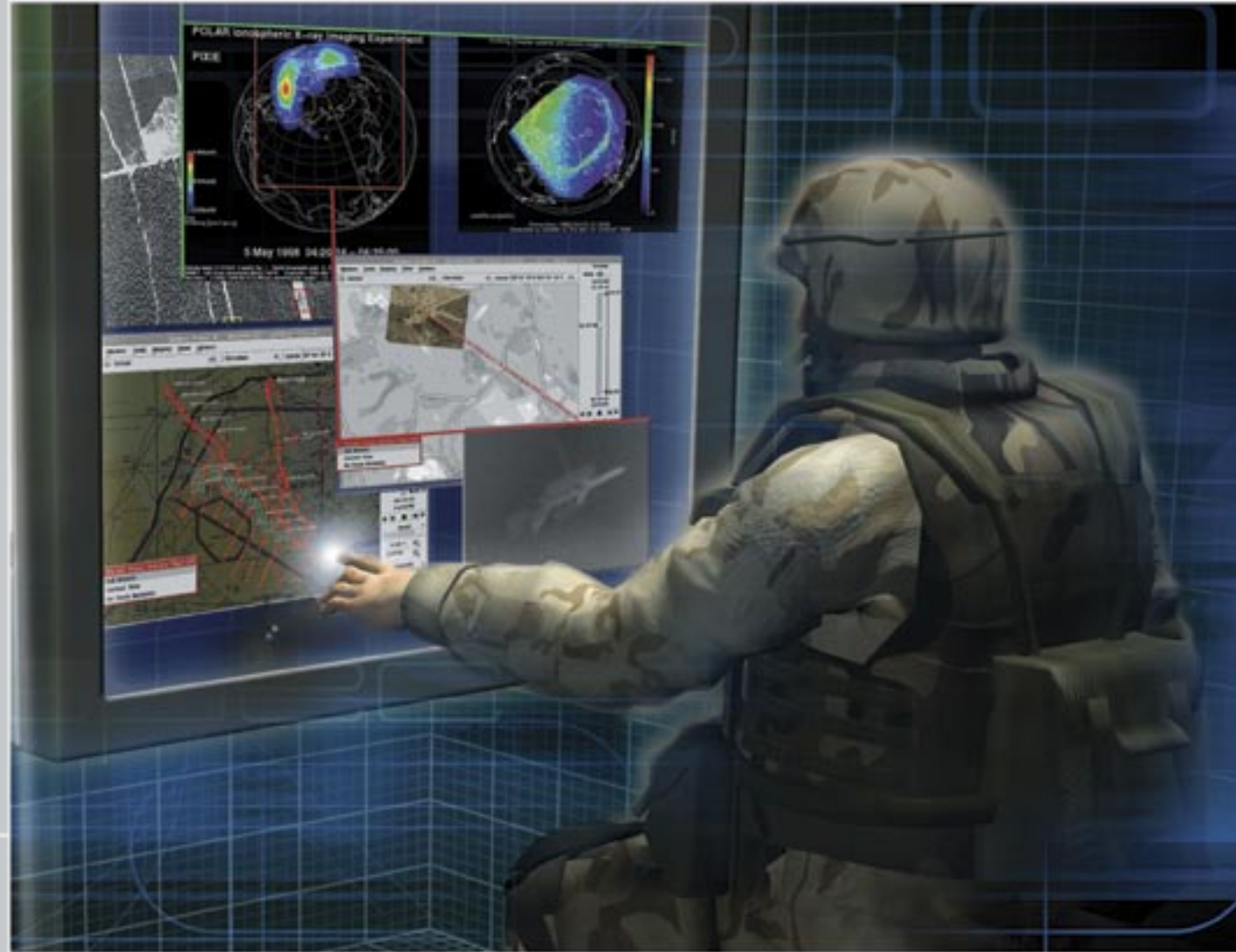
Modernization

ACQUISITION PHASE

- Production and Deployment

Distributed Common Ground System-Army (DCGS-A)

Provides commanders with threat, weather, and terrain data, as well as information and intelligence to synchronize the elements of joint and combined arms combat power.



DESCRIPTION AND SPECIFICATIONS

Distributed Common Ground System-Army (DCGS-A) assists in building the common operational picture and enhances situational understanding by leveraging multiple sources of data and intelligence through a single, integrated intelligence, surveillance and reconnaissance (ISR) ground processing system. DCGS-A supports the commander's ability to execute battle commands, synchronize fires and effects, rapidly shift battle focus, achieve situational understanding, and protect the force. DCGS-A consolidates the Current Force ISR ground processing capabilities and enables persistent ISR through increased joint interdependency and distributed automated fusion. DCGS-A provides reach and split-based operations to improve data access, reduce forward footprint, and increase interoperability via a network-enabled modular, tailorable system in fixed, mobile, and embedded configurations.

PROGRAM STATUS

- **4QFY04** Interim DCGS-A enhancements to current systems (Spiral 2) fielded to 525th Military Intelligence Brigade, 18th Airborne Corps.
- **4QFY04** DCGS-A Operational Requirements Document approved by Joint Requirements Oversight Council.

PROJECTED ACTIVITIES

- **2QFY05** Overarching integrated product team (OIPT) establishes systems integration laboratory.
- **2QFY06** Spiral 5, Milestone B
- **4QFY06** Spiral 4, Milestone C



CONTRACTORS
To be selected

INVESTMENT COMPONENT
Modernization

ACQUISITION PHASE
• System Development and Demonstration

Distributed Common Ground System-Army (DCGS-A)

Distributed Learning System (DLS)

Enables student access to distributed training products at the right time and place.



DESCRIPTION AND SPECIFICATIONS

The Distributed Learning System (DLS) provides digital training facilities equipped with computers and video equipment enabling Soldiers to take digital training anywhere in the world, at any time. Approximately 270 digital training facilities have been fielded worldwide.

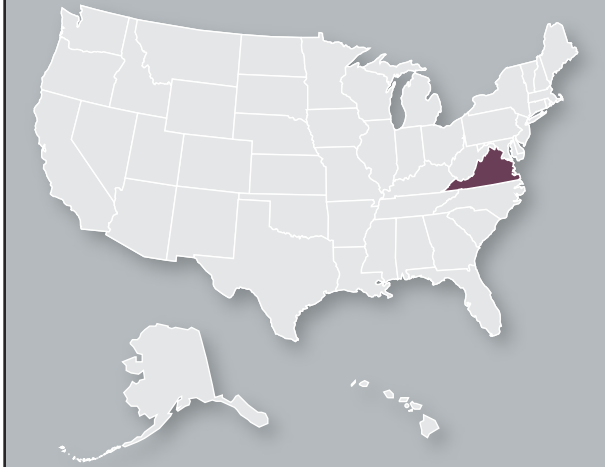
DLS provides a Web-based software application enabling Soldiers to register for and schedule digital training courses. The Learning Management System application performs student tracking and training functions. DLS will also provide digital deployed training campuses equipped with computer and video equipment and capable of being sent with deployed forces.

PROGRAM STATUS

- **4QFY04** Full rate production approval of the Learning Management System
- **1QFY05** Approximately 274 digital training facilities fielded
- **1QFY05** Begin fielding of the Learning Management System

PROJECTED ACTIVITIES

- **1QFY05-FY06** Requirements analysis phase, culminating in award of development contract
- **2QFY06** Digital deployed training campuses under development



Distributed Learning System (DLS)

CONTRACTORS

Communications:
Sprint (Herndon, VA)

Learning Management System:
IBM (Fairfax, VA)

Enterprise Management Center Operations:
IBM (Fairfax, VA)

INVESTMENT COMPONENT

Modernization

ACQUISITION PHASE

- System Development and Demonstration
- Production and Deployment

Dry Support Bridge (DSB)

Supports military load classification 96(wheeled)/70(tracked) vehicles over dry gaps via a mobile, rapidly-erected, modular military bridge.



DESCRIPTION AND SPECIFICATIONS

The Dry Support Bridge (DSB) system is fielded to Multi-Role Bridge Companies (MRBC) and requires a crew of eight Soldiers to deploy a 40-meter bridge in fewer than 90 minutes (daytime). The bridge modules are palletized onto seven flat racks and transported by equipment organic to the multi-role bridge company. DSB uses a launcher mounted on a dedicated Palletized Load System (PLS) chassis to deploy the modular bridge sections which have a 4.3-meter road width and can span up to 40 meters.

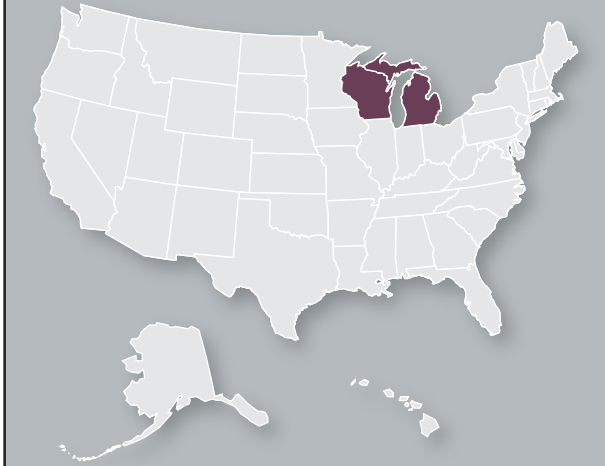
DSB is designed to replace the M3 Medium Girder Bridge.

PROGRAM STATUS

- **4QFY04** Fielded to 814th MRBC

PROJECTED ACTIVITIES

- **2QFY05** Award new sole-source multi-year procurement contract
- **2QFY05** Fielding to 577th EN BN (USAES)
- **2QFY05** Fielding to 299th MRBC



Dry Support Bridge (DSB)

CONTRACTORS

Manufacturer: Williams Fairey Engineering, Ltd. (Stockport, UK)
PLS Chassis: Oshkosh Truck (Oshkosh, WI)
Logistics: XMCO (Madison Heights, MI)

INVESTMENT COMPONENT

Modernization

ACQUISITION PHASE

- Production and Deployment



Engagement Skills Trainer (EST) 2000

Improves efficiency and conserves needed ammunition through simulated indoor training for individual and crew-served weapons marksmanship, collective marksmanship, and “shoot-don’t-shoot” training.



DESCRIPTION AND SPECIFICATIONS

The Engagement Skills Trainer (EST) 2000 is a unit/institution, indoor, multipurpose, multi-lane, small arms, crew-served, and individual anti-tank simulator that saves currently required ammunition resources, operation and personnel tempo, as well as travel time and costs to and from ranges. It simulates weapon training events that lead to live-fire individual or crew weapon qualification and training events currently not resourced under Standards in Training Commission (STRAC).

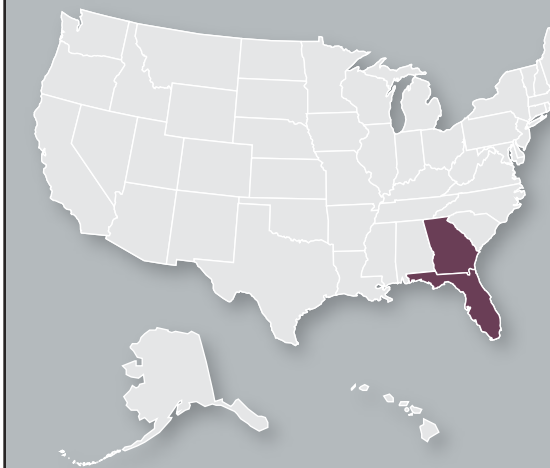
Squad leaders are able to control and evaluate individual, fire team, and squad performance. The EST 2000 simulates the following weapons: M16A2 rifle, M4 carbine, M9 pistol, MK19 grenade machine gun, M249 squad automatic weapon, M240 machine gun, M136 (AT4), M1200 shotgun, M2 machine gun and M203 grenade launcher. At the request of other programs, efforts are in process to model other weapon systems to be part of EST 2000: XM8 carbine, XM307/XM312 crew-served weapon, Precision Guided Mortar Munitions, Land Warrior, and Javelin. Three EST 2000 subsystems equal one system. The system is covered by an approved operational requirements document (ORD) last amended in May 1997.

PROGRAM STATUS

- **1QFY05** Start fielding of Lot V subsystems (205 subsystems)
- **1QFY05** Complete the modeling of the XM8 carbine for EST 2000 integration
- **1QFY05** Start the modeling XM141 Bunker Defeating Munition (BDM) for EST 2000 integration

PROJECTED ACTIVITIES

- **2QFY05** Complete Phase 1 of modeling the XM307 Advanced Crew-Served Weapon for integration into EST 2000
- **2QFY05** Award of Lot VI production option (130 subsystems)
- **3QFY05** Complete fielding of Lot V, 205 subsystems
- **1QFY06** Complete fielding of Block I Upgrade to Production Lots I and II (new autotracker, brighter digital projector, more powerful CPU, Windows XP operating system) making them interoperable with Lots III – IV



CONTRACTORS

Systems Design and Integration:
Cubic Simulation Systems (formerly ECC International Corporation) (Orlando, FL)
Simulated Weapons:
FATS, Inc. (Suwanee, GA)

INVESTMENT COMPONENT
Modernization

ACQUISITION PHASE
• Production and Deployment

Engineer Mission Module (EMM)

Enables engineers to tailor equipment to particular mission needs through modular components, saving critical transit time and improving distribution efficiency.



DESCRIPTION AND SPECIFICATIONS

Engineer Mission Module (EMM) components are designed to be used on the Palletized Load System (PLS) M1075 Truck and M1076 Trailer. The modules are mounted on flatracks, similar to those used with the PLS for hauling ammunition and other supplies.

Bituminous Distributor (EMM-BD) provides the capability to spread measured amounts of bituminous material for road preparation, repair, and other engineer applications. EMM-BD has a 2800 gallon capacity, and is powered by and operable from the PLS truck. It is transportable but not operable on the PLS trailer. Bitumen spray is computer-controlled and will automatically compensate for variations in speed, and is operated by a single Soldier.

Concrete Mobile Mixer (EMM-CMM) transports raw concrete materials, mixes concrete as needed, and replaces the mixed concrete. EMM-CMM is self-powered, can be used on the PLS truck or trailer (mobile mode) or on the ground (standalone mode). Its bins store enough material for five cubic yards of mixed concrete in mobile mode and eight cubic yards in standalone mode.

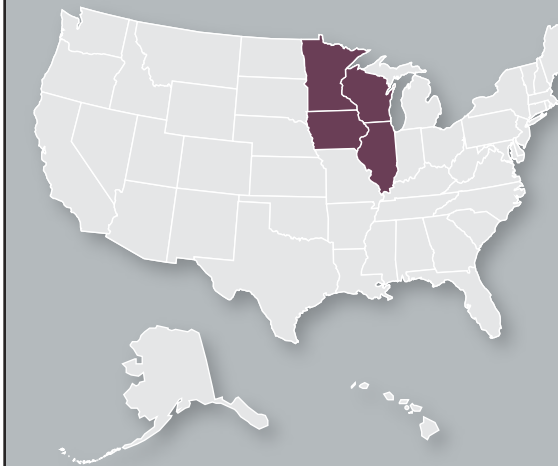
Dump Body (EMM-DB) hauls and spreads engineering construction material such as rocks, gravel, sand, and dirt. With a 12 to 14 cubic yard capacity by volume, 13 ton by weight, it is powered by the PLS truck, and can be operated on the PLS truck or trailer.

PROGRAM STATUS

- 1QFY05 Fielding to 463rd Engineers

PROJECTED ACTIVITIES

- 2QFY05-1QFY06 Continue production and fielding



CONTRACTORS

Prime:

Oshkosh Truck (Oshkosh, WI)

Bituminous Distributor:

E.D. Etnyre (Oregon, IL)

Concrete Mobile Mixer:

Cementech, Inc. (Indianola, IA)

Dump Body:

Crysteel Manufacturing (Lake Crystal, MN)

INVESTMENT COMPONENT

Modernization

ACQUISITION PHASE

- Production and Deployment

Excalibur (XM982)

Provides improved fire support to the maneuver force with precision-guided, extended range, more lethal but collateral damage-reducing artillery projectiles.



Excalibur Test Projectile During Basebleed Testing



DESCRIPTION AND SPECIFICATIONS

The Excalibur XM982 is a family of 155mm, Global Positioning System (GPS)-guided, fire-and-forget projectiles under development as the Army's next-generation cannon artillery precision munition. The program uses a spiral development approach and will field three unique variants. The initial block comprises a unitary high-explosive warhead that is capable of penetrating urban structures, but is also effective against point targets, personnel targets, such as dismounted infantry and weapon crews, and light materiel targets, including air defense rockets, radars, and wheeled vehicles. The unitary Excalibur has three fuze options: height-of-burst, point-detonating, and delay/penetration. Excalibur weighs 106 pounds and has a maximum range of 35 kilometers (threshold) 40 kilometers (objective).

Future block improvements will include smart and discriminating munitions. Smart munitions (Block II) are expected to search, detect, acquire, and engage fleeting and short-dwell targets common to open-terrain battlefields. Discriminating munitions (Block III) are expected to add the capability to selectively identify and engage individual vehicular targets by distinguishing specific target characteristics. Each block will employ a base bleed unit to provide an extended range capability.

Excalibur uses a jam-resistant internal GPS receiver to update the inertial navigation system, providing precision guidance and dramatically improving accuracy regardless of range. The target, platform location, and GPS-specific data are inductively entered into the projectile's mission computer through an enhanced portable inductive artillery fuze setter or automated system on the Future Combat Systems (FCS)-Non-Line-of-Sight Cannon (NLOS-C). Excalibur is effective in all weather and terrain. The current program develops Excalibur for fielding to the digitized Joint

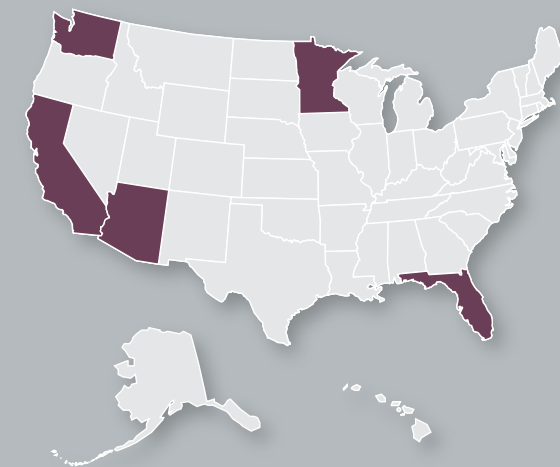
Lightweight 155mm Howitzer, the 155mm M109A6 self-propelled howitzer (Paladin), and the Future Force indirect fire weapon (FCS NLOS-C).

PROGRAM STATUS

- **4QFY04** Conducted functional guidance section testing. Guidance Navigation Control and Inertial Measurement Units (IMU) successes: GPS receiver acquired and tracked satellites; airframe demonstrated stable flight and structural integrity; canards deployed and locked when commanded; IMU operated as expected throughout flight; computer calculated navigation solution. Successfully demonstrated warhead lethality in arena and penetration testing.
- **1QFY05** Excalibur rounds fired from both the JLW155 Howitzer and Paladin have successfully demonstrated the ability to achieve the required accuracy.

PROJECTED ACTIVITIES

- **2QFY05** Critical design review
- **4QFY05** Block IA-1 early fielding Milestone C
- **1QFY06** End-to-end demonstration



Excalibur (XM982)

CONTRACTORS

- Systems Integration:** Raytheon (Tucson, AZ)
- Systems Engineering:** Bofors Defence (UDLP) (Karlskoga, Sweden) teamed with Raytheon Corporation (Tucson, AZ)
- Warhead:** General Dynamics Ordnance and Tactical Systems (St. Petersburg, FL)
- Control Actuator:** General Dynamics Versatron (Healdsburg, CA)
- Soft Recovery System:** General Dynamics Ordnance and Tactical Systems (Redmond, WA)
- Inertial Measurement Unit:** Honeywell (Minneapolis, MN)

INVESTMENT COMPONENT

Modernization

ACQUISITION PHASE

- System Development and Demonstration

Family of Loaders (FOL)

Provides road building and site preparation functions in offensive, defensive, and rear-area combat operations, and in support of the Rapid Deployment Force missions.



DESCRIPTION AND SPECIFICATIONS

The Family of Loaders (FOL) lifts, moves, and loads a variety of materials, such as consolidated earth, blast rocks, loose sand, aggregate, and soil into standard Army dump trucks, bins, and hoppers. FOL supports military construction of roads, bridges, airfields, and medical facilities and the demolition of structures, as well as loading in quarry operations.

The loader is a diesel-engine-driven, four-wheel drive machine with rear-axle oscillation and articulated frame steering. The hydraulically operated scoop bucket is attached to the front of the loader by means of a push frame and lift arms. Loaders are usually equipped with a one-piece general-purpose bucket, rock bucket, or a multipurpose (hinged jaw) bucket. These vehicles will feature a quick coupler mechanism to attach/detach the bucket.

Bucket Capacity:

- Light, type I, airborne and air assault, 1.6-2.1 - cubic yard multipurpose clamshell bucket
- Light, type II, general purpose, 2.5-cubic yard multipurpose clamshell bucket
- Heavy, type I, 4.5-cubic yard rock bucket
- Heavy, type II, 5.0-cubic yard general purpose bucket

Other Specifications:

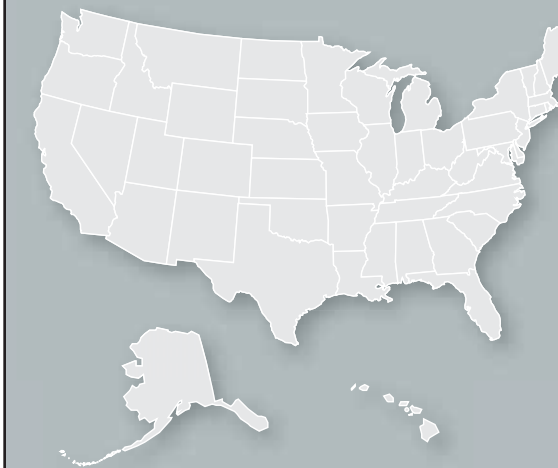
- Removable or collapsible cab (heavy type II)
- Rollover protection system/ falling object protection system (ROPS/FOPS)
- Air, highway, and marine transportable (all variants)
- Low-velocity air drop (Light Type I only)
- Operate -25 to 120 degrees Fahrenheit (-40 degrees Fahrenheit objective)

PROGRAM STATUS

- 1QFY05 Milestone C

PROJECTED ACTIVITIES

- 3QFY05 Source selection and contract award
- 1QFY06 Production verification test



CONTRACTORS
To be selected

INVESTMENT COMPONENT
Modernization

ACQUISITION PHASE
• Production and Deployment

Family of Loaders (FOL)

Family of Medium Tactical Vehicles (FMTV)

Enhances crew survivability and provides unit mobility, resupply, and transportation at all organizational levels using a family of vehicles, based on a common chassis, which vary by payload and mission requirements.



FMTV A1 with Armor Kit



DESCRIPTION AND SPECIFICATIONS

The Family of Medium Tactical Vehicles (FMTV) is a key enabler for Army transformation. These strategically deployable vehicles perform general resupply, ammunition resupply, maintenance and recovery, and engineer support, and serve 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 and van models).

The Medium Tactical Vehicle (MTV) has a 5-ton capacity (cargo and long-wheelbase-cargo with and without materiel handling equipment, tractor, van, wrecker, and 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 operates worldwide in all weather (-50 F to + 120 F) and terrain conditions, and serves as the platform for the High Mobility Artillery Rocket System (HIMARS) and resupply vehicle for PATRIOT and the HIMARS.

FMTV enhances crew survivability through the use of hard cabs, three-point seat belts, and central tire inflation capability. FMTV enhances tactical mobility and is strategically deployable in C5, C17, C141, and C130 aircraft. FMTV reduces the Army's logistical footprint by providing commonality of parts and components, reduced maintenance downtime, highest reliability, and highest operational readiness rate (more than 90 percent). It incorporates a vehicle data bus and class V interactive electronic technical manual, and significantly lower operating and support costs than older trucks. Units are equipped with FMTVs at more than 68 different locations worldwide, and more than 21,000 trucks and 2,100 trailers have been fielded as of October 15, 2004. Approximately 4,000 FMTVs have been deployed to Southwest Asia.

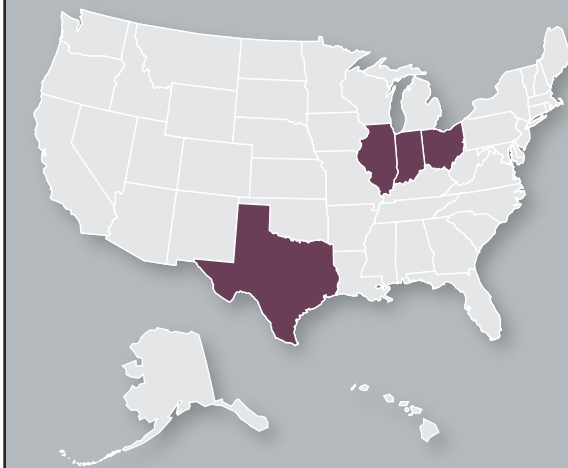
	LMTV A1 Cargo	MTV A1 Cargo
Payload:	5,000 pounds	10,000 pounds
Towed load:	12,000 pounds	21,000 pounds
Engine:	Caterpillar 6-cylinder diesel	Caterpillar 6-cylinder diesel
Transmission:	Allison Automatic	Allison Automatic
Horsepower:	275	330
Drive:	4 x 4	6 x 6

PROGRAM STATUS

- **Current** Full production and fielding to support Army transformation
- **3QFY04** Installation of add-on armored cab kits initiated in Southwest Asia begun
- **4QFY04** Load Handling System (LHS) low rate initial production contract award
- **1QFY05** HIMARS low rate initial production (LRIP) II completed
- **1QFY05** Re-buy contract production start (FMTV A1R)
- **1QFY05** 10-ton dump truck production qualification test complete

PROJECTED ACTIVITIES

- **Continue** full production and fielding to support Army transformation
- **Continue** design, testing, and production planning for armored variants of FMTV
- **2QFY05** HIMARS LRIP III production award
- **2QFY05** 10-ton dump production contract award



CONTRACTORS

Stewart & Stevenson TVS, LLC (Sealy, TX)
Caterpillar (Moline, IL)
Allison (Indianapolis, IN)
Rockwell/Meritor (Newark, OH)
Scott Manufacturing (Lubbock, TX)

INVESTMENT COMPONENT

Modernization

ACQUISITION PHASE

- Production and Deployment

Fixed Wing

Performs operational support/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.



C-20/37



C-26



RC-12



RC-7



C-12



C-23



UC-35

DESCRIPTION AND SPECIFICATIONS

The Fixed Wing fleet consists of eight aircraft platforms and nearly 300 aircraft that allow the Army to perform day-to-day operations in a more timely and cost efficient manner without reliance on commercial transportation. The fleet provides timely movement of key personnel to critical locations throughout the theater of operations, and transports time-sensitive and mission critical supply items and repair parts needed to continue the war fight. 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:

- RC-7B Aerial Reconnaissance Low (ARL)
- C-12 Utility
- RC-12 Guardrail Common Sensor (GR/CS)
- C-20/C-37 Long range transport
- C-23 Cargo
- C-26 Utility
- UC-35 Utility

The RC-7B and RC-12 are classified as special electronic mission aircraft and provide real-time

intelligence collection in both 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 commanders in chief worldwide. The C-20 and C-37 stationed at Andrews Air Force Base are classified as senior support aircraft for designated support of the chief of staff and service secretary.

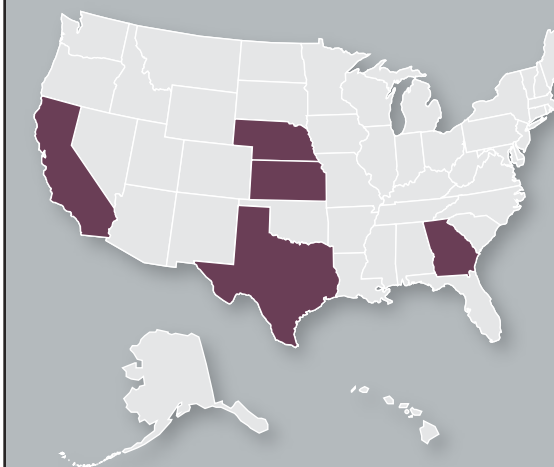
PROGRAM STATUS

- C-37 and UC-35 are the only aircraft in production; all purchased to date with Congressional plus-up funding
- C-12, RC-12, and UC-35 aircraft utilizing a life cycle contractor support (LCCS) maintenance contract (DynCorp)
- C-23 aircraft utilizing an LCCS maintenance contract (Duncan)
- C-37, C-20, and C-26 aircraft utilizing Air Force LCCS maintenance contracts
- RC-7 aircraft utilizing USAF LCCS maintenance contract (AVTEL)

PROJECTED ACTIVITIES

- Headquarters Department of the Army-directed hub-and-spoke effort will locate aircraft at centralized locations to increase efficiency

	RC-7	C-12/RC-12	C-20/37	C-23	C-26	UC-35
Platform:	DeHavilland Dash 7	Beech King Air 200	Gulfstream	Sherpa	Metro Liner	Cessna Citation
Propulsion:	PT6A-50	PT6A-41/42/67	RR 611-8/BR 710-48	PT6A-65AR	Garrett TPE331-12	JT15D or PW535A
Ceiling (feet):	25,000	31,000/35,000	45,000	20,000	25,000	45,000
Speed (knots):	110 (loiter) 220 (Cruise)	260	459	180	260	415
Max. Weight (pounds):	47,000	12,500/16,500	74,600/95,000	25,600	16,500	16,500
Range (nautical miles):	1500	1454/1000	4220/5500	900	1500	1500
Passengers:	N/A	6-8/(N/A)	12-14	30	20	8



CONTRACTORS

Raytheon-Beechcraft (Wichita, KS)
Cessna Aircraft (Wichita, KS)
Shorts Brothers (Belfast, Ireland)
Fairchild (San Antonio, TX)
DeHavilland Aviation (Canada)
Gulfstream (Savannah; GA)
DynCorp (Ft. Worth, TX)
Duncan (Lincoln, NE)
AVTEL (Mojave, CA)
M7 Aerospace (San Antonio, TX)

INVESTMENT COMPONENT

Modernization

ACQUISITION PHASE

- Production and Deployment
- Operations and Support

Force XXI Battle Command Brigade-and-Below (FBCB2)

Provides enhanced situational awareness to the lowest tactical level—the individual Soldier—and a seamless flow of command and control information across the battlefield.



DESCRIPTION AND SPECIFICATIONS

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 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.

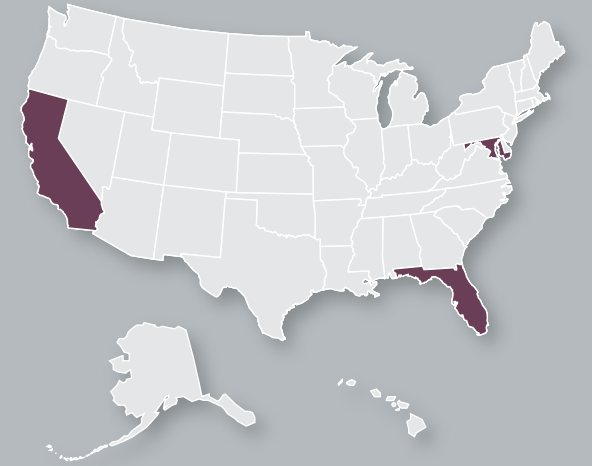
FBCB2 is a key component of the Army Battle Command System (ABCS). Appliance hardware and software are integrated into the various platforms at brigade and below, as well as at appropriate division and corps slices necessary to support brigade operations. The system features the interconnection of platforms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

PROGRAM STATUS

- **4QFY04** Obtained approval to enter production and deployment phase
- **4QFY04** Awarded FY04 full rate production hardware contract
- **4QFY04** Awarded follow-on systems engineering and integration contract

PROJECTED ACTIVITIES

- **2QFY05** Army Battle Command System 6.4 operational evaluation



CONTRACTORS

Prime:

Northrop Grumman (Redondo Beach, CA)

Services: Lear Siegler Services, Inc. (Gaithersburg, MD)

Satellite Access: COMTECH (Germantown, MD)

Hardware: COMTECH (Germantown, MD)
DRS Technologies (Palm Bay, FL)

Software:

Northrop Grumman (Redondo Beach, CA)

Raytheon (El Segundo, CA)

INVESTMENT COMPONENT

Modernization

ACQUISITION PHASE

- Production and Deployment

Forward Area Air Defense Command and Control (FAAD C2)

Collects, digitally processes, and disseminates real-time target tracking and cueing information, common tactical air picture, and command, control, and intelligence information to all short-range air defense weapons.



DESCRIPTION AND SPECIFICATIONS

Forward Area Air Defense Command and Control (FAAD C2) is a battle management and command, control, communications, computers, and intelligence system. Unique FAAD C2 software provides mission capability, such as critical command and control, situational awareness, and automated air track information, by integrating FAAD C2 engagement operations software and interfacing with the following systems:

- Joint Tactical Information Distribution System (JTIDS)
- Single Channel Ground and Airborne Radio System (SINGARS)
- Enhanced Position Location Reporting System (EPLRS)
- Global Positioning System (GPS)
- Airborne Warning and Control System (AWACS)
- Sentinel
- Army Battle Command System (ABCS)

FAAD C2 supports air defense weapon systems engagement operations by tracking friendly and enemy aircraft, cruise missiles, and unmanned aerial vehicles, and linking to other Army battle command systems and weapons, such as Avenger, Bradley Linebacker, man-portable air defense systems, and joint and combined arms.

FAAD C2 provides joint command and control interoperability and horizontal integration with all other air defense artillery systems, including:

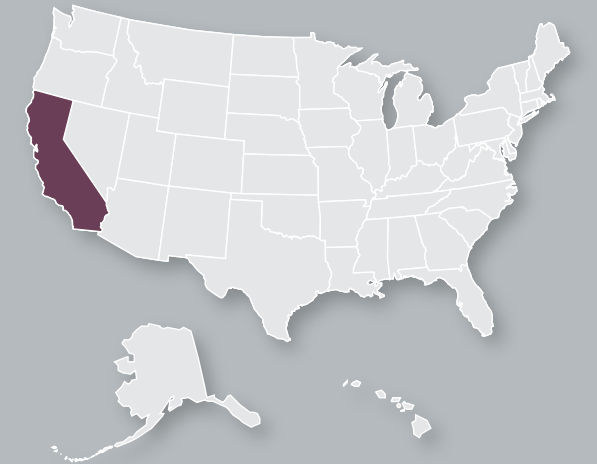
- Surface Launched Advanced Medium Range Air-to-Air Missile (SLAMRAAM)
- PATRIOT
- Theater High Altitude Area Defense (THAAD)
- Medium Extended Air Defense System (MEADS)
- Joint Tactical Air Ground Station (JTAGS)
- Mobile Tactical High Energy Laser (MTHL)

PROGRAM STATUS

- **2QFY01** Materiel release of FAAD C2 version 5.1 software
- **3QFY01** Completed version 5.2 software SCT
- **1QFY02** Participated in Division Capstone Exercise 2 at Ft. Hood, TX
- **2QFY02** Completed version 5.2 software Limited User Test
- **4QFY03** Version 5.3 delivery to government with beyond visual range engagement
- **4QFY03** Initial version 5.4a delivery beyond visual range
- **FY03** Version 5.2. upgrade to homeland defense units
- **2QFY04** Fielding to 3-265 Florida Army National Guard
- **3QFY04** Materiel release version 5.2
- **4QFY04** Fielding to 2-263d South Carolina Army Reserve National Guard

PROJECTED ACTIVITIES

- **2QFY05** FAAD C2 V5.2 materiel release
- **2QFY05** Participate in Clear Skies VI
- **2QFY05** Expedited release of FAAD C2 V5.4A in support of 1-44 ADA AMD BN activation
- **2-3QFY05** Participate in Joint Red Flag/Roving Sands
- **2-4QFY05** Field ADAM-4 to 2CR Stryker Brigade Combat Team-4
- **1-2QFY06** Field ADAM-5 to 2/25ID Stryker Brigade Combat Team-5



CONTRACTORS

Software: Northrop Grumman Mission Systems (Redondo Beach, CA)

INVESTMENT COMPONENT

Modernization

ACQUISITION PHASE

- Production and Deployment

Forward Repair System (FRS)

Repairs battle-damaged combat systems "on-site," up through the direct support level, in the forward battle area.



DESCRIPTION AND SPECIFICATIONS

The Forward Repair System (FRS) is a high-mobility, forward-maintenance/repair module system that reduces man-hours for maintenance personnel. Mounted to a flatrack, it is transported by Palletized Load System (PLS) trucks in Force XXI Divisions, or by Heavy Expanded Mobility Tactical Truck - Load Handling System (HEMTT-LHS) in Stryker Brigade Combat Teams (SBCTs).

- **Dimensions:** 8 feet wide by 8 feet high by 20 feet long
- **Weight:** 24,600 pounds
- **Air transportability:** C-130, C-141
- **Crane capacity:** Remove and replace major components from supported tracked and wheeled vehicles. Crane is capable of lifting and maneuvering 10,000 pounds at 14-foot radius. Frees recovery assets to perform their intended mission.
- **Generator capacity:** Provide 35 kilowatts at 60Hz output. Capable of simultaneously providing electrical power for all subsystems, including power take-off (PTO) for crane. Noise level is 73dB at 7 meters.
- **Air compressor:** Provides 175 pounds per square inch at 50 cubic feet per minute. Eighty-gallon capacity supplies air for on-board pneumatic tools, inflation of tires, and compressed air cleaning.
- **Welding and cutting equipment:** Limited spot welding and cutting equipment (shielded metal and "stick" welding, metal inert gas "MIG" welding, and exothermic cutting/brazing).
- **Tools:** Industrial grade hand/pneumatic/power tools. FRS's tool load is functionally equivalent to #1 common tool kit
- **Shelter/protection:** Contains a canvas tarp and heater that protects from the weather yet preserves access to welding, air, and accessory tools

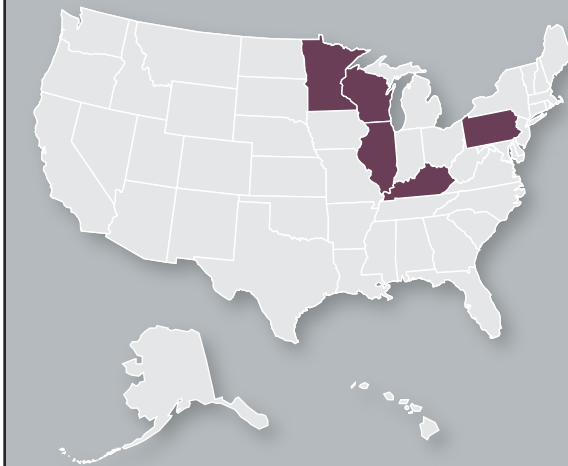
- **Air jacks/bags:** Two, Kevlar, each capable of lifting 40,000 pounds up to 15 inches
- 690 different tools

PROGRAM STATUS

- **Current** In production

PROJECTED ACTIVITIES

- Field to 3-13 Field Artillery, 25th Infantry Division, 4th Infantry Division and 2nd Cavalry Regiment (SBCT)



Forward Repair System (FRS)

CONTRACTORS

- Oshkosh Truck (Oshkosh, WI)
- Rock Island Arsenal (Rock Island, IL)
- Grove Worldwide (Shady Grove, PA)
- Cummings Power (Minneapolis, MN)
- Ingersoll-Rand (Campbellsville, KY)

INVESTMENT COMPONENT

Modernization

ACQUISITION PHASE

- Production and Deployment

Future Combat Systems (FCS)

Provides unit of action echelons with overmatching combat power, sustainability, agility, and versatility necessary for full spectrum operations.



DESCRIPTION AND SPECIFICATIONS

Future Combat Systems (FCS) is a joint (across all the military services) networked (connected via advanced communications) system of systems (one large system made up of 18 individual systems, the network, and most importantly, the Soldier). FCS is connected via an advanced network architecture that will enable levels of joint connectivity, situational awareness and understanding, and synchronized operations heretofore unachievable. FCS will operate as a system of systems (SOS) that will network existing systems, systems already under development, and systems to be developed to meet the requirements of the Army's Future Force unit of action (UA).

FCS-equipped UAs will be the Army's future tactical warfighting echelon; a dominant ground combat force that complements the dominant joint team. Although optimized for offensive operations, the FCS-equipped UA will have the ability to execute a full spectrum of operations. FCS will improve the strategic deployability and operational maneuver capability of ground combat formations without sacrificing lethality or survivability.

FCS includes:

- Unattended ground sensors (UGS)
- Two unattended munitions
- Non-Line of Sight-Launch System (NLOS-LS)
- Intelligent Munitions System (IMS)
- Four classes of unmanned aerial vehicle (UAV) organic to platoon, company, battalion, and unit of action echelons
- Three classes of unmanned ground vehicles
- The Armed Robotic Vehicle (ARV)
- Small Unmanned Ground Vehicle (SUGV)
- Multifunctional Utility/Logistics and Equipment Vehicle (MULE)
- Eight manned ground vehicles
- The Soldier

FCS is the central building block of the Army's Future Force. The FCS-equipped unit of action will consist of:

- Three FCS-equipped combined arms battalions (CABs)
- One NLOS cannon battalion
- One reconnaissance surveillance and target acquisition (RSTA) squadron
- One forward support battalion (FSB)
- One brigade intelligence and communications company (BICC)
- One headquarters company

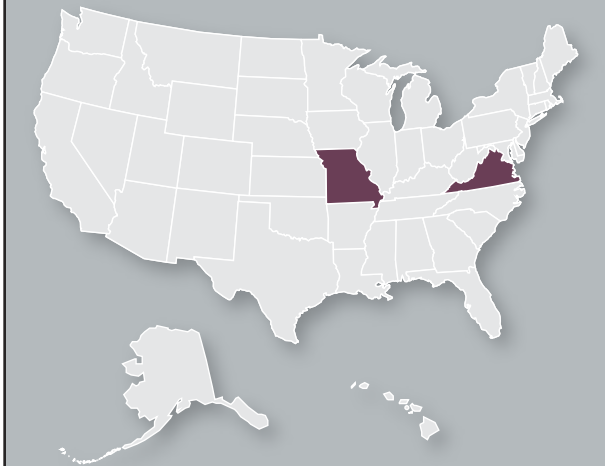
PROGRAM STATUS

• **4QFY05** Unpriced contractual action issued to Boeing with contract definitization in January 2005. Contract scope modifications to be defined include:

1. Adjustments to the OTA extending performance from December 2011 to December 2014
2. Incorporating development of previously deferred systems (the UAV Class II and III, Armed Robotic Vehicles, and FCS Maintenance and Recovery Vehicle)
3. Increased experimentation/assessment
4. Development efforts needed to support spiraling FCS capability into modular units of action

PROJECTED ACTIVITIES

- **FY05** Milestone B update
- **FY08** Program design review
- **FY10** Concept design review
- **FY13** Milestone C
- **FY15** Initial operational capability
- **FY17** Final operational capability



CONTRACTORS

Lead Systems Integrator:

Boeing (St. Louis, MO)
SAIC (McLean, VA)

INVESTMENT COMPONENT

Modernization

ACQUISITION PHASE

- System Development and Demonstration

Future Tactical Truck System – Maneuver Sustainment Vehicle (FTTS-MSV)

Supports Future Force command and control and logistics operations within the unit of action with a tactical, wheeled vehicle-based system.



DESCRIPTION AND SPECIFICATIONS

The goal of the Tactical Wheeled Vehicle Fleet Modernization (TWV-FM) and Future Tactical Truck System Advanced Concept Technology Demonstration (FTTS ACTD) is to identify and assess key technologies and emerging operational and sustainment concepts to develop the requirements of an optimized distribution and C2/Support platform for the Future Combat Systems (FCS) unit of action and to identify potential product improvements for the current TWV fleet. The goal of the FTTS is to support future force operations within the UA with a TWV based system. The two proposed FTTS variants are:

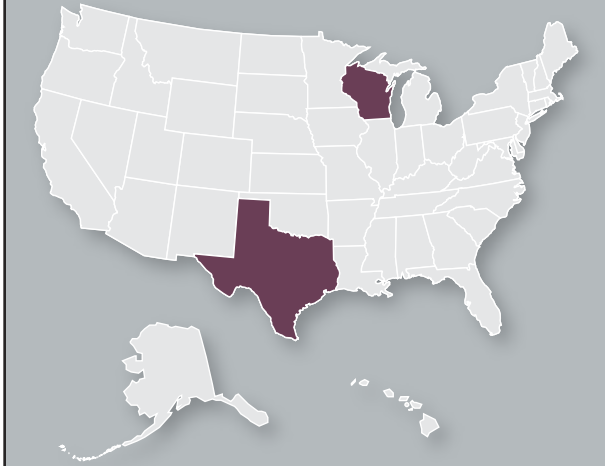
- 1)The Maneuver Sustainment Vehicle (MSV) with a cargo payload capacity of 11 tons
- 2)The Utility Vehicle (UV) with a capacity up to 2 1/2 tons

PROGRAM STATUS

- **1QFY04** Draft request for proposals released for industry comment addressing more than 1000 questions and comments
- **2QFY04** Draft FTTS management plan and military utility assessment plan
- **3QFY04** Request for proposals released to industry
- **4QFY04** MSV modeling and simulation contracts awarded; UV proposals being evaluated

PROJECTED ACTIVITIES

- **4QFY04-2QFY05** Modeling and simulation of the MSV and UV concept designs and analysis will be completed
- **3QFY05** Critical design review of multiple MSV and UV designs resulting in the selection of the MSV and UV hardware demonstration vehicles
- **2QFY06** Military utility assessment for demonstrators



CONTRACTORS

MSV: Oshkosh Truck Corp. (Oshkosh, WI)
Stewart & Stevenson (Sealy, TX)
UV: To be selected

INVESTMENT COMPONENT

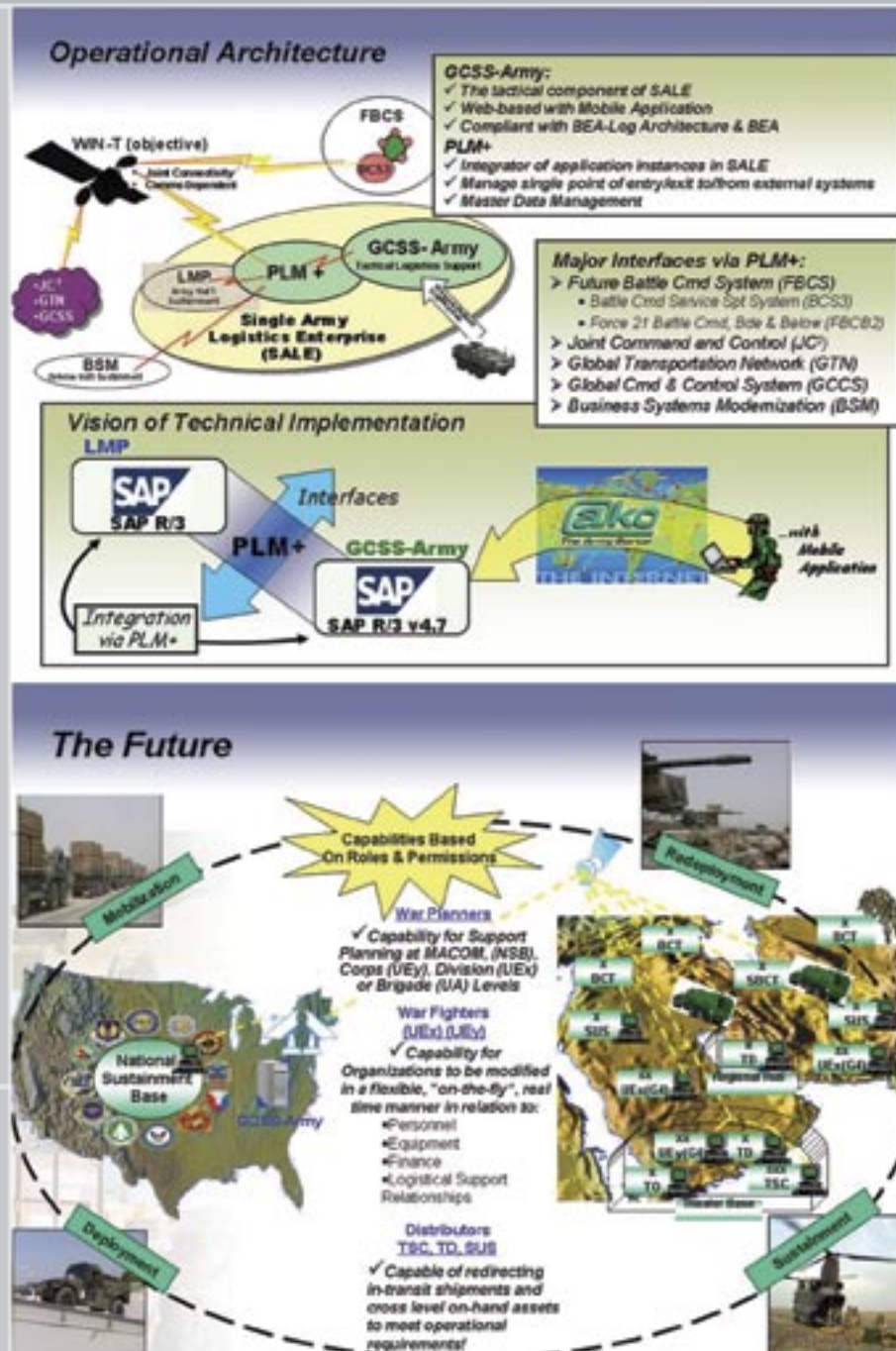
Modernization

ACQUISITION PHASE

- Concept and Technology Development
- System Development and Demonstration
- Production and Deployment
- Operations and Support

Global Combat Support System – Army (GCSS-Army)

Enables users to perform logistics support tasks and to view complete logistics management information and make timely, data-driven decisions.



DESCRIPTION AND SPECIFICATIONS

The Global Combat Support System-Army (GCSS-Army) enables the re-engineering of field Army logistics business processes to conform to industry best practices. As a corollary benefit, it will replace 13 legacy Army logistics systems and interface/ or integrate with applicable command and control (C2) and joint systems to enhance combat support/ combat service support (CS/CSS) transformation and modernize the CS infrastructure. GCSS-Army provides the primary logistics system enabler to achieve the Army transformation vision of a technologically advanced, enterprise resource planning (ERP) system, capable of managing the flow of the CS/CSS logistics resources and information, to satisfy the Army's logistics modernization requirements.

GCSS-Army provides commanders with the capability to anticipate, allocate, and synchronize the flow of CSS resources to equip, deploy, and project, sustain, reconstitute, and re-deploy forces in support of the national military strategy, providing rapid, coordinated, and sustained CSS support to the Army, joint services, and allied forces within a reduced footprint.

As an enabler of near-real-time logistics management, the Web-based (Defense Reform Initiative #54) system, supported by lightweight mobile applications, provides essential functionality for limited disconnected operation, and robust deployable communications capable of providing reachback to a centralized data repository regardless of location—e.g., sustaining base or deployed theater—for all users at all echelons.

GCSS-Army will meet the needs of the warfighter by re-engineering field Army logistics business processes to provide the right materiel at the right place and at the right time while anticipating warfighter requirements for asset visibility and control, along with timely and accurate management information. GCSS-Army is the field Army (tactical) component of the Army's single

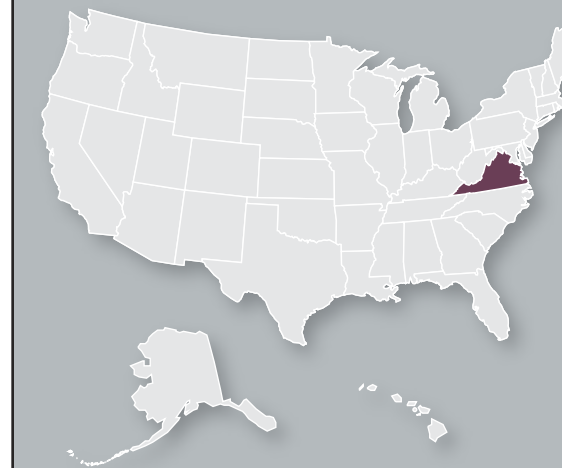
integrated logistics solution capable of supporting rapid force projection and battlefield functional areas of manning, arming, fixing, fueling, moving, and sustaining deployed forces.

PROGRAM STATUS

- **1QFY03** Adopted SAP's Enterprise Resource Planning (ERP) application suite and is currently in the project preparation phase of its implementation.
- **1QFY04** Program approved to proceed to the ERP blueprinting phase (functional process re-engineering)
- **3QFY04** Program approved to develop the Product Lifecycle Management Plus (PLM+) for the Single Army Logistics Enterprise (SALE) architecture as component of the GCSS-Army program. PLM+ ensures seamless operations between tactical and national levels of the SALE architecture. GCSS-Army is the tactical component of SALE, while the logistics modernization program is the national component.
- **Current** At the mid-point in GCSS-Army (Field/ Tactical) blueprinting phase. Preparing to award PLM+ lead system integrator contract and then initiate SALE end-to-end blueprinting

PROJECTED ACTIVITIES

- **FY05** Upon successful Milestone B decision program will enter the realization phase and begin configuring the software to implement the blueprinting logistics business processes.
- **FY07** Milestone C decision expected.



CONTRACTORS

- Lead System Integrator:**
Northrop Grumman Mission Systems (Chester, VA)
- Laptop Computers:**
GTSI (Chantilly, VA)
- Program Support:**
Titan Corp. (Colonial Heights, VA)
L-3 Communications (Chester, VA)

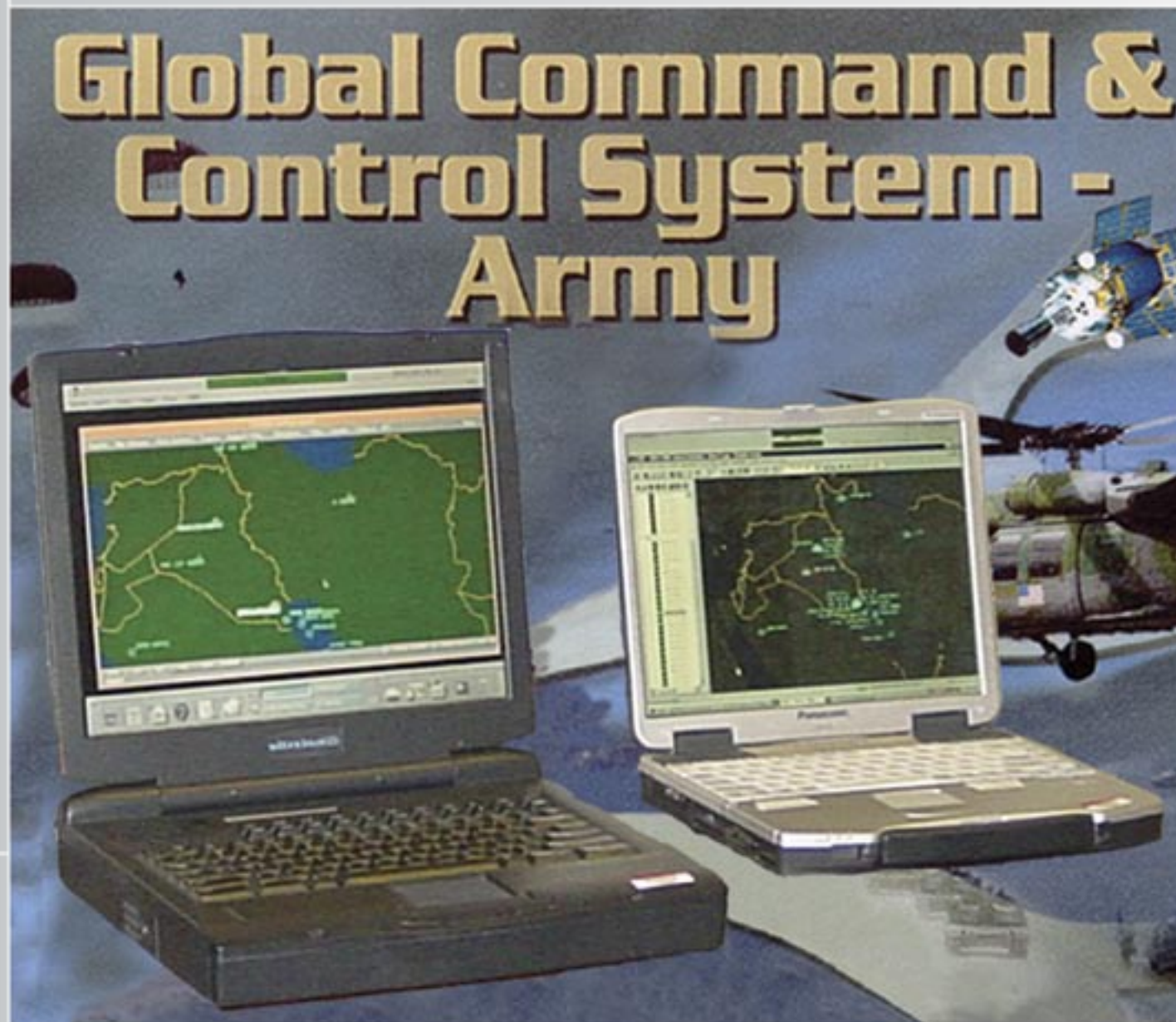
INVESTMENT COMPONENT

Modernization

ACQUISITION PHASE

- Concept and Technology Development

Enhances warfighter capabilities across the spectrum of conflict, during joint and combined operations, through automated command and control tools for strategic and operational commanders.



DESCRIPTION AND SPECIFICATIONS

The Global Command and Control System-Army (GCCS-A) is the Army's strategic and operational command and control (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 Systems (ABCS)

GCCS-A supports Army units from the strategic commanders and regional combatant commanders in the 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.

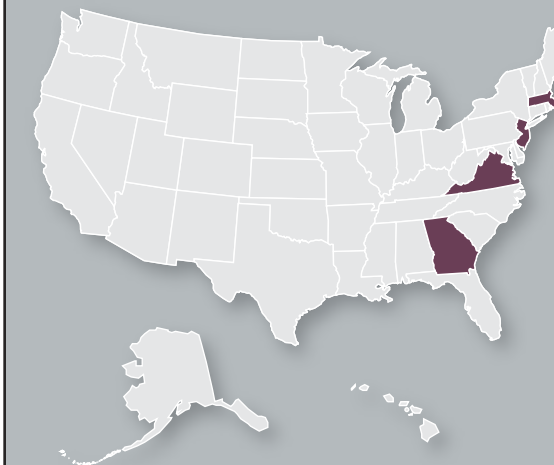
The common operating environment specifies a common system infrastructure for all C2 systems in accordance with the joint technical architecture guidelines, which provide common support architecture and modular software for use by the services and agencies in developing mission-specific solutions to their C2 requirements. The hardware platform is based on commercial, off-the-shelf hardware and the products in the common hardware software II contract. The system users are linked via local area networks in client/server configurations with an interface to the Secret Internet Protocol Router Network (SIPRNET) for worldwide communication.

PROGRAM STATUS

- **3QFY04-1QFY05** Continue integration and testing of GCCS-A Block IV
- **3QFY04-1QFY05** Support Operations Enduring Freedom and Iraqi Freedom (OEF/OIF) III
- **3QFY04-1QFY05** Complete staffing of joint command and control (JC2) capabilities development document (CDD), to include the Army annex

PROJECTED ACTIVITIES

- **2QFY05-3QFY05** Continue integration and testing of GCCS-A Block IV
- **2QFY05-1QFY06** Continue spiral development process in support of Army digitization and program requirements and develop program documentation for Joint Command and Control System (JC2) Block I
- **2QFY05-1QFY06** Continue directed fieldings and prepare for required support for OEF/OIF IV
- **3QFY05** Begin fielding of GCCS-A Block IV to support GCCS-Joint fielding



CONTRACTORS

Prime: Lockheed Martin (Springfield, VA)

Hardware:

General Dynamics (Taunton, MA)
GTSI Corp. (Chantilly, VA)

Fielding Support:

FC Business Systems (Springfield, VA)
Engineering Solutions and Products (Eatontown, NJ)

Software Training: SAIC (Atlanta, GA)

INVESTMENT COMPONENT

Modernization

ACQUISITION PHASE

- Production and Deployment

Global Positioning System (GPS)

Provides real-time position, velocity, and timing data to tactical and strategic organizations.



DESCRIPTION AND SPECIFICATIONS

The Global Positioning System (GPS) is a space-based joint service navigation program, led by the Air Force, that distributes position, velocity, and timing (PVT) data. It 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 use, 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. The primary GPS receiver in the Army today is the Precision Lightweight GPS Receiver (PLGR) with more than 100,000 in handheld, installed, and integrated applications. The Defense Advanced GPS Receiver (DAGR) began replacing the PLGR in December 2004. Next generation GPS user equipment also includes the Ground-Based GPS Receiver Applications Module (GB-GRAM) that is now providing embedded PPS capability to a variety of weapon systems. The Army represents more than 80 percent of the requirement for user equipment.

DAGR

Size: 6-3/8 x 3-7/16 x 1-9/16 inches

Weight: One 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

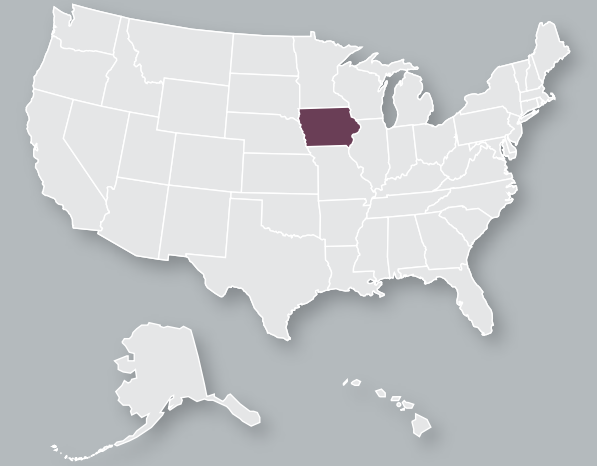
Satellites: All-in-view

PROGRAM STATUS

- 1QFY05 DAGR first unit equipped

PROJECTED ACTIVITIES

- FY05 DAGR fieldings



CONTRACTORS

DAGR Acquisition and PLGR Support:
Rockwell Collins (Cedar Rapids, IA)

INVESTMENT COMPONENT

Modernization

ACQUISITION PHASE

- Production and Deployment

Guardrail Common Sensor (GR/CS)

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



DESCRIPTION AND SPECIFICATIONS

The Guardrail Common Sensor (GR/CS) is a corps-level, fixed-wing, airborne, signals intelligence (SIGINT) collection and precision targeting location system. The GR/CS system supports corps, division, and joint land force component commanders by detecting, identifying, exploiting, and precisely locating threat communications, radars, and other electronic emitters throughout the corps/joint task force (JTF) area of interest. It provides information dominance to the tactical commander.

One GR/CS system is authorized per aerial exploitation battalion in the military intelligence brigade at each corps. A standard system consists of eight to 12 RC-12 aircraft that fly operational missions in sets of two or three. Ground processing is conducted in the integrated processing facility, which is a building block toward the Army Distributed Common Ground Station (DCGS-A). Interoperable data links (IDL) and multi-role data links (MRDL) provide microwave connectivity between the aircraft and the integrated processing facility or the modernized Guardrail Information Node (GRIFN), which is a downsized and deployable version of the integrated processing facility and connects the airborne element to the ground processing element.

GR/CS systems provide near real-time SIGINT and targeting information to tactical commanders throughout the corps/JTF area via the Commander's Tactical Terminal (CTT), Tactical Related Applications Broadcast System (TRAPS), Tactical Reconnaissance Intelligence Exchange System (TRIXS), Tactical Information Broadcast Service (TIBS), and Integrated Broadcast Service (IBS). GR/CS serves as an operational platform for verification of new or improved technologies necessary for the future Aerial Common Sensor (ACS).

Key features include:

- Integrated communications intelligence (COMINT) and electronic intelligence (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, and 4).

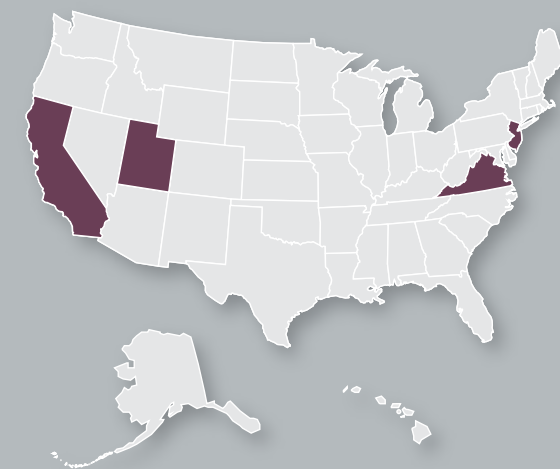
Planned product improvements include greater mobility, deployability, and system upgrades. Guardian Eagle (GE) upgrades increase GR/CS capability to exploit a wider range of signals, including both military communication emitters and commercially available hand-held communication devices. GR/CS shares technology with the Airborne Reconnaissance Low (ARL) and other joint systems.

PROGRAM STATUS

- Fielded Reporting shelter and conducted accreditation testing to GR/CS System 2; Transportable Medium Earth Terminal (TMET) for remote relay capability for System 4; Advanced Quicklook X-Wing diagnostics system capability to all systems; Guardian Eagle, Enhanced Signal Exploitation, to Systems 2 and 4; and Triband SATCOM Terminal (TST) to System 4 to support remote relay operations
- Completed final TIBS capability to all GR/CS systems
- Received full materiel release for GR/CS System 2
- **2QFY04** Completed GRIFN upgrade on System 1
- **4QFY04** Complete Radio Relay System (RRS)/Interference Cancellation System (ICS) upgrade on System 3.
- **1QFY05** Install Airborne Tactical Common Data Link (ATCDL) on System 1
- **1QFY05** Provide additional GE (Delta Wing/X-Midas) capability to System 1

PROJECTED ACTIVITIES

- **4QFY05** Install ATCDL on System 4



CONTRACTORS

Guardian Eagle Upgrades:

Northrop Grumman (Sacramento, CA)

Data Links:

L-3 Communications (Salt Lake City, UT)

Radio Relay Sets: Raytheon (Falls Church, VA)

SIGINT Support: CACI (Eatontown, NJ)

X-Midas Software: ZETA (Fairfax, VA)

INVESTMENT COMPONENT

Modernization

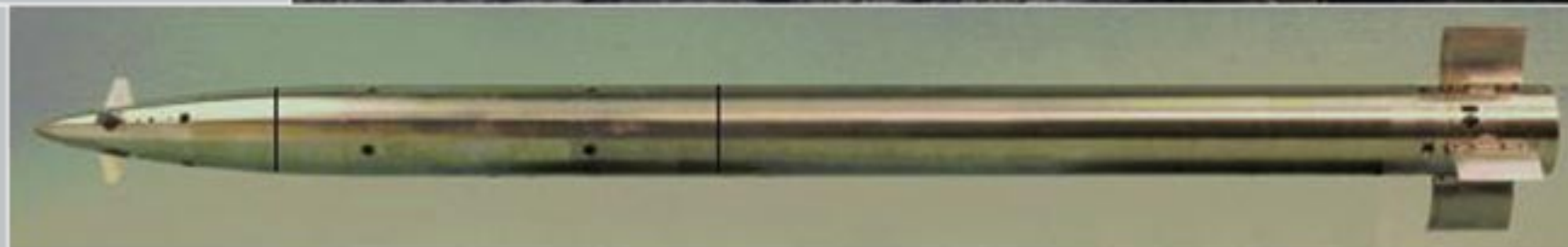
ACQUISITION PHASE

- Operations and Support

Guardrail Common Sensor (GR/CS)

Guided Multiple Launch Rocket System (GMLRS)

Provides a longer-range, greater precision, multiple launch rocket system, enabling a quick artillery response with lethal overmatch.



DESCRIPTION AND SPECIFICATIONS

The Guided Multiple Launch Rocket System (GMLRS) is a major upgrade to the M26 rocket, producing precise destructive and shaping fires against a larger target set. GMLRS is employed with the M270A1 upgraded Multiple Launch Rocket System (MLRS) tracked launcher and the 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 variants of the GMLRS: the dual-purpose improved conventional munitions (DPICM) variant (warhead consists of 404 small anti-personnel and anti-materiel grenades that are dispersed over the specific target); and the unitary variant (warhead consists of a single, 200 pound class high explosive charge that provides blast and fragmentation effects on, above, or in a specific target). GMLRS DPICM development was an international cooperative program with the United Kingdom, Germany, France, and Italy.

Rocket Length: 3937mm

Rocket Diameter: 227mm

Rocket Reliability: Threshold 92 percent; objective: 95 percent

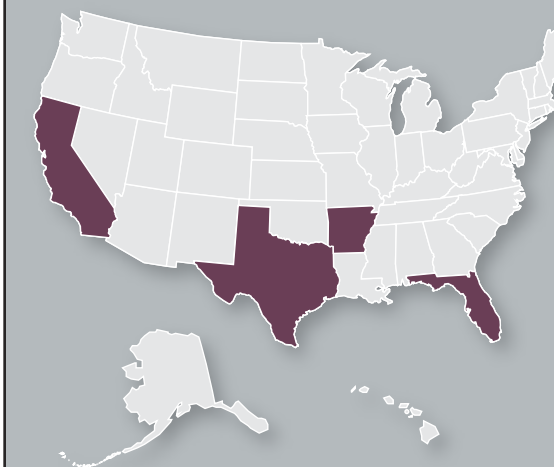
Ballistic Range(s): Threshold 60 kilometers (maximum)/20 kilometers (minimum); objective 70 kilometers (maximum)/15 kilometers (minimum)

PROGRAM STATUS

- **1-2QFY02** Conducted successful early development test
- **4QFY02-1QFY03** Conducted production qualification test
- **3QFY03** Low-rate initial production (LRIP) decision and LRIP I contract award
- **4QFY03** FY03 Operation Iraqi Freedom supplemental contract award
- **4QFY04** Initial operational test

PROJECTED ACTIVITIES

- **FY05** Full-rate production decision
- **FY06** Initial operational capability



CONTRACTORS

Prime Munitions Integrator:

Lockheed Martin (Dallas, TX)

Rocket Assembly:

Lockheed Martin (Camden, AR)

Motor Assembly:

Aerojet (Camden, AR)

G&C Section:

Honeywell (Clearwater, FL)

Motor Case/Warhead Skins:

Aerojet (Vernon, CA)

INVESTMENT COMPONENT

Modernization

ACQUISITION PHASE

- Production and Deployment

Heavy Expanded Mobility Tactical Truck (HEMTT)/ HEMTT-Recapitalization (RECAP)

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



DESCRIPTION AND SPECIFICATIONS

The rapidly deployable Heavy Expanded Mobility Tactical Truck (HEMTT), developed for cross-country military missions, transports ammunition, petroleum, oils and lubricants to currently equipped, digitized, and transformation-force units (brigade/battalion areas of operation). HEMTT is a prime mover for certain missile systems such as the PATRIOT, and operates in any climate where military operations occur. HEMTT comes in six basic configurations:

- M977 cargo truck with light materiel handling crane
- M985 cargo truck with materiel-handling is the ammunition transport prime mover for the Multiple-Launch Rocket System (MLRS)
- M978 is a 2,500-gallon fuel tanker
- M983 tractor
- M984 wrecker is a recovery vehicle for other vehicle systems
- M1120 load-handling system (LHS) transports palletized materiel and International Standards Organization (ISO) containers

A self-recovery winch is also available on all models.

LHS is the newest variant with an integrated system that provides self-load and unload capability. LHS provides the Soldier with an efficient and economic system with capabilities similar to that of the Palletized Load System (PLS) and is a major enabler in the Army's drive to achieve a distribution-based logistics system.

The HEMTT Recapitalization converts old and high-mileage HEMTT trucks to 0 Miles/0 Hours and to the current A2 production configuration. The trucks are disassembled and rebuilt with technology insertions and improvements, such as electronically controlled engine, electronic transmission, air ride seats, four-point seatbelts, bolt-together wheels, increased corrosion protection and enhanced

electrical package. The completed recap truck is configured the same as a new production truck, complete with a new vehicle warranty.

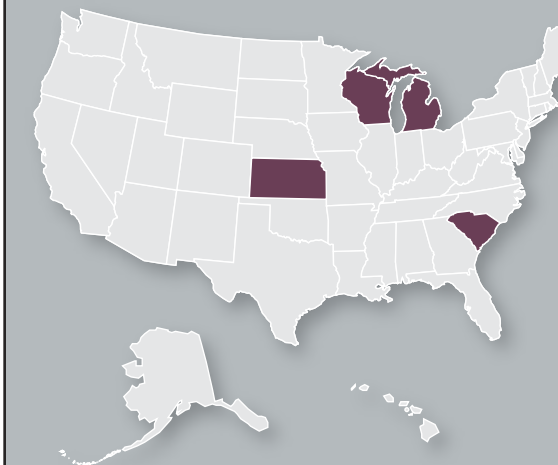
- Truck payload:** 11 tons
- Trailer payload:** 11 tons
- Flatrack dimensions:** 8-foot-by-20-foot (ISO container standard)
- Engine type:** Diesel
- Transmission:** Automatic
- Number of driven wheels:** 8
- Range:** 300 miles
- Air transportability:** C-130, C-17, C-5

PROGRAM STATUS

- **FY04** HEMTT A2 fieldings to 3-43 ADA (PATRIOT) Ft. Bliss; 1-117 FA Battalion; 1-111 FA Battalion; 4ID and III Corps
- **1QFY05** Award contract for the A2 Block Mod, which will incorporate the following technologies into the HEMTT/HEMTT-Recap: air ride suspension, electrical redesign, powertrain upgrade, traction control, ABS, and climate control.

PROJECTED ACTIVITIES

- **FY05** HEMTT A3 diesel electric drive vehicle chassis prototype produced and operational to support further drive algorithm development and motion programming for the enhanced load handling system to accommodate load and unload direct from C-130 aircraft.
- **FY05** HEMTT A2 fieldings to 101st AASLT DIV, Ft. Campbell, KY; 10th MTN DIV, Ft. Drum, NY; several Guard and Reserve units; 4SBCT, Ft. Lewis, WA; APS-4 (Korea); ARF-4 (Saipan/Guam)



CONTRACTORS

Oshkosh Truck (Oshkosh, WI)
Detroit Diesel (Emporia, KS; Redford, MI)
Michelin (Greenville, SC)

INVESTMENT COMPONENT

Recapitalization

ACQUISITION PHASE

- Production and Deployment

High Mobility Artillery Rocket System (HIMARS)

Enables early entry and contingency forces to engage and defeat area and points targets via a highly mobile and deployable multiple launch, precision missile system.



DESCRIPTION AND SPECIFICATIONS

The High Mobility Artillery Rocket System (HIMARS) provides the Army and Marine Corps with a rapidly deployable—C-130 transportable—round-the-clock, all-weather, lethal, long-range precision rocket and missile fire support system for joint, early entry expeditionary forces, contingency forces, and modular fire brigades in support of brigade combat teams.

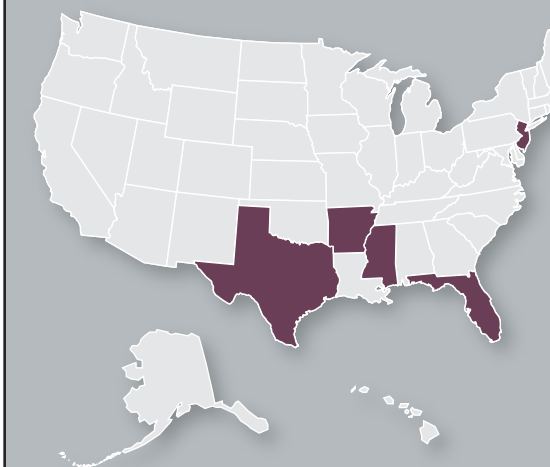
Highly mobile, HIMARS is mounted on a five-ton modified Family of Medium Tactical Vehicles (FMTV) chassis. The wheeled chassis allows for faster road movement, and lower operating costs, and requires 30 percent fewer strategic airlifts (via C-5 or C-17) to transport than the current, tracked M270 Multiple Launch Rocket System (MLRS) that it replaces. HIMARS can fire all current and planned suites of MLRS family of munitions, including Army Tactical Missile System (ATACMS) missiles and Guided MLRS (GMLRS) rockets. HIMARS carries either six rockets or one ATACMS missile, is self-loading and self-locating, and is operated by a three-man crew protected during firings by a reinforced man-rated cab.

PROGRAM STATUS

- **3QFY04** Low rate initial production (LRIP) first delivery
- **4QFY04** Initial operational test and evaluation begins
- **1QFY05** Initial operational test and evaluation completion
- **1QFY05** LRIP III contract award

PROJECTED ACTIVITIES

- **2QFY05** First unit equipped, 3-27FA, XVIII Airborne Corps Artillery
- **3QFY05** Full rate production decision review
- **1QFY06** Full rate production I contract award



CONTRACTORS

Prime and Launcher:

Lockheed Martin (Dallas, TX; Camden, AR)

Family of Medium Tactical Vehicles:

Stewart & Stevenson (Sealy, TX)

Improved Weapons Interface Unit:

Harris (Melbourne, FL)

Position Navigation Unit:

Allied Signal (Teterboro, NJ)

Hydraulic Pump and Motor:

Vickers (Jackson, MS)

INVESTMENT COMPONENT

Modernization

ACQUISITION PHASE

- Production and Deployment

High Mobility Engineer Excavator (HMEE)

Enables units throughout the area of operations to construct combat emplacements and survivability positions via a high mobility earthmoving machine.



DESCRIPTION AND SPECIFICATIONS

The High Mobility Engineer Excavator (HMEE) is a self-deployable excavation system with rapid digging capabilities used to execute a wide range of mobility, countermobility, general engineering and survivability missions (such as crew served weapon positions, command posts, and individual fighting positions).

HMEE is a non-developmental, military-unique vehicle consisting of two programs; the Interim High Mobility Engineer Excavator (IHMEE), ending in FY04, supporting Stryker Brigade Combat Team (SBCT) requirements, and the HMEE (starting in FY05) supporting the engineers in the Army's transformation to the Future Force and the brigade combat team (unit of action). Both types of HMEE are lightweight, all-wheel drive, diesel-engine driven, high-mobility vehicles with backhoe, bucket loader, and other attachments. The HMEE weighs approximately 24,000 pounds, is air-transportable by C-130 aircraft, travels at speeds of more than 40 miles per hour on improved roads, and has off-road mobility, enabling it to maintain pace with the Army's current and future combat systems, and providing rapid movement between battle positions.

KPPs:	Threshold	Objective
On-road speed (miles per hour)	40	65
Off-road speed (miles per hour)	25	40
Transportability	C130	CH47(2 lifts)
Precision	1/4 cubic yard, 8 feet	1/2 cubic yard, 12 feet
Excavation Lift & Load	1 cubic yard	2.5 cubic yards

PROGRAM STATUS

- 4QFY04–1QFY05 System demonstration testing

PROJECTED ACTIVITIES

- 2QFY05 Release request for proposal
- 3QFY05 Milestone C type classification generic
- 3QFY05 Contract award
- 1QFY06–2QFY06 Production verification test



CONTRACTORS
To be selected

INVESTMENT COMPONENT
Modernization

ACQUISITION PHASE
• Production and Deployment

High Mobility Engineer Excavator (HMEE)

High Mobility Multipurpose Wheeled Vehicle (HMMWV)

Supports combat, combat support, and combat service support units with a versatile, light, mission-configurable, tactical wheeled vehicle.



DESCRIPTION AND SPECIFICATIONS

The High Mobility Multipurpose Wheeled Vehicle (HMMWV) is a tri-service program that provides light, highly mobile, diesel-powered, four-wheel-drive vehicles to satisfy Army, Marine Corps, and Air Force requirements. HMMWV uses common components and kits to enable its reconfiguration as a troop carrier, armament carrier, S250 shelter carrier, ambulance, TOW missile carrier, and scout vehicle.

Since its inception, the HMMWV has undergone numerous updates, including technological upgrades, higher payload capacity, radial tires, 1994 Environmental Protection Agency emissions update, commercial bucket seats, three-point seat belts, four-speed transmissions, and, in some cases, turbocharged engines and air conditioning.

Currently, there are numerous variants of the HMMWV. The heavy variant has a payload of 4,400 pounds and is the prime mover for the light howitzer, towed Vulcan system, and heavier shelter carriers.

The Up-Armored HMMWV was developed to provide increased ballistic (up to 7.62mm NATO armor piercing) and blast protection (12-pound mine, front; 4-pound mine, rear), primarily for military police, special operations, and contingency force use. Selected as the Army's interim convoy protection platform, the Up-Armored HMMWV is currently delivered with gunner protection kits that provide the gunners with 360-degree protection.

The HMMWV A2 configuration incorporates the four-speed, electronic transmission, the 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 most recent A2 variants going into production are the XM1151 Enhanced Armament Carrier and the XM1152 Enhanced Troop/Cargo/Shelter Carrier.

The expanded capacity vehicle (ECV) has a payload capacity of 5,100 pounds, including crew. ECV chassis are used for the M1114 Up-armored HMMWV and serve as a platform for mission payloads and for systems that exceed 4,400 pounds.

HMMWV recapitalization:

- Rebuilds older HMMWV variants (M998/1037A0s) into armor-capable M1097R1s
- Reduces overall operations and support costs
- Increases the service life of the overall HMMWV fleet
- Provides a platform for the spiralling of new technology into the HMMWV fleet

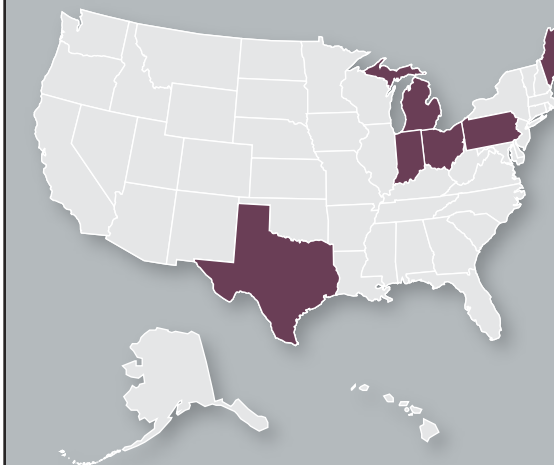
A centerpiece of the recapitalization effort is the Repower Initiative, which will spiral a new power train into both recapitalized and new production lines for more power, better reliability and sustainability, better range and fuel economy, and better environmental controls.

PROGRAM STATUS

- **Continued** fielding of A2 HMMWVs M1151/1152 HMMWVs and M1114 Up-Armored HMMWVs to Army, Marine Corps, Air Force, and foreign military sales customers
- **FY04** Continued recapitalization of HMMWVs; first recapitalized vehicles delivered by Red River Army Depot

PROJECTED ACTIVITIES

- **2QFY05** Full materiel release for XM1151/1152 expected
- **2QFY05** HMMWV repower test vehicle contracts award
- **2QFY05** First Recap HMMWV delivered from LEAD and Maine Military Authority
- **1QFY06** HMMWV repower production contract award
- **2QFY06** HMMWV repower initial operating capability



CONTRACTORS

AM General (South Bend, IN)
 O'Gara-Hess & Eisenhardt (Fairfield, OH)
 GEP (Franklin, OH)
 Defiance (Defiance, OH)
 GM (Warren, MI)
 Red River Army Depot (Red River, TX)
 Letterkenny Army Depot (Chambersburg, PA)
 Maine Military Authority (Limestone, ME)

INVESTMENT COMPONENT

Recapitalization

ACQUISITION PHASE

- Production and Deployment

High Mobility Multipurpose Wheeled Vehicle (HMMWV)

Improved Ribbon Bridge (IRB)

Improves mobility by providing continuous roadway or raft capable of crossing military load classification 100(wheeled)/80(tracked) vehicles over non-fordable wet gaps.



DESCRIPTION AND SPECIFICATIONS

The Improved Ribbon Bridge (IRB) system is designed to replace the Standard Ribbon Bridge, which has exceeded its service life.

The system uses modular, aluminum bays with integral superstructure and floating supports to provide a continuous floating roadway operable in currents up to 10.5 feet per second.

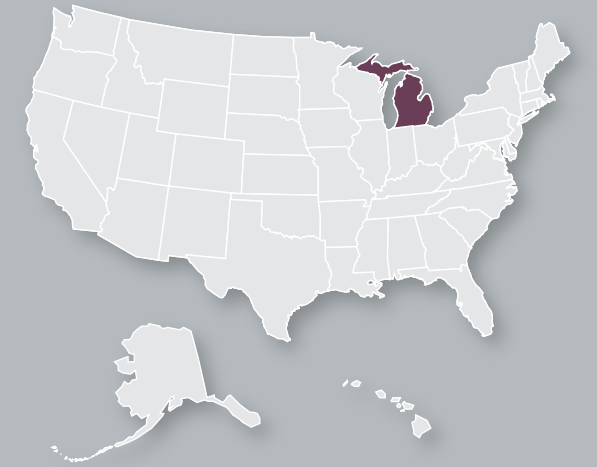
Fielded to multi-role bridge companies (MRBC), the bridge modules are mounted on M15 Bridge Adapter Pallets and transported using M1977 Common Bridge Transporters and M1076 Palletized Load System Trailers. A 100-meter bridge can be built in less than 60 minutes (daytime).

PROGRAM STATUS

- **3QFY04** Fielded to 299th MRBC and 200th MRBC
- **4QFY04** Fielded to 459th MRBC

PROJECTED ACTIVITIES

- **2QFY05** Award new sole-source requirements contract
- **2QFY05** Complete fielding to 652nd MRBC



Improved Ribbon Bridge (IRB)

CONTRACTORS

Manufacturer:

General Dynamics Santa Barbara Sistemas (Kaiserslautern, Germany)

Logistic Support: AM General (Livonia, MI)

INVESTMENT COMPONENT

Modernization

ACQUISITION PHASE

- Production and Deployment

Improved Target Acquisition System (ITAS)

Provides superior surveillance capability that enables the Soldier to shape the battlefield by detecting and engaging targets at long range.



DESCRIPTION AND SPECIFICATIONS

The TOW Improved Target Acquisition System (ITAS) is the reconnaissance, intelligence, surveillance, and target acquisition (RISTA) platform, providing long-range heavy antitank and precision assault fires capabilities to Army and Marine Corps light, airborne, air assault, and Stryker Brigade Combat Team (SBCT) forces. It is a multi-mission weapon system used as a tank killer, precision assault weapon, and as the Infantry task force's long range surveillance asset.

ITAS is a major product upgrade modification, replacing the existing M220A4 Tube Launched, Optically Tracked, Wire Guided 2 (TOW 2) system in light infantry units. ITAS operates from the High Mobility Multipurpose Wheeled Vehicle (HMMWV), the dismount tripod platform, and Stryker anti-tank guided missile vehicles.

The improved design greatly reduces its number of components, minimizing logistics support and equipment requirements. Built-in diagnostics and improved interfaces greatly improve target engagement performance. ITAS performance-based logistics support halves TOW 2 support costs. ITAS's second-generation infrared sensor technology provides gunners with more than double the range of the AN/TAS TOW sight. ITAS also provides improved probability of hit through aided target tracking, improved missile flight operations, and an elevation brake to minimize launch transients.

The ITAS modification kit consists of an integrated (day/night sight with laser rangefinder) target acquisition subsystem, fire control subsystem, lithium-ion battery power source, and a modified traversing unit. With it, the Soldier can detect long-range targets and then either engage them with TOW missiles or direct the employment of other weapon systems to destroy them. With the PAQ-4/PEQ-2 Laser Pointer, ITAS can be used to designate for .50 caliber or Mk-19 grenade engagements. TOW 2B Aero (extended range) provides an extended

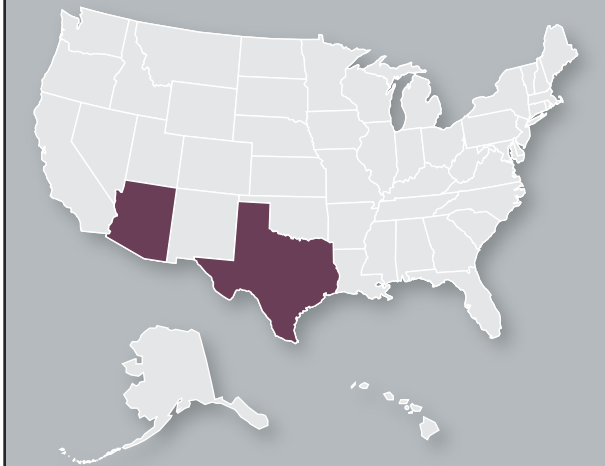
maximum range to 4,500 meters for long-range engagement of armored vehicles. TOW Bunker Buster is designed for military operations in urban terrain or bunker engagements during assault operations.

PROGRAM STATUS

- **FY98** First unit equipped completed to 1-17th Cav, 82nd Airborne
- **Current** ITAS has been fielded to 82 Airborne Div; 1st, 2nd and 3rd SBCTs; the 101st Air Assault Division; 2nd Infantry, 10th Mountain, and 25th Infantry Divisions; and 39th Separate Infantry Brigade
- **Current** The Marine Corps selected ITAS as its Anti-Armor Weapon System-Heavy choice to replace all Marine Corps heavy anti-tank/assault systems.
- **Current** ITAS is being considered as a future combat acquisition system
- **10FY05** Fielding to UAs 1 and 3, 10th MTN Div, 173rd ABN BDE

PROJECTED ACTIVITIES

- **FY05** Production of 65 systems
- **2QFY05** Fielding to UAs 3 and 4, 10th MTN Div and UAs 3 and 4, 101st ABN Div
- **3QFY05** Fielding to 2nd LCR SBCT 4
- **4QFY05** Fielding to UA 2 of 10th MTN Div, 25th LID UA 4
- **FY05-06** Development of far target location and radio frequency transfer of forward-looking infrared imagery
- **FY09** Army production continues



CONTRACTORS

Prime: Raytheon (McKinney, TX)
Training Devices:
 Intercoastal Electronics (Mesa, AZ)

INVESTMENT COMPONENT

Modernization

ACQUISITION PHASE

- Production and Deployment
- Operations and Support

Integrated Family of Test Equipment (IFTE)

Enables verification of Army weapon systems and components, or the isolation, diagnosis, and repair of faults through mobile, general purpose, and automatic test systems.



Maintenance Support Device



**AN/TSM-191(V) 5
Electro-Optics
Test Facility**



**AN/TSM-191(V) 6
Base Shop
Test Facility**



DESCRIPTION AND SPECIFICATIONS

The Integrated Family of Test Equipment (IFTE) consists of three interrelated, integrated, mobile, tactical, and man-portable systems. These rugged, compact, lightweight, general purpose systems enable the 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.

The Electro-Optics Test Facility (EOTF) (AN/TSM-191(V)5) is capable of testing 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.

IFTE Base Shop Test Facility (BSTF) (AN/TSM-191(V)6) is the follow-on reconfigurable, rapidly deployable, automatic test equipment capable of supporting joint operations, reducing logistical footprint, and replacing/consolidating obsolete, unsupportable automatic test equipment in the Army inventory.

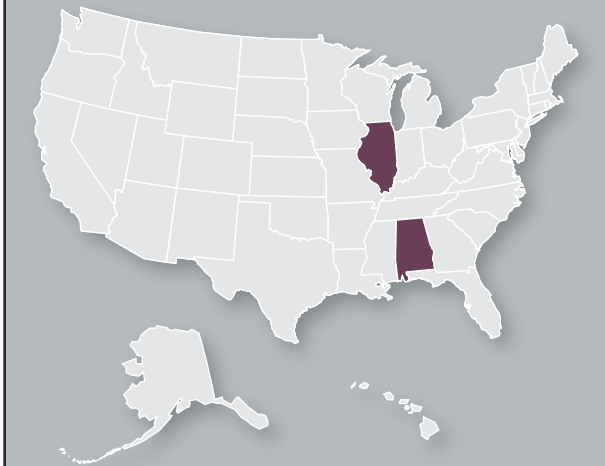
The Maintenance Support Device (MSD) is a multi-purpose, ruggedized software loader, verifier, and at-system automated test equipment used throughout the Department of Defense to test and diagnose complex electronics, engines, transmissions, central tire inflation systems, anti-lock brake systems, and other missile, aviation, and vehicular subsystems.

PROGRAM STATUS

- **1QFY04** BSTF proof of principle demonstration
- **2QFY04** Proof of principle, phase II

PROJECTED ACTIVITIES

- **1QFY06** BSTF (V)6: Prototype development continues
- **1QFY06** EOTF (V)5 and MSD: Production and fielding



CONTRACTORS

EOTF: Northrop Grumman (Rolling Meadows, IL)
MSD: Miltope Corporation (Hope Hull, AL)
BSTF: DRS Technologies (Huntsville, AL)
 Northrop Grumman (Rolling Meadows, IL)

INVESTMENT COMPONENT

Modernization

ACQUISITION PHASE

- System Development and Demonstration
- Production and Deployment

Integrated System Control (ISYSCON) (V)4/Tactical Internet Management System (TIMS)

Improves command and control, planning, and engineering of the Army's tactical networks, from battalion through theater, in support of joint and combined operations.



DESCRIPTION AND SPECIFICATIONS

The Integrated System Control (ISYSCON) (V)4/Tactical Internet Management System (TIMS) is a software system that resides on the Force XXI Battle Command Brigade-and-Below (FBCB2) system located in the S6/G6 sections of the digitized force architecture. The ISYSCON (V)4/TIMS reuses FBCB2 software as a foundation and adds developmental and commercial, off-the-shelf software to plan, configure, initialize, and monitor the Tactical Internet. The ISYSCON (V)4/TIMS enhances the FBCB2 system management capability.

The ISYSCON (V)4/TIMS is a command and control enabler that will support the full spectrum of military operations and the seven mission areas described in the Army Planning Guidance sections of The Army Plan FY02-10. The ISYSCON (V)4/TIMS is intended to be developed and implemented in increments by incorporating blocked enhancements to the key performance parameter threshold baseline.

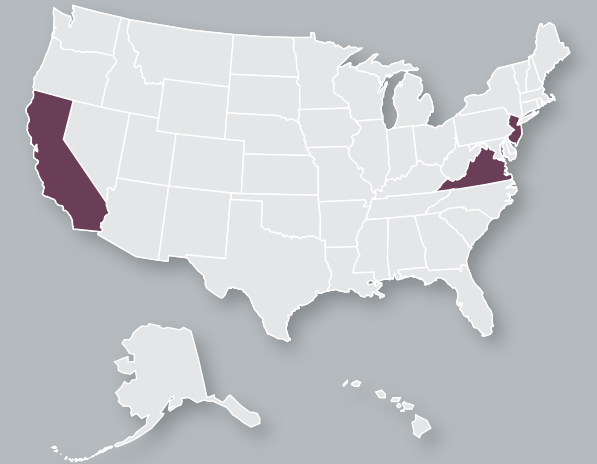
The ISYSCON (V)4/TIMS is expected to evolve into new hardware and software baseline blocked enhancements. As new systems are added to the Tactical Internet, such as aviation platforms, the ISYSCON (V)4/TIMS will provide a network management interface capability. The ISYSCON (V)4/TIMS is currently scheduled for fielding to the active duty components and 15 enhanced separate brigades.

PROGRAM STATUS

- **1QFY03** Issued V2.5.2 Stryker Brigade Combat Teams (SBCT) 1 and 2
- **2QFY03** Deployed with 4th Infantry Division Operation Iraqi Freedom (OIF)
- **3QFY03** Stryker initial operational test and evaluation
- **4QFY03** SBCT 2 fielding complete
- **4QFY03** 1st Cavalry Division fielding complete
- **1QFY04** Deployed with SBCT 1 OIF
- **2QFY04** Issue to SBCT 3
- **2QFY04** Field to Ft. Gordon, GA, classroom
- **3QFY04** V6.4 Software release
- **4QFY04** Central Technical Support Facility certification of V6.4
- **1QFY05** Initial operational test and evaluation

PROJECTED ACTIVITIES

- **2QFY05** SBCT 3 fielding complete
- **3QFY05** Materiel release



CONTRACTORS

Software: Northrop Grumman Mission Systems (Carson, CA)
Integrated Logistics Support, Software Maintenance: Madentech (Eatontown, NJ)
Software: Mitre (Eatontown, NJ)
Integrated Logistics Support: Mantech (Norfolk, VA)

INVESTMENT COMPONENT
Modernization

ACQUISITION PHASE
• Production and Deployment

Interceptor Body Armor (IBA)

Protects individual Soldiers from ballistic and fragmentation threats in a lightweight, modular body armor package.



DESCRIPTION AND SPECIFICATIONS

The Interceptor Body Armor (IBA) is modular, multiple-threat body armor, consisting of:

- Outer Tactical Vest (OTV)
- Small Arms Protective Inserts (SAPI)
- Deltoid and Axillary Protector (DAP)

Eight sizes of OTV's and five sizes of SAPI plates, are being fielded. The basic system weight (OTV and SAPI, size: medium) is 16.7 pounds, or more than 9 pounds lighter than the Interim Small Arms Protective Overvest (ISAPO) and the Personnel Armor Systems Ground Troops (PASGT) combination, which it replaces. The medium size OTV, without plates, weighs 7.7 pounds and protects against fragmentation and 9-millimeter rounds. The SAPI plates provide additional protection and can withstand multiple small arms hits. IBA includes attachable throat, groin, and collar protectors for increased protection, and webbing attachment loops on the front and back of the vest for attaching pouches for the Modular Lightweight Load-Carrying Equipment (MOLLE). DAP provides additional protection from fragmentary and 9-millimeter projectiles to the upper arm and under arm areas. These features allow commanders to tailor Soldier loads to meet mission needs.

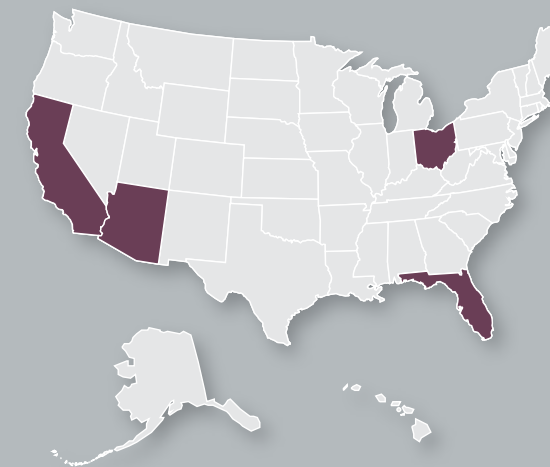
IBA production has been increased to meet current operational needs.

PROGRAM STATUS

- **Current** In production and being deployed
- **1QFY05** 534,385 OTVs and 395,636 SAPI sets fielded

PROJECTED ACTIVITIES

- Continue fielding



Interceptor Body Armor (IBA)

CONTRACTORS

- Point Blank Body Armor (Pompano Beach, FL)
- ArmorWorks (Tempe, AZ)
- Ceradyne, Inc. (Costa Mesa, CA)
- Simula Safety Systems, Inc. (Phoenix, AZ)
- Cercom (Vista, CA)
- ForceOne (Newark, OH)
- Composix (Costa Mesa, CA)

INVESTMENT COMPONENT

Modernization

ACQUISITION PHASE

- Production and Deployment

Improves combat effectiveness, lethality, and survivability of infantry, scouts, and combat engineers via a man-portable, fire-and-forget, medium anti-tank weapon.



DESCRIPTION AND SPECIFICATIONS

Javelin is the first fire-and-forget, shoulder-fired anti-tank missile fielded to the Army and Marine Corps, replacing Dragon. Javelin's unique top-attack flight mode, self-guiding tracking system, and advanced warhead design enables it to defeat all known tanks out to ranges of 2,500 meters.

Javelin's two major modular components are a reusable command launch unit and a missile sealed in a disposable launch tube assembly. The command launch unit's integrated day/night sight provides target engagement capability in adverse weather and countermeasure environments. The command launch unit also may be used by itself for battlefield surveillance and reconnaissance.

The Javelin missile and command launch unit together weigh 49.5 pounds. Its fire-and-forget capability enables gunners to fire and then immediately take cover, greatly increasing survivability. Special features include a selectable top-attack or direct-fire mode (for targets under cover or for use in urban terrain against bunkers and buildings), target lock-on before launch, and a very limited back-blast that enables gunners to fire safely from enclosures and covered fighting positions. Its maximum range is in excess of 2,500 meters.

The Javelin Block I program provides lethal performance essential to the current and objective forces by aligning the command launch unit and missile performance for maximum effectiveness at extended ranges. The Javelin weapon system is the dismounted weapon of choice for the Future Combat Systems (FCS) Unit of Action Complementary Systems. Javelin Block I will be available to begin FCS integration in FY06.

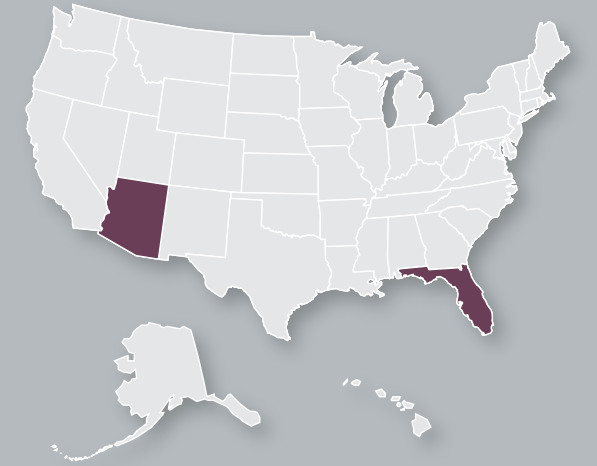
Javelin has been fielded to more than 90 percent of active duty units. Fielding has begun to the National Guard.

PROGRAM STATUS

- **FY04** USMSC fully fielded
- **4QFY04** Fielded 101st ABN Div
- **FY05** Hardware deliveries and fieldings to the Army continue on schedule
- **1QFY05** Fielded to 10th INF Div, 278 ACE, and 3rd Bde 4 ID

PROJECTED ACTIVITIES

- **FY05-09** Procurement
- **2QFY05** Fielding 56th TXARNG 1st AD, 48th BCT GAARNG, 2-28th ID PAARNG
- **3QFY05** Fieldings to 4 UA 4 ID, 54 EN, 3 INF Div, 4th UA 10th ID, 2 CR SBCT4
- **4QFY05** Fieldings to 2-25 ID, XVIII Corps Engineers



CONTRACTORS

Javelin Joint Venture:
Joint venture between Raytheon (Tucson, AZ) and Lockheed Martin (Orlando, FL)

INVESTMENT COMPONENT

Modernization

ACQUISITION PHASE

- Production and Deployment

Joint Biological Agent Identification Diagnostic System (JBAIDS)

Protects personnel by rapidly identifying low-levels of biological warfare agents and other pathogens encountered in field or hospital clinical laboratories.



DESCRIPTION AND SPECIFICATIONS

The Joint Biological Agent Identification Diagnostic System (JBAIDS) can identify biological agents in a variety of environmental and clinical samples at or below 1,000 colony-forming units or 10,000 plaque-forming units per milliliter.

JBAIDS includes a clinical instrument based on commercial, off-the-shelf, non-developmental item technology requiring limited modification to meet operational requirements. Integrated with this instrument are reagent test kits for pathogen identification and protocols for sample preparation that, when used together, can be cleared by the Food and Drug Administration as a diagnostic test.

- **Detection Sensitivity:** Equal to or better than 85 percent for identification of target agents at specified limit of detection concentrations.
- **Detection Specificity:** Equal to or better than 90 percent for identification of target agents at specified limit of detection concentrations.

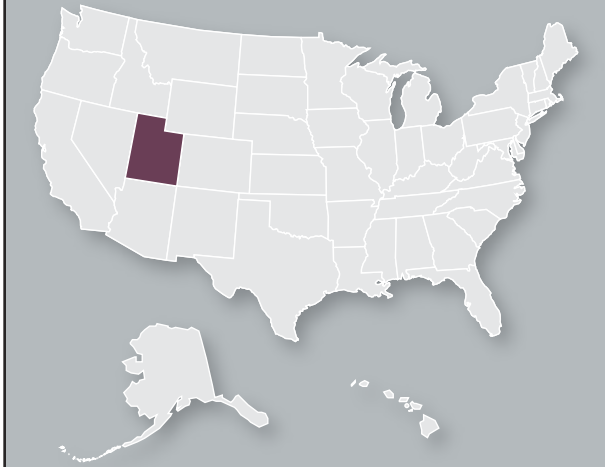
JBAIDS Block II upgrade will add the capability to identify toxins.

PROGRAM STATUS

- **4QFY03** Contract award
- **2QFY04** Critical design review
- **2QFY04** Developmental testing
- **4QFY04** Operational assessment; initial production decision

PROJECTED ACTIVITIES

- **3QFY05** Initial operational test and evaluation
- **4QFY05** JBAIDS Block II Competitive fly-off
- **4QFY05** Full rate production decision



CONTRACTORS

Idaho Technologies (Salt Lake City, UT)

INVESTMENT COMPONENT

Modernization

ACQUISITION PHASE

- System Development and Demonstration

Joint Biological Point Detection System (JBPDS)

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



DESCRIPTION AND SPECIFICATIONS

The Joint Biological Point Detection System (JBPDS) is the first joint biological warfare (BW) agent 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 installed on vehicles, ships, and at fixed sites to provide biological detection and identification to all service personnel. JBPDS is portable and can support bare-base or semi-fixed sites. The system is fully automated and is Joint Technical Architecture (JTA)-compliant. JBPDS will presumptively identify 10 BW agents simultaneously. It will also collect a liquid sample for confirmatory analysis and identification. Planned product improvements will focus on reducing size, weight, and power consumption while increasing system reliability and the number of agents presumptively identified—up to 26 agents simultaneously.

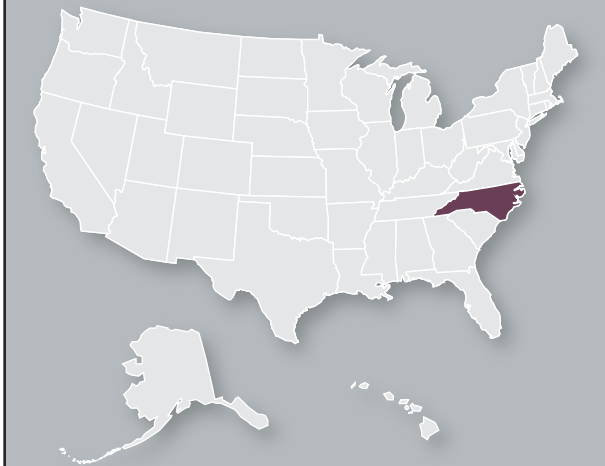
JBPDS can operate remotely via hardwire, fiber optic cable, or radio modem. A single command station can operate up to 35 JBPDS systems. JBPDS meets all environmental, vibration, and shock requirements of its intended platforms, as well as requirements for reliability, availability, and maintainability. 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). JBAIDS Block II upgrade will add the capability to identify toxins.

PROGRAM STATUS

- **4QFY04** Completed fielding of 28 M31A2 JBPDS Biological Integrated Detection Systems (High Mobility Multipurpose Wheeled Vehicle [HMMWV]-mounted) to 332nd Chemical Company and U.S. Army Chemical School
- **2QFY04** Completed the Navy portion of multi-service operational test and evaluation
- **4QFY04** Low rate initial production

PROJECTED ACTIVITIES

- **2QFY05** Low rate initial production
- **3QFY05** Initiate fielding of the M31A2 JBPDS Biological Integrated Detection Systems (HMMWV-mounted) to 307th Chemical Company



CONTRACTORS

General Dynamics ATP Division (Charlotte, NC)

INVESTMENT COMPONENT

Modernization

ACQUISITION PHASE

- Production and Deployment

Joint Biological Standoff Detection System (JBSDS)

Limits the effects of biological agent hazards on U.S. forces at the tactical and operational levels of war.



DESCRIPTION AND SPECIFICATIONS

Joint Biological Standoff Detection System (JBSDS) is the first joint biological standoff detection program. It will be capable of providing standoff detection, ranging, tracking, discrimination (man-made vs. naturally occurring aerosol) and generic detection (biological vs. non-biological) of large-area biological warfare aerosol clouds for advanced warning, reporting, and protection. JBSDS can be employed at fixed sites such as airports, sea ports, and amphibious landing sites, as well as on ships, ground vehicles, and nuclear, biological, and chemical reconnaissance platforms. JBSDS will pass detection information and warnings through existing and planned communications networks using the Joint Warning and Reporting Network (JWARN).

Commanders can integrate JBSDS 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. Key benefits of JBSDS include the following:

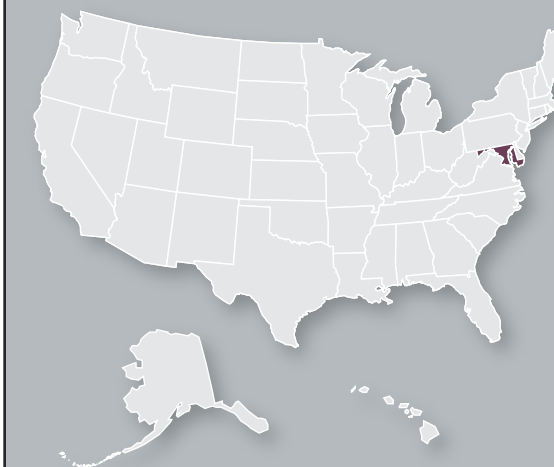
- Provides early warning to commanders and supports timely decision-making
- Detects and tracks aerosol clouds out to 15 kilometers
- Discriminates biological from non-biological particles in aerosol clouds out to three kilometers
- Operates from mobile and reconnaissance platforms, shipboard, and fixed site detectors
- Is operationally skin and eye safe

PROGRAM STATUS

- **3QFY04** JBSDS low-rate initial production awarded

PROJECTED ACTIVITIES

- **2QFY06** JBSDS first unit equipped
- **2QFY06** Next-generation JBSDS system development and demonstration
- **3QFY08** Next-generation JBSDS low-rate initial production milestone



CONTRACTORS
SESI (Columbia, MD)

INVESTMENT COMPONENT
Modernization

ACQUISITION PHASE
• System Development and Demonstration

Joint Biological Standoff Detection System (JBSDS)

Joint Chemical Agent Detector (JCAD)

Protects U.S. forces by detecting, identifying, quantifying, alerting, and reporting the presence of nerve, blister, and blood agents.



DESCRIPTION AND SPECIFICATIONS

The Joint Chemical Agent Detector (JCAD) is a multi-mission, chemical agent point detector currently in development to replace all current such systems in the U.S. inventory. Equipped with a pre-concentrator, it will be capable of accumulating and reporting miosis-level concentrations of one chemical agent while providing a rapid-alert response indication to high-concentration exposures from multiple agents.

JCAD may be used as a surface contamination survey instrument to pre-sort vehicles, equipment, and personnel to determine decontamination requirements and verify the effectiveness of decontamination operations. It will also be used to monitor terrain during chemical surveys.

Installed on military ground vehicles, aircraft, naval ships, and at military installations, JCAD can be operated from various external platform power sources. In rotary and fixed-wing aircraft, JCAD will monitor the cargo/cockpit areas and cargo during on- and off-load operations. In aircraft configurations, JCAD will alert prior to miosis levels to allow sufficient time for protective measures.

Hand-held or worn in a pouch attachable to a warfighter's load-bearing equipment, it will store up to 72 hours of cumulative dosages and chemical alarms in its onboard memory for hazard-level reporting or download. JCAD provides for external data interface via an RS-232 port.

JCAD interfaces with the user through a digital, graphic liquid crystal display, user-selectable audio, and LED alert mechanism. Its communication protocol complies with the Joint Technical Architecture and the Joint Warning and Reporting Network (JWARN) interface requirements specification. The JCAD detector unit will weigh less than two pounds (0.9 kilograms), including the internal battery weight. JCAD will operate on internal battery power using rechargeable or non-rechargeable cells. It will operate under a variety of

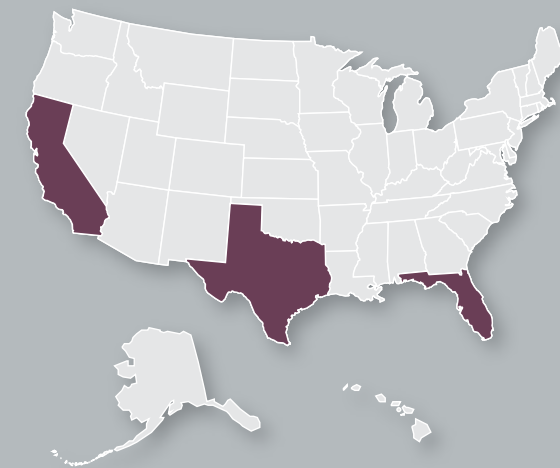
external power sources as well as in a wide range of temperatures, altitudes, and environmental conditions, including blowing sand, rain, freezing rain, salt fog, and salt spray.

PROGRAM STATUS

- **FY04** Program restructured to follow an incremental acquisition strategy

PROJECTED ACTIVITIES

- **FY05** Government evaluation of current commercial chemical agent detectors to fulfill initial requirements



CONTRACTORS

SAIC (San Diego, CA)
BAE Systems (Austin, TX)
Envionics USA, Inc. (Port Orange, FL)
Smith's Detection (Watford, United Kingdom)

INVESTMENT COMPONENT

Modernization

ACQUISITION PHASE

- System Development and Demonstration

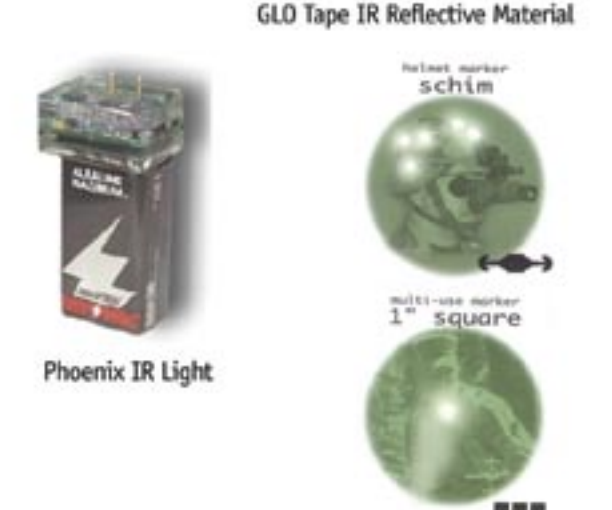
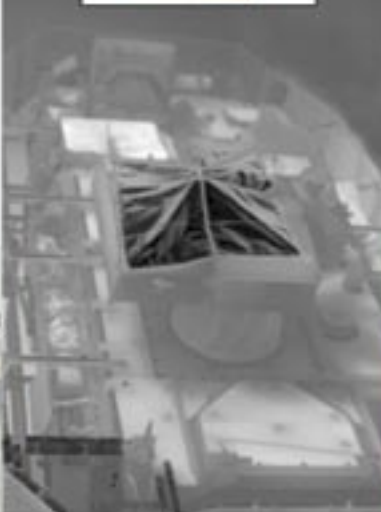
Joint Combat Identification Marking System (JCIMS)

Improves combat effectiveness and reduces incidents of fratricide by providing a cost-effective and proven means to positively identify friendly ground forces on the battlefield.

Combat Identification Panels (CIPs)



Thermal Identification Panels (TIPs)



DESCRIPTION AND SPECIFICATIONS

The Joint Combat Identification Marking System (JCIMS) consists of combat identification panels (CIP), thermal identification panels (TIP), and Phoenix infrared (IR) lights and Glo-Tape IR Reflective Material.

CIPs are aluminum panels covered with a thermal film that produces a “cold” spot on a hot background when viewed through thermal sights. CIPs provide ground-to-ground and limited air-to-ground target identification.

TIPs are cloth panels covered with a thermal film similar to that used by CIPs. TIPs provide air-to-ground and a limited ground-to-ground target identification capability by providing a “cold” spot similar to CIPs when viewed through aircraft or vehicle thermal sights.

Phoenix Lights are IR blinking strobes visible through night vision goggles (NVG), which provide ground-to-ground and air-to-ground target identification.

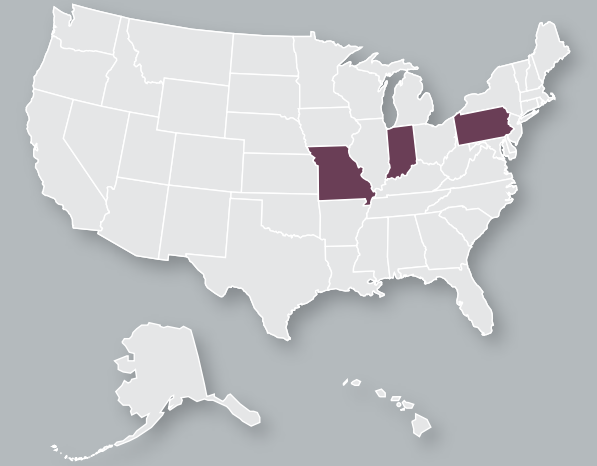
Glo-Tape IR Reflective Material consists of Schims and strips of infrared tape that reflect IR when illuminated by an IR source such as the IR Aiming Light. The IR reflection is visible through night vision goggles. Glo-Tape IR Reflective Material is designed for Individual Soldier identification and may be applied to the Soldier’s uniform and/or helmet by peel and stick, velcro, or using the helmet cover button holes.

PROGRAM STATUS

- **Current** Production and fielding; reduced the number of unique CIP kits and changed to a single brown color to streamline the support requirements

PROJECTED ACTIVITIES

- **FY05** Support to Operation Iraqi Freedom; production for National Guard units; foreign military sales to Portugal and Australia pending



CONTRACTORS

Crossroads Industrial Services (Indianapolis, IN)
 Night Vision Equipment Company (Emmaus, PA)
 Eagle Industries, Inc. (St. Louis, MO)

INVESTMENT COMPONENT

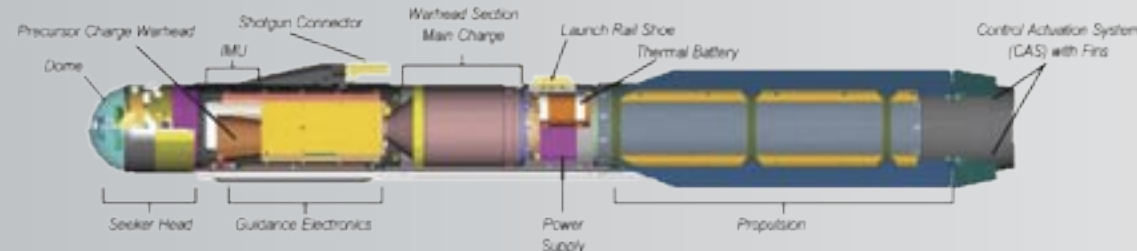
Modernization

ACQUISITION PHASE

- Production and Deployment
- Operations and Support

Joint Common Missile (JCM)

Enhances operational effectiveness, increases range and lethality and improves Soldier/aircraft survivability by providing advanced line-of-sight and beyond line-of-sight, anti-armor and anti-materiel engagement capability and precision strike and fire-and-forget technologies.



DESCRIPTION AND SPECIFICATIONS

The Joint Common Missile (JCM) will respond to expanding regional threats, joint/international operations, and missile stockpile shortages with a single missile for both air-launched (rotary and fixed-wing) and ground-launched missions, while providing flexibility during combat operations, and leveraging the best use of limited development funds.

The JCM will be initially fielded to the U.S. Army Apache Longbow (AH-64D), the U.S. Navy Super Hornet (F/A-18E/F) and Seahawk (MH-60R), and the Marine Corps Super Cobra (AH-1Z).

Subsequently, JCM is designed for use on a wide variety of joint and international platforms including the United Kingdom's Harrier II Plus (AV-8B), FCS Increment 2 Armed Robotic Vehicle – Assault (ARV-A), Mounted Combat System (MCS), Apache (AH-64A), Kiowa Warrior (OH-58D), Joint Strike Fighter, Multimission Maritime Aircraft (MMA), special operation forces MH-60L/M DAP and Little Bird (AH-6J/M), and unmanned aerial/ground vehicles. The modular design will reduce life-cycle costs, including demilitarization, and allow for continuous technology insertion to ensure improvements against evolving threats. JCM will effectively engage and destroy a variety of targets, including stationary and moving or re-locatable, high-value threat targets, as well as bunkers and other structures on the digital battlefield, well into the future. It will be designed and tested to achieve the following:

- Fire-and-forget and precision strike
- Increased stand-off range
- Increased survivability (both missile and platform)
- Multi-purpose warhead for increased lethality (military operations in urban terrain [MOUT] structures, heavy armor, and patrol craft)
- Multi-mode seeker for increased performance given adverse weather or countermeasures

- Modularity to enable technology insertion for capability enhancement and shelf-life extension, and to facilitate demilitarization

Diameter: 7 inches

Weight: approximately 108 pounds

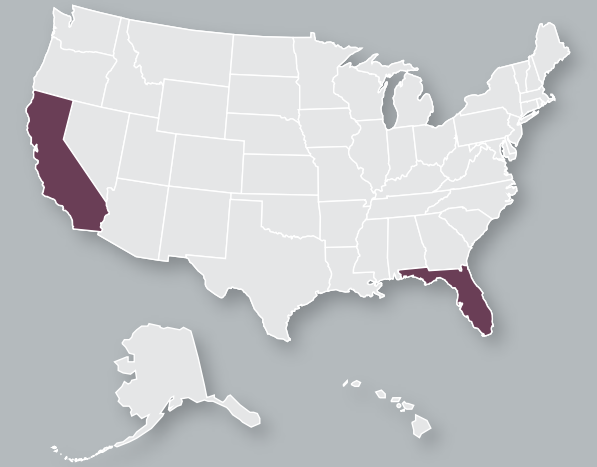
Length: approximately 70 inches

PROGRAM STATUS

- **3QFY04** Milestone B Defense Acquisition Board approval
- **3QFY04** Acquisition decision memorandum approved
- **3QFY04** System development and demonstration contract awarded

PROJECTED ACTIVITIES

- **3QFY05** Preliminary design review
- **3QFY05** Interim program review
- **4QFY05** Critical design review



CONTRACTORS

Lockheed Martin (Orlando, FL)
 Aerojet (Sacramento, CA)
 Lockheed Martin (Ocala, FL)
 REMEC (San Diego, CA)
 General Dynamics (Niceville, FL)

INVESTMENT COMPONENT

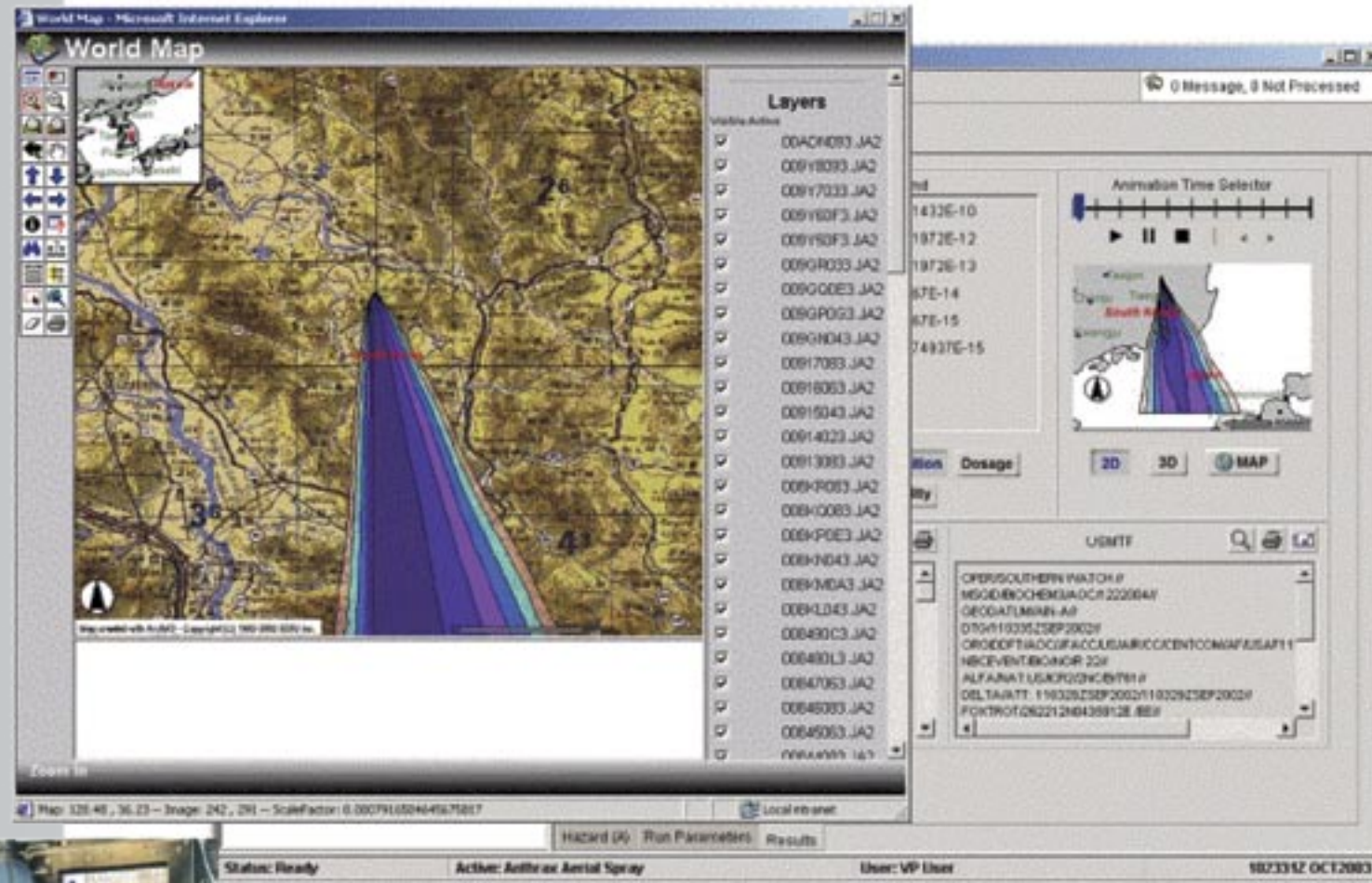
Modernization

ACQUISITION PHASE

- Concept and Technology Development
- System Development and Demonstration

Joint Effects Model (JEM)

Protects Soldiers and the public against nuclear, biological, and chemical and toxic industrial chemical/toxic industrial materiel weapons, devices, and incidents.



DESCRIPTION AND SPECIFICATIONS

The Joint Effects Model (JEM) is a general-purpose, accredited model for predicting hazards associated with the release of nuclear, biological, and chemical (NBC) and toxic industrial chemical (TIC)/toxic industrial materiel (TIM) contaminants into the environment. Once fielded, JEM will be the standardized Department of Defense NBC hazard prediction model. JEM will be capable of modeling hazards in a variety of scenarios including: counterforce, passive defense, accident and/or incidents, high altitude releases, urban NBC environments, building interiors, and human performance degradation. The unclassified version of JEM will also support homeland defense through use by civil authorities.

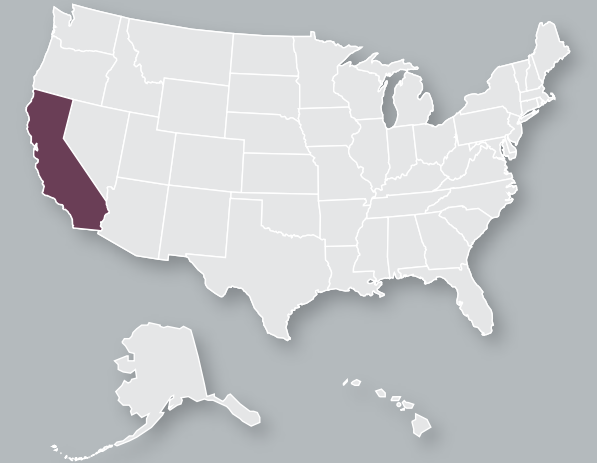
The JEM program will use an evolutionary acquisition approach for design, development, testing, and fielding. Upon completion of an independent model analysis, the JEM interface, credibility, and performance requirements will be refined in an iterative process through a series of design reviews, using cost-effective graphical storyboarding prior to actual implementation of the algorithms and data harvested from the legacy NBC models.

PROGRAM STATUS

- 1QFY05 JEM developmental test and verification/validation

PROJECTED ACTIVITIES

- 3QFY05 JEM operational assesment
- FY06 JEM operational test
- FY06 JEM Milestone C, full-rate production
- 4QFY06 JEM initial operational capability



CONTRACTORS

Northrop Grumman Information Technology (San Diego, CA)

INVESTMENT COMPONENT

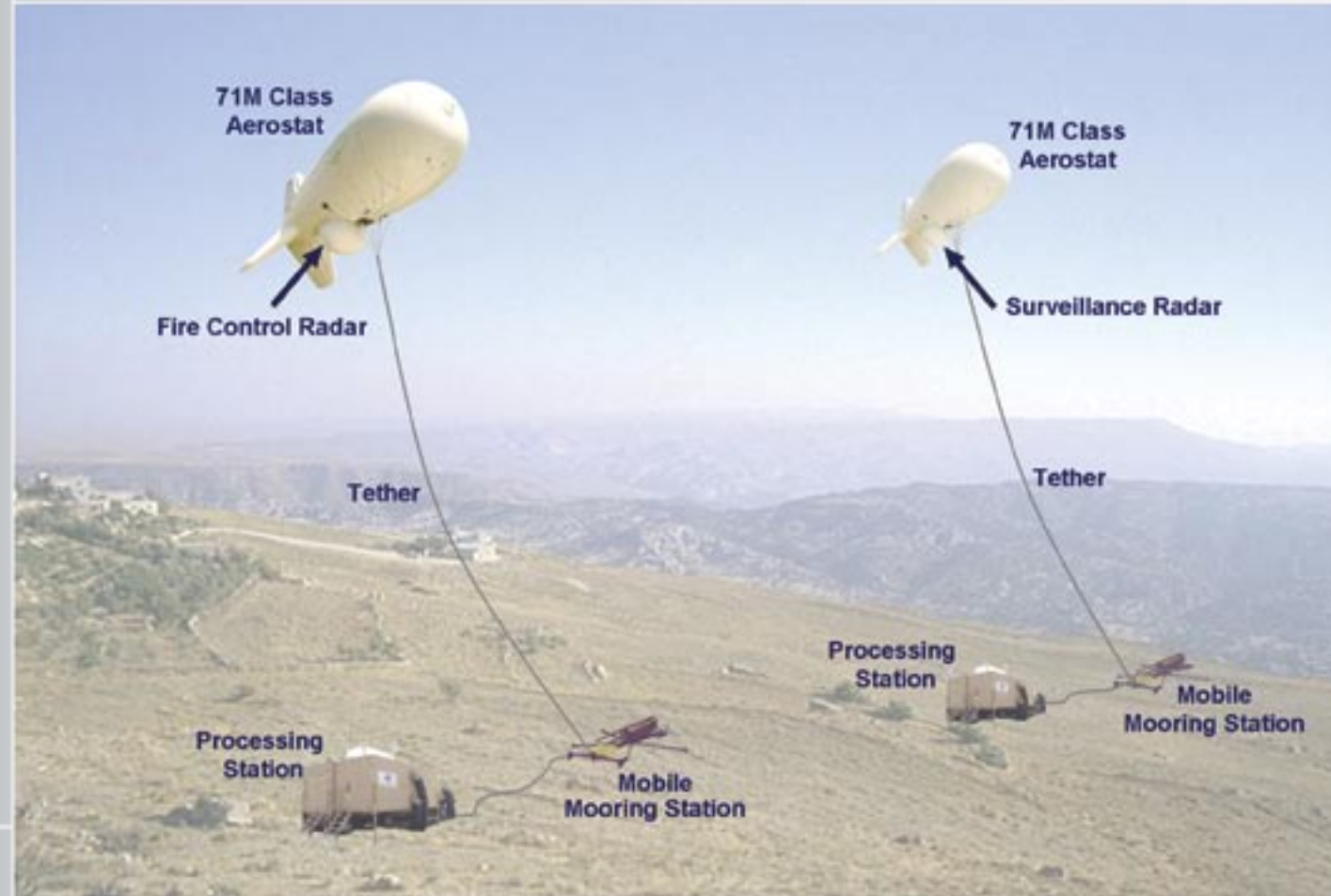
Modernization

ACQUISITION PHASE

- System Development and Demonstration

Joint Land Attack Cruise Missile Defense (LACMD) Elevated Netted Sensors Systems (JLENS)

Provides over-the-horizon detection, tracking, and classification of cruise missiles and other air threats so they can be engaged by air-directed surface-to-air missiles and air-directed air-to-air missile defense systems.



DESCRIPTION AND SPECIFICATIONS

Joint Land Attack Cruise Missile Defense (LACMD) Elevated Netted Sensors System (JLENS) is a low-cost, long-duration airborne sensor suite consisting of a large, elevated sensor and networking technologies that provide 360-degree, wide-area surveillance and precision tracking of land-attack cruise missiles. The system's surveillance provides a long-range air picture enhanced by friend-or-foe identification. This information, distributed via the Joint Data Network and Joint Composite Tracking Network, contributes to the single integrated air picture. JLENS prioritizes remote and local tracks autonomously or accepts external requests for precision tracking and engagement support.

JLENS performs as a multi-role platform to enable extended range command-and-control linkages, communications relay, and battlefield situational awareness. A key element of the Army Future Force, JLENS integrates data from multiple sensors and command, control, communications, and intelligence (C4I) networks, and provides correlated data to battle management C4I (BMC4I). JLENS provides battlefield commanders the following capabilities:

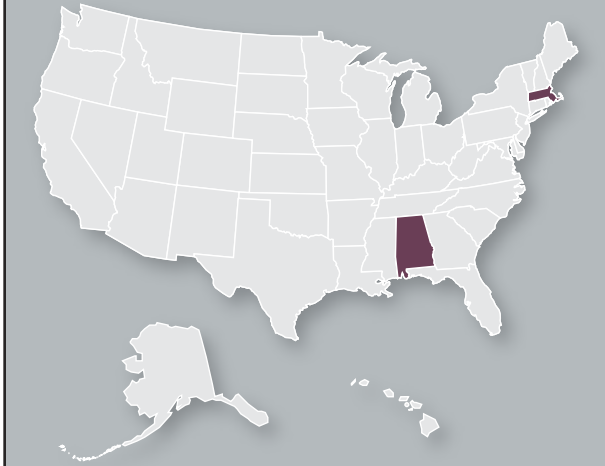
- 3-D situational awareness and situational understanding
- Detection and tracking of low-altitude threats (cruise missiles and aircraft) that may go undetected by surface-based sensors due to terrain masking and line-of-sight locations of targets
- Contributions to the integrated air picture
- Operational maneuver support from strategic distances
- Detection and tracking of surface moving targets.

PROGRAM STATUS

- **2QFY04** Operational requirements document approved by the Joint Requirement Oversight Council
- **1QFY05** Concept and technology development phase of the acquisition cycle. JLENS assigned to the Program Executive Office, Air, Space and Missile Defense

PROJECTED ACTIVITIES

- **3QFY05** Defense Acquisition Board Milestone B review



CONTRACTORS

Raytheon Systems Company Integrated Defense Systems (Bedford, MA)
CAS-Systems Engineering and Technical Assistance Support (Huntsville, AL)

INVESTMENT COMPONENT

Modernization

ACQUISITION PHASE

- Concept and Technology Development

Joint Network Management Systems (JNMS)

Improves situational awareness at the force level; enhances flexibility to support the commander's intent; improves management of scarce spectrum resources; and increases the security of critical systems and networks.



DESCRIPTION AND SPECIFICATIONS

The Joint Network Management System (JNMS) is a Combatant Command, Commander Joint Task Force, and joint communication planning and management tool. JNMS is an automated software system that will provide communications planners with a common set of tools to conduct high-level planning, detailed planning and engineering, monitoring, control and reconfiguration, spectrum planning and management, and security of systems.

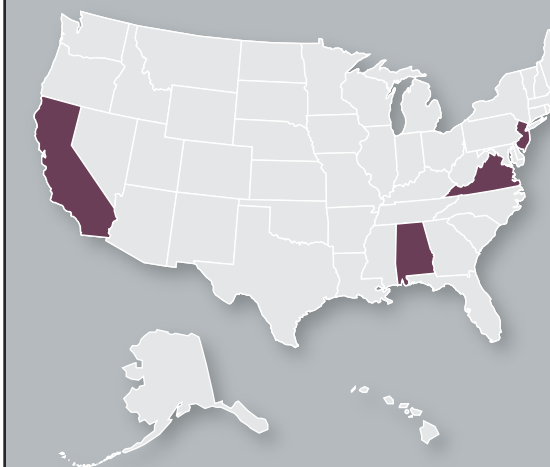
The JNMS will be developed and implemented in increments based on incorporating key performance parameter (KPP) threshold requirements, non-KPP threshold requirements, and objective requirements.

PROGRAM STATUS

- **3QFY04** Milestone C/low-rate initial production decision

PROJECTED ACTIVITIES

- **2QFY05** Functional qualification testing
- **3QFY05** Limited user test
- **1QFY06** Full-rate production decision



CONTRACTORS

Software Development and Test:

SAIC (San Diego, CA; Huntsville, AL)

Training and Logistics: SAIC (McLean, VA)

Testing Support: SAIC (Piscataway, NJ)

INVESTMENT COMPONENT

Modernization

ACQUISITION PHASE

- Production and Deployment

Joint Service Lightweight Integrated Suit Technology (JSLIST)

Protects personnel from chemical and biological weapons and agents with a protective clothing ensemble that can be tailored to the diverse operational needs of the individual Soldier, sailor, airman, and marine.



DESCRIPTION AND SPECIFICATIONS

The Joint Service Lightweight Integrated Suit Technology (JSLIST) is a Joint Service program that provides both vapor and liquid protection against chemical and biological (CB) agents. The JSLIST ensemble includes a two piece CB protective garment (coat and trousers), gloves, and footwear. A glove improvement program is proceeding in two time-phased increments, Blocks I and II. The JSLIST overgarment is lighter and less bulky than previous chemical protective garments, is durable for 45 days, can be laundered up to six times, and provides 24 hours of protection against liquid and vapor chemical challenges.

The primary goals of the overall JSLIST program include the following:

- Develop the next-generation CB protective system
- Ensure full compatibility with existing and emerging individual protective equipment
- Ensure integration with equipment such as developmental masks and body armor and developmental systems such as the Land Warrior

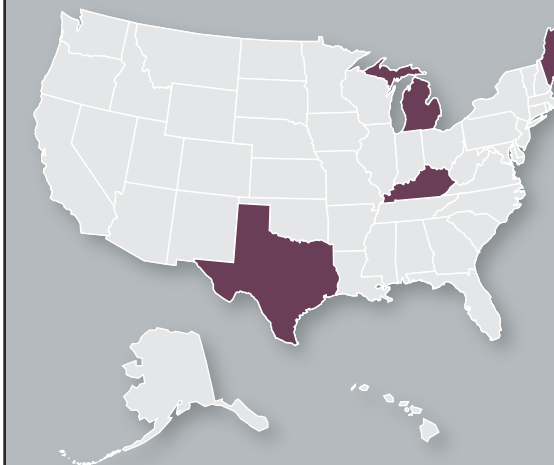
The JSLIST program is managed by the Joint Program Executive Officer for Chemical and Biological Defense. JSLIST has joint participation in every aspect of the program, including management, system planning, system and component design, materiel selection, test execution, and data assessment. The program structure and approval processes have been configured to assure full user participation and to meet common and service-unique requirements.

PROGRAM STATUS

- **4QFY03** JSLIST Block I Glove Upgrade Milestone C decision for full rate production
- **1QFY04** Contract award to Cloutier to produce JSLIST Block I gloves for urgent requirements
- **3QFY04** JSLIST Block II Upgrade Milestone B decision for initiation of system development and demonstration
- **3QFY04** JSLIST Alternative Footwear Solutions Milestone B decision and initiation of system development and demonstration
- **3QFY04** Integrated Footwear System in process review for integrations with alternative footwear solutions and initiation of system development and demonstration

PROJECTED ACTIVITIES

- **4QFY04-1QFY06** JSLIST Block II glove upgrade developmental testing
- **4QFY04-1QFY06** JSLIST Alternative Footwear Solutions developmental testing
- **4QFY04-1QFY06** JSLIST Integrated Footwear System developmental testing
- **3QFY05-1QFY06** JSLIST Block II glove upgrade joint operational testing
- **3QFY05-1QFY06** JSLIST Alternative Footwear Solutions combined operational testing



CONTRACTORS

Creative Apparel Associates (Belfast, ME)
Group Home Foundation/Belfast Industries, Inc. (Belfast, ME)
South Eastern Kentucky Rehabilitation Industries (Corbin, KY)
Peckham Vocational Industries, Inc. (Lansing, MI)
National Center for the Employment of the Disabled (NCED) (El Paso, TX)
Cloutier (Quebec, Canada)

INVESTMENT COMPONENT

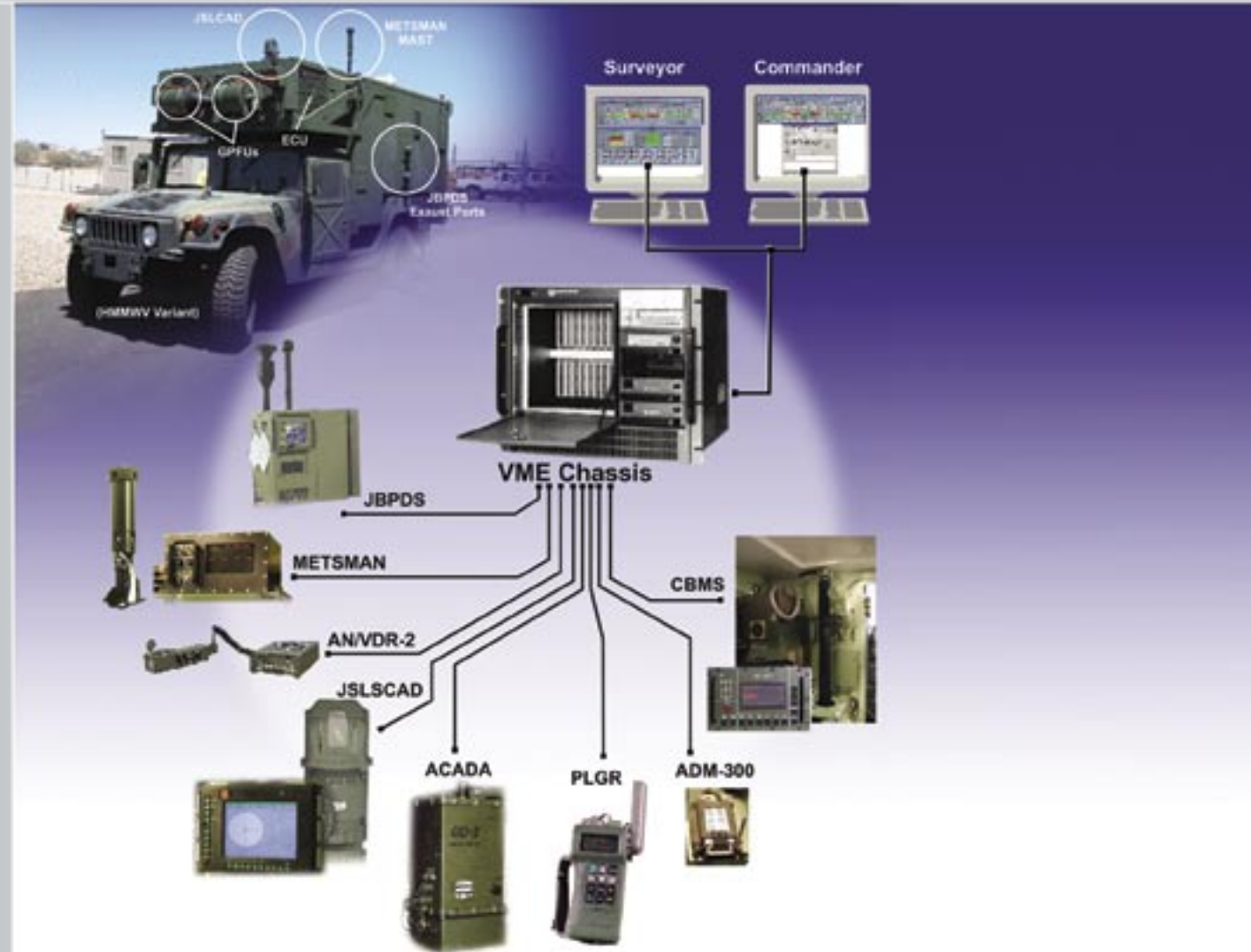
Modernization

ACQUISITION PHASE

- Production and Deployment

Joint Service Lightweight Nuclear Biological Chemical Reconnaissance System (JSLNBCRS)

Enables field unit commanders to assess chemical, biological, radiological, nuclear, and toxic industrial materials hazards on the integrated battlefield with real-time point and standoff intelligence, as well as information reports and warnings to follow-on forces.



DESCRIPTION AND SPECIFICATIONS

The Joint Service Lightweight Nuclear Biological Chemical Reconnaissance System (JSLNBCRS) is a chemical, biological, radiological, nuclear (CBRN) and toxic industrial materials (TIM) detection and identification system. JSLNBCRS will provide on-the-move reconnaissance and surveillance to combat, combat support, and combat service support forces. It will provide accurate and rapid intelligence by detecting, sampling, identifying, marking, and reporting the presence of CBRN and TIM hazards within the unit's area of responsibility.

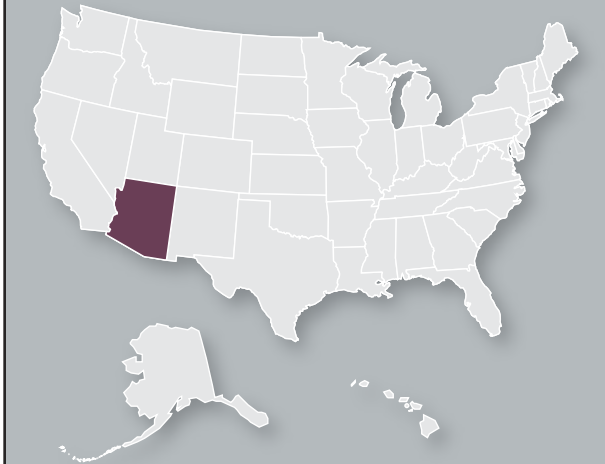
JSLNBCRS will consist of a base vehicle equipped with hand-held, portable and mounted, current and advanced detection and identification equipment (government-furnished equipment, non-developmental items, and parallel development items). The vehicle will be equipped with collective protection, an environmental control system, an auxiliary power supply system, a navigation system, a meteorological data processing system, internal and external communication systems, and surface samplers. The JSLNBCRS will have two variants: the High Mobility Multipurpose Wheeled Vehicle (HMMWV) and the Light Armored Vehicle (LAV).

PROGRAM STATUS

- 2QFY04 Milestone C low-rate initial production decision
- 3QFY04 HMMWV variant first article test

PROJECTED ACTIVITIES

- 2QFY05 Developmental testing of chemical and biological mass spectrometer
- 3QFY06 Multi-service operational test and evaluation
- 4QFY06 Award full production contract award
- 2QFY07 HMMWV variant initial operational capability



CONTRACTORS

Northrop Grumman Mission Systems (Sierra Vista, AZ)

INVESTMENT COMPONENT

Modernization

ACQUISITION PHASE

- System Development and Demonstration



Joint Service Lightweight Stand-off Chemical Agent Detector (JSLSCAD)

Protects Soldiers by identifying chemically contaminated battlespaces and providing enhanced early warning to joint forces.



DESCRIPTION AND SPECIFICATIONS

The Joint Service Lightweight Standoff Chemical Agent Detector (JSLSCAD) is a lightweight, passive, standoff chemical agent detector. The JSLSCAD will increase warfighter protection and maneuver unit combat capabilities through enhanced early warning for contamination avoidance. It will provide on-the-move detection, identification, mapping, and reporting of nerve, blister, and blood agent vapors.

The JSLSCAD communicates warning messages automatically through the Joint Warning and Reporting Network (JWARN). It will provide 360-by-23-degree coverage, from a variety of tactical and reconnaissance platforms, at distances of up to five kilometers. When avoidance is not possible, JSLSCAD will provide extra time for warfighters to don full protective equipment (i.e., mission oriented protective posture [MOPP] gear).

Intended applications include various ground vehicle, aerial, shipboard, and fixed-emplacement platforms such as the following:

- Light NBC Reconnaissance System (JSLNBCRS)
- Stryker NBC Reconnaissance Vehicle (NBCRV)
- Ships
- Fixed-site installations

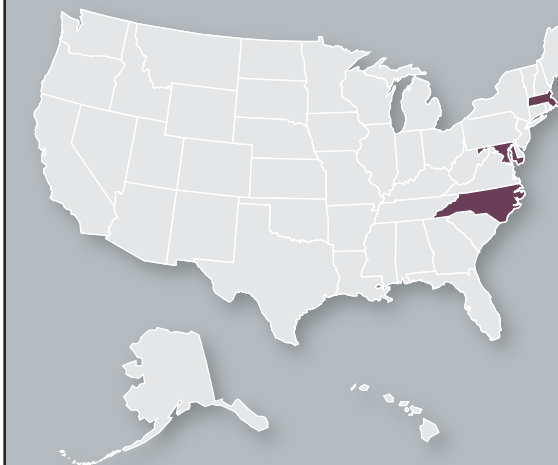
The Increment 1 JSLSCAD detector and the operator display unit weigh approximately 55 pounds. The power adapter used for shipboard and fixed-site applications weighs approximately 10 pounds. The detector is approximately one cubic foot and the total of all three components is approximately 1.5 cubic feet. JSLSCAD Increment 2 increases detection capabilities.

PROGRAM STATUS

- **1QFY04** Program restructured for Incremental Acquisition Strategy
- **3QFY04** Increment 1 capability production decision
- **4QFY04** Completed NBCRV limited user test

PROJECTED ACTIVITIES

- **3QFY06** Increment 2 Milestone C low rate initial production



CONTRACTORS

General Dynamics (Charlotte, NC)
Northrop Grumman (Linthicum, MD)
Bruker Daltonics (Billerica, MA)

INVESTMENT COMPONENT

Modernization

ACQUISITION PHASE

- System Development and Demonstration

Joint Tactical Ground Stations/Multi-Mission Mobile Processor (JTAGS M3P)

Improves information dominance by providing theater commanders with real-time, space-based information on theater ballistic missiles and other tactical events.



DESCRIPTION AND SPECIFICATIONS

The Joint Tactical Ground Station (JTAGS) is a transportable information processing system that receives and processes in-theater, direct, downlinked data from defense support program (DSP) and follow-on space-based infrared system (SBIRS) satellites. Deployable worldwide, JTAGS disseminates warning, alerting, and cueing information on theater ballistic missiles and other tactical events throughout the theater, using existing communications networks supporting Air and Missile Defense System of Systems.

A JTAGS unit consists of a standard 8-by-8-by-20-foot shelter with mobilizer, external collapsible high-gain antennas, standard military generator, and standard five-ton trucks as prime movers. The system is transportable by C-141 aircraft and can be made operational within hours. For enhanced reliability and survivability during contingency situations, the system will deploy in pairs. Whether under peacetime conditions or during crisis situations, the system conducts joint operations.

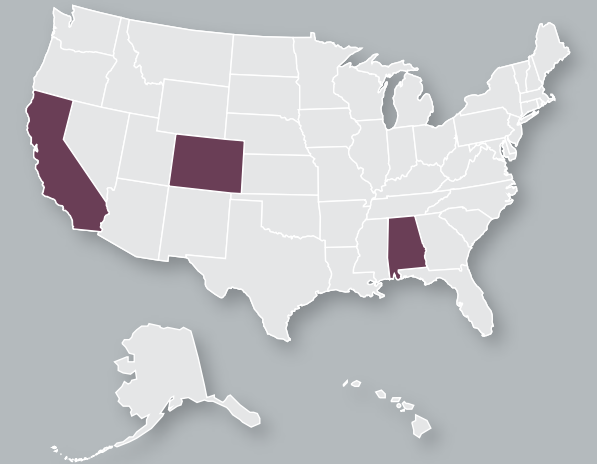
JTAGS preplanned product improvement (P3I) Phase I upgrades, completed in FY00, provide Joint Tactical Information Distribution System (JTIDS) integration and data fusion with other sensors. The P3I Block 1 (FY98-06) upgrades JTAGS to the SBIRS common DSP-only multi-mission mobile processor (DM3P). The P3I Block II (FY06-13) upgrades the DM3P to the SBIRS common geosynchronous M3P (GM3P). A memorandum of agreement between the Army and Air Force Program Executive Offices implemented the joint program development of the SBIRS M3P between the Army JTAGS Product Office and the Air Force SBIRS System Program Office. JTAGS M3P is an Acquisition Category III (ACAT III) joint interest program under the Program Executive Office Air, Space, and Missile Defense.

PROGRAM STATUS

- **3QFY04** Completed integration of DM3P units 4 and 5
- **4QFY04** DM3P climatic and electro-magnetic environmental effects testing completed
- **1QFY05** DM3P interactive electronic training manuals verification completed
- **1QFY05** DM3P maintainability demonstration completed

PROJECTED ACTIVITIES

- **2QFY05** Conduct DM3P development test
- **4QFY05** Conduct DM3P operational test
- **1QFY06** Complete Materiel Readiness Review Board
- **1QFY06** Begin DM3P fielding



CONTRACTORS

Deployment, Production, and P3I Phase I: System Engineering Technical Analysis (SETA) Support:

Mevatec (Huntsville, AL)

P3I Block I:

Lockheed Martin (Sunnyvale, CA; Boulder, CO)
Northrop Grumman (Azusa, CA)

SETA Support:

BAE Systems (Huntsville, AL)

P3I Block II:

Lockheed Martin (Sunnyvale, CA; Boulder, CO)
Northrop Grumman (Azusa, CA)

INVESTMENT COMPONENT

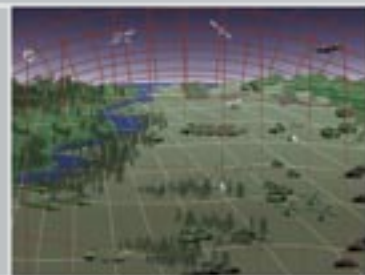
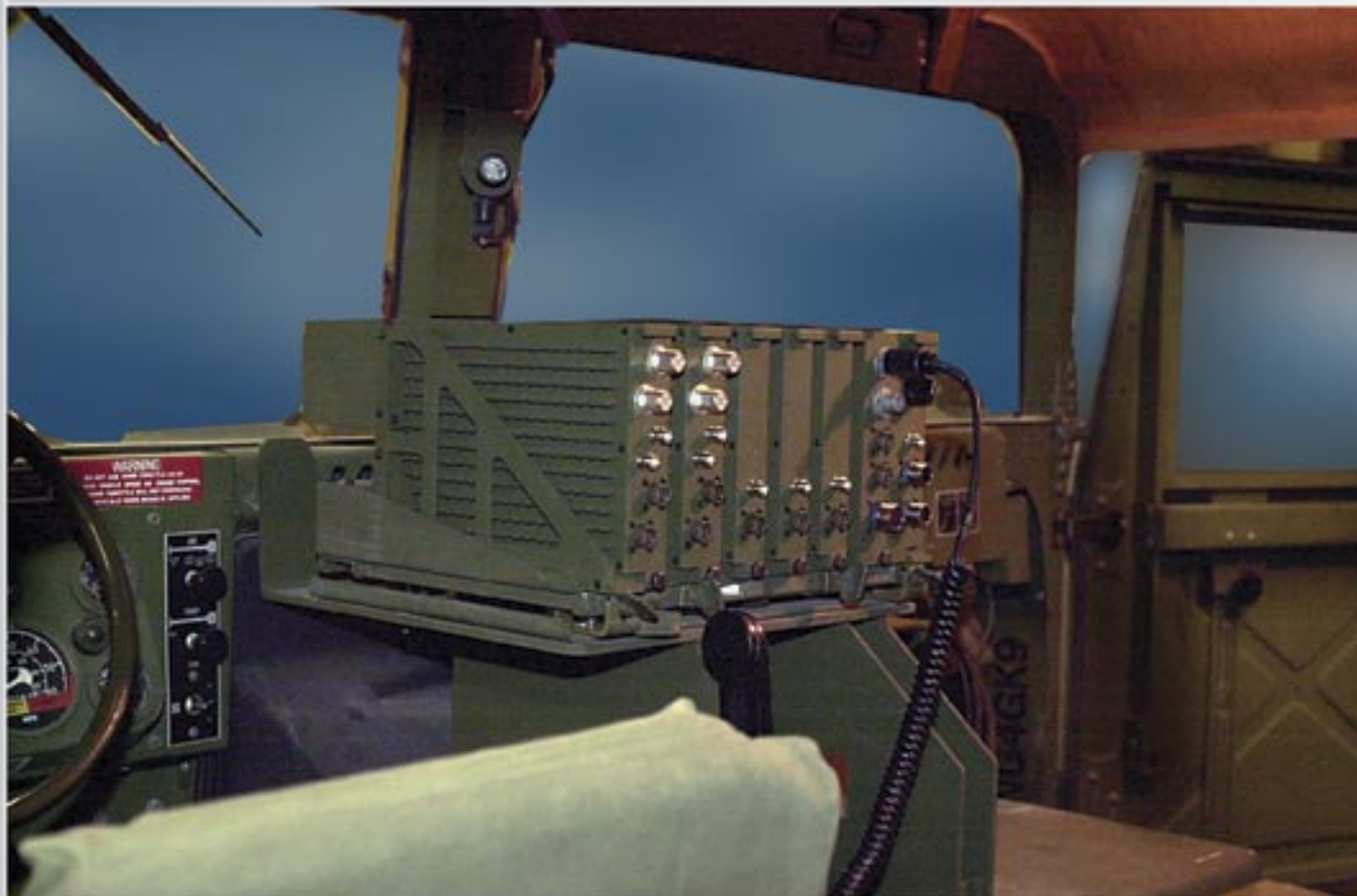
Modernization

ACQUISITION PHASE

- System Development and Demonstration

Joint Tactical Radio System (JTRS) Cluster 1

Improves Soldier communication and situational awareness with simultaneous voice, data, and video communications to increase interoperability, flexibility, and adaptability in support of varied mission requirements.



DESCRIPTION AND SPECIFICATIONS

The Joint Tactical Radio System (JTRS) Cluster 1 is a software-reprogrammable, multi-band/multi-mode capable, networkable system that provides a materiel solution for the JTRS operational requirements document-mandated, multi-channel, software communications architecture (SCA)-compliant hardware system hosting SCA-compliant software waveforms.

JTRS Cluster 1 will be interoperable with specified current tactical radios, permitting an orderly and cost-effective transition from current systems to the multifunctional JTRS. JTRS Cluster 1 is slated for fielding to select rotary-wing aviation platforms, Future Combat Systems, Stryker Brigade Combat Teams, Tactical Operations Centers, Army Airborne Command and Control System, and Special Operations Forces. Additionally, Cluster 1 will be used by the Air Force Tactical Air Control Party and the Marine Corps Advanced Amphibious Assault Vehicle.

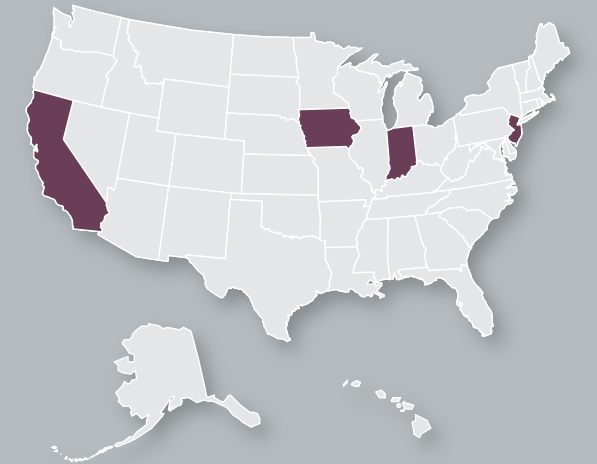
Weight: To be determined

PROGRAM STATUS

- 3QFY03 Software preliminary design review
- 4QFY03 Critical design review
- 4QFY03 B-kit specifications delivery

PROJECTED ACTIVITIES

- 2QFY05 Early operational assessment
- 3QFY05 Test readiness review
- 3QFY05 Defense Acquisition Board
- 4QFY06 Engineering development model delivery
- 4QFY07 Limited user test
- 2QFY08 Milestone C



CONTRACTORS

Prime/System Integration:

Boeing (Anaheim, CA)

Hardware Design (Ground):

BAE Systems North America (Wayne, NJ)

Hardware Design (Air):

Rockwell Collins (Cedar Rapids, IA)

Network Management/Logistics:

Northrop Grumman (Carson, CA)

Software Development:

Raytheon (Ft. Wayne, IN)

INVESTMENT COMPONENT

Modernization

ACQUISITION PHASE

- System Development and Demonstration

Joint Tactical Radio System (JTRS) Cluster 5

Improves Soldier communication and situational awareness with lightweight, on-the-move communications.



DESCRIPTION AND SPECIFICATIONS

The Joint Tactical Radio System (JTRS) Cluster 5 radios are software-reprogrammable, networkable, multi-band, multi-mode systems capable of simultaneous voice, data, and video communications. They fulfill the requirement for single, two-channel, and small form factor hardware systems capable of hosting software communications architecture (SCA)-compliant software waveforms.

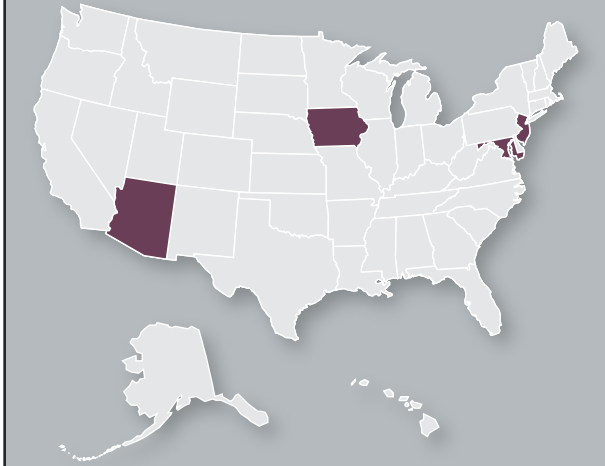
The JTRS Cluster 5 program consists of three primary form factors: handheld (HH), manpack (MP) (including vehicular mounted), and a family of small form fit (SFF) embedded applications. JTRS Cluster 5 program capabilities and timelines are structured to be synchronized with Project Manager, Unit of Action (PM-UA)—formerly PM, Future Combat Systems—and Land Warrior.

PROGRAM STATUS

- **4QFY04** System development and demonstration contract awarded; program began on October 22, 2004.

PROJECTED ACTIVITIES

- **3QFY07** Spiral 1 Initial operational capability
- **3QFY11** Spiral 2 Initial operational capability



CONTRACTORS

General Dynamics Decision Systems (Phoenix, AZ)
Thales Communications Systems (Clarksburg, MD)
Rockwell Collins (Cedar Rapids, IA)
BAE Systems North America (Wayne, NJ)

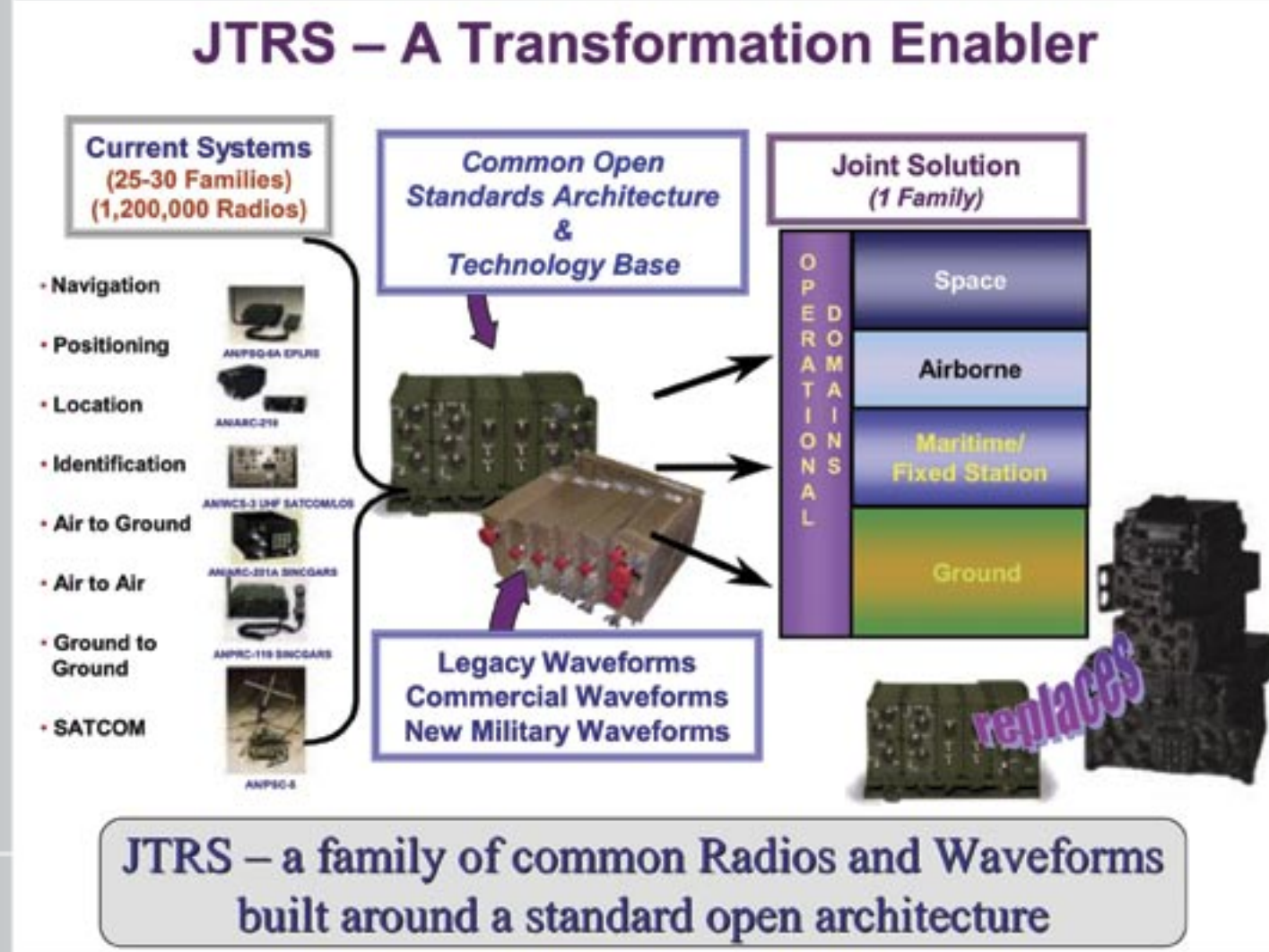
INVESTMENT COMPONENT

Modernization

ACQUISITION PHASE

- System Development and Demonstration

Improves joint warfighter command and control and situational awareness through an enhanced network of interoperable line-of-sight and beyond-line-of-sight secure voice, data, and video communication systems.



DESCRIPTION AND SPECIFICATIONS

The Joint Tactical Radio System (JTRS) Waveform is a software reprogrammable, multi-band/multi-mode and network-capable system that provides JTRS software products developed for use by all services. The system features a number of improved capabilities, including multiple-frequency bands and channels for better communication capability and flexibility; full interoperability with legacy waveforms; software upgradability; and embedded/programmable crypto equipment applications (CEA).

The JTRS software radio is based on a common architecture and is to meet the following goals:

- Interoperability with legacy system radios
- Use of commercial technology
- Open system architecture
- High reliability
- Low unit cost
- Competitive acquisition
- Use by all services

Special features include the following:

- Waveforms interoperable between radios
- Use/reuse common software across waveforms
- Scalability in number of channels and across form factors
- Open commercial standard architecture
- Includes all radio systems (2MHz to 2 GHz and above)

The JTRS Waveform Program, managed by the JTRS Joint Program Office (JPO), is responsible for:

- Developing software waveform applications and software representations of associated cryptography
- Evolving the software communications architecture (SCA)
- Certifying compliance of both hardware (with system software) and software waveforms with the SCA

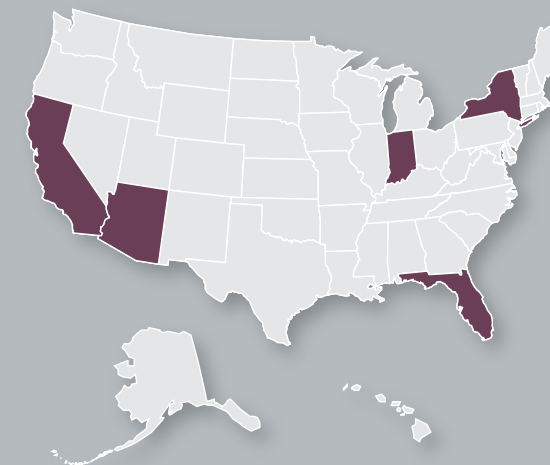
- Ensuring overall joint interoperability and adaptability in support of varied mission taskings

PROGRAM STATUS

- **4QFY04** Waveform deliveries for SINGARS (ESIP)
- **FY04** Delivered two waveforms, 12 cryptographic equipment algorithms and two cryptographic chips.
- **Current** Critical design reviews for 21 waveforms under initial hardware contract completed; impacts of ASD (NII) mandated Internet protocol version 6 requirement and radio frequency policy are being assessed.

PROJECTED ACTIVITIES

- **FY05** Continue technology advancement to include areas such as multiple independent levels of security (MILS), multiple level security (MLS), and network modeling and security
- **3QFY05** Waveform deliveries for HAVEQUICK II, May 2005
- **FY06** Operate JTRS Technical Laboratory (JTel) to certify waveforms; establish JTRS post-deployment software support for base waveform software applications; provide JTRS technical policy to hardware managers and services.
- **1QFY07** Milestone C, post-deployment software support scheduled upon delivery of certified wideband networking waveform



CONTRACTORS

Prime/System Integrator/Waveform Developer: Boeing (Anaheim, CA)
CEA Developer: Harris Corporation (Rochester, NY)
Waveform Developer: Raytheon (Ft. Wayne, IN)
Waveform Developer: Assurance Technology Corporation (ATC) (Melbourne, FL)
CEA Developer: General Dynamics (Scottsdale, AZ)

INVESTMENT COMPONENT
Modernization

ACQUISITION PHASE

- System Development and Demonstration

Joint Warning and Reporting Network (JWARN)

Accelerates the warfighter's response to a nuclear, biological, or chemical (NBC) attack by providing joint forces the capability to report, analyze, and disseminate NBC agent detection, identification, location, and warning information.



DESCRIPTION AND SPECIFICATIONS

The Joint Warning and Reporting Network (JWARN) is a computer-based system designed to collect, analyze, identify, locate, and report information on nuclear, biological, or chemical (NBC) activity and threats from sensors in the field and to disseminate that information to decision-makers throughout the command. Located in command and control centers, JWARN will be compatible and integrated with joint service command, control, communications, computers, intelligence, and surveillance reconnaissance (C4ISR) systems. JWARN's component interface device connects to the sensors, which can detect various types of attack.

JWARN is being developed for deployment with NBC sensors in the following battlefield applications: combat and armored vehicles, tactical vehicles, vans, shelters, shipboard application, area warning, semi-fixed sites, and fixed sites. The component device relays warnings to C4ISR systems via advanced wired or wireless networks. JWARN reduces the time from incident observation to warning to less than two minutes, enhances warfighters' situational awareness throughout the area of operations, and supports battle management tasks.

JWARN is a two-block program, plus a preplanned product improvement (planned for FY06-07). Block I (interim capability), consisting of commercial off-the-shelf (COTS) and government off-the-shelf (GOTS) NBC warning and reporting software, immediately satisfied many of the required capabilities outlined in the joint operational requirements document and was fielded during FY98. Existing computers will run the Block I software.

Block II will deliver full JWARN capability to provide commanders with automatic reporting on NBC data from sensor/detector to C4ISR systems. For Block II, JWARN will use a commercial contractor to integrate COTS and/or GOTS non-developmental item components. A JWARN initial

capability (JIC) will be developed and provided to warfighters to support refinement of service concept of operations and to provide feedback to the JWARN developer.

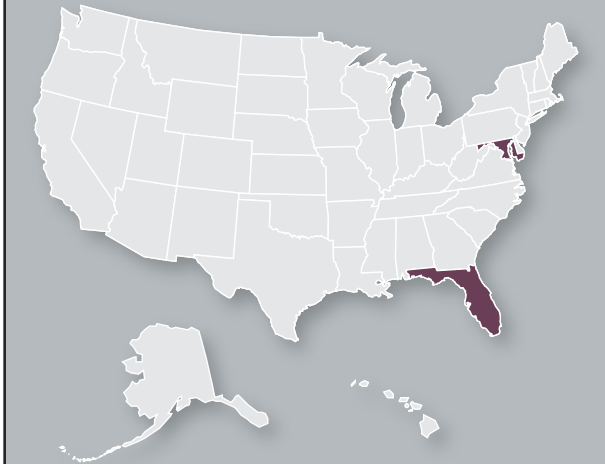
The JWARN-Full Capability System will be developed as a single increment. The development phase will be followed by a preplanned product improvement effort, which will include artificial intelligence modules for NBC operations, an upgrade to match future C4ISR systems, and standard interfaces for use with future detectors.

PROGRAM STATUS

- **Current-4QFY05** JWARN initial capability development

PROJECTED ACTIVITIES

- **3QFY06-4QFY06** JWARN developmental testing and operational assessment
- **3QFY07** JWARN full-rate production



CONTRACTORS

Bruhn NewTech (Ellicott City, MD)
Northrop Grumman Information Technology (Winter Park, FL)

INVESTMENT COMPONENT

Modernization

ACQUISITION PHASE

- System Development and Demonstration

Kiowa Warrior

Supports combat and contingency operations with a light, rapidly deployable helicopter capable of armed reconnaissance, security, target acquisition and designation, command and control, light attack, and defensive air combat (defensive) missions.



DESCRIPTION AND SPECIFICATIONS

Kiowa Warrior is a rapidly deployable single-engine, two-man, lightly armed reconnaissance helicopter that features 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 that permits target acquisition and engagement at stand-off ranges and in adverse weather conditions. The navigation system can convey precise target locations to other aircraft or artillery via its advanced digital communications system. It can also transmit battlefield imagery to deliver near real-time situational awareness to command and control elements.

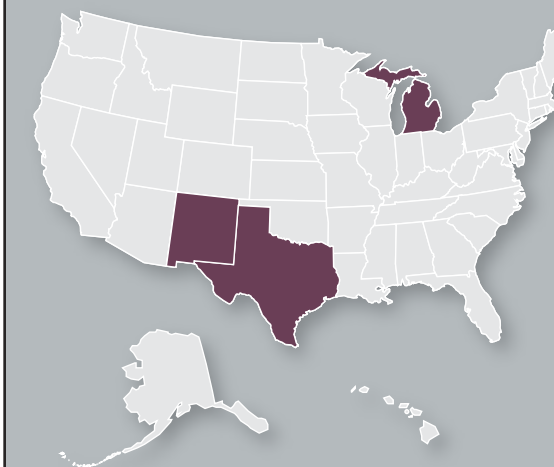
The Kiowa Warrior armament systems provide anti-armor, anti-personnel, and anti-aircraft capabilities at stand-off ranges. Although Kiowa Warrior fielding is complete, the Army is installing a series of safety and performance modifications to keep the aircraft safe and mission-effective until it is retired.

PROGRAM STATUS

- **1QFY00** Completed initial Kiowa Warrior fielding
- **2QFY04** Awarded contract for SEP Lot VII (22 aircraft)

PROJECTED ACTIVITIES

- **FY05** Reset/Operation Iraqi Freedom support
- **2QFY05** Award SEP Lot VIII contract (20 aircraft)
- **FY07** Weight reduction program production begins
- **FY07** Begin retirement of Kiowa Warrior as the Army fields the Armed Reconnaissance Helicopter
- **FY09** Return last SEP-modified aircraft to the field



CONTRACTORS

Bell Helicopter, Textron (Ft. Worth, TX)
Honeywell (Albuquerque, NM)
Smiths (Grand Rapids, MI)

INVESTMENT COMPONENT

Maintenance

ACQUISITION PHASE

- Operations and Support

Land Warrior (LW)

Provides the warfighter with unprecedented tactical awareness and significant improvements in lethality, survivability, mobility, and sustainment in a single system of systems.



DESCRIPTION AND SPECIFICATIONS

Land Warrior (LW) is a first-generation, modular fighting system that combines small arms with high-tech equipment for infantry Soldiers and Soldiers in support of the close fight. Currently in development, LW consists of a computer, a radio, a customized rifle, and a helmet-mounted display eyepiece, all linked electronically. The system delivers enhanced Soldier and small unit tactical awareness, lethality, survivability, battle command and control, mobility, sustainment, and training and mission rehearsal.

Integrating state-of-the-art commercial and government technologies with individual protective and load-carrying equipment, LW links Soldier and system to the digital battlefield. LW technologies include embedded digital and voice communication, computer processing, lasers, and geolocation. Interoperable with the Army Battle Command System, the system's approach optimizes and integrates multiple capabilities with minimal impact on the Soldier's combat load and logistical footprint.

Building on LW, the LW-Stryker Interoperable (LW-SI) will be fielded with Stryker light armored vehicles that house technology compatible with LW. LW-SI will meet requirements through spiral development and risk-reduction activities: software stability and reliability data and end-user feedback will be collected during field trials as a direct, risk-reduction feed to LW-SI development.

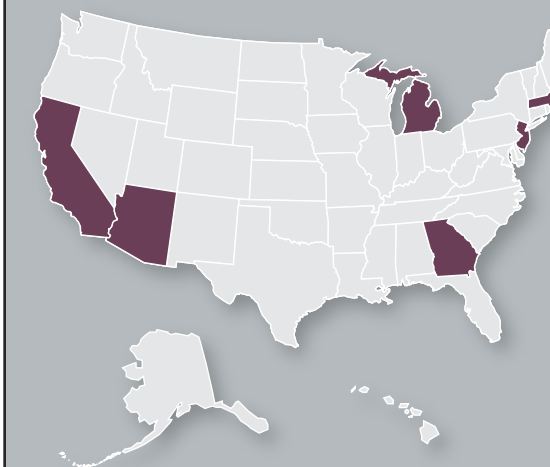
The Dismounted Battle Command System (DBCS), an early spiral-out from LW, improves infantry unit battle command and tactical awareness. It consists of a Microlight Enhanced Position Location Radio System for team leaders and above, and a new form factor Commander's Digital Assistant (NFF CDA) for leaders at platoon level and above. DBCS will be fielded in FY05 for immediate improvement in tactical awareness and battle command in support of the war on terrorism.

PROGRAM STATUS

- **1QFY05** NFF CDA user evaluation at Ft. Benning, GA
- **1QFY05** Dismounted Battle Command System (DBCS) program design review
- **1QFY05** LW-SI ensemble engineering development test at Ft. Benning
- **1-2QFY05** Force XXI Battle Command Brigade & Below (FBCB2) CDA Training and Operation Iraqi Freedom deployment with 525th MI Bde and 519th MI BN

PROJECTED ACTIVITIES

- **3QFY05** Complete DBCS development
- **4QFY05** DBCS first unit equipped
- **4QFY06** Ground Soldier System Milestone B
- **3QFY06** DBCS full rate production decision
- **4QFY08** Ground Soldier System Milestone C



Land Warrior (LW)

CONTRACTORS

Prime General Dynamics C4 Systems (Scottsdale, AZ)
 Computer Sciences Corp. (Eatontown, NJ)
 Omega Training Group (Columbus, GA)
 Raytheon (El Segundo, CA)
 General Dynamics C4S (Taunton, MA)
 General Dynamics Land Systems (Sterling Hts, MI)

INVESTMENT COMPONENT

Modernization

ACQUISITION PHASE

- System Development and Demonstration

Light Equipment Transport (LET)

Supports construction missions by towing the M870 40-ton trailer and hauling heavy engineer equipment.



DESCRIPTION AND SPECIFICATIONS

Light Equipment Transport (LET) features a Detroit Diesel Engine Corp. (DDEC) IV diesel engine, an electronic transmission and 6x6 wheel drive. The M916A3 adds electronic diagnosis, an antilock braking system, central tire inflation system (CTIS), and is transportable by highway, rail, sea, and air worldwide. LET can tow at 60 miles per hour with full payload. Specifications include:

- 68,000-pounds gross vehicle weight/ 130,000 pounds gross cargo vehicle weight
- 3½-inch, 40,000 pound fifth wheel capacity
- 40,000 pound rear winch
- Aluminum cab

Special Features:

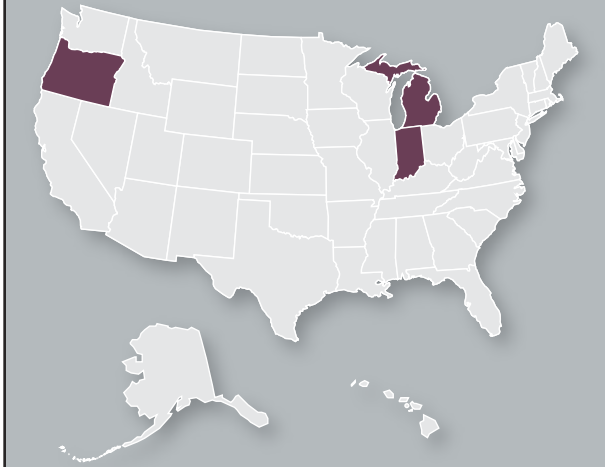
- Air conditioning
- Collision warning system
- Hub-piloted wheels
- Heated mirrors and air ride seats
- Reusable oil filter
- Long life light-emitting diode (LED) lights

PROGRAM STATUS

- 1QFY05 Materiel release

PROJECTED ACTIVITIES

- 2QFY05 First unit equipped
- Fielding to FORSCOM, War Reserves, Military District of Washington, and newly activated National Guard Fire Truck and petroleum, oils, and lubricants (POL) supply companies



CONTRACTORS

Freightliner LLC. (Portland, OR)
Detroit Diesel (Detroit, MI)
Allison Transmissions (Indianapolis, IN)
Meritor (Troy, MI)
Holland Hitch (Holland, MI)

INVESTMENT COMPONENT

Modernization

ACQUISITION PHASE

- Production and Deployment

Lightweight 155mm Howitzer (LW 155)

Provides direct, reinforcing, and general support fires to maneuver forces as well as direct support artillery for Stryker Brigade Combat Teams.



DESCRIPTION AND SPECIFICATIONS

The M777 Lightweight 155mm Howitzer (M777) incorporates innovative designs to achieve lighter weight without sacrificing the range, stability, accuracy, or durability of the current M198 howitzer system it replaces. The lighter weight is achieved through lower trunnion height and the use of high-strength titanium, a primary component of the lower carriage and cradle assembly. Two M777s can be transported in a C130 aircraft and the M777 can also be dropped by parachute. The M777's lighter weight, smaller footprint, and lower profile provide improved strategic deployability, tactical mobility, and survivability. The automatic primer feeding mechanism, loader-assist, digital fire control, and other automation enhancements will improve survivability, lethality, and combat reliability, as well as provide light artillery with a semi-autonomous capability that is currently found only in self-propelled howitzers.

The M777 replaces the M198 howitzer as the general support artillery for light forces in the Army. The M777 is a jointly managed program with the Marine Corps as the lead agency for development of the howitzer and the Army as the lead agency for development of Towed Artillery Digitization (TAD), the digital fire control system for the M777.

Weight: 10,000 pounds or lighter with TAD

Emplace: Less than 3 minutes

Displace: Two to three minutes

Maximum range: 30 kilometers (assisted)

Rate-of-fire: Four to eight rounds per minute maximum; two rounds per minute sustained

Ground mobility: Family of Medium Tactical Vehicles, Medium Tactical Vehicle Replacement, current 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 developing NATO munitions

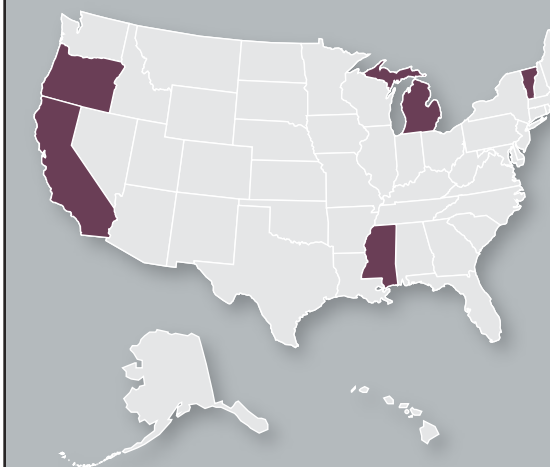
Digital fire control: Self-locating and pointing; digital and voice communications; self-contained power supply. On-board firing data computation will be spirally developed as part of TAD Block 2.

PROGRAM STATUS

- **Current** Low-rate initial production for 94 Marine Corps guns with conventional fire control
- Digital fire control program has synchronized the with the basic howitzer
- **1QFY05** Developmental and Operational Testing complete
- Once type classified, the digital fire control-equipped howitzer will be designated the M777A1. All future howitzers will be procured in the M777A1 configuration.

PROJECTED ACTIVITIES

- **2QFY05** Joint Milestone C for full-rate production decision of the M777A1
- **2QFY05** Full-rate production contract award and production begins
- **2QFY06** Production deliveries begin
- **4QFY06** Army initial operational capability of M777A1 (howitzer with digital fire control)



CONTRACTORS

Prime Contractor: BAE Systems (United Kingdom and Hattiesburg, MS)

Castings: Precision Castparts Corporation (Portland, OR)
Howmet Castings (Whitehall, MI)

Digital Fire Control: General Dynamics (Burlington, VT)

Howitzer Body: Hydro-Mill (Chatsworth, CA)

INVESTMENT COMPONENT

Modernization

ACQUISITION PHASE

- System Development and Demonstration
- Production and Deployment

Lightweight 155mm Howitzer (LW 155)

Lightweight Laser Designator Range Finder (LLDR)

Provides fire support teams and forwards observers with a man-portable capability to observe and accurately locate targets, digitally transmit target location data to the tactical network, and laser-designate high-priority targets for destruction by precision munitions.



DESCRIPTION AND SPECIFICATIONS

The Lightweight Laser Designator Rangefinder (LLDR) is a man-portable, modular, target location and laser designation system. The two primary components are the target locator module (TLM) and the laser designator module (LDM). The TLM can be used as a stand-alone device or in conjunction with the LDM. Total system weight to conduct a 24-hour mission is 35 pounds.

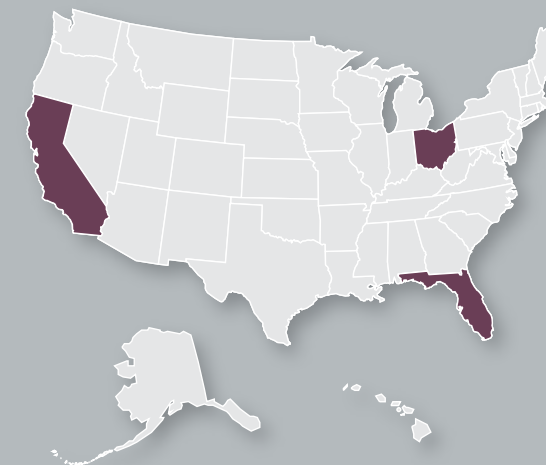
The TLM incorporates a thermal imager, day camera, electronic display, eye-safe laser rangefinder, digital magnetic compass, global positioning system electronics, and digital export capability. The TLM has an integral capability for bore sighting with the LDM, allowing the operator to see the laser spot and align the system. At night and in obscured battlefield conditions, the operator can recognize vehicle-sized targets at greater than 2.5 kilometers. During day operations, targets can be recognized at greater than 7 kilometers. At a range of 10 kilometers, targets can be located to less than 40 meters. The LDM emits coded laser pulses compatible with Department of Defense and NATO laser-guided munitions. Targets can be designated at ranges greater than 5 kilometers.

PROGRAM STATUS

- **4QFY01** Milestone C, low-rate initial production (LRIP)
- **1QFY02** LRIP contract award
- **1QFY04** Full-rate production/type classification standard decision
- **2QFY04** First unit equipped
- **4QFY04** Full rate production contract awarded

PROJECTED ACTIVITIES

- **2QFY05** Follow-on production contract award



CONTRACTORS

Prime:

Northrop Grumman Electronic Systems
Laser Systems Division (Apopka, FL)

Thermal Imager:

CMC Electronics, Cincinnati (Mason, OH)
Thermal Imager:
Indigo Systems (Santa Barbara, CA)

INVESTMENT COMPONENT

Modernization

ACQUISITION PHASE

- Production and Deployment

Lightweight Laser Designator Range Finder (LLDR)

Line Haul Tractor

Supports corps and division rear supply activities with transportation of bulk petroleum products, containerized cargo, general cargo, and bulk water.



DESCRIPTION AND SPECIFICATIONS

The M915A3 Line Haul Tractor tows the M872 34-ton flatbed trailer, M967 5000-gallon bulk fuel tanker, and M969 5000 gallon automotive refueling tanker. The Line Haul Tractor is the key line haul distribution platform in echelon above corps and echelon above division units, and hauls containers, break-bulk cargo, water, and fuel payloads over primary and secondary roads.

The Line Haul Tractor features a Detroit Diesel S60 (DDEC) IV diesel engine (430 horsepower at 1450 foot-pounds of torque), a 6-speed automatic Allison HD4560P, electronic transmission, aluminum cab, and 6x4 wheel drive. Specifications include:

- 52,000-pound-gross vehicle weight/105,000-pound gross combined vehicle weight
- 105,000-pound gross cargo vehicle weight
- 2-inch, 30,000 pound fifth-wheel capacity
- Electronic diagnosis
- Antilock brake system
- Transport capability by highway, rail, marine, and air worldwide
- Sixty-five mile per hour towing speed with full payload

Special Features:

- Air conditioning
- Collision warning system
- Hub-piloted wheels
- Heated mirrors and air ride seats
- Reusable oil filter
- Long life light-emitting diode (LED) lights
- Low-lube fifth wheel

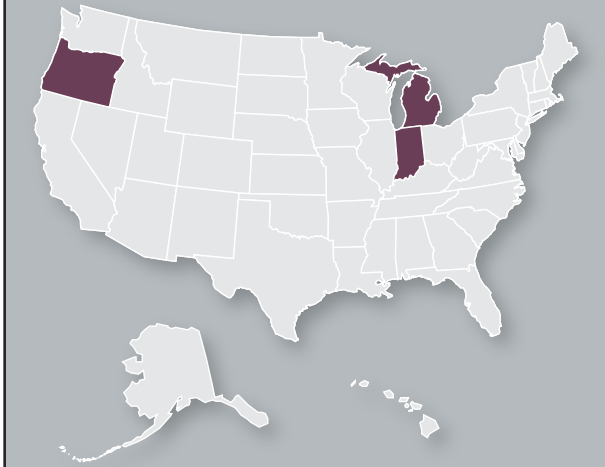
LED lights replace the marker, turn signal and rear brake bulb-type lights. LEDs are expected to have a very long service life and not need replacement during the life of the vehicle except for those damaged through contact.

PROGRAM STATUS

- **Current** Fielding to Army National Guard units

PROJECTED ACTIVITIES

- **FY05** Fielding to U.S. Army Europe, Reserves, National Guard, TRADOC Schools, and war reserves



CONTRACTORS

Freightliner LLC (Portland, OR)
Detroit Diesel (Detroit, MI)
Allison Transmissions (Indianapolis, IN)
Meritor (Troy, MI)
Holland Hitch (Holland, MI)

INVESTMENT COMPONENT

Modernization

ACQUISITION PHASE

- Production and Deployment

Line-of-Sight Anti-Tank (LOSAT)

Enhances protection for light infantry forces with highly lethal, accurate missile fire, effective against heavy armor systems and field fortifications at ranges exceeding tank main gun range.



DESCRIPTION AND SPECIFICATIONS

The Line-of-Sight Anti-Tank (LOSAT) weapon system brings to battle a lighter, more mobile and lethal weapon system. It consists of four hypervelocity kinetic-energy missiles (KEM) and a second-generation forward looking infrared (FLIR)/TV acquisition sensor, mounted on an air-mobile High Mobility Multipurpose Wheeled Vehicle (HMMWV) chassis. Key LOSAT advantages include:

- KEM overmatch lethality, which defeats all anticipated future armored-combat vehicles and hardened high-value targets, including bunkers and reinforced urban structures
- Extended range greater than all armor gun systems
- Deployability, including UH-60L sling load and C-130 air drop
- Compatibility with early-entry forces

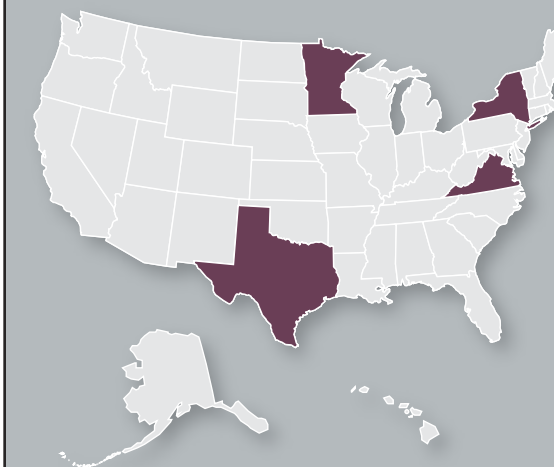
LOSAT also provides increased survivability and countermeasure effectiveness and will operate to the maximum range of direct-fire combat engagements, providing dramatically increased rates of fire and enhanced performance under day and night, adverse weather, and obscured battlefield conditions.

PROGRAM STATUS

- Near complete with advanced concept technical demonstration plus activities
- Successful limited user test system evaluation report
- HAC-D deletes \$71M of LOSAT FY05 procurement with language "recommending" program termination. Conference concurs, leaving \$15M for "program termination"
- Army Senior Leadership adopts new cost position of 18 fire units and 234 missiles and solicits Congressional Committee approval.
- **FY05** New Army cost position includes an increase of \$30M

PROJECTED ACTIVITIES

- **FY05** Conduct transition proposal technical evaluation for refurbishment of fire units
- **FY05** Analyzing limited user test corrective actions
- **2QFY05** Milestone C, low-rate initial production (LRIP)
- **4QFY05** LRIP contract
- **2QFY07** Initial operational test and evaluation
- **4QFY07** First unit equipped



CONTRACTORS

- Missiles and Fire Control:** Lockheed Martin (Grand Prairie, TX)
- Electro-Optical System:** Raytheon (Plano, TX)
- Inertial Measurement Unit:** Honeywell (Minneapolis, MN)
- C02 Pulsed Laser and Field Tactical Trainer:** BAE Systems (Austin, TX; Long Island, NY)
- Altitude Control Motors:** ARC (Gainesville, VA)

INVESTMENT COMPONENT

Modernization

ACQUISITION PHASE

- System Development and Demonstration

Line-of-Sight Anti-Tank (LOSAT)

Longbow Apache

Conducts close combat attack, deep precision strikes, and armed reconnaissance and security day or night, in all weather conditions.



DESCRIPTION AND SPECIFICATIONS

Apache is a highly mobile and lethal aerial weapons platform able to destroy armor, personnel, and materiel targets day or night and under obscured battlefield and/or adverse, weather conditions. Apache is fielded to active, National Guard (NG) and Army Reserve (AR) attack battalions and cavalry units in accordance with the 2004 Army Modernization Plan. The Apache fleet includes the A model Apache and D model Longbow.

The AH-64D Longbow Apache is the Army's heavy attack platform for both Current and Future Forces. Both A and D models are programmed for recapitalization to address Task Force Hawk lessons learned, including upgrading to second-generation forward looking infrared (FLIR) technology with the Modernized Target Acquisition Designation Sight/Pilot Night Vision Sensor (MTADS/PNVS), non-line-of-sight communications, and video transmission/reception—and to reduce maintenance cost drivers.

The Longbow remanufacturing effort inducts the A model and incorporates a millimeter wave fire control radar (FCR), radar frequency interferometer (RFI), fire-and-forget radar-guided Hellfire missile and numerous cockpit management and digitization enhancements. The Army is converting 501 A models to the Longbow Apache configuration. This program consists of two multi-year contracts: the first delivered 232 Longbows; the second is delivering an additional 269 aircraft from FY02 through FY07. A third contract is anticipated for 96 additional Longbows to be executed in FY06 for delivery in FY08 through FY10. One hundred and seven A models will be retained and fielded to NG and AR units. These will receive a field retrofit to improve reliability, operational safety, and reduce maintenance costs.

The current Longbow Modernization Acquisition Strategy is designed to upgrade 284 Block I AH-64Ds to a Block III configuration, with an eventual acquisition objective of 501 total Block

III modernized Longbows. Block III modernized Longbows will be designed and equipped with an open systems architecture that will facilitate incorporation of the latest communications, navigation, sensor, and weapons systems.

Combat mission speed: 167 mph

Combat range: 300 miles

Combat endurance: 2.5 hours

Maximum gross weight: 20,260 pounds

Armament: Hellfire missiles, 2.75-inch rockets and 30mm chain gun

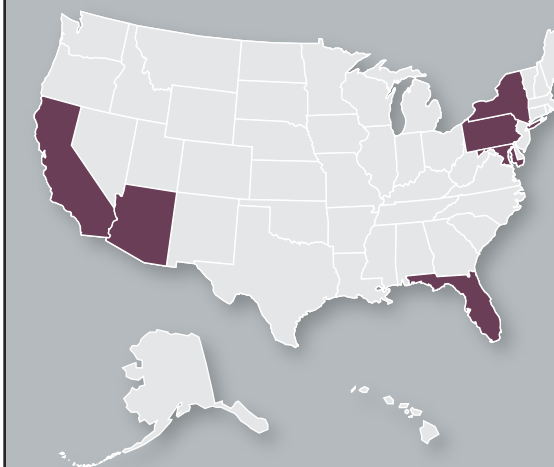
Crew: 2 (pilot and co-pilot/gunner)

PROGRAM STATUS

- **FY04** Fielded two attack battalions bringing the total to 10

PROJECTED ACTIVITIES

- **FY05** Field three additional attack battalions; first unit equipped for MTADS
- **FY05** Award contract for non-recurring engineering of system processor upgrades (open system architecture) for Block III Life Extension Program



Longbow Apache

CONTRACTORS

Airframe/Fuselage:

Boeing (Mesa, AZ; Philadelphia, PA)

Fire Control Radar:

Northrop Grumman (Linthicum, MD)

Lockheed Martin (Owego, NY; Orlando, FL)

MTADS/PNVS:

Lockheed Martin (Orlando, FL)

Boeing (Mesa, AZ)

Rotor Blades:

Composite Structures (Monrovia, CA)

INVESTMENT COMPONENT

Recapitalization

ACQUISITION PHASE

- Production and Deployment

Longbow Hellfire

Engages and defeats individual moving or stationary advanced-armor, mechanized, or vehicular targets while increasing aircraft survivability.



DESCRIPTION AND SPECIFICATIONS

The Longbow Hellfire missile (L-Model) is an air-to-ground launched, fire-and-forget version of the Hellfire missile that uses millimeter-wave radar-aided inertial guidance to engage threat targets. It is part of the AH-64D Longbow Apache attack helicopter system that includes a mast-mounted fire control radar (FCR) and launcher. The Longbow FCR will locate, classify, and prioritize targets for the Longbow Hellfire missile. The Longbow Hellfire modular missile incorporates a Ka-band-millimeter-wave radar seeker on a Hellfire II missile aft-section bus.

The primary advantages of the Longbow missile include:

- Adverse weather capability and other battlefield obscurants
- Millimeter-wave countermeasures survivability
- Fire-and-forget guidance that allows the Apache to launch and then immediately remask, thus minimizing exposure to enemy fire
- Advanced warhead capable of defeating all projected armor threats into the 21st century
- Reprogrammability to adapt to changing threats and mission requirements

The combination of Longbow Hellfire's fire-and-forget capability, and Hellfire II's semi-active laser precision guidance will provide the battlefield commander with flexibility across a wide range of mission scenarios. This permits fast battlefield response and high mobility not afforded by other anti-armor weapons.

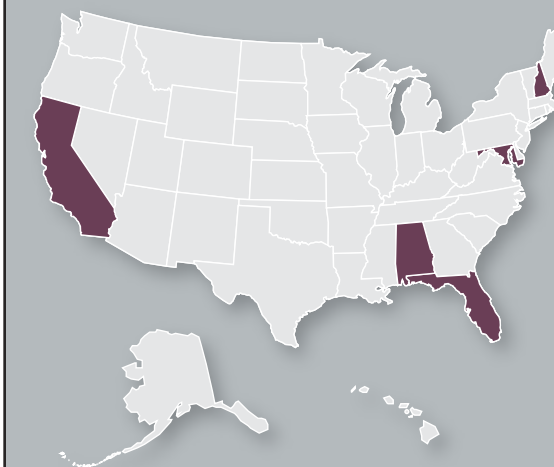
- Diameter:** 7 inches
- Weight:** 108 pounds
- Length:** 69.2 inches
- Range:** 0.50 – 8.0 kilometers

PROGRAM STATUS

- **4QFY04** Completed four multi-year deliveries of 2200 missiles
- **3QFY04-4QFY05** Continue five multi-year final increment deliveries of 1797 missiles

PROJECTED ACTIVITIES

- **FY05** Continue fielding and sustainment activities
- **4QFY05** Complete full-rate production



Longbow Hellfire

CONTRACTORS

Longbow LLC (Orlando, FL)

Guidance Section:

Northrop Grumman (Huntsville, AL)

Sensor Group: Lockheed Martin (Orlando, FL)

Electronics and Chips:

Northrop Grumman (Baltimore, MD)

Transceiver: BAE Systems (Nashua, NH)

Transmitter: M/A Com (San Jose, CA)

INVESTMENT COMPONENT

Modernization

ACQUISITION PHASE

- Production and Deployment

Maneuver Control System (MCS)

Distributes technical information on the battlefield, allowing a commander to readily access and display current situation reports, intelligence, and contact reports that assess enemy strength and movement, as well as the status of friendly forces.



DESCRIPTION AND SPECIFICATIONS

The Maneuver Control System (MCS) is the commanders and staff's primary tactical planning and execution, monitoring, and command and control capability from Battalion through Corps. Serves as the primary system to manipulate, query, and display a user-defined common operational picture (COP) by integrating live feed, graphics, and data from supporting Army battle command systems. It provides the capability to manage mission planning and war-gaming as well as Web services to disseminate operational plans and orders, and COP visibility.

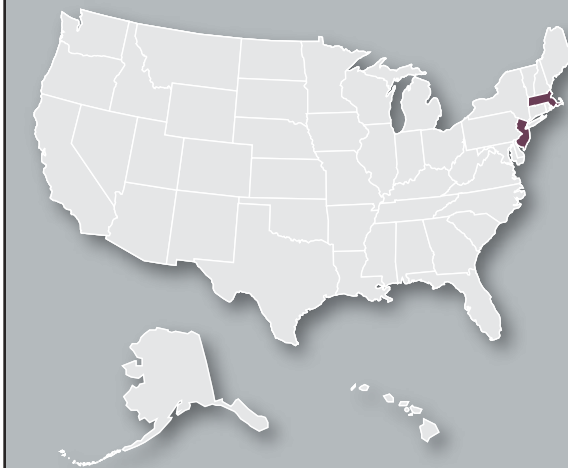
MCS software is compliant with the joint technical architecture; development is synchronized with the Army Battle Command System and software integration efforts at the Central Technical Support Facility (CTSF) in Ft. Hood, TX. MCS will be fielded on common hardware.

PROGRAM STATUS

- **3QFY04-1QFY05** Continue support to Army units currently using MCS in support of test objectives
- **3QFY04** MCS Version 6.4 ("good enough") software delivered to CTSF
- **4QFY04** Underwent CTSF integration testing/certification
- **1QFY05** Underwent MCS system stress test. Planning and preparation for MCS Version 6.4 initial operational testing and evaluation continues

PROJECTED ACTIVITIES

- **2-3QFY05** Prepare and conduct MCS version 6.4 initial operational testing and evaluation
- **4QFY05** Obtain favorable Milestone III decision for full rate production. Procure hardware for MCS fieldings
- **1QFY06** Achieve operational capability



CONTRACTORS

Software Development:

Lockheed Martin (Tinton Falls, NJ)
CECOM Software Engineering Center
(Fort Monmouth, NJ)

Notebook Computer Unit:

General Dynamics (Taunton, MA)

INVESTMENT COMPONENT

Modernization

ACQUISITION PHASE

- Production and Deployment

Medical Communications for Combat Casualty Care (MC4)

Supports the rapid mobilization, deployment, and sustainment of medical forces on the battlefield through a single, medical information management/information technology system.



U.S. Military Hospital, Kuwait



Camp Victory, Kuwait



TMC Arlijan, Kuwait

DESCRIPTION AND SPECIFICATIONS

The Medical Communications for Combat Casualty Care (MC4) system consists of handheld computers, notebook computers, and networking and peripheral equipment such as routers and hubs, servers and printers. The system has the capability to store, process, transmit, archive, and report medical command and control, medical surveillance, casualty movement/tracking, medical treatment, medical situational understanding, and medical logistics data both vertically and horizontally at all echelons of medical care. MC4 accomplishes the following:

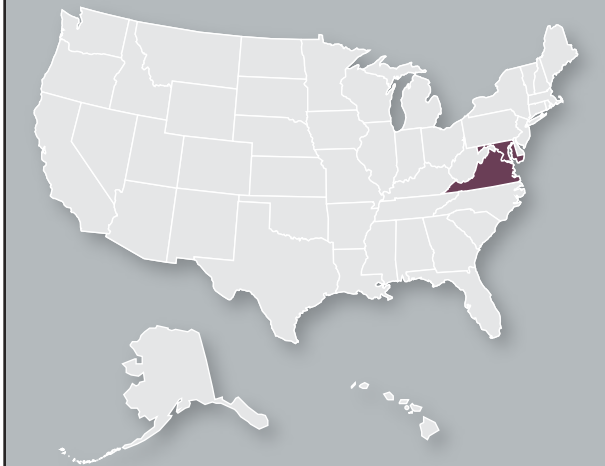
- Addresses all other tactical Army-unique medical information requirements
- Automates the five medical operational areas for the tactical environment: health care delivery, medical battle command, force health protection, medical evacuation, and medical logistics
- Interfaces with existing and emerging DOD and Army digital telecommunication systems.
- Bridges the tactical and peacetime information management/information technology (IM/IT) health care systems to capture all service members' medical data into a single longitudinal health care record
- Reduces the medical IM/IT footprint

PROGRAM STATUS

- **3QFY04** Received Milestone C approval

PROJECTED ACTIVITIES

- **2QFY05** Initial operational test and evaluation
- **3QFY05** Full-rate production decision review



CONTRACTORS

Computer HW/SW:

GTSI (Chantilly, VA)

Logistical, NET & Fielding Support:

CACI (Arlington, VA)

System Integration & PDSS Support:

Titan Corp. (Landover, MD)

System Engineering Support:

Johns Hopkins University Applied Physics Laboratory (Laurel, MD)

INVESTMENT COMPONENT

Modernization

ACQUISITION PHASE

- Concept and Technology Development
- System Development and Demonstration
- Production and Deployment
- Operations and Support

Medium Caliber Ammunition

Provides warfighters with overwhelming lethality overmatch in medium caliber ammunition for Current and Future Force systems.



DESCRIPTION AND SPECIFICATIONS

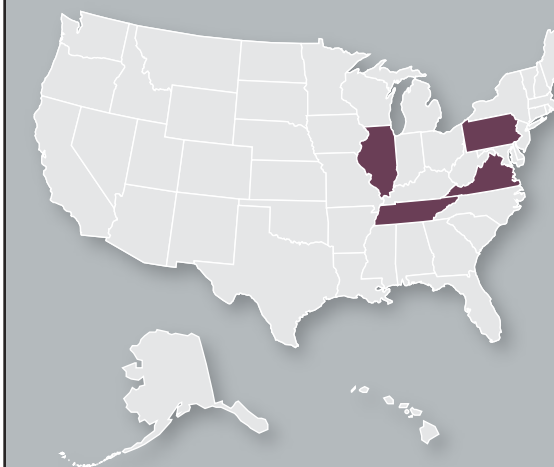
Medium caliber ammunition includes 25mm, 30mm, and 40mm armor-piercing and antipersonnel cartridges with the capability to defeat light armor and personnel targets. Target practice cartridges are used to train Soldiers in the use of warfighting rounds. The 25mm cartridge is used in the Bradley Fighting Vehicle. The 30mm cartridges are used in the Apache helicopter's M230 Chain Gun. The variety of 40mm cartridges are designed for use in the MK19 Grenade Machine Gun and the M203 Grenade Launcher.

PROGRAM STATUS

- **1QFY05** Material release, MK281 40mm target practice cartridge

PROJECTED ACTIVITIES

- **2QFY05** Implement new 40mm acquisition strategy; award systems integrator contracts
- **1QFY06** Production of M910E1 (25mm) target practice cartridge begins



CONTRACTORS

General Dynamics Ordnance and Tactical Systems (Marion, IL and Red Lion, PA)
Alliant Techsystems (Radford, VA)
American Ordnance (Milan, TN)

INVESTMENT COMPONENT

Modernization

ACQUISITION PHASE

- Production and Deployment

Medium Extended Air Defense System (MEADS)

Provides low-to-medium altitude air and missile defense to maneuver forces and other land component commanders' designated critical assets for all phases of tactical operations.



DESCRIPTION AND SPECIFICATIONS

The Medium Extended Air Defense System (MEADS) provides a robust 360-degree defense using the PAC-3 hit-to-kill missile against the full spectrum of theater ballistic missiles, anti-radiation missiles, cruise missiles, unmanned aerial vehicles, tactical air-to-surface missiles, 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
- Immediate C-130 and C-17 deployment for early entry operations, and lift capability by CH-47 helicopters and Marine Corps Landing Craft Air Cushion and Landing Craft Utility
- Mobility to displace rapidly and protect maneuver forces assets during offensive operations
- Netted, distributed, and open architecture and modular components to increase survivability and flexibility of employment in a number of operational configurations
- A significant increase in firepower with the PAC-3 missile with greatly reduced requirements for manpower, maintenance, and logistics

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.

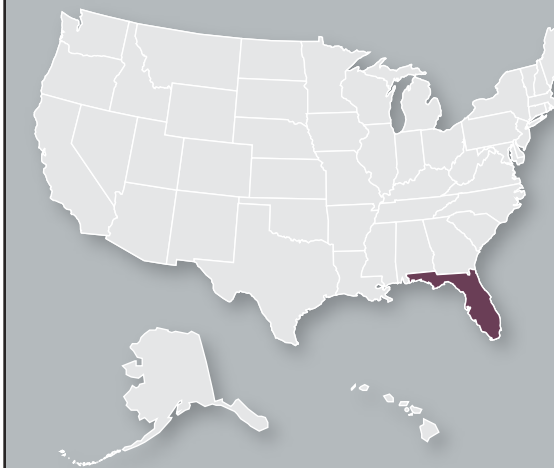
Given these characteristics, MEADS can rapidly respond to a variety of crisis situations and satisfy the needs of the joint and allied operational and tactical commanders.

PROGRAM STATUS

- **3QFY04** CAP Milestone B review
- **4QFY04** CAP approved for entry into the SDD phase; acquisition decision memorandum issued
- **4QFY04** Risk reduction phase complete
- **4QFY04** U.S. and Italy signed memorandum of understanding (MOU) for SDD
- **4QFY04** SDD letter contract awarded
- **1QFY05** SDD contract definitization
- **1QFY05** Germany to sign MOU

PROJECTED ACTIVITIES

- **2QFY05** System design and development full contract award
- **3QFY05** System requirements review
- **3QFY05** Integrated baseline review



CONTRACTORS

MEADS International is a multinational joint venture headquartered in Orlando, Florida. MEADS International's participating companies are MBDA-Italia, the European Aeronautic Defence and Space Company (EADS) and Lenkflugkorpersysteme (LFK) in Germany, and Lockheed Martin in the United States.

INVESTMENT COMPONENT

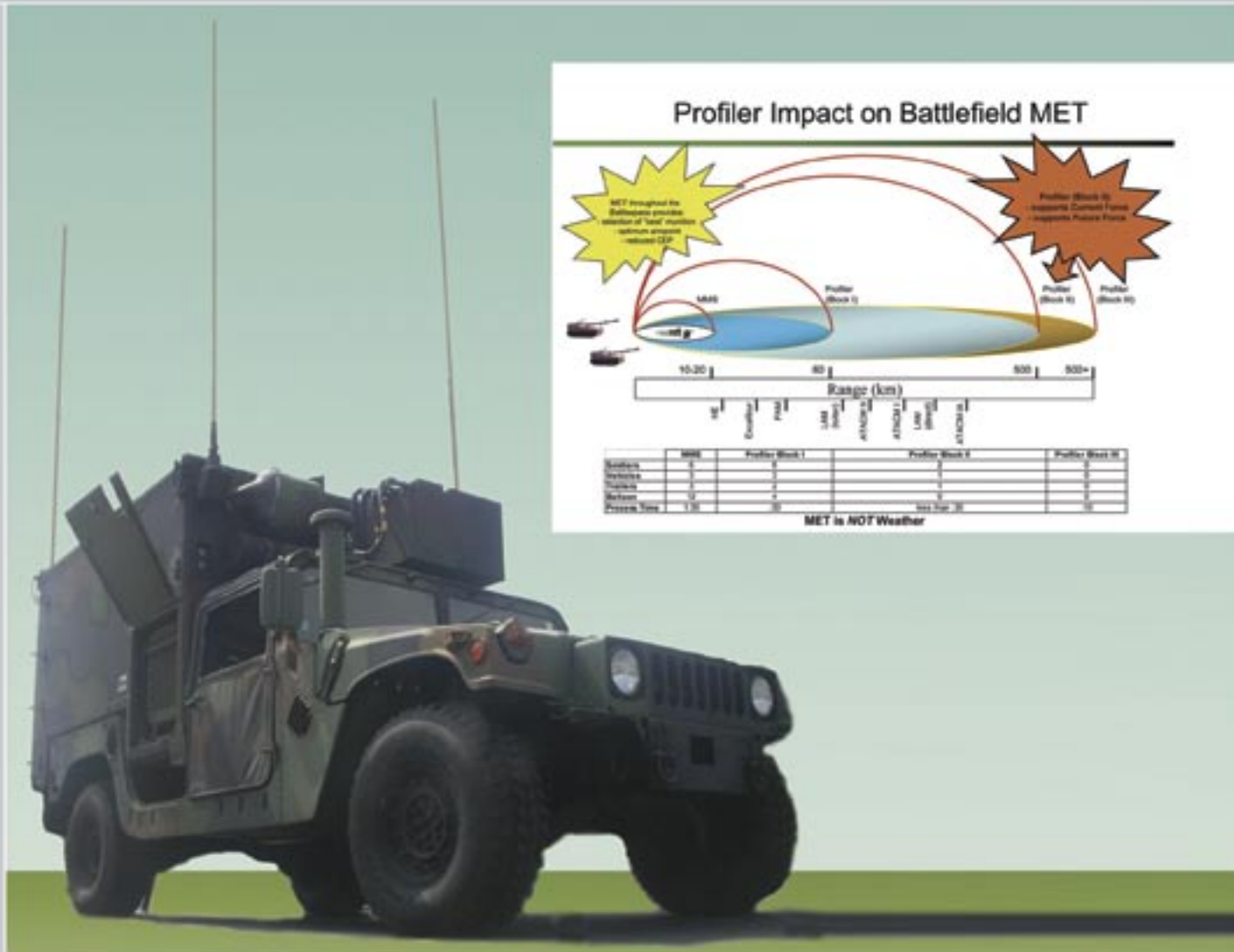
Modernization

ACQUISITION PHASE

- System Development and Demonstration

Meteorological Measuring Set–Profiler (MMS-P)

Improves combat effectiveness with modern, real-time meteorological data over an extended battlespace for the employment of munitions.



DESCRIPTION AND SPECIFICATIONS

The AN/TMQ-52 Meteorological Measuring Set – Profiler (MMS-P) uses a suite of meteorological (MET) sensors and MET data from communications satellites along with an advanced weather model to provide highly accurate MET data out to a range of 500 kilometers.

Profiler measures and transmits MET conditions such as wind speed, wind direction, temperature, pressure and humidity, rate of precipitation, visibility, cloud height and cloud ceiling. All of these are required for precise targeting and terminal guidance.

Profiler uses this information to build a four-dimensional MET model (height, width, depth, and time) that includes terrain effects.

By providing accurate MET messages, Profiler enables the artillery to have a greater probability of first round hit with indirect fire. This new capability increases the lethality of all field artillery platforms such as the Multiple Launch Rocket System (MLRS), Paladin, and self-propelled or towed howitzers, and produces significant savings for the Army.

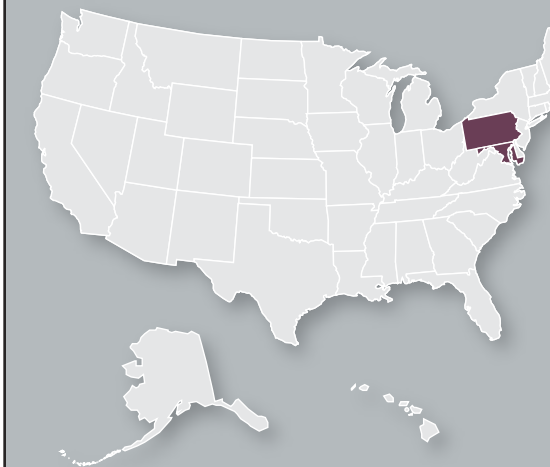
The system is housed in a Standard Integrated Command Post System (SICPS) Rigid Wall Shelter and transported on an M1113 High Mobility Multipurpose Wheeled Vehicle - Expanded Capacity Variant (HMMWV-ECV). The system uses common hardware, software, and operating systems. The initial configuration provides MET throughout a 60-kilometer radius, while the follow-on variant extends coverage to 500-kilometers. For the first time the artillery community has the capability of applying MET data along the trajectory from the firing platform to the target area.

PROGRAM STATUS

- **FY03** Awarded low rate initial production contract for three systems
- **FY04** Option exercised for the production of 10 additional systems
- **1QFY05** Initial operational test and evaluation

PROJECTED ACTIVITIES

- **2QFY05** Full rate production decision
- **Continue** Full rate production



CONTRACTORS

Smiths Detection (Edgewood, MD)
Penn State University (University Park, PA)

INVESTMENT COMPONENT

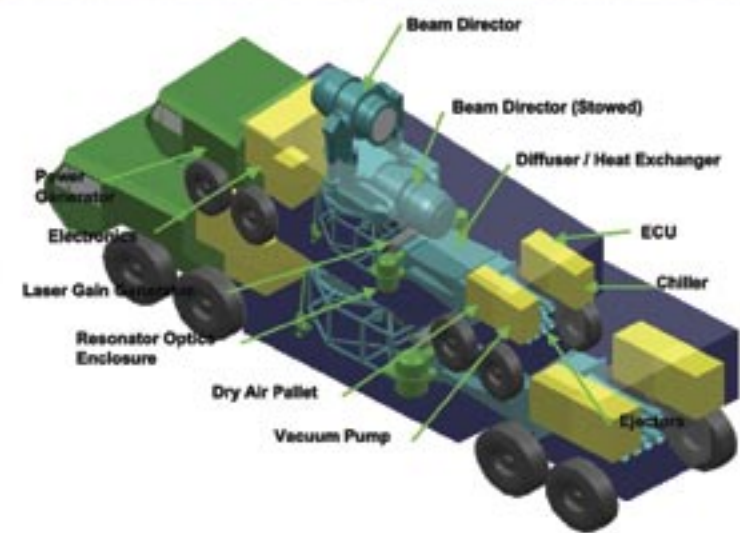
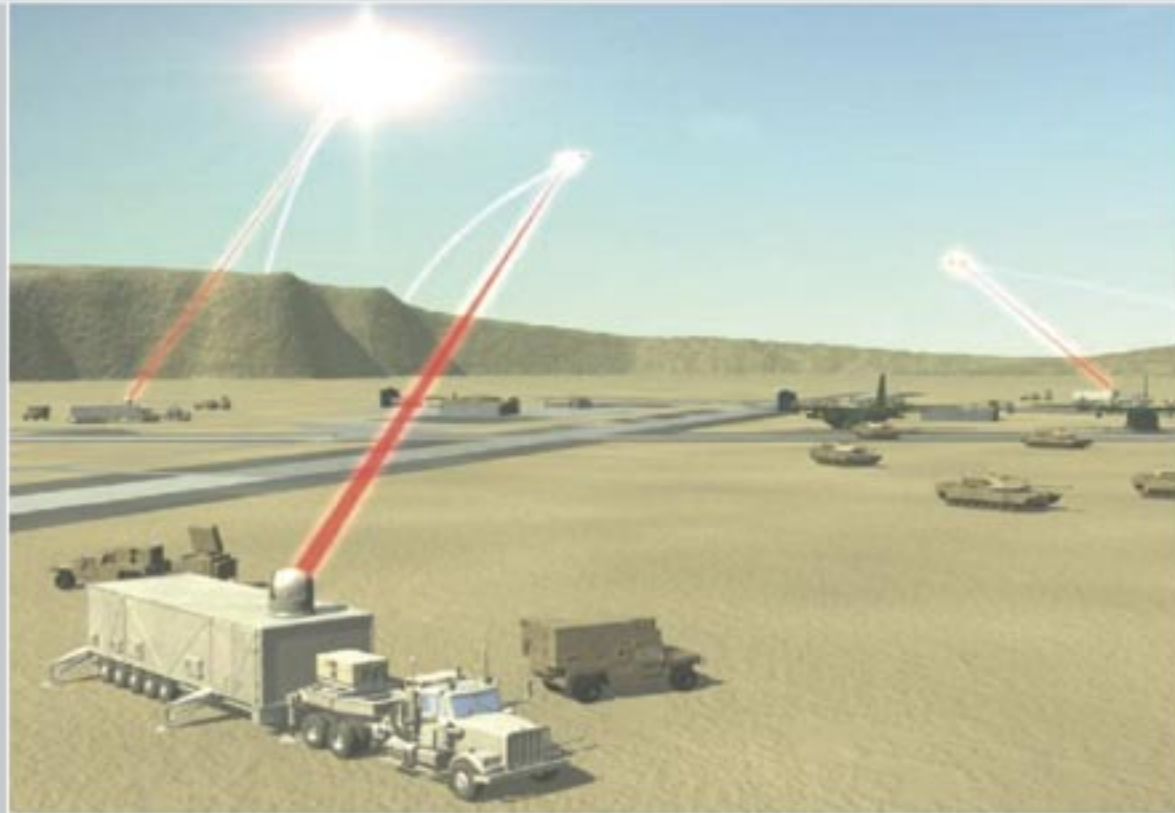
Modernization

ACQUISITION PHASE

- System Development and Demonstration
- Production and Deployment

Mobile Tactical High Energy Laser (MTHEL)

Provides area air defense using a lethal and cost-effective laser weapon system to improve survivability of defended assets against attack.



DESCRIPTION AND SPECIFICATIONS

The U.S. Army and Israeli Mobile Tactical High Energy Laser (MTHEL) prototype weapon system uses mobile platform-based elements integrated into the Joint Common Air and Missile Defense architecture to protect assets from rocket, artillery, and mortar projectiles, unmanned aerial vehicles, cruise missiles, and tactical air to surface missiles. The MTHEL prototype program will develop a prototype weapons-grade laser on a mobile platform.

The MTHEL prototype system is the next evolutionary test bed from the Tactical High Energy Laser Test Bed. The Test Bed has demonstrated the ability to acquire, track, and kill targets ranging from unmanned aerial vehicles to high velocity artillery rounds. The Test Bed demonstrated the functional viability of a weapons-grade laser system as a future component of the Air and Missile Defense System of Systems.

The MTHEL laser weapon system element consists of three system elements including the fire unit element; fluid supply element; and the laser weapon command and control (LWC2) element.

The LWC2 element monitors and controls the system. The LWC2 translates targeting and cueing information from the Common Air Missile Defense Battle Management System into real-time weapon targeting commands. The LWC2 provides battle management functions including target acquisition, engagement control, kill assessment, operator controls, and communications through the operator station assembly.

The fire unit element includes the optics and beam control subsystem (OBCS), laser gain generator, and ancillary equipment. The fire unit generates the laser beam, tracks targets, and houses ancillary system equipment. The OBCS uses integrated infrared and laser sensors to track targets and keep the projected laser beam on target until the target is killed.

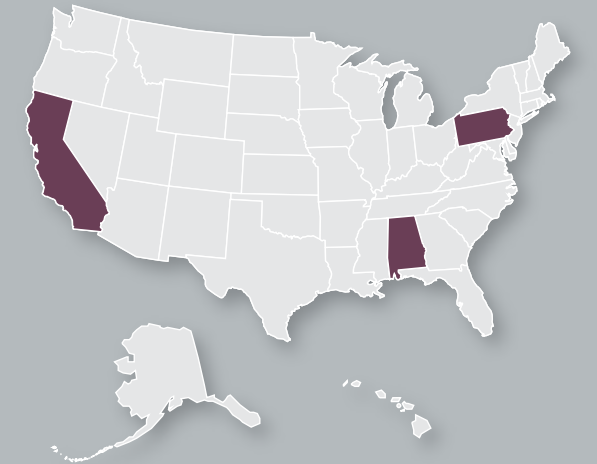
The operator station assembly provides the operator interface to the system. This includes system status, kill assessments, and operational controls from the laser weapon command and control. It also displays the integrated air picture generated by the Common Air Missile Defense Battle Management System.

PROGRAM STATUS

- **3QFY04-1QFY05** MTHEL test bed continued successful test program with more than 40 cumulative successful intercepts of rockets, artillery, and mortar projectiles
- **3QFY04** Shot down large caliber rocket
- **4QFY04** Shot down medium caliber mortar
- **4QFY04** Developed system technical requirements, extended lethality testing, and performed risk reduction to support Milestone B decision requirements
- **1QFY05** Shot down large caliber mortar

PROJECTED ACTIVITIES

- **2QFY05** Preliminary design review
- **3QFY05** Follow-on contract award



CONTRACTORS

Northrop Grumman (Redondo Beach, CA)
BAE Systems (Huntsville, AL)
SAIC (Huntsville, AL)
Brashears (Pittsburgh, PA)

INVESTMENT COMPONENT

Modernization

ACQUISITION PHASE

- Concept and Technology Development

Enhances mission effectiveness of the maneuver unit commander by providing organic indirect fire support.

DESCRIPTION AND SPECIFICATIONS

The **120mm Mortar System** is a conventional, smoothbore, muzzle-loaded system used in mechanized infantry, motorized, armored, and cavalry units. It is employed in towed (M120) and tracked carrier versions (M121) and in the Stryker Brigade Combat Team wheeled mortar carrier.

The **M252 81mm Mortar System** is a smoothbore, muzzle-loaded weapon that replaced the M29A1 mortar in the mid-1980s. It features a high rate of fire, extended range, and improved overall system characteristics.

The **M224 60mm Mortar System** is a lightweight, smoothbore, man-portable, muzzle-loaded mortar with improved rate-of-fire capabilities. The M224 can be drop-fired from the standard baseplate or handheld and trigger-fired.

The M95/M96 Mortar Fire Control System (MFCS) provides Paladin-like (M109A6) fire control capability that greatly improves mortar lethality, responsiveness, and crew survivability. MFCS links mortar fires with the digital battlefield. It integrates a fire control computer with an inertial navigation and pointing system, allowing crews to fire in less than one minute.

The **120mm Breech Cap Program** provides for the replacement of breech caps on all M298 cannons with a new design breech cap featuring a removable firing pin to enhance Soldier safety. The new firing pin configuration is similar to that used on the 81mm mortar and provides a positive safe for the Soldier during misfire procedures.

The **Lightweight 81mm Mortar Program's** goal is to develop an 81mm mortar system that is 40 percent lighter than the currently fielded M252 81mm

system. Alternate materials and lean design principles will be used to optimize design while meeting the current operational requirements.

XM32 Lightweight Handheld Mortar Ballistic Computer (LHMBC) consists of MFCS software hosted on the Army Common Hardware Rugged PDA. The Rugged PDA (R-PDA) includes a tactical modem and embedded GPS. The system allows mortar crews to send and receive digital calls for fire messages and calculate ballistic solutions and navigate. The LHMBC can be fielded to 60mm, 81mm, and 120mm towed units as an M23 replacement.

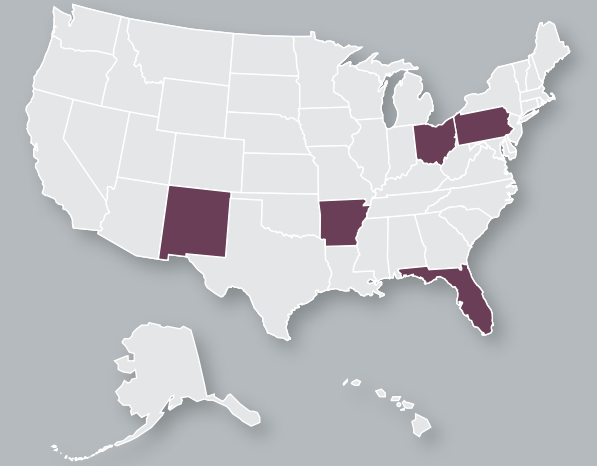
PROGRAM STATUS

- **1QFY05** Funds provided for Army Modularity initiative to restart production and fielding of 120mm Mortar systems
- **FY04** M95/M96 completed fielding to 1st Cav Div and 3ID, will continue fielding through FY08; continuing incremental development of software
- **1QFY05-07** 120mm Breech Cap Program first article test; production in FY06; fielding complete in FY07
- Lightweight 81mm Mortar prototype fabrication and ballistic testing
- **1QFY05** XM32 LHMBC completed initial operational test

PROJECTED ACTIVITIES

- **2QFY05** 120mm Breech Cap Program fielding activities begin
- **FY06** M95/M96 MFCS software full material release
- **3QFY05** XM32 LHMBC type classify and material release; first unit equipped
- **FY08** M95/M96 MFCS fielding complete

Mortar	Range (meters)	Weight (pounds)	Rate of Fire (rounds per minute)	Crew	Ammunition
120mm	7240	319	16 for the first minute 4 sustained	4 M121 carrier-mounted 5 M120 towed	High explosive (HE) (M934A1), WP smoke (M929), illumination (visible light, M930 and infrared [IR], M983), and full-range practice (FRP) (M931)
M252 81mm	5935	90	30 first two minutes 15 sustained	3	HE (M821A2), RP smoke (M819), illumination (visible light, M853A1 and IR, M816), 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), and FRP (M769)



CONTRACTORS

- **M734A1 Multi-Option Fuze and M783 PD Fuze:** L-3 Communications (Cincinnati, OH)
- **120mm Shell Bodies:** Chamberlain Mfg. (Scranton, PA)
- **Load Assemble Package (LAP) of Smoke and Illumination:** Pine Bluff Arsenal (Pine Bluff, AR)
- **MFCS Hardware Integration:** Honeywell (Albuquerque, NM)
- **XM-32 LHMBC (R-PDA):** Talla-Tech (Tallahassee, FL)

INVESTMENT COMPONENT

Modernization

ACQUISITION PHASE

- Production and Deployment

Movement Tracking System (MTS)

Provides the Logistics Command with the technology necessary to track and communicate with its mobile assets in real time.



DESCRIPTION AND SPECIFICATIONS

The Mobile 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 during war or peacetime. MTS is a mobile satellite two-way messaging system that is totally wireless from the MTS-equipped vehicles to the control station. The mobile component of the system is mounted on a unit's vehicles and the control station component monitors vehicle locations. Both components 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 allows units to send and receive traffic over the horizon, anytime, anywhere.

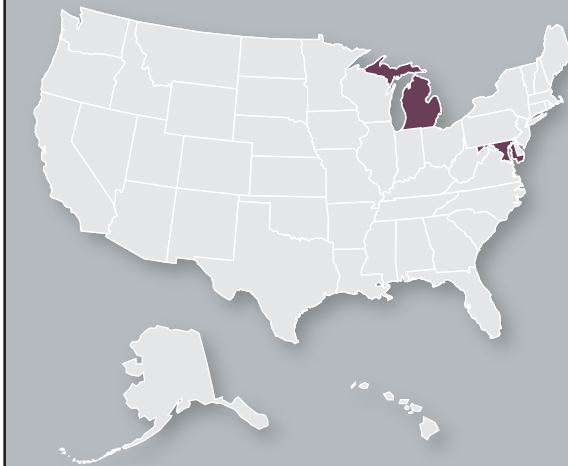
MTS technology allows the transportation coordinator to communicate with the driver of any truck, regardless of location, without having to put up antennas or involve more Soldiers. MTS is currently being adapted to incorporate radio frequency technology, an upgraded military global positioning system (GPS) capability, automatic reporting of vehicle diagnostics (future), and other features that support in-transit visibility.

PROGRAM STATUS

- **4QFY04** Completed user test to exchange messages and position location information between MTS and a unique commercial system, Defense Transportation Tracking System, used mostly by some Army units in Europe, Kuwait and Iraq
- **1QFY05** Completed fielding of the system to 3rd ID (modularized) and selected units of the National Guard's 42nd ID
- **1QFY05** Continued to provide training, system installation, and technical assistance support to deployed military units from the main (Camp Arifjan, Kuwait) and forward (Camp Anaconda, Iraq) support locations in the Middle Eastern Theater of Operations
- **1QFY05** Completion of a demonstration of MTS as a single tool for transmitting from vehicle sensors health information from the vehicles to remote maintenance centers, and for a communications path to facilitate vehicle remote troubleshooting

PROJECTED ACTIVITIES

- **2QFY05** Selection and fielding of a more capable MTS mobile computer to support the increased functionality
- **2QFY05** Implementation in Europe and in the Middle East Theater of Operations of a software change to enable the exchange of messages and position information between DTRACS/MTS
- **3QFY05** Production and fielding of an upgrade to MTS to incorporate an enhanced military GPS capability
- **3QFY05** Production and fielding of an upgrade to MTS to incorporate a radio frequency identification capability to improve the visibility of supplies in transit



CONTRACTORS

System Integrator:
COMTECH Mobile Datacom (Germantown, MD)
Software Development:
American Systems Technology, Inc. (ATSI)
(Troy, MI)

INVESTMENT COMPONENT
Modernization

ACQUISITION PHASE
• Production and Deployment



Night Vision Devices

Enhances the warfighter's visual ability and situational awareness to successfully engage and execute operations day or night, in adverse weather or battlefield obscurant conditions.



DESCRIPTION AND SPECIFICATIONS

The AN/PVS -7D Night Vision Goggle and the AN/PVS-14 Monocular Night Vision Device are head- or helmet-mounted passive devices used by the individual warfighter in close combat, combat support, and combat service support. They amplify ambient light and very near infrared energy for night operations. The systems are designed for use in conjunction with rifle mounted aiming lights. AN/PVS-14 can be mounted to the M16/M4 receiver rail.

	PVS-7	PVS-14
Field of View	≥ 40 degrees	≥ 40 degrees
Weight (maximum)	1.5 pounds	0.88 pounds
Magnification	1 x	1 x
Range	150 meters	150 meters
Operational Time	≥ 15 hours	≥ 15 hours
Power	AA (or BA-5567/U)	AA
Reliability	200 hours	200 hours

The Enhanced Night Vision Goggle (ENVG) is a helmet-mounted passive device for the individual Soldier that incorporates image intensification and long-wave infrared sensors into a single, integrated system. ENVG enables missions during daylight, darkness, and degraded battlefield conditions. ENVG improves the Soldier's situational awareness by providing the capability to rapidly detect and recognize man-sized targets while simultaneously maintaining the ability to see detail and to use rifle-mounted aiming lights.

ENVG

Image Intensification Detection Range	150 meters
Infrared Sensor Detection Range	150 meters
Total System Weight	2 pounds
Operational Time (with one battery set change)	15 hours

PROGRAM STATUS

AN/PVS-7 and AN/PVS-14:

- **Current** In production and being fielded
- ENVG:**
- **FY05** Currently undergoing testing and evaluation to support Milestone C decision
 - **1QFY05** Reliability growth test

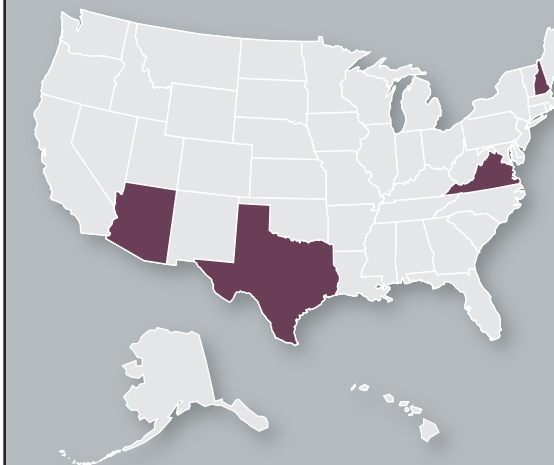
PROJECTED ACTIVITIES

AN/PVS-7 and AN/PVS-14:

- **2QFY05** Phase-in single battery design of AN/PVS-14 into production
- **Ongoing** Planned procurement
- **Ongoing** Fielding in support of Operation Enduring Freedom and Operation Iraqi Freedom deployments
- **Continue** Fielding to support modularity, National Guard, and Reserve

ENVG:

- **2QFY05** Low rate initial production contract with production options award
- **2QFY06** ENVG initial operational testing and evaluation



CONTRACTORS

AN/PVS-7D and AN/PVS-14:

Northrop Grumman (Tempe, AZ; Garland, TX)
ITT Industries (Roanoke, VA)

ENVG:

Northrop Grumman (Tempe, AZ; Garland, TX)
ITT Industries (Roanoke, VA)
Insight Technologies, Inc. (Londonderry, NH)

INVESTMENT COMPONENT

Modernization

ACQUISITION PHASE

- System Development and Demonstration
- Production and Deployment

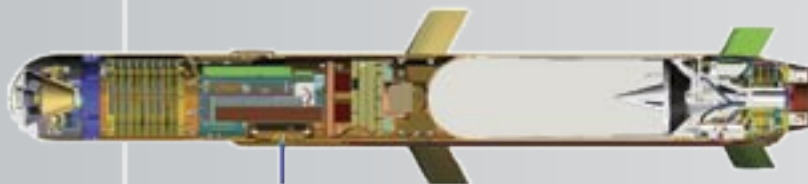
Non-Line of Sight–Launch System (NLOS-LS)

Enhances combat effectiveness and survivability by providing precise, non-line-of-sight lethal fire for the Future Combat Systems unit of action.



Missile Computer & Commo System

Precision Attack Munition (PAM)



Loiter Attack Munition (LAM)



Container/Launch Unit

PM UA Networks / LSI Efforts

- Tactical Fire Control
- Network Development and I/F
- Mission Planning

PEO-TM Efforts

- Development of PAM, LAM, and CLU w/ MCCS
- Technical Fire Control
- Network Interfaces for CLU and Missiles
- Platform Interfaces with LSI and PM FCS

DESCRIPTION AND SPECIFICATIONS

The Non-Line of Sight–Launch System (NLOS-LS), a core system within the FCS family of systems, provides unmatched lethality and “leap ahead” missile capability for U.S. forces. NLOS-LS consists of a pair of precision guided missiles loaded onto a highly deployable, platform-independent container launch unit (CLU) with self-contained technical fire control, electronics, and software to enable remote and unmanned fire support operations.

The two precision guided munitions being developed are the Precision Attack Missile (PAM) and Loiter Attack Missile (LAM). The NLOS-LS CLU will contain a total of 15 missiles. The PAM will primarily be used to defeat hard and soft, moving or stationary target elements, while the LAM will be used against fleeting, high-value targets. The LAM can also search, survey targets, and aid in verifying and assessing battle damage. It can also serve as an airborne radio re-transmission platform for other FCS systems when needed. Either missile launches vertically from the CLU when in receipt of fire mission orders received via the FCS unit of action (UA) network. Each missile can receive in-flight target updates via their on-board network radio, and will possess limited automatic target recognition capability. Both the PAM and LAM will have multi-functional warheads to effectively engage hard (armor) and soft targets. Beginning in FY05, the Army has decided to reduce the scope of the LAM system development and demonstration (SDD) effort. It will fund through the Army’s Science and Technology program enhancements to the current LAM seeker and airframe to improve system performance and reduce cost. NLOS-LS will be available for evaluation in FY08 for integration into the Current Force as part of the FCS spiral-out strategy. Future missile variants in follow-on FCS spiral increments may include air defense and non-lethal capabilities.

Key NLOS-LS advantages include the following:

- Real-time battlefield surveillance
- Remote fire control
- Remote emplacement
- Extended-range target engagements and battle damage assessment
- Jam-resistant Global Positioning System

Weight: CLU with 15 missiles, approximately 3,150 pounds

Dimensions:

- Width:** 45 inches
- Length:** 45 inches
- Height:** 69 inches

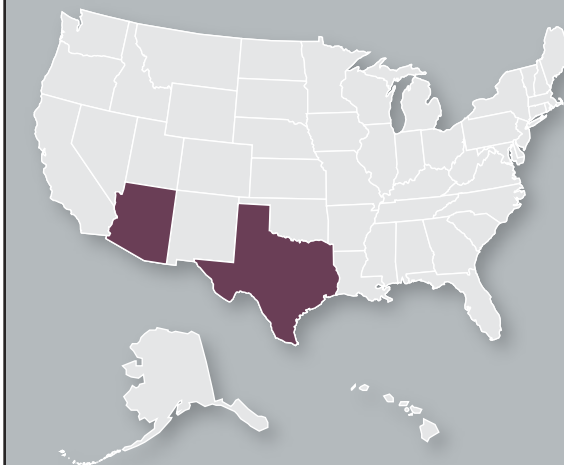
Range: PAM approximately 40km; LAM approximately 70km + 30 minutes loitering time

PROGRAM STATUS

- 4QFY04 NLOS-LS SDD contract definitized

PROJECTED ACTIVITIES

- 1QFY06 NLOS-LS preliminary design review



CONTRACTORS

NETFIRES: Limited Liability Company between Raytheon (Tucson, AZ) and Lockheed Martin (Dallas, TX)

INVESTMENT COMPONENT
Modernization

ACQUISITION PHASE

- System Development and Demonstration

Nuclear Biological Chemical Reconnaissance Vehicle (NBCRV)–Stryker

Delivers accurate, rapid combat information by detecting, sampling, identifying, marking, and reporting the presence of chemical, biological, radiological, and nuclear and toxic industrial material hazards.



DESCRIPTION AND SPECIFICATIONS

The Nuclear Biological and 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 Team. It will be the Army's principal manned, automated reconnaissance, surveillance, monitoring, marking, reporting, and sampling system in corps and division elements and echelons above corps. It will operate in all geographical areas, adverse weather, and under all types of battlefield conditions.

NBCRV uses government off-the-shelf military hardware and some systems still in development. Its sensor suite provides overmatching capability on a common platform through the use of a single, integrated reconnaissance and surveillance system. The Joint Service Lightweight Standoff Chemical Agent Detector (JSLSCAD), Chemical Biological Mass Spectrometer (CBMS) Block II, and Force XXI Battle Command Brigade and Below (FBCB2) are examples of programs currently in development. Some are in production, such as the Joint Biological Point Detection System (JBPDS), M22 Automatic Chemical Agent Alarm, AN/VDR-2 radiation, detection, indication and computation (RADIAC), AN/UDR 13 pocket RADIAC, and other non-nuclear, biological, and chemical (NBC) equipment such as the Precision Lightweight GPS Receiver.

NBCRV will have the capability to detect and collect CBRN and toxic industrial material (TIM) contamination in its immediate environment on the move through point detection (CBMS and JBPDS), and at a distance through the use of a standoff detector (JSLSCAD). It automatically integrates contamination information from detectors with input from on-board navigation and meteorological systems and automatically transmits digital NBC warning messages through the Maneuver Control System to warn follow-on forces.

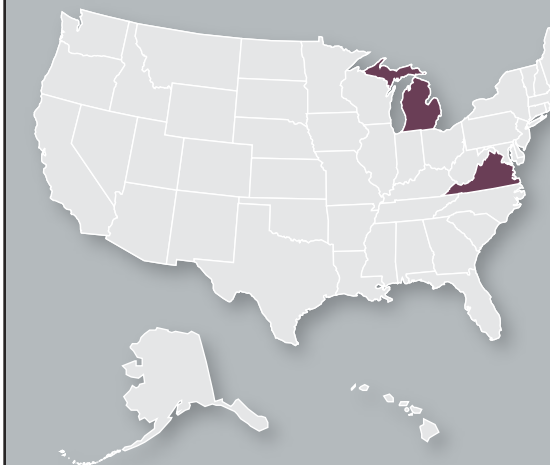
NBCRV may replace the need for separate M93A1 Fox NBC Reconnaissance Systems and Biological Integrated Detection Systems.

PROGRAM STATUS

- **4QFY04** Low rate initial production approved for 17 systems
- **4QFY04** Sensor vehicle integration initial production

PROJECTED ACTIVITIES

- **1QFY06-4QFY06** Production verification test
- **4QFY06** Initial operational test and evaluation
- **1QFY07-2QFY07** Live fire test and evaluation



CONTRACTORS

Prime Vehicle:

General Dynamics Land Systems
(Sterling Heights, MI)

Sensor Software Integrator:

CACI Technologies (Manassas, VA)

INVESTMENT COMPONENT

Modernization

ACQUISITION PHASE

- System Development and Demonstration

Provides the primary artillery support for armored divisions, mechanized infantry divisions, and heavy brigade combat teams.



DESCRIPTION AND SPECIFICATIONS

The M109A6 (Paladin) 155mm howitzer is the most technologically advanced self-propelled cannon system in the Army. The "A6" designation identifies several improvements to the standard model.

The fire control system is fully automated, providing accurate position location, azimuth reference, and on-board ballistic solutions of fire missions. The howitzer has a servo-driven, computer-controlled gun drive with manual backup. Paladin uses state-of-the-art components to achieve dramatic improvements in the following:

- **Survivability:** "Shoot and scoot" tactics; improved ballistic and nuclear, biological, and chemical protection
- **Responsive fires:** Capable of firing within 45 seconds from a complete stop with on-board communications, remote travel lock, and automated cannon slew capability
- **Accurate fires:** On-board position navigator and technical fire control
- **Extended range:** 30 kilometers with high explosive, rocket-assisted projectile and M203 propellant
- **Increased reliability:** Improved engine, track, and diagnostics

Upgrades include Global Positioning System (GPS)-aided self-location; M93 muzzle velocity system; and commercial off-the-shelf-based computer processor

Other Paladin specifications include the following:

- **Max target range:** 30000 meters (rocket assisted), 22000 meters (unassisted)
- **Min target range:** 4000 meters
- **Max rate of fire (ROF):** Four rounds per minute for three minutes
- **Sustained ROF:** One round per minute (dependent on thermal warning device)

Max speed: 38 miles per hour (highway)

Cruising range: 214 miles, or 220 miles in the accompanying M992 Field Artillery Ammunition Supply Vehicle (FAASV)

Crew size: Four, or five in the accompanying FAASV

Weight empty (approx.): 56,400 pounds

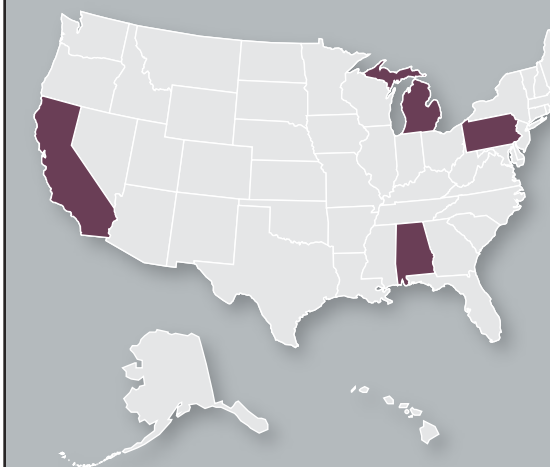
Weight combat loaded (approx.): 63,615 pounds

PROGRAM STATUS

- **4QFY04** Began field retrofits of Modular Artillery Charge System (MACS) storage racks
- **In Progress** FAASV recapitalization line

PROJECTED ACTIVITIES

- **Develop and field** Paladin Digital Fire Control System (PDFCS) software improvements
- **2QFY05** Fielding of 18 Paladins equipped with PDFCS to 1-109 PAANG
- **FY05** Begin field retrofits of PDFCS, continue MACS storage racks retrofits and continue FAASV recapitalization
- **FY05** Development and integration of Excalibur capabilities in Paladin fire control software



CONTRACTORS

United Defense (York, PA)
Northrup Grumman (Carson, CA)
Anniston Army Depot (Anniston, AL)
Green Metal Products (Clinton Twp, MI)
Camber (Huntsville, AL)

INVESTMENT COMPONENT

Maintenance

ACQUISITION PHASE

- Production and Deployment
- Operations and Support

Palletized Load System (PLS)

Rapidly moves combat-configured loads of ammunition and all classes of supply, shelters, and containers.



DESCRIPTION AND SPECIFICATIONS

The Palletized Load System (PLS) truck models are the M1075 and the M1074 with Materiel Handling Crane. The system also includes the PLS Trailer (M1076) with capacity equal to that of the truck, a PLS Container Handling Unit for transporting 20-foot International Standards Organization (ISO) containers, and the M3 container roll-in/out platform (CROP).

Specifications:

Payload: 33 tons (truck and trailer)

Speed: 55 miles per hour on road or 5-15 miles per hour cross-country

Curb weight: 48,845 pounds

PLS trucks have a self-load/off-load capability with demountable cargo bed (CROP), a central tire inflation system (CTIS) to enhance mobility, and are air transportable via C-141, C-5, and C-17, as well as deployable by rail and sea. PLS's reliability, availability, and maintainability are equal to or better than previous systems, or greater than 90 percent. CROP is NATO-interoperable and fits inside a single ISO container. The PLS container handling unit transports ISO containers.

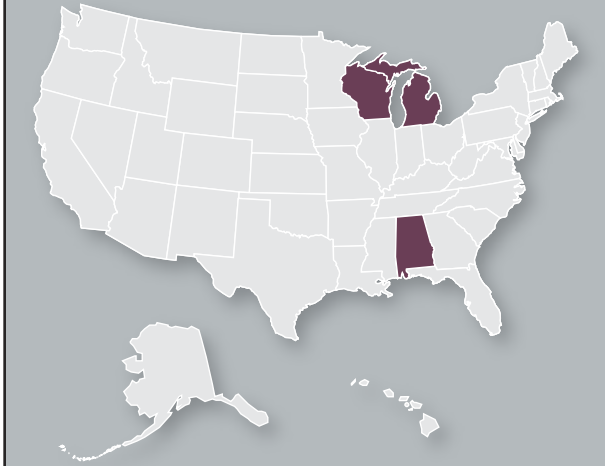
Capable of one person operation, PLS's rapid movement of ammunition, on and off road; supports decisive fires, and CTIS provides improved mobility.

PROGRAM STATUS

- **Current** In production

PROJECTED ACTIVITIES

- **2QFY07** PLS Block I cut in



CONTRACTORS

Oshkosh Truck (Oshkosh, WI)
Summa Technology (Cullman, AL)
Oshkosh Truck Kewanee Fabrication LLC (Kewanee, WI)
Detroit Diesel (Detroit, MI)

INVESTMENT COMPONENT

Modernization

ACQUISITION PHASE

- Production and Deployment

Palletized Load System (PLS)

PATRIOT (PAC-3)

Protects ground forces and critical assets at all echelons from advanced aircraft, cruise missiles, and tactical ballistic missiles.



DESCRIPTION AND SPECIFICATIONS

The PATRIOT system 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), an electric power plant (EPP), an antenna mast group (AMG), a communications relay group (CRG), and eight launching stations (LSs). The RS provides the tactical functions of airspace surveillance, target detection, identification, classification, tracking, and missile guidance and engagement support. The ECS provides the human interface for command control. Each LS contains four ready-to-fire PATRIOT Advanced Capability (PAC-2) guidance enhanced missiles sealed in canisters that serve as shipping containers and launch tubes. PATRIOT's fast-reaction capability, high firepower, ability to track numerous targets simultaneously, and ability to operate in a severe electronic countermeasure environment are significant improvements over previous air defense systems.

The PATRIOT Advanced Capability-3 (PAC-3) program significantly upgrades the RS and ECS, and adds the new PAC-3 missile. Its primary mission is to kill maneuvering and non-maneuvering TBMs, as well as counter advanced cruise missile and aircraft threats. The PAC-3 missile employs hit-to-kill technology for greater lethality against TBMs armed with weapons of mass destruction. Up to 16 PAC-3 missiles can be loaded per launcher, increasing firepower and missile defense capabilities. The PAC-3 system provides an integrated air and cruise missile defense solution for the Air and Missile Defense System of Systems. The PAC-3 upgrade program includes system improvements that increase performance against evolving threats, meet user requirements, and significantly enhance joint interoperability. The Medium Extended Air

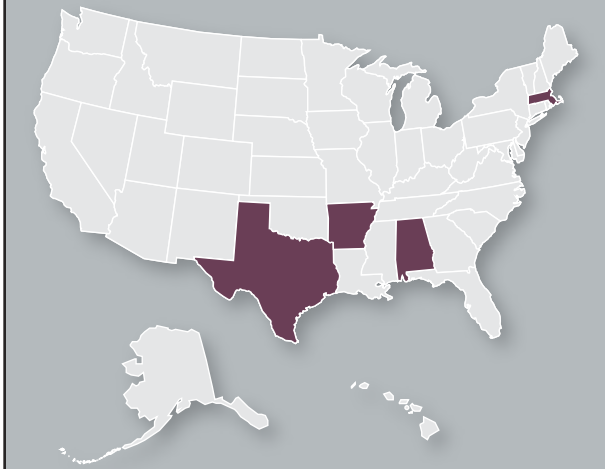
Defense System (MEADS) will be the successor system to PATRIOT, using the PAC-3 missile as the baseline interceptor. The Army in FY03 combined the PATRIOT and MEADS program because they share common components and missions.

PROGRAM STATUS

- **3QFY04** Army System Acquisition Review Council (ASARC) approved Milestone B for the PAC-3/MEADS Combined Aggregate Program
- **3QFY04** Joint Requirements Oversight Council (JROC) signed waiver for PAC-3 Missile Insensitive Munition
- **3QFY04** PAC-3 Missile Initial Operational Capability
- **3QFY04** JROC approved the PAC-3/MEADS Combined Aggregate Program Capabilities Development Document
- **4QFY04** USD(AT&L) approved Milestone B for PAC-3/MEADS Combined Aggregate Program
- **4QFY04** PAC-3 missile developmental/operational test 11
- **1QFY05** PAC-3 missile developmental/operational test 12
- **1QFY05** The Army Acquisition Executive approved limited procurement/type classification for additional FY04 missile procurements (Operation Iraqi Freedom supplement and a Congressional plus up)

PROJECTED ACTIVITIES

- **3QFY04-4QFY05** Continue PAC-3 follow-on testing. Continue PAC-3 evolutionary development program. Provide cost reduction initiative hardware for missile integration
- **2QFY05** Production decision for PAC-3 missile cost reduction missile configuration (FY05-06)
- **3QFY05** Missile segment enhancement (MSE) critical design review
- **3QFY05** JROC insensitive munition waiver update
- **1QFY06** Post deployment build 6 developmental test and evaluation



CONTRACTORS

PAC-3 Missile, PAC-3 Missile Assembly, PAC-3 Missile Sub-Assembly:
Lockheed Martin
(Grand Prairie, TX; Camden, AR; Lufkin, TX)
PATRIOT Modifications, Recapitalization Program:
Raytheon (Andover, MA; Bedford, MA)
PAC-3 Missile Seeker: Boeing (Huntsville, AL)

INVESTMENT COMPONENT

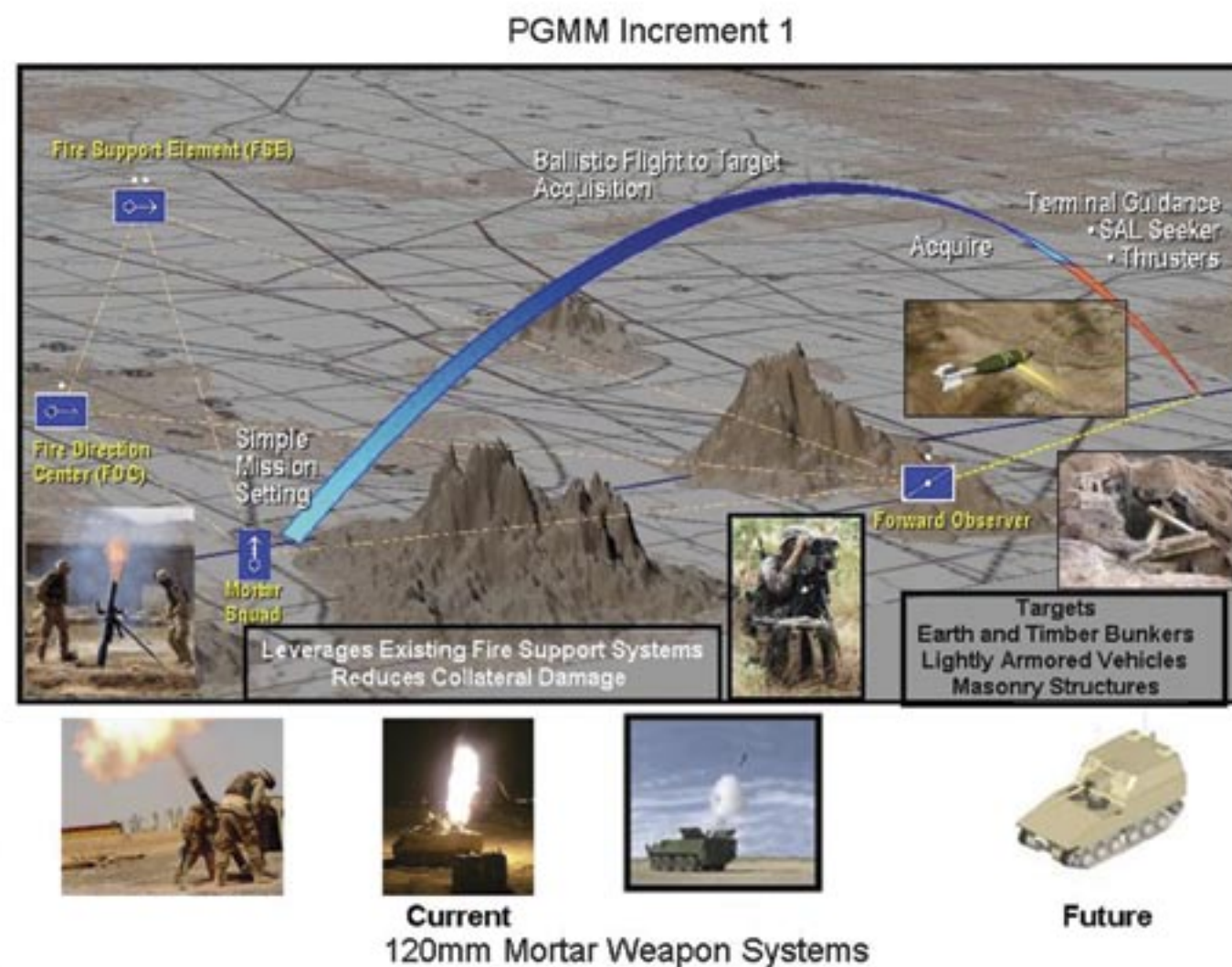
Maintenance

ACQUISITION PHASE

- Production and Deployment

Precision Guided Mortar Munitions (PGMM)

Destroys high-value targets, such as earth and timber bunkers, masonry structures, light armored vehicles, and command and control centers with beyond line-of-sight direct fire weapons.



DESCRIPTION AND SPECIFICATIONS

The 120mm Precision Guided Mortar Munitions (PGMM) is a precision munition capable of defeating high-value point targets at double the range of conventional 120mm mortar ammunition. Depending on the needs of the mission, its modes of operation include laser designation and/or autonomous fire and forget. Its infrared seeker detects and classifies targets and inputs information through its processor to its guidance and control systems to ensure a direct hit on the target. The shaped charge warhead will defeat both hard and soft targets.

The ability to hit point targets is especially valuable in urban environments and in low-intensity conflicts because it avoids collateral damage and reduces the potential for civilian casualties. PGMM increases the number of stowed kills and reduces the overall logistics burden—a critical goal for early entry forces.

Precision: Two rounds or less to defeat the target (semi-active laser designation for precision strike)

Range: Provides lethality at extended ranges with incremental upgrades (7.2 to 15 kilometers)

Lethality: Provides high lethality against personnel protected by earth and timber bunkers, lightly armored vehicles, and masonry structures

Shelf Life: 10-20 years

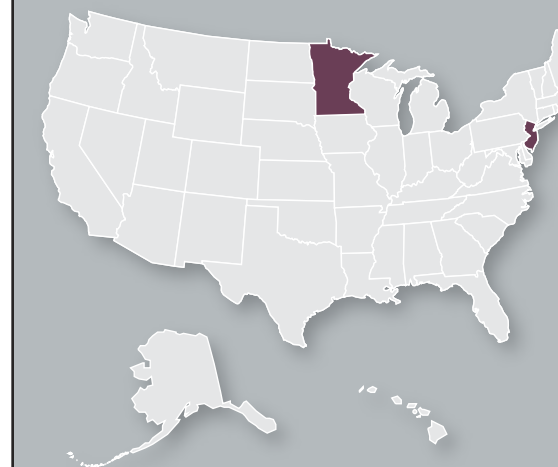
Weapon System: Compatible with all current and future 120mm U.S. mortar systems

PROGRAM STATUS

- **3QFY04** Completed component advanced development; successful Milestone B decision; proceeding to system development and demonstration (SDD) phase
- **3QFY04** PGMM Increment I Operational Requirements Document (ORD) approved by Joint Requirements Oversight Council
- **1QFY05** SDD contract awarded to Alliant Techsystems

PROJECTED ACTIVITIES

- **1QFY05-4QFY08** Increment I SDD phase
- **4QFY08** Milestone C (Increment I)
- **4QFY08-4QFY09** Low-rate initial production (LRIP)
- **3QFY09-4QFY09** Production Qualification Tests and Evaluation
- **2QFY10** Operational Test
- **4QFY10** Materiel Release
- **4QFY10** First unit equipped



CONTRACTORS

Program Management:

Prime: Alliant Techsystems (Plymouth, MN)
OPM Mortar Systems (Picatinny Arsenal, NJ)

INVESTMENT COMPONENT

Modernization

ACQUISITION PHASE

- System Development and Demonstration

Improves battlespace awareness using electronic support sensors that detect, collect, identify, and locate selected emitters, and enhances combat effectiveness using electronic warfare against targeted enemy command and control nodes.



DESCRIPTION AND SPECIFICATIONS

Prophet provides an electronic support (ES) capability and a near-real-time electronic picture of the brigade/armored cavalry regiment, Stryker Brigade Combat Team (SBCT), unit of action (UA) battlespace. Prophet detects, collects, and exploits conventional and modern military emitters. A secondary mission is electronic attack against selected enemy emitters to disrupt and/or disable target command and control nodes.

Prophet is mounted on a High Mobility Multipurpose Wheeled Vehicle (HMMWV), with an antenna mast that can be erected quickly. Prophet also has a dismounted man-pack version that supports airborne, early entry, and urban operations. Both configurations provide intelligence support to a division, Stryker/heavy/light brigade, regiment, UA, or task force.

This intelligence support provides indications, warning, location, tracking, and identification of threat emitters. Prophet will cross-cue other battlefield sensors (e.g. tactical unmanned aerial vehicles, PBS2 radars, etc.) as well as provide additional data that may confirm indications and detections from the other manned and unmanned battlefield sensors.

Prophet replaces the following systems: the AN/TSQ-138 Trailblazer, the AN/TRQ-32 Teammate, the AN/TLQ-17A Trafficjam, and the AN/PRD-12 Lightweight Man-Transportable Radio Direction Finding Set. Prophet employs an open systems architecture, modular design, and nonproprietary industry standards that support evolutionary growth and expansion via circuit card assemblies and software versus wholesale hardware replacement.

This open system architecture supports the insertion of off-the-shelf technology upgrades to meet unique theater collection requirements. This technology insertion has proven very effective in both Operation Iraqi Freedom and Operation

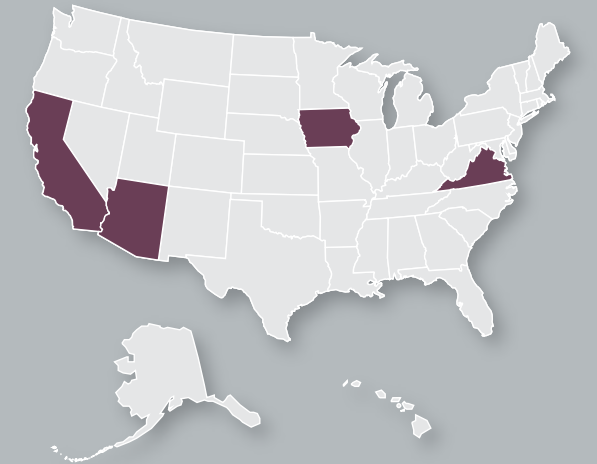
Enduring Freedom. The Prophet system has been and will be procured under a blocked acquisition approach, which will ensure preplanned product improvements, standardization, enhanced sustainability, smaller and lighter force structure, improved mobility, and reduced footprint and logistics. Prophet will impact the Future Force as the Block III technologies will be leveraged by the Future Combat System.

PROGRAM STATUS

- **3QFY04-1QFY05** Fielded 23 Prophet Block I systems
- **FY04-2QFY05** Prophet Block II/III system development and demonstration
- **4QFY04** Prophet Block II/III Developmental Test 1

PROJECTED ACTIVITIES

- **2QFY05-1QFY06** Continue Prophet Block I fieldings
- **2QFY05** Prophet Block II/III limited user testing
- **3QFY05** Prophet Block II/III Milestone C decision
- **3QFY05** Prophet Block II/III low-rate initial production
- **4QFY05** Prophet Block II/III first unit equipped



CONTRACTORS

- Prophet Block I Production:** Titan Corp. (San Diego, CA)
- Prophet Block II/III Development:** General Dynamics Decision Systems (Scottsdale, AZ)
- Prophet Block II Development:** Rockwell Collins (Cedar Rapids, IA)
- Prophet Block III Development:** Raytheon (Falls Church, VA)

INVESTMENT COMPONENT

Modernization

ACQUISITION PHASE

- System Development and Demonstration
- Production and Deployment

Rapid Equipping Force (REF)

Delivers new technological solutions rapidly and directly to engaged and deploying forces to address current battlefield issues, and to experiment with, develop, and evaluate solutions under operational conditions.

Requirements List Summary

Force Protection Ekspray Ferrotrace Hemizer 3 Vapor Trace Fiberscope Magnetometer Hand Held Thermal Sensors Pocket Interpreter	Weapons TLOS AN/PSQ 18 TWS Hide Sight Monitor Shoot Around the Corner Sights
	ISR NS Microwave WellCamera
	IED S-System ECM
	Comms MBITR/5590 Battery Adapter & power cables LRAD RAMP 25

DESCRIPTION AND SPECIFICATIONS

Rapid Equipping Force (REF) was established to provide operational commanders with rapidly employable solutions to enhance lethality, survivability, and force protection and to evaluate under operational conditions key technologies and systems that support rapid attainment of future force capabilities. REF exploits the full range of possible solutions from the Army, from other services, from within government, and from commercial sources.

REF is an independent entity reporting directly to the Vice Chief of Staff of the Army (VCSA) and under the operational direction of the G3. REF reports through the operational chain of command and is not an Army Acquisition Executive chartered program.

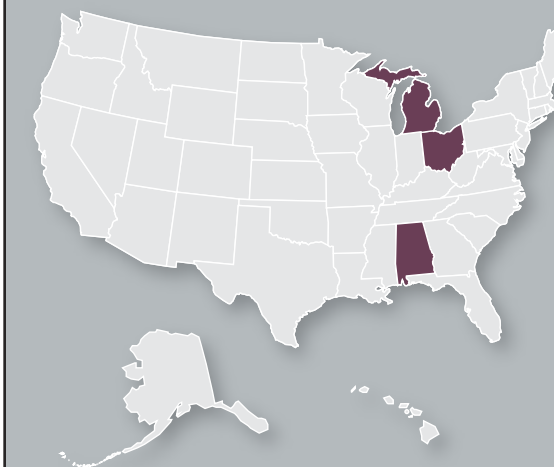
The evolving dynamics of The Army at war in Operations Enduring and Iraqi Freedom (OEF and OIF), rapid technological advances, and highly adaptive threats demand new, innovative, and timely changes to Army processes. REF efforts improve current capabilities and develop a model for lasting change and improvement of Army business practices while reducing risk to Soldiers. REF forward teams quickly identify and evaluate the needs and desired capabilities of our forces. With the cooperation and oversight of the Army Acquisition Executive, REF develops and rapidly acquires appropriate solutions while documenting a streamlined methodology for acquisition.

PROGRAM STATUS

- **Current** REF has introduced 65 different types of equipment providing more than 1,000 items used in OEF and approximately 4,000 used in OIF. REF is directly managing a significant COTS ISR project and has recently transitioned to PMs an ECM capability and the Persistent Surveillance and Dissemination System of Systems (PSDS2). REF funded the initial deployment of the persistent threat detection subsystem of PSDS2
- **FY03** REF provided robotics, counter-sniper, counter-mine, and force protection capabilities with funding from Army Strategic Planning Board approved operational needs statements and supported delivery of intelligence, surveillance, and reconnaissance and unmanned aerial vehicle capabilities
- **4QFY03** VCSA established REF as an experiment to respond to the global war on terrorism by rapidly meeting the emerging requirements of operational commanders
- **FY04** With supplemental funding, REF provided robotics, counter-sniper, force protection, communications and counter-improvised explosive device (IED) commercial off-the-shelf (COTS) and government off-the-shelf capabilities as well as field-engineered solutions to emerging requirements
- **2QFY04** Partnering with Defense Advanced Research Projects Administration to field "quick reaction" initiatives to include near-term counter-RPG capabilities
- **2QFY04** Continental U.S. (CONUS) training for pre-deployment units, with particular emphasis on ECM training
- **4QFY04** Outside CONUS assessment support to the counter-rocket, artillery and mortar initiative

PROJECTED ACTIVITIES

- **FY05** Expanded direct support to the IED Task Force for rapid implementation of equipment funded by the IED bridge supplemental, and also vetted the IED Task Force request process
- **Ongoing** Transition planning for REF projects that have proven to have wide applicability in support of OIF and OEF
- **2QFY05** Direct support to the Asymmetric Warfare Group begins



CONTRACTORS

General Dynamics Land Systems
 (Sterling Heights, MI; Lima, OH; Anniston, AL;
 London, Ontario)

INVESTMENT COMPONENT

Modernization

ACQUISITION PHASE

- Concept and Technology Development
- System Development and Demonstration
- Production and Deployment
- Operations and Support

Rapid Fielding Initiative (RFI)

Supports the warfighter by reducing equipment deficiencies and providing equipment when and where it is needed to conduct combat operations worldwide.



Current FY-04 RFI Equipment List

Force Protection/Mobility

- Advanced Combat Helmet (ACH) w/ Accessories
- PRC-148 Multi-Band Inter-Intra-Team Radio (MBITR)
- Modular Integrated Communications Helmet (MICH)
- Army Combat Boot (Hot Weather)
- Army Combat Boot (Temperate)
- Knee/Elbow Pads
- 35# Door Ram
- Tactical Assault Ladder
- Disposable Handcuffs
- Grappling Hook
- Modular Entry Tools
- Quickie Saw & Replacement Blades
- Battle Axe

Soldier Mission-Essential Equipment

- Black Fleece Bib & Jacket
- Combat Belt
- COTS Socks
- Cold Weather Cap
- Goggles
- Glove System
- Modular Lightweight Load-Carrying Equipment (MOLLE) Accessories
- Multi-Purpose Tool
- Hydration System
- Siloweight Underwear
- Moisture Wicking Sports Bra
- Moisture Wicking T-Shirt

Individual Weapons/Optics

- TA31-F 4x Advanced Combat Optic Gunsight (ACOG)
- M68 Close Combat Optic (CCO)
- Fiber Optic Viewer
- M145 Machinegun Optic

Lethality

- M4/M16 Magazines
- M24 Small Binoculars
- M122A1 Tripod
- M240B Combat Ammo Pack
- M240B Forward Rail System
- M240B Soft Ammo Pack
- M249 Ammo Soft Pack
- M249 Forward Rail System
- Mark VII Target Locator/VIPER
- Weapon Light

DESCRIPTION AND SPECIFICATIONS

Rapid Fielding Initiative (RFI) is a program to expedite the process of acquiring and fielding up-to-date, government off-the-shelf (GOTS) and commercial off-the-shelf (COTS) individual equipment and weapons technology to support Soldiers engaged in combat operations, including Operations Enduring Freedom (OEF) and Iraqi Freedom (OIF). Treating the Soldier as a system, RFI aims to ensure that Soldiers and the equipment vital to their success are deployed together. RFI also aims to ensure that Soldiers have the most current technology available as rapidly as possible to support mission accomplishment without requiring Soldiers to purchase commercially available but potentially inferior equipment.

RFI evolved from after-action reports (AARs) from units deployed to Afghanistan that cited a lack of mission-essential clothing and individual equipment (CIE) needed to perform assigned missions, as well as reports that Soldiers were purchasing COTS items before deployment to alleviate those deficiencies.

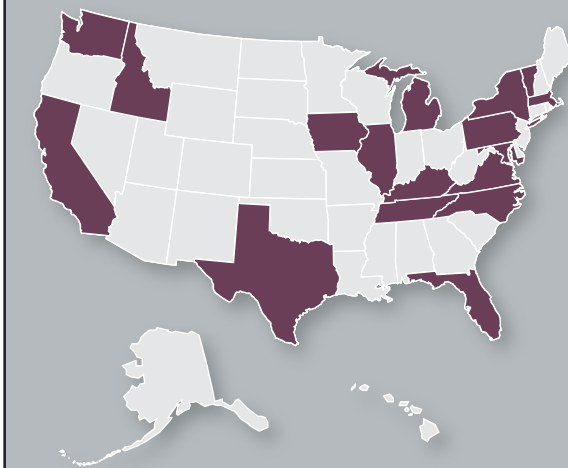
Initial funding for RFI beginning in November 2002 was provided largely through internal reprogramming of \$11 million in Program Executive Officer (PEO) Soldier funds. Subsequent funding was contained in supplemental bills for the purchase of Brigade Combat Team (BCT)-equivalent packages. For planning purposes, G-8 currently allocates \$19.1 million per BCT (Operations and Maintenance, Army [OMA], Other Procurement, Army [OPA], and Weapons and Tracked Combat Vehicles [WTCV]) and \$9.1M per associated Echelon Above Brigade (EAB).

PROGRAM STATUS

- **Current** Standardized RFI list of equipment developed based on Soldier feedback gained by the Training and Doctrine Command Soldier-as-a-System ICT, Task Force Soldier, and the Infantry School at Ft. Benning, GA. The RFI list is now more than 50 individual and unit items for BCTs in the categories of force protection/mobility, lethality, Soldier mission-essential equipment, and individual weapons/optics. A core Soldier list has been approved for the EABs associated with the BCTs.
- **1QFY05** RFI fielded to 29 BCT-equivalents

PROJECTED ACTIVITIES

- **FY05** Fielding of RFI items to 26 BCT-equivalent units and over 160,000 support Soldiers
- **3QFY05** Implementation of revised RFI list
- Continental U.S. (CONUS) fielding to deploying units at home stations and mobilization stations
- **Ongoing** Outside CONUS fielding to units deployed in-theater for OIF/OEF
- **Ongoing** Enhanced staging, transportation, and inventory control procedures to achieve maximum flexibility, positive control, and efficiency of operations
- **Ongoing** Coordination with the Soldier-as-a-System ICT, the Infantry School, and Task Force Soldier to further refine RFI equipment item selection and acquisition processes



CONTRACTORS
Multiple

INVESTMENT COMPONENT
Modernization

ACQUISITION PHASE
• Production and Deployment

Rapid Fielding Initiative (RFI)

Secure Mobile Anti-Jam Reliable Tactical-Terminal (SMART-T)

Achieves end-to-end connectivity that meets joint requirements for command, control, communications, computers, and intelligence.



DESCRIPTION AND SPECIFICATIONS

The Secure Mobile Anti-Jam Reliable Tactical-Terminal (SMART-T), mounted on a standard High Mobility Multipurpose Wheeled Vehicle (HMMWV), extends the range for current and future tactical communications networks.

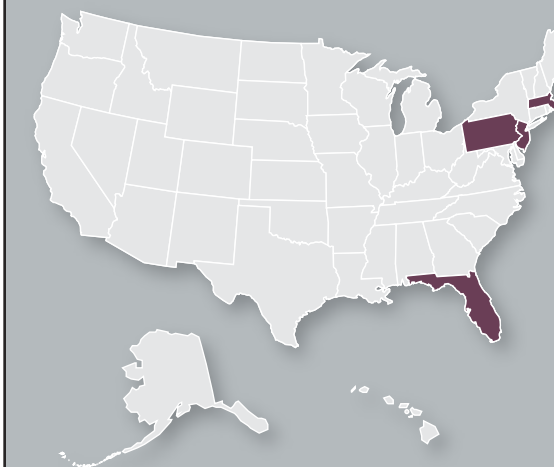
The maximum rate for data and voice communications at low data rate is 2.4 Kbps and at medium data rate it is 1.544 Mbps. This will be the only protected wideband satellite capability. Development is underway to upgrade terminals to Advanced Extremely High Frequency (AEHF) at a maximum data rate of 8.192 Mbps.

PROGRAM STATUS

- **3QFY04** AEHF information assurance critical design review completed successfully
- **3QFY04-1QFY05** 44 SMART-T medium data rate terminals fielded to Army and Marine Corps units
- **3QFY04-1QFY05** Provided up to 61 SMART-Ts in Southwest Asia; positive feedback received
- **3QFY04-1QFY05** Continued AEHF development upgrade effort to provide the warfighter with increased data rates
- **Thru FY04** 264 SMART-Ts have been procured and 178 terminals have been fielded (all services)

PROJECTED ACTIVITIES

- **2QFY05** Procure 63 Army SMART-Ts to complete Army acquisition objective buyout
- **2QFY05-1QFY06** Continue AEHF development upgrade



CONTRACTORS

AEHF Development:

Raytheon (Marlborough, MA)

Production:

Raytheon (Largo, FL)

Engineering Support:

Lincoln Labs (Lexington, MA)

Hardware:

Sechan Electronics (Lititz, PA)

Admin/Tech:

JANUS Research (Eatontown, NJ)

INVESTMENT COMPONENT

Modernization

ACQUISITION PHASE

- Production and Deployment

Provides critical air surveillance by automatically detecting, tracking, classifying, identifying, and reporting targets to air defense weapons systems and battlefield commanders.



DESCRIPTION AND SPECIFICATIONS

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 (HMMWV), the antenna transceiver group mounted on a high mobility trailer, the identification friend-or-foe system, and the FAAD C2 interface. The sensor is an advanced three-dimensional battlefield X-band air defense phased-array radar with a range of 40 km.

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 nap of the earth to the maximum engagement altitude of short-range air defense weapons. Sentinel picks up targets before they can engage, thus improving air defense weapon reaction time and allowing engagement at optimum ranges. Sentinel's integrated identification friend-or-foe system reduces the potential for engagement of friendly aircraft.

Sentinel modernization efforts include enhanced target range and classification (ETRAC) upgrades to engage non line-of-sight targets; increased detection and acquisition range of cruise missiles, unmanned aerial vehicles and fixed/rotary wing 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.

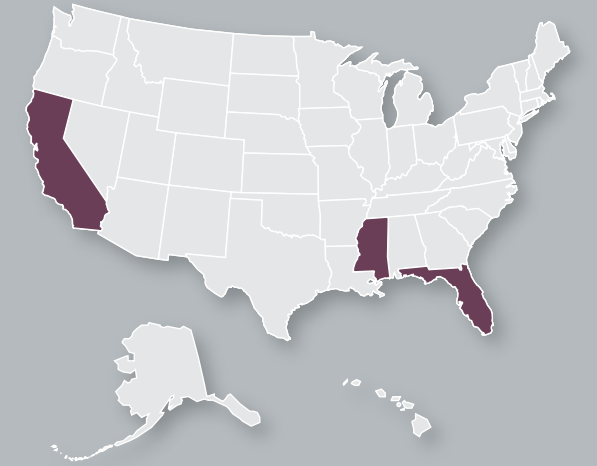
Sentinel has been critical in providing air surveillance of the National Capital Region and other areas as a part of ongoing homeland defense efforts.

PROGRAM STATUS

- **4QFY04** Exercised option for production of 67 ETRAC kits and associated integration into Sentinel radars

PROJECTED ACTIVITIES

- **3QFY05** Initial Sentinel ETRAC system retrofit of fielded system
- **4QFY05** Sentinel ETRAC initial operational capability (first unit equipped)



CONTRACTORS

Thales Raytheon Systems
(EL Segundo, CA; Forest, MS; Largo, FL)

INVESTMENT COMPONENT

Modernization

ACQUISITION PHASE

- Production and Deployment

Enables warfighters and small units to engage targets with lethal fire to defeat or deter adversaries.



M16



M4



XM203



MWS



MK19-3



M240B



M249



DESCRIPTION AND SPECIFICATIONS

Small Arms comprises a variety of weapons and their accessories.

M16A2 rifle: A lightweight, air-cooled, gas-operated rifle. The M16A2 enhances accuracy over its M14 predecessor by incorporating an improved muzzle compensator, three-round burst control, and a heavier barrel; and by using the heavier NATO-standard ammunition also fired by the squad automatic weapon.

M16A4 rifle: An M16A2 rifle with a flat-top upper receiver accessory rail and a detachable handle/rear aperture sight assembly

M4 carbine: A compact version of the M16A2 rifle, with a collapsible stock, a flat-top upper receiver accessory rail, and a detachable handle/rear aperture sight assembly. It achieves more than 85 percent commonality with the M16A2 rifle and replaces all .45 caliber M3 submachine guns, selected M9 pistols, and M16 series rifles.

Modular Weapon System (MWS): The MWS is a system of accessory rails mounted in place of the forward hand guards on M16A4 rifles and M4 carbines. These rails permit tool-free field attachment of day or night sights, aiming lights, flashlights, ancillary weapons, and other accessories, based upon mission-specific requirements.

M249 Squad Automatic Weapon (SAW): The M249 is a lightweight, gas-operated, one-man-portable automatic weapon capable of delivering a large volume of effective fire at ranges up to 1000 meters. Two M249s are issued per infantry squad.

M240B medium machine gun: The M240B is a ground-mounted, gas-operated, crew-served machine gun. This 7.62mm machine gun delivers more energy to the target than the smaller caliber M249 SAW. It is issued to infantry, armor, combat engineer, special force/rangers, and selected field artillery units.

MK19-3 40mm grenade machine gun: A self-powered, air-cooled, belt-fed, blowback-operated weapon. The MK19-3 is designed to deliver decisive firepower against enemy personnel and lightly armored vehicles. It is the primary suppressive weapon for combat support and combat service support units.

	M4	M16A2/A4	M249	M240B	MK19-3
Caliber:	5.56mm	5.56mm	5.56mm	7.62mm	40mm
Weight:	7.7 pounds*	*8.8 pounds	16.6 pounds	27.2 pounds	77.6 pounds
Max Effective Range:	600 meters AT**	800 meters/600 meters AT	1000 meters AT	1800 meters AT	2200 meters AT
	500 meters PT **	550 meters PT	600 meters PT	800 meters PT	

*Loaded weight with sling and one magazine only.

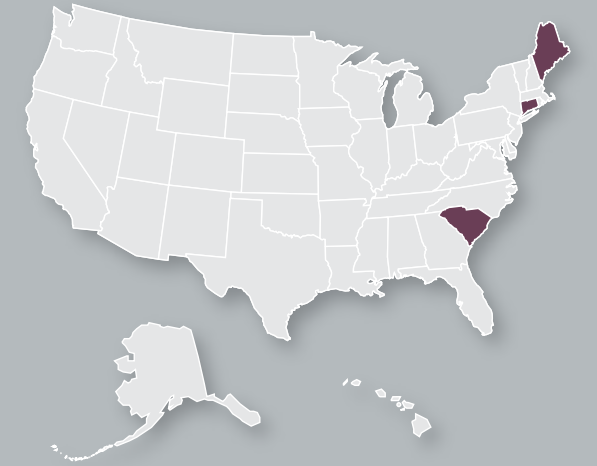
** (AT: area target, PT: point target)

PROGRAM STATUS

- **MWS** In production
- **M16A2** Procurement complete
- **M16A4** Production complete
- **M4** In production
- **M240B** In production
- **MK19** Procurement complete
- **M249** In production

PROJECTED ACTIVITIES

- **Continue** planned procurement for M4, M240, M249 and MWS.



CONTRACTORS

- M4 Carbine:** Colt's Manufacturing (Hartford, CT)
- M16A4, M249 Squad Automatic Weapon, and M240B Medium Machine Gun:** FN Manufacturing (Columbia, SC)
- MK19-3 Grenade Machine Gun:** General Dynamics (Saco, ME)

INVESTMENT COMPONENT

Maintenance

ACQUISITION PHASE

- Production and Deployment
- Operations and Support

Small Caliber Ammunition

Provides warfighters with the highest quality small caliber ammunition for training and combat.



DESCRIPTION AND SPECIFICATIONS

The Small Caliber Ammunition program consists of the following cartridges: 5.56mm, 7.62mm, 9mm, 10-Gauge, 12-Gauge, .22 caliber, .30 caliber, and .50 caliber.

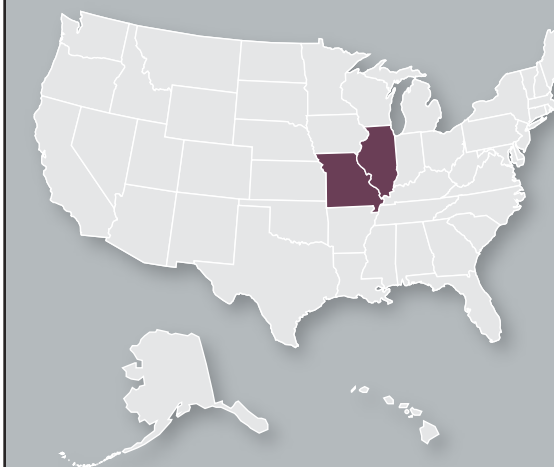
Small Caliber Ammunition supports the following Soldier weapons: M9 pistol, M16A1/A2 rifle, M4 carbine, M249 squad automatic weapon, M240 machine gun, .50-caliber M2 machine gun, sniper rifles, and a variety of shotguns.

PROGRAM STATUS

- **3QFY04** Procurement of small caliber ammunition for training from the United Kingdom complete
- **4QFY04** Urgent buys of 5.56mm, 7.62mm, and .50 caliber are under contract
- **1QFY05** 1.2 billion rounds under contract at Lake City Army Ammunition Plant
- **1QFY05** Solicitation to acquire second source (commercial) released to industry

PROJECTED ACTIVITIES

- **3QFY05** Systems contract to be awarded to second small caliber ammunition source
- **3QFY06** Lake City Army Ammunition Plant production capacity to be expanded from 1.2 billion to 1.5 billion rounds per year



CONTRACTORS

Alliant Techsystems (Independence, MO)
 Olin Corporation (East Alton, IL)
 Nordic Ammunition (Karlsborg, Sweden)

INVESTMENT COMPONENT

Modernization

ACQUISITION PHASE

- Production and Deployment

Enables deployment of Stryker Brigade Combat Teams anywhere in the world via readily-deployable, combat-ready support vehicles capable of rapid movement.



DESCRIPTION AND SPECIFICATIONS

The Stryker is a family of eight-wheeled vehicles powered by 350-horsepower diesel engines. It incorporates a central tire inflation system, run-flat tires, and a vehicle height management system. Stryker consists of two types: the Infantry Carrier Vehicle (ICV) and the Mobile Gun System (MGS).

The ICV is a troop transport vehicle capable of carrying nine infantry Soldiers, their equipment, and a crew of two: driver and vehicle commander.

The MGS is designed to support infantry. It has a 105mm turreted gun and autoloader system designed to defeat bunkers and breach double-reinforced concrete walls.

There are eight other configurations based on the ICV that provide combat support capabilities:

- Reconnaissance Vehicle (RV)
- Mortar Carrier (MC)
- Commander's Vehicle (CV)
- Fire Support Vehicle (FSV)
- Engineer Squad Vehicle (ESV)
- Medical Evacuation Vehicle (MEV)
- Anti-Tank Guided Missile (ATGM) Vehicle
- Nuclear, Biological, and Chemical Reconnaissance Vehicle (NBCRV)

The ICV family (other than the MEV, ATGM, FSV, and RV) is armed with a remote weapons station that supports an M2 .50-caliber machine gun or MK19 automatic grenade launcher, the M6 countermeasure device (smoke grenade launcher), and an integrated thermal weapons sight. Stryker is capable of supporting a communications suite that integrates the Single Channel Ground and Airborne Radio System (SINGCARS) radio family; Enhanced Position Location Reporting System (EPLRS); Force XXI Battle Command Brigade-and-Below (FBCB2); Global Positioning System (GPS); and high-frequency and near-term digital radio systems.

Optimized for close, complex, or urban terrain, Stryker moves quickly and provides 360-degree protection against 14.5mm armor piercing threats.

It is deployable by C-130 aircraft and combat-capable upon arrival. The Stryker is capable of self-deployment by highway and self-recovery. It has a low noise level that reduces crew fatigue and enhances survivability.

The Stryker program leverages non-developmental items with common subsystems and components to quickly acquire and field these systems. Where appropriate, Strykers integrate existing government furnished materiel subsystems. The Stryker family of vehicles stresses performance and commonality that reduces the logistics footprint and minimizes sustainment costs. The 3rd Brigade, 2nd Infantry Division Strykers deployed in Iraq have driven over 3 million miles and maintained an operational readiness rate well above 90 percent.

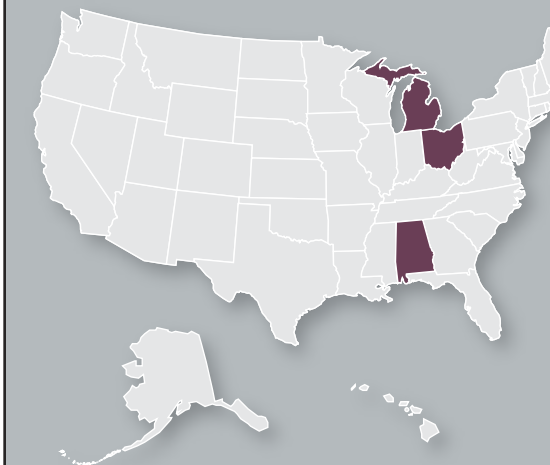
Stryker Brigade Combat Teams (SBCTs) 1, 2, 3, and 4 require 317 Stryker variants. SBCTs 5 and beyond require 328 Stryker variants, because of an added Stryker-based retrans and gateway capability. The current program requires more than 2,000 Strykers to field six SBCTs. In the FY05 budget, Congress provided additional funding and directed the Army to field a seventh SBCT.

PROGRAM STATUS

- **1QFY05-3QFY05** Continue fielding to SBCT3
- **1QFY05** Start Full Rate production of Mortar Carrier

PROJECTED ACTIVITIES

- **2QFY05** Start Low Rate Initial Production for MGS and NBCRV
- **4QFY05** Start fielding to SBCT4
- **FY05-06** Continued development and testing of MGS and NBCRV



CONTRACTORS

General Dynamics Land Systems (Sterling Heights, MI; Lima, OH; Anniston, AL; London, Ontario)

INVESTMENT COMPONENT

Modernization

ACQUISITION PHASE

- Concept and Technology Development
- System Development and Demonstration
- Production and Deployment
- Operations and Support

Surface Launched Advanced Medium Range Air-to-Air Missile (SLAMRAAM)

Provides networked air and missile defense capability for the maneuver force, critical geopolitical assets, and homeland defense.



DESCRIPTION AND SPECIFICATIONS

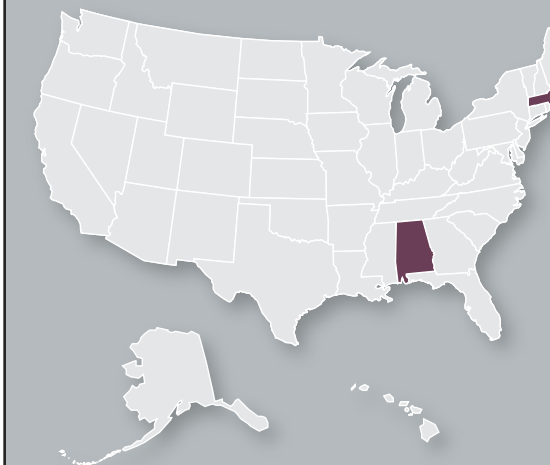
The Surfaced Launched Advanced Medium Range Air-to-Air Missile (SLAMRAAM) system is a joint Army and Marine Corps acquisition vectored toward delivering an advanced common air defense system architecture capability. Critical capabilities will be achieved through developing a common mobile missile launch platform (Fire Unit) and a common Integrated Fire Control Station (IFCS) with integrated sensors (Sentinel Enhanced Target Range and Classification [ETRAC], Joint Land Attack Cruise Missile Defense Elevated Netted Sensor [JLENS], and PATRIOT radar). The system uses the proven Advanced Medium Range Air-to-Air Missile (AMRAAM) in a ground-launched mode. The system provides an integrated air and cruise missile defense solution for the Air and Missile Defense System of Systems Increment 1 architecture and supports the Marine Corps' Common Aviation Command and Control System (CAC2S), other future systems, and homeland defense. SLAMRAAM is a highly mobile and transportable, day or night adverse weather system, supporting 360-degree engagements. Command and control is supplied by the IFCS, which provides integrated BMC4I and Force XXI Battle Command Brigade-and-Below (FBCB2) capability for ground and air operational and situational awareness. SLAMRAAM provides a critical beyond line-of-sight and non-line-of-sight overmatch capability against rapidly evolving cruise missile, unmanned aerial vehicle, unmanned combat aerial vehicle, rotary-wing, and fixed-wing threats.

PROGRAM STATUS

- 1QFY05 Hardware preliminary design review

PROJECTED ACTIVITIES

- 2QFY05 System preliminary design review
- 3QFY05 System critical design review



CONTRACTORS

Raytheon (Tewksbury, MA)
Boeing (Huntsville, AL)

INVESTMENT COMPONENT

Modernization

ACQUISITION PHASE

- System Development and Demonstration

Tactical Electrical Power (TEP)

Provides modernized tactical electric power sources for all services.



2kW Military
Tactical Generator



3kW
Tactical Quiet Generator



5kW 28VDC
Auxiliary Power Unit



5kW
Tactical Quiet Generator



10kW
Tactical Quiet Generator



10kW
Shelter Mounted
Auxiliary Power Unit



15kW
Tactical Quiet Generator



30kW
Tactical Quiet Generator



60kW
Tactical Quiet Generator



100kW
Tactical Quiet Generator



920kW
Deployable Power Generation
and Distribution System

DESCRIPTION AND SPECIFICATIONS

The Tactical Electric Power (TEP) program consists of small (0.5kW) to large (920kW) generating systems; power units and power plants; and auxiliary power units providing "single fuel" (diesel/JP-8) electrical generator systems that:

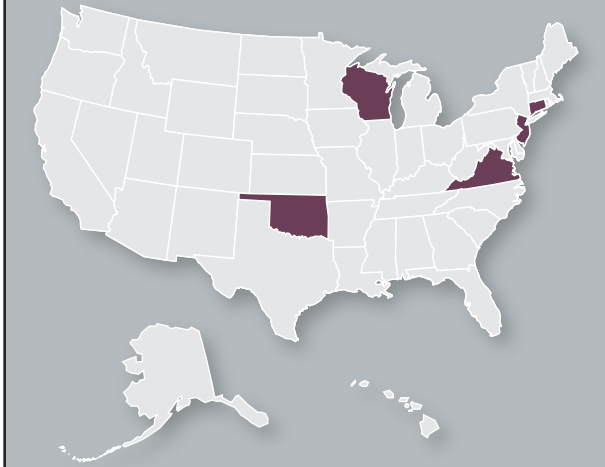
- Increase reliability (now 500-600 hours mean time between failure)
- Reduce weight/cube
- Reduce infrared signature and noise (to 70 dBA at 7 meters)
- Are survivable in chemical, biological, and nuclear environments
- Provide quality electric power for command posts; command, control, communications, computers, intelligence, surveillance, and reconnaissance (C4ISR) systems; weapon systems; and other battlefield support equipment

PROGRAM STATUS

- **FY04** Production and deployment is ongoing for 2kW, 3kW, 5kW, 10kW, 15kW, 30kW, 60kW, and 920kW generator sets
- **FY04** Assembly of power units and power plants (trailer mounted generator sets) and procurement of 5kW 28-volt DC and 10kW shelter mounted auxiliary power units continues
- **3QFY04** Milestone C and production award completed for 100kW and 200kW generator sets
- **4QFY04** Advanced Medium Mobile Power Sources (AMMPS) (next generation Tactical Electric Power Sources) Phase 1 design contract awarded
- **4QFY04** 2kW generator set design improvement contract awarded

PROJECTED ACTIVITIES

- **FY05** Production and deployment of generator sets, power units and power plants, and auxiliary power units to continue
- **2QFY05** First production deliveries of 100kW and 200kW generator sets
- **1QFY06** Advanced Medium Mobile Power Sources (AMMPS) Phase 2 design contract awarded



CONTRACTORS

3kW, 5kW, 10kW, 15kW, 100kW and 200kW: Fermont (Bridgeport, CT)
30kW, 60kW: MCII (Tulsa, OK)
920kW: Radian (Alexandria, VA)
2kW: Dewey Electronics (Oakland, NJ)
Trailers for Power Units and Power Plants: Phoenix Coaters LLC (Berlin, WI)

INVESTMENT COMPONENT

Modernization

ACQUISITION PHASE

- Production and Deployment

Tactical Fire Fighting Truck (TFFT)

Supports the tactical fire fighting team with a mobile, versatile vehicle capable of performing multiple missions.



DESCRIPTION AND SPECIFICATIONS

The M1142, Tactical Fire Fighting Truck (TFFT) is a part of the tactical fire fighting team concept. The all-wheel drive TFFT can carry an entire tactical fire fighting team and has a 1,000-gallon on-board water tank. Its features include:

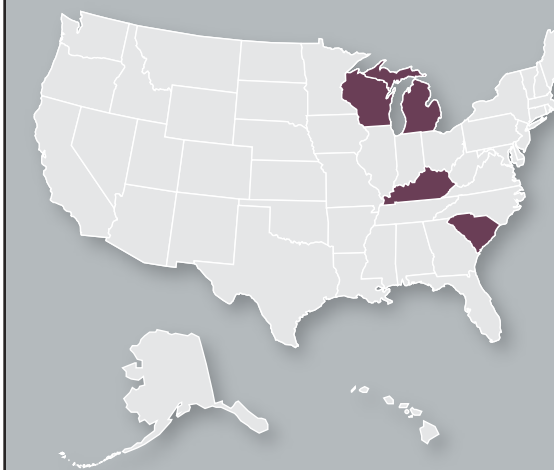
- Accommodations for a six-person tactical fire fighting team
- 500 gallon per minute (GPM) roof and 250 GPM bumper turrets
- Class A and B aqueous film-forming foam tanks
- C-17 transportability
- Greater mobility than currently fielded fire trucks through the use of the Heavy Expanded Mobility Tactical Truck (HEMTT) A2 chassis
- Capability to perform multiple missions (air crash rescue, structure, wildland fires, hazardous material) with one vehicle

PROGRAM STATUS

- **1QFY05** Type classification standard and full materiel release

PROJECTED ACTIVITIES

- **2QFY05** First unit equipped
- **2QFY05** Fielding of Units 2-13, combined U.S. Army Reserve and National Guard Bureau
- **3QFY05** Fielding of Units 14-26, combined U.S. Army Reserve and National Guard Bureau



CONTRACTORS

Pierce Manufacturing (Appleton, WI)
Oshkosh Truck (Oshkosh, WI)
Michelin (Greenville, SC)
Detroit Diesel (Detroit, MI)
Dana Corporation (Glasgow, KY)

INVESTMENT COMPONENT

Modernization

ACQUISITION PHASE

- Production and Deployment

Tactical Fire Fighting Truck (TFFT)

Tactical Operations Center (TOC)

Provides commanders with standardized and mobile command posts with a tactical, fully-integrated and digitized physical infrastructure to execute battle commands and achieve information dominance.



DESCRIPTION AND SPECIFICATIONS

The Tactical Operations Center (TOC) program provides the commander and his staff with a digitized platform and command information center where courses of action become plans, plans become orders, and battle tracking occurs.

Based on the new Standard Integrated Command Post System (SICPS) Operational Requirements Document (ORD), a new family of Command Post Platforms (CPPs) with standardized shelters, installation kits, large screen displays, tents and trailer-mounted support systems, will be developed and fielded to future units. The CPPs will integrate Army Battle Command Systems (ABCS), communications equipment, intercoms, and local area networks into a standard Army platform. CPPs are digitized, tactically mobile, and fully integrated using military off-the-shelf, commercial off-the-shelf, non-developmental items, and emerging technologies. CPPs are augmented with a new family of tents to provide an open environment for staff action.

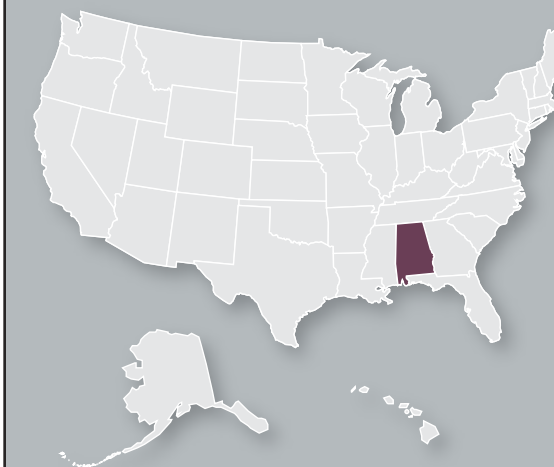
TOCs are interoperable to provide a common operational picture to combined and joint/allied command and control nodes. TOCs are also modular and provide a "jump," or split-based operations capability. Using the Tactical Internet and the latest networking capabilities, operations are revolutionized through a combination of state-of-the-art data processing, communications, and information transport methods to achieve information dominance.

PROGRAM STATUS

- **3QFY04** Completed fielding of Audio/Visual Center to the 1CD Fixed Command Post in Baghdad
- **4QFY04** SICPS Milestone B approval and command post platform development contract award
- **1QFY05** Completed fielding of digitized TOCs to Stryker Brigade Combat Team (SBCT) 3
- **1QFY05** Completed 4ID reset

PROJECTED ACTIVITIES

- **2QFY05** Field Mobile Command Post to U.S. Army South
- **3QFY05** Complete 4ID Modularity/Army Battle Command System 6.4 Conversion
- **4QFY05** Complete development of SICPS Rigid Wall Shelter Command Post Platform
- **4QFY05** SICPS Milestone C low rate initial production approval
- **4QFY05** Begin 1CD reset and modularity/Army Battle Command System 6.4 conversion
- **4QFY05-1QFY06** SICPS procurement for SBCT 5 and SBCT 6
- **2QFY06** Complete fielding of digitized TOCs to SBCT 4



Tactical Operations Center (TOC)

CONTRACTORS

Hardware Integration (4ID and 1CD):

General Dynamics (Huntsville, AL)

Hardware Design and Integration (SBCTs and SICPS):

Northrop Grumman (Huntsville, AL)

INVESTMENT COMPONENT

Modernization

ACQUISITION PHASE

- System Development and Demonstration

Tactical Unmanned Aerial Vehicle (TUAV)

Provides commanders an unmanned method to obtain enhanced tactical reconnaissance, surveillance, target acquisition, and battle damage information.



DESCRIPTION AND SPECIFICATIONS

The RQ-7B Tactical Unmanned Aerial Vehicle (TUAV) has a wingspan of 14 feet and a payload capacity of approximately 60 pounds; gross takeoff weight is more than 300 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 system Ground Control Station (GCS) is also the only joint-certified GCS in the Department of Defense (DOD). The RQ-7B TUAV system can be transported by three C-130 transports.

The RQ-7B TUAV system configuration, fielded in platoon sets, consists of:

- Four air vehicles with electro-optic/infrared imaging payloads
- Two GCS shelters mounted on High Mobility Multipurpose Wheeled Vehicles (HMMWV) and their associated ground data terminals; one portable GCS and one portable ground data terminal
- One air vehicle transport HMMWV towing a trailer-mounted hydraulic launcher
- One HMMWV with trailer for personnel and equipment transport

The system (platoon) configuration includes a maintenance section multifunctional (MSM), consisting of two HMMWVs, one with mounted shelter and trailer, and one with personnel and equipment, manned by Soldiers, transporting spares and providing maintenance support. In addition, a mobile maintenance facility manned by contractor personnel is located at the Divisional Military Intelligence Battalion to provide sustainment maintenance and support to the MSM, including "off system support" and "maintenance by repair."

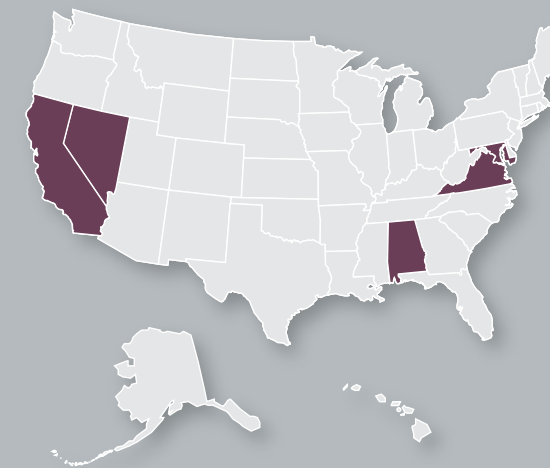
The system also has an early entry configuration of 15 Soldiers, one GCS, the air vehicle transport HMMWV, and the launcher trailer, which can be transported in one C-130. All components can be slung under a CH-47 or CH-53 helicopter for transport. Platoon operational tempo personnel requirement is: 12 air vehicle operators, one platoon sergeant, one platoon leader, and one UAV warrant officer. The maintenance section comprises four electronic warfare system repair personnel and three engine mechanics.

PROGRAM STATUS

- **Current** Fielding aggressively. A major acquisition success story, TUAV went from Milestone B to full-rate production decision in just 33 months and is the only DOD UAV to pass initial operational testing and evaluation. Eight systems are now supporting ground forces in Operation Iraqi Freedom (OIF).
- **1QFY04** Shadow has flown more than 3,200 sorties and more than 13,000 hours in support of OIF ground forces.
- **FY05** Nine systems on the fielding schedule, with priority to OIF-bound units.

PROJECTED ACTIVITIES

- **FY06** Continue fielding shadow platoons in support of Army Modularity.



CONTRACTORS

Air Vehicle/Ground Data Terminal:

AAI Corporation (Hunt Valley, MD)

GCS, Portable GCS:

CMI (Huntsville, AL)

Auto-land System:

Sierra Nevada Corp (Sparks, NV)

Ground Data Terminal Pedestal:

Tecom (Chatsworth, CA)

Training and Tech Manuals:

DPA (Arlington, VA)

INVESTMENT COMPONENT

Modernization

ACQUISITION PHASE

- Production and Deployment

Tactical Water Purification System (TWPS)

Provides mobile, tactical water purification for a broad range of water sources to meet water requirements within the division support area.



DESCRIPTION AND SPECIFICATIONS

The 1,500 gallon per hour (GPH) Tactical Water Purification System (TWPS) uses the latest state-of-the-art reverse osmosis technology to produce 1,500 gallons per hour (GPH) of potable water from any source, including salt water and nuclear, biological, and chemical (NBC) contaminated water. This system will replace older 600-GPH reverse osmosis water purification units (ROWPU) on a one-for-two basis.

The TWPS includes a pretreatment system, chemical injection, high-pressure pump, reverse osmosis elements, control panel, valves, piping, cold weather protection, wastewater collection, five 3,000-gallon onion tanks, and ocean intake fill system. It also includes distribution equipment to fill canteens or 5 gallon water cans.

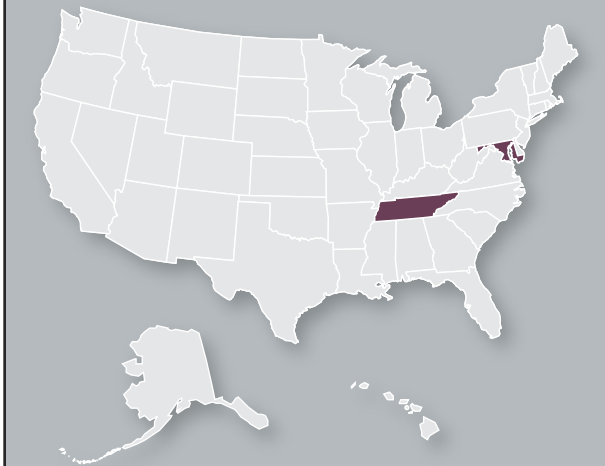
The Army's configuration is mounted on a Load Handling System (LHS) compatible flat rack, while the Marine Corps version is skid mounted. The system is set up by three people and operated by one. Either TWPS platform can be efficiently transported by a truck, train, marine vessel, or fixed-wing aircraft. Because each TWPS replaces two 600-GPH ROWPU, employment of the TWPS will reduce operator manpower requirements at each water point by 25 percent, providing substantial reductions in the combat service support footprint.

PROGRAM STATUS

- **Current** Production and fielding through FY05

PROJECTED ACTIVITIES

- **2QFY05** Full-rate production decision
- **3QFY05** Projected material release
- **4QFY05** First unit equipped



CONTRACTORS

SFA Frederick Manufacturing (Frederick, MD)
Aqua Chem (Knoxville, TN)

INVESTMENT COMPONENT

Modernization

ACQUISITION PHASE

- Production and Deployment

Provides direct-fire tank ammunition for use in current and future ground combat weapons platforms.

MRM Concept



105mm for MGS



120mm Tactical and Training



DESCRIPTION AND SPECIFICATIONS

The current 120mm family of tank ammunition consists of kinetic energy ammunition and multipurpose ammunition.

Kinetic energy ammunition lethality is optimized by firing a maximum-weight projectile at the greatest velocity possible. Multipurpose ammunition uses a high-explosive, shaped-charge warhead to provide blast, armor penetration, and fragmentation effects. There are three high-explosive cartridges in the current inventory: M830A1, M830 and M908 Obstacle Reduction.

The shotgun shell-like XM1028 canister cartridge provides the Abrams tank with effective, rapid, lethal fire against massed assaulting infantry.

To support the Stryker Force, 105mm Mobile Gun System (MGS) ammunition comprises new high-explosive and canister cartridges. High-explosive ammunition (M393A3) destroys hardened enemy bunkers and creates openings through which infantry can pass. Canister (XM1040) ammunition provides rapid, lethal fire against massed assaulting infantry at close range.

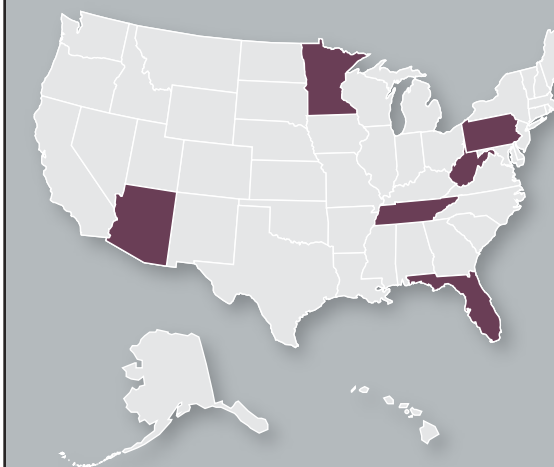
For Future Combat Systems, smart, precision munitions will enable precision strikes against high-value targets at extended ranges. The mid-range munition, whether 120mm or 105mm, will expand the future combat systems engagement zone beyond 8 kilometers.

PROGRAM STATUS

- **FY04** M829A3, M830, M830A1 and M908 fielded

PROJECTED ACTIVITIES

- **FY05** Milestone-C and low rate initial production for XM1002, XM1028, XM1040



CONTRACTORS

- **M830A1, XM1002 and XM1040:** Alliant Techsystems (Plymouth, MN)
- **XM1028:** General Dynamics-Ordnance and Tactical Systems (St. Petersburg, FL)
- **M829A3:** Alliant Techsystems (Plymouth, MN; Rocket City, WV) AOT (Johnson City, TN)
- **MRM:** Alliant Techsystems (Clearwater, FL) Raytheon (Tucson, AZ)
- **M393A3 and M467A1:** L-3 Communications (Lancaster, PA)

INVESTMENT COMPONENT

Modernization

ACQUISITION PHASE

- Concept and Technology Development
- System Development and Demonstration
- Production and Deployment

Theater Support Vessel (TSV)

Provides high-speed intra-theater transport of troops and cargo.



DESCRIPTION AND SPECIFICATIONS

The Theater Support Vessel (TSV) is a high-speed (40+ knots), shallow draft sealift platform that maximizes current commercial ferry technology, and represents the next-generation of Army watercraft to support the Army's doctrinal intra-theater lift mission. TSV provides flexibility and agility within a theater, enabling the joint force commander to insert combat power and sustainment into austere ports worldwide.

Supporting Army prepositioned stocks and joint logistics over-the-shore, TSV expands the reach and possibilities of prepositioning both on land and afloat. TSV provides the capability to conduct operational maneuver and repositioning of intact unit sets while conducting en route mission planning and rehearsal. TSV provides the combatant commander with increased throughput, increased survivability, increased responsiveness, and improved closure rates. This transport transformation-enabler helps achieve force deployment goals and full distribution-based logistics. TSV offers the joint force commander a multi-modal and multi-purpose platform to support joint operations that complements C-17 and C-130 airlift capabilities and minimizes the need for large-scale reception, staging, onward movement, and integration of Soldiers, vehicles, and equipment within the battlespace. The vessel will have the following additional features:

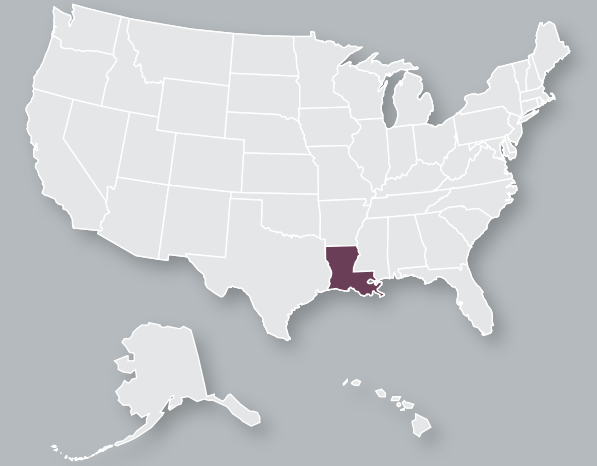
- Joint interoperable, command, control, communications, computers, intelligence, surveillance, and reconnaissance (C4ISR)
- Movement tracking system
- Electronic navigation
- Integrated materiel handling

PROGRAM STATUS

- **Current** Two vessels (TSV 1X, Spearhead and HSV X1, Joint Venture) are being leased as experimentation platforms to support the objective TSV program
- **Current** The TSV advanced concept technology demonstration (ACTD) continues TSV-1X, Spearhead, supports Operations Iraqi and Enduring Freedom; HSV-X1, Joint Venture, supports the Pacific Command area of responsibility

PROJECTED ACTIVITIES

- **FY05** Army TSV and Naval/USMC High-Speed Connector (HSC) programs combine with the goal to procure a Joint High Speed Vessel (JHSV); JHSV Program Office defines joint vessel requirements with follow-on efforts leading to FY08 contract award for first Army vessel; TSV-1X, Spearhead, participation in joint exercises (RSOI/FOAL Eagle, Cobra Gold, Talisman Sabre, and Bright Statr 05); complete TSV ACTD program



CONTRACTORS

Bollinger/Incat USA (Lockport, LA)

INVESTMENT COMPONENT

Modernization

ACQUISITION PHASE

- System Development and Demonstration

Theater Support Vessel (TSV)

Thermal Weapon Sight

Enables combat forces to acquire and engage targets with small arms, under day, night, obscurant, no-light, and adverse weather conditions.



DESCRIPTION AND SPECIFICATIONS

The AN/PAS-13(V)1 Light Thermal Weapon Sight (LTWS) is a silent, lightweight, compact, durable, battery-powered thermal sight with a recognition range of 550 meters. The primary battery is a set of eight, non-rechargeable 1.5-volt AA lithium batteries. The training battery is a set of eight rechargeable 1.2-volt AA nickel metal hydride batteries. LTWS is used on the M16/M4-series rifles and carbines and on the M136 Light Anti-Armor Weapon. LTWS weighs 2.7 pounds (with batteries) and has a 15-degree field of view.

The AN/PAS-13(V)2 Medium Thermal Weapon Sight (MTWS) is a silent, lightweight, compact, durable, battery powered thermal sight with a recognition range of 1,100 meters. The primary battery is non-rechargeable 6-volt BA-5347/U. The training battery is the rechargeable 6-volt BB-2847A/U. MTWS is used on the M16/M4 series rifles and carbines as well as the M249 and M240 series medium machine guns. MTWS weighs 5 pounds (with battery) and has a 6/18 degree dual field of view.

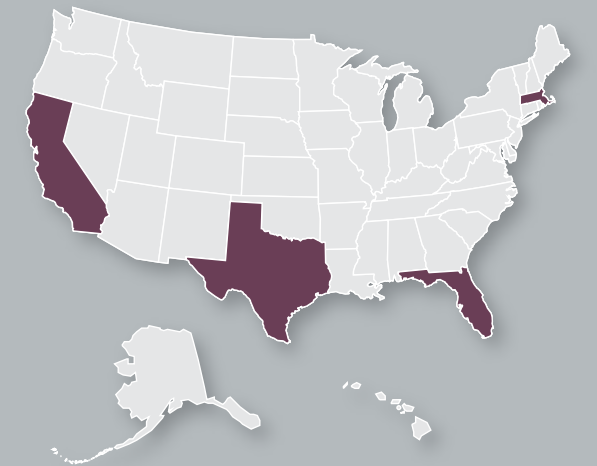
The AN/PAS-13(V)3 Heavy Thermal Weapon Sight (HTWS) is a silent, lightweight, compact, durable, battery powered thermal sight with a recognition range of 2,200 meters. The primary battery is a non-rechargeable 6-volt BA-5347/U. The training battery is the rechargeable 6-volt BB-2847A/U. The HTWS is used on the squad leader's weapon, M24 Sniper Rifle, M107, M2 HB, and MK19 machineguns. HTWS weighs 5.3 pounds (with battery) and has a 3/9 degree dual field of view.

PROGRAM STATUS

- **Current** LTWS, MTWS, and HTWS in production
- **2QFY04** Follow-on production contracts awarded to DRS & BAE

PROJECTED ACTIVITIES

- **Ongoing** planned procurement
- **Ongoing** fielding and new equipment training
- **Ongoing** Reducing TWS weights by 30-40 percent
- **Ongoing** Maintain capability while reducing power requirements
- **Ongoing** Convert all TWS systems to AA battery power capability



CONTRACTORS

Raytheon Systems (Dallas, TX)
BAE (Lexington, MA)
DRS (Melborne, FL; Dallas, TX; Irvine, CA)

INVESTMENT COMPONENT

Modernization

ACQUISITION PHASE

- Production and Deployment

Transport cargo, such as ammunition, fuel, equipment, and containers for various missions, as well as special purpose vehicles with recovery capability.



DESCRIPTION AND SPECIFICATIONS

The trailer program consists of the following programs:

Lunette Trailers:

- **M1101/M1102 Light Tactical Trailers (LTT)** are general purpose cargo trailers used as the companion trailers for the High Mobility Multipurpose Wheeled Vehicle (HMMWV).
- **M1082/M1095 Family of Medium Tactical Vehicles (FMTV)** 2 1/2- and 5-ton trailers are general purpose trailers that move equipment and supplies in a tactical environment. They are used as companion trailers to the medium truck fleet.
- **XM1147 FMTV Load Handling System (LHS) Trailers** carry flat racks, 20-foot International Standard Organization (ISO) containers, and container roll-in/roll-out platforms (CROP).

Fifth-Wheel Trailers:

- **M870A3 40-Ton Transporter Trailer** transports engineer equipment, tracked vehicles, and containerized and bulk cargo
- **M871A3 22 1/2 -Ton Semi-Trailer** transports breakbulk cargo and 20-foot ISO containers
- **M872A4 34-Ton Semi-Trailer** performs local or line haul of breakbulk and ISO containers
- **M967A2/M969A3 Tankers** perform automotive refueling and bulk fuel hauling

Special Purpose Vehicles:

- **M989A1 Heavy Expanded Mobility Ammunition Trailer (HEMAT)** is an 11-ton, four-wheel trailer that provides ammunition and fuel resupply for Army combat vehicles, missile systems, rotary-wing aircraft, and 55-gallon fuel bladders
- **Fifth-Wheel Towing Device (FWTD)** attaches to a tractor's fifth wheel, converting it into a towing/recovery vehicle

- **M1076 Palletized Load System Trailer (PLS-T)** carries ammunition and other critical supplies into battle

PROGRAM STATUS

- **M1082/M1095, M870A3, M871A3, M967A2, M969A3, FWTD** and PLS-T in production
- **M989A1** Production to end 3QFY05
- **M872A4** Milestone C
- **M1101/M1102** Low rate initial production (LRIP) and production verification test in process
- **XM1147** LRIP contract awarded for production verification test and limited user test

PROJECTED ACTIVITIES

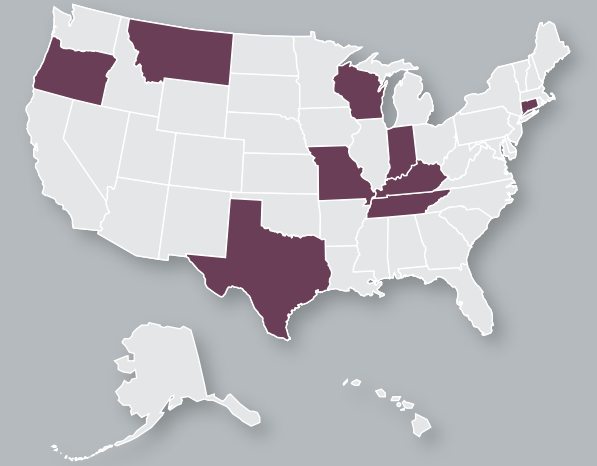
- **1QFY05-4QFY05** Continue production and fielding of trailers

M872A4:

- **3QFY05** Full Materiel Release

M1101/M1102 LTT:

- **2QFY05** Full production decision; full material release
- **3QFY05** Fielding begins



CONTRACTORS

M1101/M1102: Schutt Industries (Clintonville, WI); Silver Eagle Manufacturing Company (Portland, OR); **M1082/M1095/XM1147:** Stewart and Stevenson (Sealy, TX) **M870A3:** Kalyn Siebert (Gatesville, TX) **M871A3:** Fontaine Trailer Company (Princeton, KY); **M872A4:** Talbert Manufacturing (Rensselaer, IN); **M967A2/M969A3:** Heil Trailer International (Athens, TN); **M989A1:** Systems and Electronics Incorporated (West Plains, MO); **FWTD:** Tru-Hitch (Barkhamsted, CT); **M1076:** Oshkosh Truck Corporation (Oshkosh, WI)

INVESTMENT COMPONENT

Modernization

ACQUISITION PHASE

- Concept and Technology Development
- System Development and Demonstration
- Production and Deployment
- Operations and Support

Transportation Coordinators' Automated Information for Movement System II (TC-AIMS II)

Provides a joint, common capability for movement of personnel, equipment, and supplies from home station to a conflict and back, while providing source in-transit visibility data.



DESCRIPTION AND SPECIFICATIONS

Transportation Coordinators' Automated Information for Movement System II (TC-AIMS II) is a joint service migration system. Characteristics include:

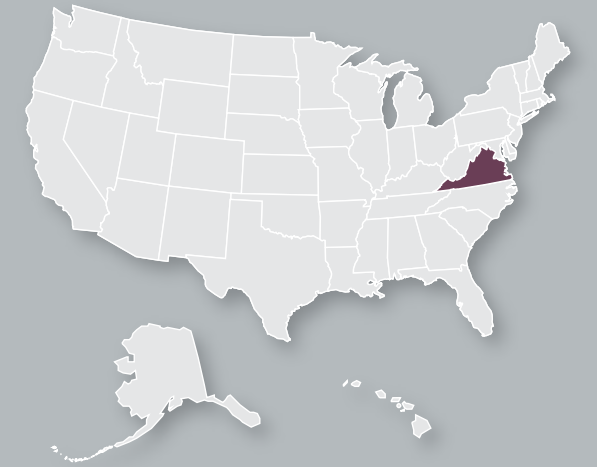
- Source feeder system to Joint Force Requirements Generation II, Joint Planning and Execution System, Global Transportation Network, and services' command and control systems
- Joint transportation system supporting chairman's 72-hour, time-phased force and deployment data initiative
- Common user interface to facilitate user training and operations
- Commercial off-the-shelf hardware architecture
- Net-centric, enterprise architecture
- Incremental, block upgrade developmental strategy
- Distributed computing application

PROGRAM STATUS

- **FY04** Continued fielding of Block 1, unit movement, to the Army and Navy
- **FY04-05** Block 2 completed development and testing, resulting in conditional fielding of Block 2 to the Army and Navy. Additional test activities were successfully completed by the end of FY04, and Block 2 fielding began. Block 2 will provide a Web-based capability to all users
- **FY04-05** Begin development of Block 3, which will provide Combatant Commanders a reception, staging, onward movement and integration capability, directly supporting in-theater transportation movement activities

PROJECTED ACTIVITIES

- **FY05-1QFY06** Development and test of Block 3 will continue, with a milestone decision review anticipated in 1QFY06 to field Block 3 and begin development of Block 4.



CONTRACTORS

Systems Integration:

Computer Sciences Corporation (Falls Church, VA)

Program Support:

Titan Corp. (Newington, VA)

Facilities Management:

Smart Technologies (Alexandria, VA)

INVESTMENT COMPONENT

Modernization

ACQUISITION PHASE

- Production and Deployment

Tube-Launched, Optically-Tracked, Wire-Guided (TOW) Missiles

Provides long-range, heavy antitank and precision assault fire capabilities to the Army and Marine forces.



DESCRIPTION AND SPECIFICATIONS

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 6 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, which physically link the missile and the launcher. The missile impact is at the aim point.

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 Vehicles, and Bradley Fighting Vehicle Systems (A2/A20DS/A20IF/A3). TOW missiles are also employed on the Marine HMMWV-mounted M220A4 launcher (TOW 2), LAV-ATGM Vehicle, and AH1W Cobra attack helicopter. TOW is also employed by allied nations from 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. This is accomplished with an increase of control wire and by affixing an aerodynamic nose to the missile. The TOW 2B Aero has an advanced counter active protection system capability. It 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 configuration 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. 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 21-24 inch diameter hole in an 8-inch thick, double-reinforced concrete wall at a range of 65 to 3,750 meters.

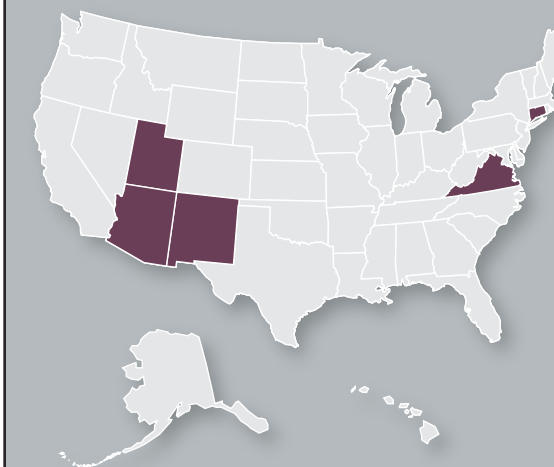
PROGRAM STATUS

TOW 2B Aero

- **4QFY97** Last U.S. TOW 2B missile produced
- **1QFY04** Qualification testing complete
- **2QFY04** TOW 2B Aero multi-year production contract awarded for FY 04-06

PROJECTED ACTIVITIES

- **Continue** TOW 2B U.S. production



CONTRACTORS

TOW 2B Aero

Prime: Raytheon (Tucson, AZ)
Control Actuator, Shutter Actuator: Moog (Salt Lake City, UT)
Warheads: Aerojet General (Socorro, NM)
Gyroscope: Condor Pacific (Cheshire, CT)
Sensor: Thales (Basingstoke, UK)
Launch Motor: ATK (Radford, VA)

TOW BB

U.S. Army development and production

INVESTMENT COMPONENT

Modernization

ACQUISITION PHASE

- Production and Deployment

Tube-Launched, Optically-Tracked, Wire-Guided (TOW) Missiles

Unified Command Suite (UCS)

Provides voice and data communications to National Guard Weapons of Mass Destruction-Civil Support Team commanders to enhance assessment of and response to weapons of mass destruction events.



DESCRIPTION AND SPECIFICATIONS

The Unified Command Suite (UCS) vehicle is a self-contained, stand-alone C-130 air mobile communications platform intended to provide both voice and data communications capabilities to Civil Support Teams (CST) commanders.

The UCS consists of a combination of commercial off-the-shelf 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 Civil Support Team mission. It is the primary means of reachback communications for the Analytical Laboratory System for the CSTs and acts as a command and control hub to deliver a common operational picture for planning and fulfilling an incident response. It provides:

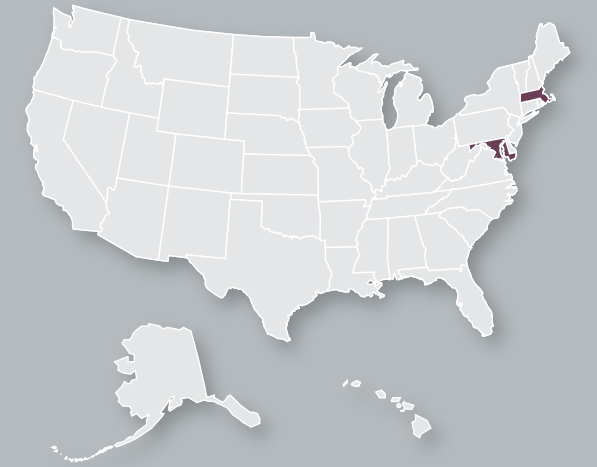
- Digital voice and data over satellite network
- Non-Secure Internet Protocol Router Network (NIPRNET), Secure Internet Protocol Router Network (SIPRNET)
- Radio remote and intercom with cross-banding
- Over-the-horizon communication interoperable interface with state emergency management and other military units

PROGRAM STATUS

- **1QFY05** Approval of capabilities upgrades
- **1QFY05** Deliver 13 UCS systems (total 36 fielded systems)
- **1QFY05** Contract award for 12 upgrades

PROJECTED ACTIVITIES

- **2QFY05** Developmental testing
- **4QFY05** Deliver 12 system upgrades



CONTRACTORS

Vehicle:

Wolf Coach, Inc., an L-3 Company
(Auburn, MA)

Communications System Integrator:

Naval Air Warfare Center Aircraft Division
(Patuxent River, MD)

INVESTMENT COMPONENT

Modernization

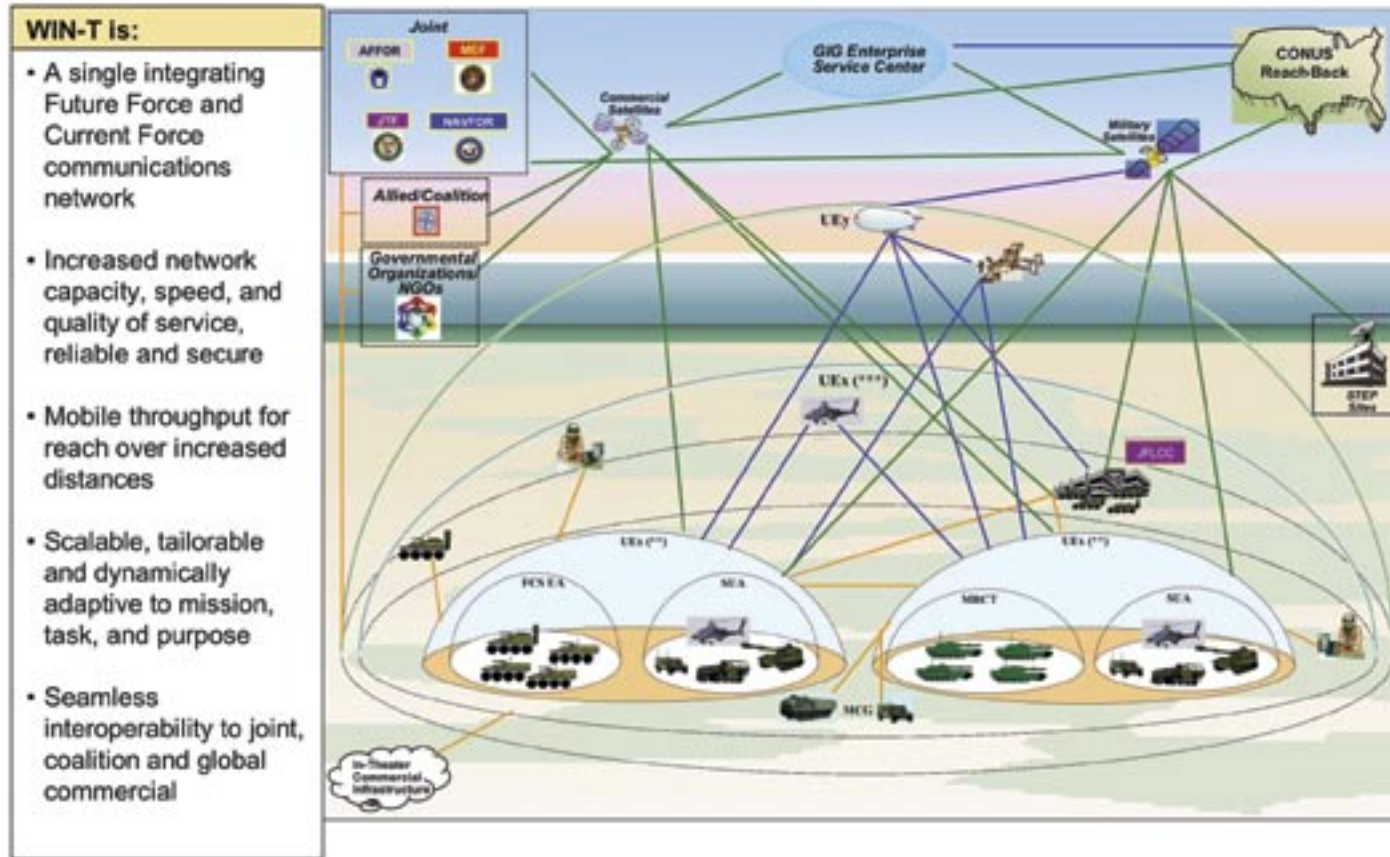
ACQUISITION PHASE

- Production and Deployment
- Operations and Support

Warfighter Information Network-Tactical (WIN-T)

Provides an integrating, high-speed, high-capacity backbone communications network for the Current Force and Future Force.

Warfighter Information Network - Tactical



DESCRIPTION AND SPECIFICATIONS

Warfighter Information Network-Tactical (WIN-T) is the Army's communications system for reliable, secure, and seamless video, data, imagery, and voice services that enable decisive combat actions. It will be focused on moving information in a manner that supports commanders, staff, functional units, and capabilities-based formations — all mobile, agile, lethal, sustainable, and deployable. It will be optimized for offensive and joint operations so that the theater Combatant Commander will have the capability to perform multiple missions simultaneously with campaign quality. WIN-T will establish an environment in which commanders at all echelons will have the ability to operate with virtual staffs and analytical centers that are located at remote locations throughout the battlespace.

As a key system supporting the Army's Current and Future Force, WIN-T meets the pressing need for efficient battlefield bandwidth utilization, optimal data throughput, on-the-move critical information exchange, and rapid infrastructure modernization. It will operate as the principal means to frame the tactical infosphere that encompasses both the unit of employment (UE) and unit of action areas of influence. This tactical infosphere will operate while mobile via its robust networking, with the ability to pass relevant information for systems combined arms capabilities in all terrain and under all environmental conditions.

WIN-T will outmode the present communications infrastructure (mobile subscriber equipment/tri-services tactical), which is force-structure intensive, has multiple subsystem assemblages, and has networking limitations.

WIN-T will consist of ground, airborne, and space layers that enable constant connectivity throughout units in theater, as well as sustaining base, Joint, Allied, and Coalition forces. Its prominent feature will be providing this capability while on the move.

Major components of WIN-T include:

- Switching/routing and subscriber access nodes (network service provider, on a single vehicle, targeted for UE echelons)
- Personal communications devices (cell phone-like capability) that can provide voice and data connectivity
- information assurance (provides an integrated Defense in Depth approach to protect sensitive and classified information)
- Information dissemination (information on demand, according to assigned level of precedence)
- Transmission systems (provides network connectivity)
- Network management (provides a means to plan, configure, monitor and manage the network)

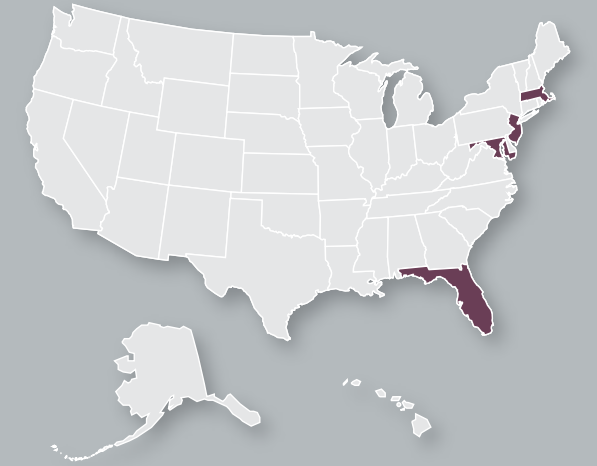
WIN-T capabilities will be spiraled into the Current Force and synchronized with rotations supporting Operation Enduring Freedom (OEF). WIN-Tactical is also synchronized with Future Combat Systems (FCS) and will provide that system's baseline communications transport and networking requirements.

PROGRAM STATUS

- **4QFY04** The Defense Acquisition Executive authorized a revised acquisition approach for the WIN-T program. This approach combines the two previously competing system development and demonstration contractors into a single team.

PROJECTED ACTIVITIES

- **2QFY05** System design review 2
- **3QFY05** Preliminary design review
- **4QFY05** Critical design review
- **1QFY06** Developmental test/operational test



CONTRACTORS

General Dynamics (Taunton, MA)
 Lockheed Martin Mission Systems (Gaithersburg, MD)
 Harris Corporation (Palm Bay, FL)
 BAE Systems (Wayne, NJ)

INVESTMENT COMPONENT

Modernization

ACQUISITION PHASE

- System Development and Demonstration

Warfighters Simulation 2000 (WARSIM)

Provides commanders with computer-based training that simulates a wide-variety of real-world battle scenarios.



DESCRIPTION AND SPECIFICATIONS

Warfighters Simulation 2000 (WARSIM) is the next-generation, computer-based command and control training system for the 21st century warfighter. It provides a single simulation system to train for the full spectrum of mission operations in asymmetric warfare. It depicts all levels of conflict, from stability and support operations, to mid/high intensity battlefield operations, to major theater of war.

WARSIM allows commanders and staff to train as they will fight, through direct simulation of their organic command, control, communications, computers, and intelligence equipment in an operational environment. C4I facilitates leader development in galvanizing doctrine, tactics, techniques, and procedures.

WARSIM is being developed to meet Title 10 requirements for unit of action through unit of employment and support joint task force training. It is designed for use by interagency, multinational, unit of action, and unit of employment commanders and their battle staffs from battalion through theater level.

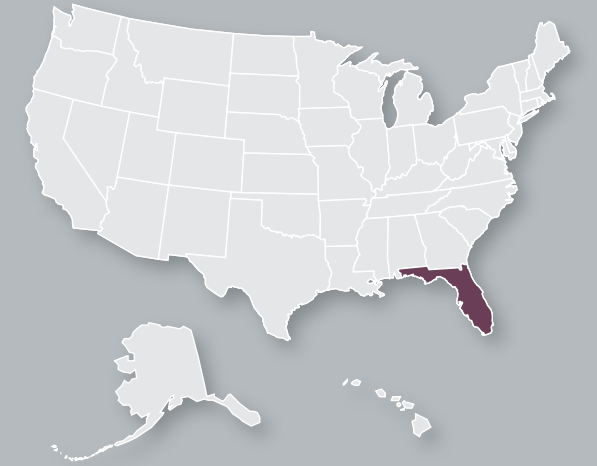
WARSIM employs data-driven flexible behaviors to allow dramatically improved representation levels (i.e., rules of engagement, cooperation levels by groups of non-combatants) and supports the use of multiple databases including National Imagery and Mapping Agency products.

PROGRAM STATUS

- **FY04** Continued development to improve system performance and increase scalability
- **FY04** Successfully integrated training system components: ground models, air models, intelligence models, C4I, user interface, security, after-action review, scenario generation, synthetic natural terrain
- **1QFY05** Software delivery to government

PROJECTED ACTIVITIES

- **2QFY05** Functional Assessment to assess and exercise system with brigade/unit of action (UA) (+) sized scenario
- **3QFY05** Continue support of the Army Constructive Training Federation V2 release
- **4QFY05** Initial capability event to validate the system with brigade/UA (+) sized scenario
- **3QFY06** V3 release



CONTRACTORS

Lockheed Martin Information Systems (Orlando, FL)

INVESTMENT COMPONENT

Modernization

ACQUISITION PHASE

- System Development and Demonstration

Warfighters Simulation 2000 (WARSIM)

Enhances the warfighter's ability to engage exposed personnel and unarmored vehicle targets with accurate, long-range, lethal fires.



- Baseline Assault Rifle**
 - Characteristics:
 - Collapsible Buttstock
 - 12.5" Barrel
 - Integrated Baseline Sight
 - Improved Magazines
 - Weight: 7.75 lbs w/Optic
- Compact**
 - Characteristics:
 - Telescoping Or Folding Stock
 - 8" Barrel
 - Integrated Baseline Sight
 - Improved Magazines
 - Weight: 7.33 lbs w/Optic
- Light Machinegun**
 - Characteristics:
 - Rate Of Fire 72 Rds Per Minute (Sustained)
 - 50% Commonality With Other Variants
 - Quick Change Barrel
 - Weight: Less Than 16 lbs
- XM320 Grenade Launcher**
 - Characteristics:
 - Attaches To XM8 w/o Tools
 - Pivoting Barrel Design
 - Accepts All 40mm Rounds
 - Integrated Leaf Or Digital Sight
 - Single Shot
 - Weight: 9.69 lbs w/Optic

Reconfigurable At Unit
 - One Platform For All Variants

Integrated Sight/Lasers

Ambidextrous Controls

Backup Mechanical Sight

Accuracy
 - ≤ 2 MOA

Greater Reliability
 - 3X Increase
 - 20K Rds w/e Stoppage

Longer Weapon Life
 - 2-3X Increase
 - ≥ 20K Rds

Reduced Cleaning Time
 - 70% Reduction

Reduced Training Time
 - 2X Reduction

Lower System Weight
 - 30% Reduction

Lower System Cost
 - 30% Reduction

Zero Drain Time



DESCRIPTION AND SPECIFICATIONS

The XM8 Modular Assault Weapon System is the 5.56mm kinetic energy subsystem of the XM29 Integrated Airburst Weapon system. The XM8 will provide the following capabilities:

- Multi-configurable variants: changeable barrels and accessories mission-tailor weapon
- Improved reliability/barrel life/magazine
- Decreased maintenance time and training time
- Factory bore sight
- The baseline assault rifle incorporates a collapsible buttstock, a 12.5-inch barrel, an integrated baseline sight and improved magazines, and has a weight of 7.75 pounds with optic
- The compact incorporates a folding or telescoping stock, a 9.5-inch barrel, an integrated baseline sight and improved magazines, and has a weight of 7.33 pounds with optic
- The designated marksman incorporates a collapsible buttstock, a 20-inch barrel, an integrated 4x sight, improved magazines, an integrated bipod, a high-capacity magazine, and has a weight of 10.36 pounds with optic
- An integrated sight module that integrates an infrared pointer, infrared illuminator, and a reflex (red dot) sight. The advanced magnified optic used on the designated marksman incorporates 4x magnification
- Variants with or without rails available

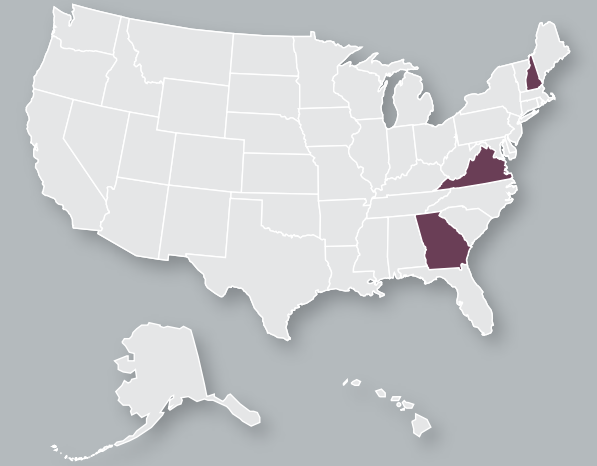
Under-barrel mounted lethality accessories include a shotgun and a 40mm grenade launcher module. The lethality modules attach to the XM8 without tools and provide expanded capabilities in a lighter, safer package.

PROGRAM STATUS

- **Continue** System Development and Demonstration through FY05

PROJECTED ACTIVITIES

- **3QFY05** Milestone C
- **2QFY06** First unit equipped



CONTRACTORS

Heckler & Koch Defense (Sterling, VA)
Insight Technologies, Inc. (Londonderry, NH)
Heckler & Koch (Columbus, GA)

INVESTMENT COMPONENT

Modernization

ACQUISITION PHASE

- System Development and Demonstration

Improves the infantry Soldier's capacity to engage and defeat defilade personnel targets.



DESCRIPTION AND SPECIFICATIONS

The XM25 Airburst Weapon system is the single barrel air-bursting munitions component of the XM29 Integrated Airburst Weapon System. It fires 25mm air-bursting munitions out to 500-meter range point targets or 700-meter range area targets. The XM25 incorporates a target acquisition fire control that integrates powered direct view optics, thermal sighting, an electronic compass (bearing, tilt, cant), a laser rangefinder, a fuze setter, a ballistic processor, and an internal display.

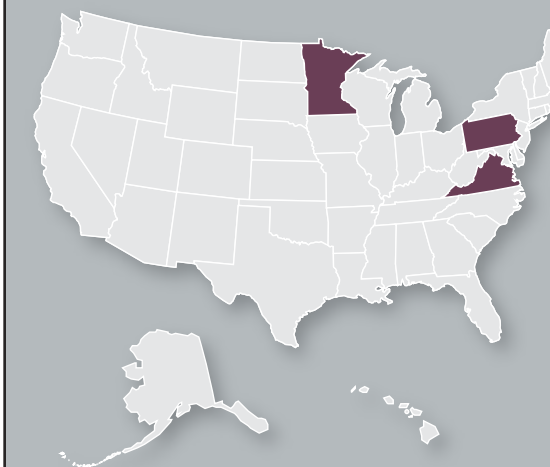
The total system weight is lighter than 12 pounds. The XM25 will provide the lethality upgrade for the Land Warrior program.

PROGRAM STATUS

- **Current** Development ongoing
- **FY05** Progressing to Milestone B

PROJECTED ACTIVITIES

- **3QFY05** Milestone B
- **4QFY07** Milestone C
- **1QFY09** Full-rate production decision
- **3QFY09** First unit equipped



CONTRACTORS

- Alliant Techsystems (Plymouth, MN)
- Brashears LP (Pittsburgh, PA)
- Heckler and Koch Defense (Sterling, VA)

INVESTMENT COMPONENT

Modernization

ACQUISITION PHASE

- Concept and Technology Development
- System Development and Demonstration

XM101 Common Remotely Operated Weapon Station (CROWS)

Protects the gunner inside the up-armored High Mobility Multipurpose Wheeled Vehicle while providing mobile, first-burst engagement of targets day or night.



DESCRIPTION AND SPECIFICATIONS

The XM101 Common Remotely Operated Weapon Station (CROWS) consists of a weapon mount, flat panel display, and joystick controller. Within the mount are the day camera, thermal camera, a laser rangefinder, meteorological sensors, and fiber optic gyroscopes. CROWS uses input from these sensors to calculate a ballistic solution to a target seen on the flat panel display. The Soldier uses the joystick controller and various other switches to operate CROWS.

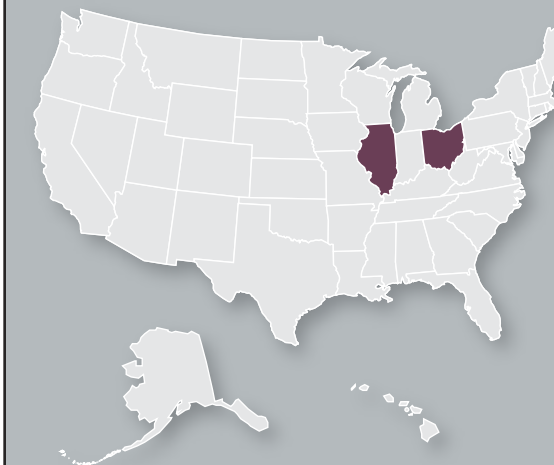
- Allows Soldiers to engage targets with current weapons while under armor
- Supported weapons: MK19, M2, M240, M249
- Day/night target engagement
- Two axis stabilized mount allows firing on the move
- Target track is independent of gun movement

PROGRAM STATUS

- **Ongoing** System development and demonstration through FY05

PROJECTED ACTIVITIES

- **2QFY05** Milestone C
- **2QFY06** Full materiel release



CONTRACTORS

Recon Optical Inc. (Barrington, IL)
Ogara-Hess & Eisenhardt Armor Co. (Fairfield, OH)

INVESTMENT COMPONENT

Modernization

ACQUISITION PHASE

- System Development and Demonstration

Defeats lightly armored vehicles and personnel targets, either in the open or in defilade, with an extremely light-weight, crew-served weapon.



DESCRIPTION AND SPECIFICATIONS

The XM307 is a 25mm, advanced, light-weight machine gun. The XM307 is an advance in crew served weapons performance and accuracy: at 30 pounds, it is one-third the weight of the MK19 40mm grenade machine guns and M2 heavy barrel (M2HB) machine guns, which it replaces, and will be capable of accurately engaging targets out to 2000 meters. XM307 can be vehicle mounted or tripod mounted for ground applications. XM307, with an integrated, full solution, fire control system, will deliver 25mm air-bursting or 25mm armor-piercing munitions to provide decisively violent and suppressive target effects. The target acquisition/fire control system will incorporate a laser rangefinder, ballistic computer, direct view optics, video sight, electronic compass, thermal capability, and a motion tracker.

With a five-part kit, an XM307 can be converted to the XM312, a .50-caliber variant of the XM307, and vice-versa. The XM312 requires no ammunition development because it will fire the current .50 caliber family of ammunition, including standard, multi-purpose, incendiary, and armor-piercing rounds.

The XM312 can be vehicle-mounted or tripod-mounted for ground applications. The tripod-mounted system will weigh 42 pounds, which is 80 pounds lighter than the currently fielded M2HB machine gun and tripod.

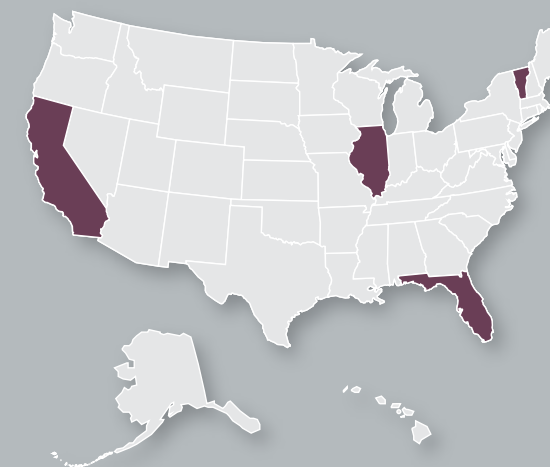
- Supports FCS Common Close Support Weapon requirement
- Dual feed capability for vehicular mounts
- No head space or timing adjustments
- Capable of remote operations

PROGRAM STATUS

- **Ongoing** System development and demonstration through FY07

PROJECTED ACTIVITIES

- **2QFY05** First prototype weapons delivered to unit of action vehicle developers
- **4QFY07** Milestone C



CONTRACTORS

General Dynamics Armament and Technical Products (Burlington, VT)
 General Dynamics Ordnance and Tactical Systems (Marion, IL)
 Raytheon (El Segundo, CA)
 Kaman Dayron (Orlando, FL)

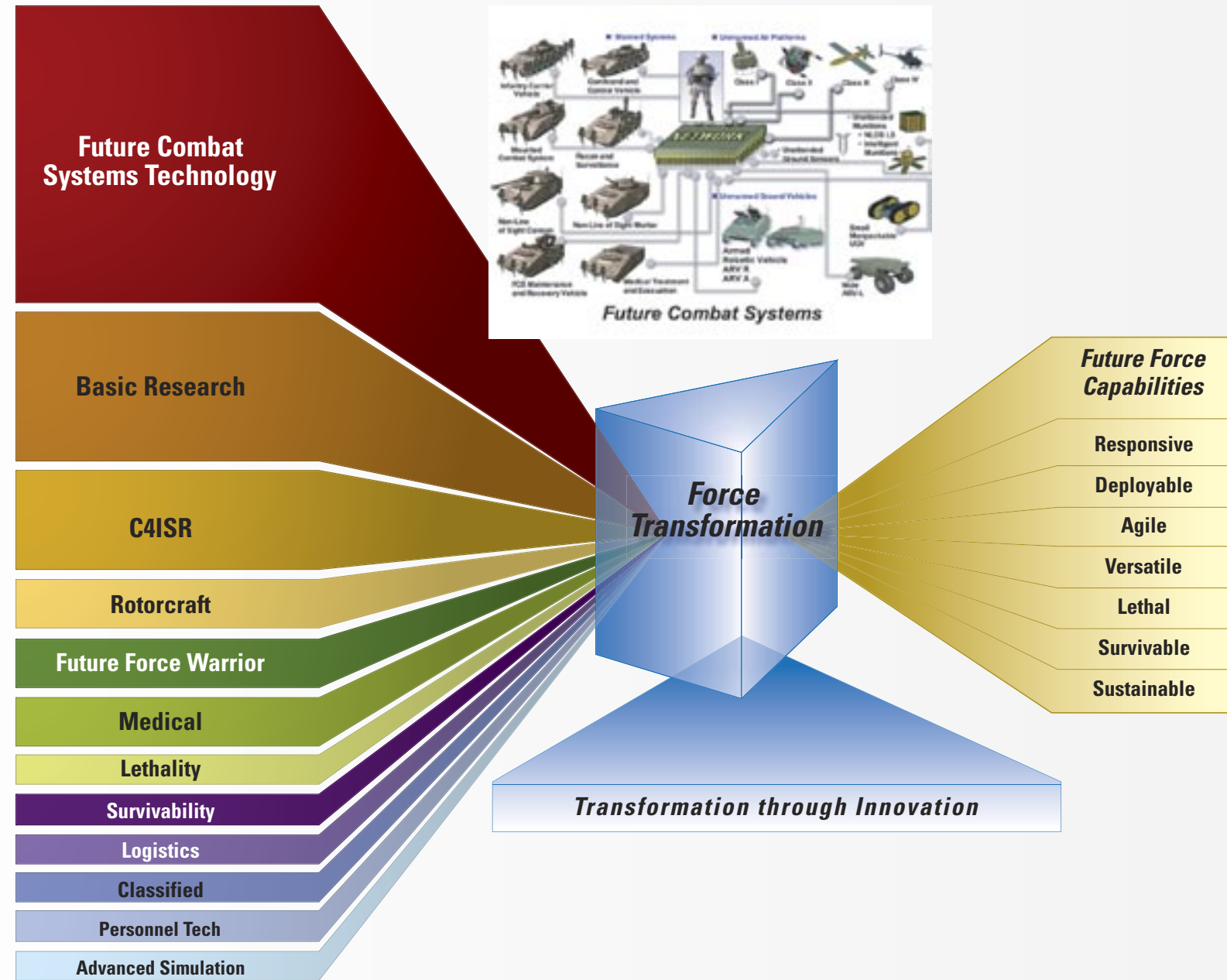
INVESTMENT COMPONENT

Modernization

ACQUISITION PHASE

- System Development and Demonstration

Future Force Technology Areas



The Army Science and Technology (S&T) community is pursuing technologies to enable the Future Force and enhance the capabilities of the Current Force.

The most important S&T programs are designated by the Headquarters of the Department of the Army (HQDA) as Army Technology Objectives (ATOs). ATOs are co-sponsored by the warfighter's representative, Training and Doctrine Command (TRADOC). ATOs lead to the development of S&T products within the cost, schedule, and performance metrics assigned when they are approved.

Representative ATOs and some other key efforts are included here to relate S&T program opportunities to systems development and demonstration, and acquisition programs. The larger and more complex ATOs—those associated with significant warfighter payoff—may also be designated as Army Advanced Technology Demonstrations (ATDs) or Office of the Secretary of Defense (OSD)-approved Advanced Concept Technology Demonstrations (ACTDs). The ATDs and ACTDs are major systems and component-level demonstrations designed to “prove” the technical feasibility and military utility of advanced technology. The ACTDs also provide a limited leave-behind capability for continued evaluation and use while a determination is made regarding whether a formal acquisition program should be pursued. The Army's S&T investments have been articulated in terms of technology areas. The illustration at left depicts these technology areas in color bands that are relatively proportional to the Army investment in each area. The S&T section of this handbook is organized according to these technology areas, beginning with the Future Combat Systems (FCS) and ending with Advanced Simulation. Representative ATOs will be described within each area of technology. For FY05 there are 172 ATOs.

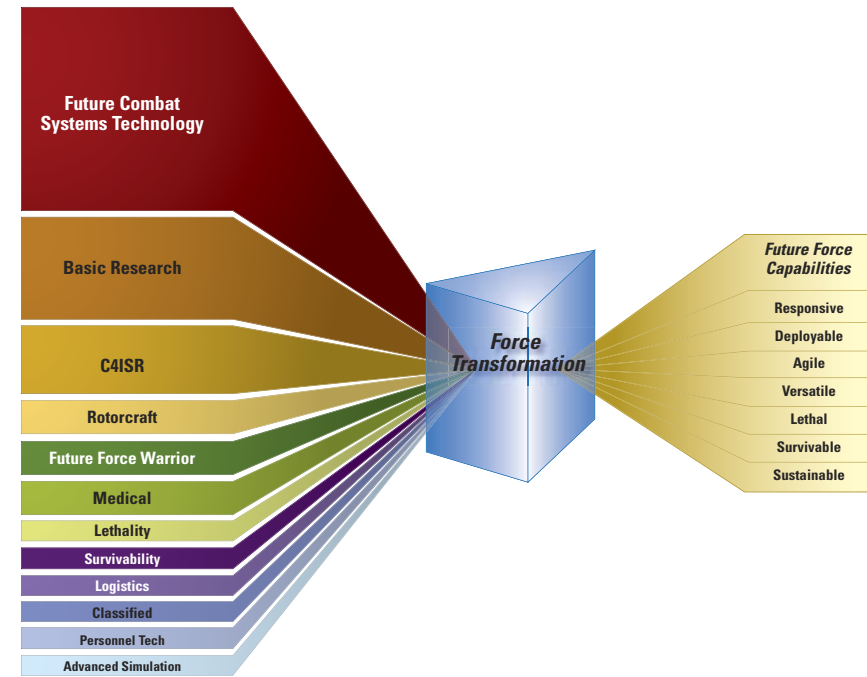
The Army Materiel Command (AMC), through the Research, Development and Engineering Command (RDECOM) centers and laboratories, executes nearly 76 percent of the Army's S&T program. Three other major commands (U.S. Army Medical Research and Materiel Command [USAMRMC], Corps of Engineers [COE], and Space and Missile Defense Command [SMDC]) and the Army Research Institute for Behavioral and Social Sciences execute the remainder of the Army S&T program.

Future Combat Systems (FCS)

While Future Combat Systems (FCS) has begun the System Development and Demonstration (SDD) phase of acquisition to begin initial fielding in 2014 with the first Unit of Action (UA), the S&T community continues to develop technologies for spiral insertions to realize Increment 1 capabilities. Key FCS capabilities being addressed by current technology investments include:

- Networked battle command systems to enable shared situational awareness and improved decision-making
- Low-cost, multispectral sensors to find and identify the enemy
- Enhanced survivability through improved sensors to locate and identify threats, signature management, and active and passive protection systems
- Semiautonomous and autonomous unmanned air and ground systems,
- Networked lethality through standoff precision missiles and gun launched munitions

The Army's diverse S&T portfolio invests in a range of technologies to provide solutions to enduring needs across a spectrum of desired capabilities that will enable FCS, Soldiers, and other systems in the Unit of Employment (UE) and UA. Some of these additional technologies are listed below:



- Mobile, secure, self-organizing networks for seamless, joint operations
- Technologies to provide individual Soldiers with platform-like lethality and survivability
- Ultra lightweight materials and nanotechnology to design material properties for optimum Soldier applications
- Lightweight multi-mission equipment packages for unmanned systems,
- Immersive simulations and virtual environment technologies for Soldier, leader, and unit mission rehearsal and training
- Area protection from rockets, artillery, and mortars
- Countermine technology for high operational tempo (OPTEMPO) combat and survivability in stability operations
- Advanced weapons including high power microwave, high power lasers, and electromagnetic guns
- Embedded prognostics and diagnostics to reduce logistical demands for materiel systems
- Lightweight, long endurance electric power generation and storage
- Biotechnology to obtain unprecedented performance and materials
- Medical technology for self diagnosing and treating "uniform" ensembles
- Physiological status reporting and medical response technologies

The S&T investments are funded in three budget activities (BAs), each characterized by different timeframes of output products based upon maturity of the technology. These BAs are: basic research (BA6.1), applied research (BA6.2)-and advanced technology development (BA6.3). Although not a mandatory progression, most technology products begin as basic research, then are matured to initial application as applied research, and then demonstrated during advanced technology demonstration to show readiness for the SDD phase of acquisition.

The near-term focus, over the next two to five years, is on the development (maturation) and demonstration of technologies in a relevant environment for spiral insertions into the FCS SDD program. FCS- and non-FCS-specific technologies are being pursued for the Current and Future Forces to enable networked operations, increased survivability, more energetic lethality, and reduced logistics demands through technologies such as hybrid propulsion and compact portable power sources.

In the mid-term, from 5-10 years, the S&T investments are seeking to mature technologies for later demonstration that can enable a full-spectrum FCS and other Future Force systems' capabilities. These technologies include:

- Unmanned Ground and Air Systems
- Solid State Lasers
- Electromagnetic Gun
- Multi-purpose gun munitions
- High-power microwave (non-lethal)

In the far-term, beyond 10 years, current Army research investments will enable potentially paradigm-shifting capabilities in joint land combat forces such as:

- Completely autonomous ground and air vehicles
- Training and simulation environments with "holodeck" potential
- Compact power sources that are 20 times smaller and lighter than current sources
- Smart structures and materials-by-design—products of research in nanoscience and biomimetics has been the Army's top priority S&T program. In May 2003, FCS achieved acquisition Milestone B and transitioned from S&T to system development and demonstration (SDD). FCS will be a multi-functional, multi-mission, reconfigurable family of manned and unmanned systems designed to maximize:
- Joint interoperability
- Strategic and tactical transportability
- Integration of mission capabilities, including direct and indirect fire, reconnaissance, troop transport, counter-mobility, non-lethal effects, and secure, reliable communications

FCS will provide these advanced warfighting capabilities while significantly reducing logistics demands.

FCS is a system of systems, an ensemble of fighting capabilities that meets the weight and volume constraints for C-130 transportability. FCS will use mature Army technologies to provide revolutionary lethality through advanced direct and indirect weapon systems and increased agility using integrated advanced propulsion technologies such as electronic controlled suspension and hybrid electric propulsion.

The Boeing/SAIC lead systems integrator is identifying and integrating Army, Defense Advanced Research Projects Agency (DARPA), and industry technology programs to develop a system of systems that will satisfy the capabilities described in the Joint Requirements Oversight Council (JROC)-approved operational requirements document (ORD).

FCS objectives include the following:

- Provide revolutionary survivability for 20-ton class vehicles, using a combination of innovative lightweight armors, active protection systems, signature management, and new structural designs
- Reduce significantly logistic/sustainment demands compared to current systems by effectively integrating technologies to reduce fuel consumption and manning requirements

- Incorporate manned and unmanned air and ground platforms and effectively integrate these technology-enabled capabilities into the system-of-systems design

FCS will also feature embedded training and battle rehearsal capabilities to provide the commander with several new means to train the Soldier.

FCS has adopted an "evolutionary" acquisition strategy that will enable the Army to increase its capabilities over time through spiral and incremental development processes. The initial version of FCS (Increment 1) will be designed to provide certain "threshold" capabilities, or basic capabilities of demonstrated effectiveness using current equipment or modified equipment in the Army's operational inventory. The subsequent versions will deliver increased functionality.

Army S&T continues to play an important part in the FCS program by providing certain critical technology solutions for FCS Increment 1, as well as capability-enhancing technologies for Increment 1 spirals and for Increment 2. Following are some of the other Army Technology Objectives (ATOs) that will enable FCS capabilities.



Soldier System Technologies

Soldier system technologies enable a paradigm shift in future infantry Soldier capabilities, including enhanced ballistic protection, clothing and equipment, dismounted warrior C4, compact power and power management, nutritional enhancements, Soldier weapons, and warrior technology integration, all at reduced weight.

Future Force Warrior (FFW) ATD

The Future Force Warrior (FFW) ATD will demonstrate advances in lethality, survivability, and agility for the dismounted Soldier and small teams through an integrated system-of-systems approach. The goal is to provide the dismounted Soldier with the same combat overmatch, capability and compatibility with FCS and Future Force platforms.

FFW will employ open-system architectures and high risk/high payoff technologies to yield a lightweight, multi-threat, protective combat suite integrated with multi-function sensors, weapons, and medical capabilities. The Soldier system-of-systems will enable the Soldier to operate for extended periods under arduous conditions, with minimal loss in physical capabilities from fatigue, stress, and hardship.

A network-centric communications, sensor, and power suite will provide connectivity with other dismounted personnel, unmanned air/ground platforms, and FCS to form adaptive, distributed sensor networks for better situational understanding of local environments and threats. FFW connectivity will enable the Soldier and small teams to network and mass fires, and generally access the power of the Future Force.

Key performance goals include the following:

- Significantly reduced fighting load per warfighter
- Twenty-four-hour individual and 72-hour autonomous team operations
- Networked communications
- Compatibility with Warfighter Information Network-Tactical (WIN-T)/Joint Tactical Radio System (JTRS)

A competitive concept exploration phase is being followed by design and demonstration phases to provide integrated, system-of-systems Soldier demonstrators for FY07 field experiments and demos. Concurrent maturation of technologies will be performed to ensure system-of-system affordability, with reduced sustainment costs.

Future Force Power ATO

This ATO delivers critical power to the battlefield for essential C4ISR equipment required by the Future Force to win the information war and direct precision fire upon its opponents. Power technologies in this ATO span both mobile and Soldier applications and allow seamless battlefield energy availability. This ATO will develop, demonstrate, and transition component-power technologies leading to higher energy, lighter weight, quieter, fuel-efficient and cost-efficient power sources, battery chargers, and power management systems.

This effort will provide technology advancements leading to new silent watch capability with quiet, lightweight mobile power generation. The ATO delivers 50 percent fuel savings with co-generation of cooling and power for shelter/tent systems. It bridges the gap between vehicles and Soldiers with standalone self-powered man-portable field chargers/remote power sources, which reduce logistics cost by 80 percent by allowing the tactical use of rechargeable batteries.

Applied power management through the ATO effort greatly reduces required power and energy demands for both mobile and Soldier applications. Specific power solutions and goals will include the following:

- Component-level development of burner technologies
- Component development and integration of heat-driven cooling system technologies combined with waste heat recovery systems
- Improved energy density and recharge rate in rechargeable batteries
- Component integration of meso-machine, Stirling, and fuel cell systems
- Implementation and integration of power management for TOC and Soldier systems
- Development of modular plug-in vehicle power sources for mission electronics

Flexible Display Technology for Soldiers and Vehicles ATO

This ATO will develop technologies for the affordable production of lightweight, rugged flexible displays. Technology advances will be exploited in three critical areas:

- Barrier coatings and structures
- Backplane electronics to drive individual pixels
- Electro-optic materials and devices for imaging

The development of displays on flexible substrates will enable novel applications that cannot be achieved by glass-based technologies. For example: wearable and conformal Soldier applications, conformal, rugged cockpit displays, and compact displays that roll out for multi-user applications. For traditional imaging applications, flexible substrates will reduce the display component weight by more than 60 percent.

Weight reduction will be realized by lowering the ruggedization packaging requirements for the electronic system in applications where the display glass limits the system ruggedness. This ATO will enable displays based on reflective, bi-stable electro-optic (EO) imaging devices and high-efficiency emissive devices that have lower power consumption as compared to traditional liquid crystal displays.

The reduction in power consumption is greater than 30 percent as compared to conventional liquid crystal displays (LCDs) depending on the application. These EO devices are compatible with flexible substrates so that the power savings will be realized for all flexible display applications. The Army's Flexible Display Center will be executed through Arizona State University and in combination with the Army's ManTech flexible display program, as well as significant participation from the display industry.

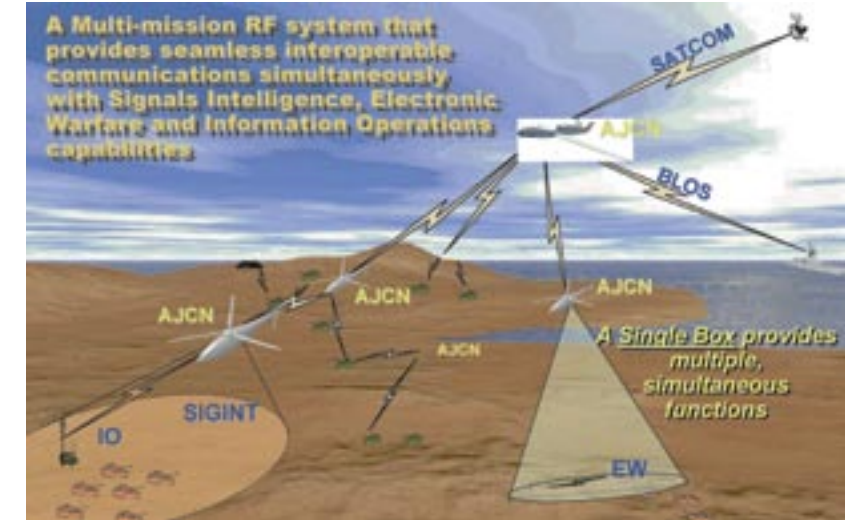
Advanced Fiber Technology for Improved Ballistic Protection ATO

Fiber technology is a primary component of all opaque personnel armor. Fragmentation protection for the individual warfighter relies solely on polymer-based textiles for its ballistic resistant capability. Fiber-based technology is also an important component for small arms protective inserts. Improved fiber technology is necessary to continue to drive down the weight of ballistic protection for the individual warfighter. This effort will develop advanced fiber technology to improve the protection and performance of armor systems against conventional and emerging ballistic threats (fragments and bullets).

The effort will research high-performance fibers and enhance their mechanical properties through processing techniques. The major goal is to design material systems for both flexible and composite armor that have significantly reduced weight over what is fielded today.

Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance (C4ISR)

Research and technology in the areas of command, control, communications, computers, intelligence, surveillance, and reconnaissance (C4ISR) are designed to enable comprehensive situational awareness for network-centric operations. This technology area includes advanced sensors and sensor processing, intelligence and electronic warfare systems and techniques, militarized and special-purpose electronics, counterintelligence technologies, and C4 system technologies. Following are some of the Army ATOs that will enable C4ISR capabilities.



Adaptive Joint C4ISR Node (AJCN) ACTD

The Adaptive Joint C4ISR Node (AJCN) ACTD demonstrates communications relay and signals intelligence/electronic warfare (SIGINT/EW) capability in a multi-functional, modular, scalable, and reconfigurable airborne payload. The ACTD will provide two Army payloads (fewer than 200 pounds) integrated into Hunter-class unmanned aerial vehicles and two payloads integrated into Air Force RC-135/KC-135 aircraft.

The mission payloads' primary functions are to relay multiple types of communications waveforms and to perform SIGINT, information warfare, and electronic attack missions simultaneously. The AJCN payloads are Joint Tactical Radio System (JTRS)-compliant and will host JTRS software waveforms. An equally important product of the ACTD is the development of the concept of operations and tactics, techniques, and procedures for a multi-function payload and aerial communications relays.

The AJCN ACTD is a joint Army, Air Force, DARPA, and Joint Forces Command (JFCOM) technology program. The Army is the lead service; the Communications Electronics Research Development and Engineering Center is the technology manager. JFCOM is the operational manager. The ACTD program began in FY03 and will end with a military utility assessment in FY05. Funding for the four mission payloads' "residuals" support is provided through FY07 by the ACTD program.



Overwatch ACTD

The Overwatch ACTD's objective is to mature algorithms and integrate a staring sensor into a packaged system for mounting on a High Mobility Multipurpose Wheeled Vehicle (HMMWV) and an Unmanned Ground Vehicle (UGV) and to demonstrate the system's capability to detect, locate, and identify, by type, weapons being fired in real time. The ACTD will demonstrate the capability to detect, classify, and locate small arms, mortars, and rocket-propelled grenades in complex terrain at stand-off ranges to enable rapid, precision engagement of enemy shooters. The sensor package will consist of a fast-framing midwave infrared sensor, a longwave infrared imaging sensor, a laser ranger/designator, and an on-board processor. The HMMWV-mounted Battlefield Ordnance Awareness Sensor System will be modular in design to aid in migrating to other platforms.

In FY03 the program specified and acquired initial system hardware and developed and integrated the real-time system software. In FY04, the signature databases and classification algorithms were developed and integrated into a prototype sensor system on the HMMWV and the first initial full-scale test was performed.

In FY06, the sensor system will be integrated into the UGV and a major system demonstration will be performed. The final product will be a validated system mounted on an HMMWV and a UGV that supports dismounted forces by providing real-time detection, classification, location, and designation of small caliber weapons fire.

Joint Intelligence, Surveillance, and Reconnaissance (JISR) ACTD

The Joint Intelligence, Surveillance, and Reconnaissance (JISR) ACTD is designed to provide timely top-down/bottom-up ISR and operational information for enhanced battlespace visualization for the Central Command's (CENTCOM) early entry force commander. This includes sharing that picture with joint task force (JTF) and coalition partners. The program's goal is to implement a Web technology-based system of systems that integrates existing C4ISR sensors and processors to establish a joint tactical sensor grid. The JISR sensor grid has four major components:

- "Information agent" technology to enable smart data and product retrieval across disparate legacy sensors and databases
- Joint Technical Architecture (JTA) standard sensor link protocol (SLP) to plug additional tactical sensors into the grid
- Distributed geospatial metadatabase management system to organize, archive, and serve sensor data and other intelligence information to user friendly Web-based visualization tools
- Thin client Web browser technology allowing users remote access from any existing joint or combined command and control, intelligence (C2I) workstation

This sensor grid will seamlessly integrate with the existing theater C2I architecture to provide timely and relevant sensor data and other intelligence information to early entry forces and their supporting headquarters.

Counter Terrorism-Cave/Urban Assault ACTD

The Counter Terrorism-Cave/Urban Assault ACTD will demonstrate, with a Special Operations Forces (SOF) sponsor, an optimized suite of prototype lightweight, Soldier-borne sensors that provides decisive overmatch for dismounted assault in restricted/covered environments—caves, tunnels,



and urban environments. Current sensors are too large, too heavy (not man-portable), lack the range needed for identification, and the sensitivity for operations in "true dark" (interior spaces) and restricted terrain.

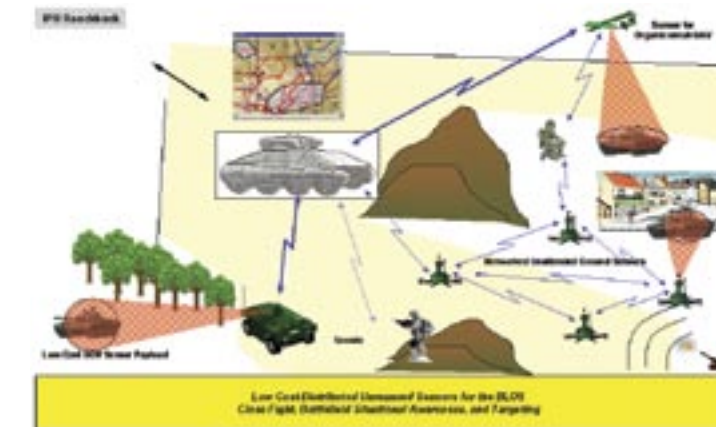
The prototype sensor capabilities introduced in the ACTD use micro-uncooled, infrared, short-wave infrared imaging, urban unattended ground sensors, and through-the-wall sensing technologies. The ACTD program also provides tactics, techniques, and procedures to achieve decisive capabilities in difficult/restricted terrain, day or night. The ACTD is structured in two vignettes: Cave/Tunnel Surveillance and Assault (Operational Demo I) and Urban Assault (Operational Demo II).

In FY03 the ACTD program acquired a sensor suite consisting of approach sensors and cave assault sensors, then conducted component performance evaluations to develop initial tactics, techniques, and procedures. In FY06 the military utility assessment will be completed and field residuals will be provided to the U.S. Army Special Operations Command (USASOC) to equip two SOF "A Teams" and transition development to designated Special Operations Command (SOCOM) Program Executive Office/Program Manager (PEO/PM) for acquisition. The ACTD program will fund these residuals through FY08.

Networked Sensors for the Future Force ATD

The objective of the Networked Sensors for the Future Force ATD is to develop and optimize sensor suites for small unmanned platforms, such as unmanned ground vehicles, small unmanned aerial vehicles, and unattended ground sensors. These sensor suites will incorporate robust (secure, jam-resistant, stealthy, self-organizing, self-healing) communications products.

A sensor hub links the networked sensors information to higher-echelon communications and provides reachback, command and control, sensor



planning, and data management tools. The networked sensors will be developed to operate in complex terrain (including military operations in urban terrain) and demonstrate a system-of-systems capability.

This capability will provide commanders with organic unmanned networked sensors assets to provide beyond line-of-sight (BLOS) situational awareness (SA) picture and targeting information for direct and indirect fire weapons and threat avoidance. The networked sensors will:

- Provide remote monitoring out to approximately 10 kilometers without placing Soldiers in harm's way
- Increase a unit's area of coverage
- Provide near-real-time BLOS SA data for early warning to speed decision making and reaction time

Low-cost sensor technology, such as uncooled infrared imaging, flash laser with short-wave infrared focal planes, and acoustic, seismic, and magnetic sensors, will be integrated on small unmanned platforms to demonstrate the day and night capability of these platforms to provide faster target identification and reaction time with reduced false alarms. The use of intelligence reachback and tools to aid in sensor deployment along with smart data management will also be developed.

Mounted and dismounted virtual simulations and live experiments with Training and Doctrine Command (TRADOC) Battlelabs in warfighter operational environments will be used to address hardware and operational integration issues; investigate new operational concepts, tactics, techniques, and procedures; and validate component and system technology readiness levels.

Command, Control, and Communications On-the-Move (C3 OTM) ATD

The Command, Control, and Communications On-the-Move (C3 OTM) ATD is designed to provide effective employment of integrated C3 OTM systems, supported by intelligence, surveillance, and reconnaissance (ISR) assets and networked fires, and to provide early and continuing demonstrations of



enhanced survivability and lethality of FCS platforms. This effort will leverage and integrate a variety of S&T, PM, and DARPA technology programs into a cohesive, integrated C3 system of systems.

In FY03, the initial demonstrations supported the FCS Milestone B decision by providing an understanding of the technology maturity and payoffs from C3 OTM technologies to enable FCS unit of action capabilities. These demonstrations integrated real, surrogate, and simulated sensors, along with surrogate FCS communications, and state-of-the-art command and control equipment to provide a baseline assessment of C3 technologies for the FCS and the lead systems integrator.

In FY04-05, the test bed demonstration assisted the FCS lead systems integrator and the Unit of Action Battle Lab to evaluate evolving FCS architectures. These demonstrations will continue in FY05, where 20 percent of the sensors/systems will continue to be simulated. Throughout the program, functionality and complexity of the command and control systems will be expanded to understand the limits of technology as capability is added. These demonstrations also provide operational testing information for tactics, techniques, and procedures.

Joint Tactical Radio System (JTRS) Squad-Level Communications ATO

The Joint Tactical Radio System (JTRS) Squad Level Communications ATO will provide multi-band, multi-mode squad-level tactical radio communications as a JTRS Cluster 5 gap-filler for the FCS Block I first-unit-equipped, limited user test in FY07. Through technical collaboration with the Future Force Warrior ATD, this ATO will ensure that user size, weight, power consumption, and unit



cost objectives are met, and critical Soldier radio wideband networking waveform (WNW) technologies are optimized for transition to the Land Warrior and JTRS Cluster 5 acquisition programs.

Wideband networking waveform and radio technologies emerging from the DARPA Small Unit Operations Situation Awareness System (SUO SAS) Phase 3 program will be matured to support network-centric operations for the dismounted Soldier while mitigating risk for JTRS Cluster 5. This ATO will provide squad-level voice and data communications with connectivity to upper echelon C2/maneuver and unattended networks.

In FY00-02, DARPA developed and demonstrated SUO SAS prototype tactical radio communications in laboratory and field environments, supported by networking modeling and simulation analysis. In FY03, the Army conducted SUO SAS prototype tactical radio communications performance trade-off and affordability analyses to provide a shared wireless access protocol (SWAP)-reduced design and develop communications reference architecture to support hardware and software portability to JTRS. The SUO SAS prototypes were included in the C3 OTM demonstration in FY03 to evaluate heterogeneous quality of service in mobile ad hoc networks.

In FY04-05 the ATO program has developed SWAP-reduced, scalable (multi-band, multi-channel) radio frequency (RF) front-end and programmable radio modem and link-layer intranet processor WNW hardware and software components with JTRS-compliant application programming interfaces and begin laboratory integration and technical demonstrations of a squad-level tactical radio. In FY05-07, the ATO program will:

- Integrate wideband networking waveform with the JTRS platform to demonstrate portability
- Complete ruggedized Future Force Warrior Soldier tactical radio mechanical packaging design
- Integrate with Future Force Warrior system for wearable application

Functional prototypes will be provided for the Future Force Warrior ATD operational user demonstrations and to support the FCS Block I first unit equipped limited user test.

Command and Control (C2) in Complex and Urban Terrain ATO

The purpose of the Command and Control (C2) ATO is to develop a suite of C2 tools for Future Force dismounted and mounted commanders, leaders, and Soldiers to employ during close combat in complex and urban terrain. These tools will be used to identify and fuse critical decision information day and night in any combat situation. Objectives will include experiments with an ensemble of tactical decision aids, unattended ground sensor clusters,

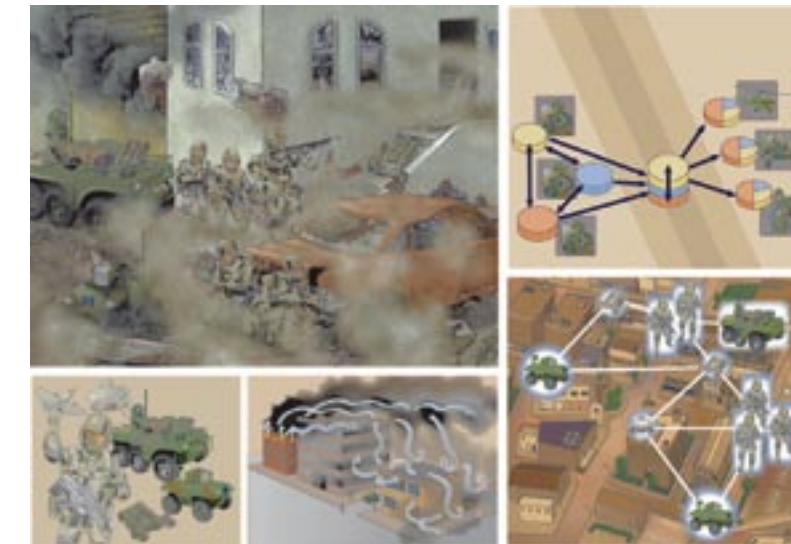
air vehicles, ground robots, and human platforms, including their organic sensor assets.

The results will be enhanced survivability and increased combat effectiveness enabled by enhanced collaboration, reachback, autonomous asset management, and seamless situational understanding capabilities.

A modeling and experimentation effort will identify critical information filters for the commander. The Army Research Laboratory (ARL) will develop human performance models to quantify the effects of uncertainty on dynamic decision-making. The work will be a collaborative effort with the Mounted Maneuver Battle Lab, Ft. Knox, KY; the Dismounted Battlespace Battle Lab, Ft. Benning, GA; the Battle Command Battle Labs, Ft. Leavenworth, KS and Ft. Huachuca, AZ; and the Depth and Simultaneous Attack Battle Lab, Ft. Sill, OK. A suite of C2 system tools to provide decision aids to manage cognitive load and uncertainty in complex/urban terrains will also be demonstrated at these installations.

Command and Control of Robotic Entities (C2 ORE) ATO

This Command and Control of Robotic Entities (C2 ORE) ATO will develop innovative products to provide coordinated, dynamic, battle-command, tactical control of unmanned systems and synthesis of information from robotic air and ground systems to enable optimal interaction, coordination, and collaboration among unmanned systems. Candidate areas will be initially vetted



in a modeling and simulation environment and subsequently tested in a series of three field experiments. Example air-ground information synthesis areas include:

- Air-ground information management aiding navigation, situation awareness, and mission payloads (e.g., reconnaissance, surveillance, and target acquisition; countermine; effects)
- Complementary multi-perspective imaging
- Optimization of air-ground communications relay placement

To accomplish this objective, C2 ORE will conduct system-of-systems integration and field experimentation with best-of-breed unmanned air and ground systems technologies from participating Army Research, Development, and Engineering Command ATOs/ATDs to support system of systems evaluation across multiple tactical application scenarios in relevant environments.

This will be augmented by a modeling and simulation environment that leverages current robotic and communication models to support communications, effects characterization, information management analysis, payload evaluation, and scalability testing. Live/virtual experimentation will be conducted utilizing TRADOC scenarios at locations including the Ft. Dix C4ISR on-the-move testbed and Ft. Knox Unit of Action Maneuver Battle Lab. Air-ground information systems products will be developed as an integral service for the FCS system of systems common operating environment. Yearly experimentation/analysis reports will capture relationships regarding air-ground information management and network utilization; this, in turn, will drive the design of services.

Battlespace Terrain Reasoning and Awareness ATO

The Battlespace Terrain Reasoning and Awareness (BTRA) ATO seeks to develop a comprehensive suite of physical combat environment decision-support tools that generate the geospatial information necessary to support the decision and execution process across command, control, communications, computers, intelligence, surveillance, and reconnaissance (C4ISR) systems of the Future Force.

The BTRA ATO will develop technology to improve the current static decision aids by providing dynamic tactical execution aids. These analytical tools will model the interrelationships of terrain, weather, force/threat behavior, and the influence of dynamic state environment changes. BTRA will ensure that the products of this analysis are “smart, interactive products” and have a content and structure capable of being imported and further evaluated by application-specific decision support tools of other C4ISR systems.

Geospatial Information Integration and Generation Tools ATO

This ATO will deliver tools to integrate, manage, and exploit multi-source imagery, features, and elevation data to present only the best set of relevant terrain information. The generation and integration of high-resolution, accurate, timely, multi-source data into lightweight terrain networks are required to make the common relevant operational picture.

The capabilities developed will provide small-unit tactical operations with accurate, timely, up-to-date digital terrain information. Geospatial data mining tools will be developed to gather spatial data from traditional and non-traditional sources and automatically identify relationships and patterns that are not readily apparent to the warfighter. Additionally, software tools will be developed to generate terrain features and attributes from multi-source data in an autonomous or semi-autonomous mode to fill the gap between tactical geospatial information requirements and the strategic/operational information provided by the National Geospatial-Intelligence Agency (NGA, formerly the National Imagery and Mapping Agency [NIMA]).

Survivability

In FCS, the traditional notion that survivability equates to heavily armored vehicles is no longer valid. Survivability of the force and of individual platforms will be achieved with many layers of protection. The basic notion

behind this concept is to “See First, Understand First, Act First, and Finish Decisively.”

For FCS to be significantly more deployable and sustainable than current heavy forces, much lighter ground platforms will be needed. While survivability in FCS will be enhanced significantly through superior situational awareness and remote fires, the challenge for S&T is to provide sufficient platform protection for Soldiers to perform their missions with confidence while keeping the systems light and agile. Following are some of the Army ATOs that will enable survivability technologies.

Integrated Survivability (IS) ATD

The FCS Ground Combat Vehicle Integrated Survivability (IS) ATD matures, integrates, and demonstrates selected survivability technologies from several different research, development, and engineering centers (RDECs) and the Army Research Laboratory (ARL) to address FCS platform threats.

Technologies include the following:

- Passive/active threat sensors
- Electronic warfare (EW) countermeasures
- Chemical energy/kinetic energy (CE/KE) active protection
- Advanced armors
- Signature management (SM) (testing of treated SM armor panels only)
- Decision control hardware and software
- Vehicle interface provisions
- Soldier/machine interface provisions

This program identifies and addresses the integration issues associated with upgrading FCS baseline survivability capabilities to meet FCS objective system survivability requirements, while maturing individual technologies for direct transition to the FCS SDD program. This ATD will also address the responsiveness, repairability and durability of armor modules, and the maintainability and transportability of the survivability suite.

Sensors for Explosive Detection ATO

All standoff sensors for detecting Improvised explosive devices (IEDs) must overcome significant higher-clutter sources, particularly from manmade objects in urban environments. Standoff sensors that rely on physical characteristics such as size, shape, depth, or concealment and casing material will inevitably encounter natural or manmade objects that closely resemble their targets. Short-range standoff sensors that detect explosives, on the other hand, are looking for a characteristic that is unique to their targets. These sensors could be deployed on autonomous and/or robotic platforms. Together, physical and chemical sensors could drastically reduce the occurrence of false alarms.

To date, there are no known explosives-detection sensors sensitive and mature enough to be transitioned to the field, though some are approaching this goal. The objective of this ATO will be to continue to develop short-range explosive-detection standoff sensors and evaluate their viability for IED and weapon cache detection and confirmation in urban tactical deployment and IED/mines in route clearance scenarios. In addition to sensor development, significant research will be conducted in the field for target explosive signatures. Collaboration with Edgewood, Transportation Security Administration, Department of Homeland Security, Army Research Laboratory, Army Research Office, and other Department of Energy (DOE) laboratories, such as Sandia and Oak Ridge, will be an important aspect of the signature/modeling research component.

Explosives/detection sensors are applicable for reduction of high-clutter areas such as those found in urban (IED/weapon cache) and route-clearance (IED) areas, and for mines in on/off-route scenarios. Currently, one explosives-detection technique (amplified fluorescence quenching polymer-based) is being studied for these applications, while others (spectroscopic) are in basic/applied research stages. In parallel with other sensors, explosives-detection sensors can move close to a suspected area and provide data, once integrated, that will reduce false alarm rates.

Close-In Active Protection System (CIAPS) ATO

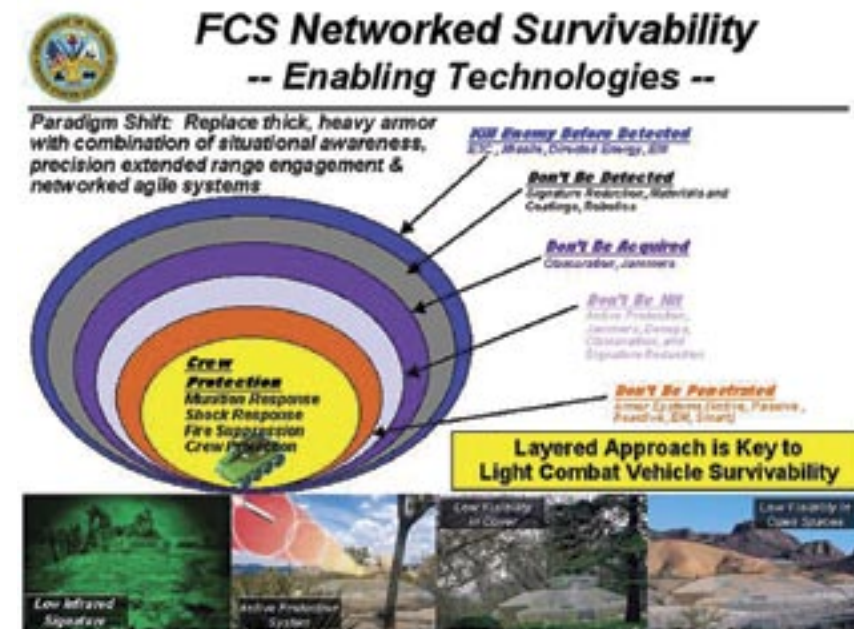
The Close-In Active Protection System ATO will demonstrate a prototype hard-kill active protection technology—Close-In Active Protection System (CIAPS)—to protect light armored vehicles (Phase 1) and tactical-wheeled vehicles

(Phase 2) from rocket-propelled grenades and man-portable anti-tank guided missiles fired from ambush without warning at very close range.

In FY04, the ATO demonstrated a CIAPS prototype on a light armored vehicle and completed a tradeoff analysis for the CIAPS concept for tactical wheeled vehicles. In FY05, the ATO will demonstrate active protection system (APS) interceptor sensors and warhead with directional fragment pattern optimized for precise engagement with limited coverage. The goal by FY06 is to demonstrate a prototype CIAPS mounted on a HMMWV that defeats rocket-propelled grenades fired from short range, with multiple threats and on-the-move testing.

Lethality

FCS and the Future Force will require a complementary mix of weapon systems to accomplish the flexible, layered lethality necessary for the full range of missions. Focus on providing Weapon systems development programs overwhelming lethality for line-of-sight (LOS), non-line-of-sight (NLOS), and beyond-line-of-sight (BLOS) with enhanced precision. These systems will not only contribute to survivability of the FCS forces but will also reduce the sustainment requirements associated with delivering vast quantities of ammunition, missiles, or mortars to the battlefield. The following programs are key technologies in this area and the associated area of target detection/identification/designation.



120mm Line-of-Sight and Beyond Line-of-Sight (LOS/BLOS) System ATD

The 120mm Line of Sight and Beyond Line of Sight (LOS/BLOS) ATD has as its objective the development and demonstration of a suite of 120mm LOS and BLOS armament system components and ammunition in support of the FCS Increment I Mounted Combat System (MCS), and the enhancement of the effectiveness of the Mid-Range Munition (MRM) through the addition of a second-seeker mode. The ATD will provide an integrated, lightweight MCS armament system components and ammunition suite that will defeat the operational requirements document (ORD) threat 0-12 kilometers.

Products of this ATD include the following:

- Lightweight, reduced-impulse cannon with electro-thermal igniter
- Advanced, novel penetrator kinetic energy and MRM munitions
- Fire control and ammunition handling system

These will be transitioned to Program Executive Office Ground Control Systems and Program Manager Ammunition in FY05-08. This effort provides a solution to one of the critical technology elements for FCS Increment I.

Compact Kinetic Energy Missile (CKEM) Technology ATD

The Compact Kinetic Energy Missile (CKEM) ATD will provide FCS and other Future Force systems with a revolutionary hypervelocity kinetic energy weapon. The CKEM weapon system is designed to provide overwhelming lethality against present and future threats at almost half the mass and size of the current kinetic energy (KE) missile. The result will be significantly improved versatility

in the Future Force. CKEM will defeat explosive reactive armor (ERA) 1-3 and threat active protection systems by using a lighter, smaller, faster, KE missile that will significantly increase the number of KE stowed kills. CKEM's system-level performance goals include the following:

- **Missile length:** Fewer than five feet
- **Missile weight:** Fewer than 100 pounds, threshold; 65 pounds, objective
- **Range:** Overwhelming lethality at 0.4-5.0 kilometers, with greater percentage kill than any current KE weapon at close engagements of fewer than 200 meters to ranges out to 8 kilometers
- Penetrator energy exceeding 10 megajoules at all ranges of interest

The following technologies are critical to successfully accomplishing the system performance goals and objectives:

- High-energy density
- Insensitive propulsion
- Enhanced lethality and hypervelocity guidance technology
- Advanced propulsion technology
- Miniaturization of guidance and control technologies
- Qualification of lethality damage mechanisms

Objective NLOS-M Cannon Technology

This is a breech-loading mortar armament system that provides improved maximum rate of fire and improved sustained rate of fire in a lightweight 120mm mortar system. The program will demonstrate a breech-loaded mortar system able to receive digital threat information and engage targets out to eight kilometers.

Micro Electro-Mechanical Systems (MEMS), Inertial Measurement Unit (IMU) ATO

The Army is using Micro Electro-Mechanical Systems (MEMS) technology to develop affordable, precision guidance systems for missiles and munitions. The low-cost, high-gravity (high-G), MEMS Inertial Measurement Unit (IMU)

program is developing small, reliable MEMS-based IMUs and inertial navigation systems to address the Army's concern over the high cost of traditional IMU systems, such as spinning mass, ring laser, and fiber-optic gyroscope-based systems. Army/Navy guided munitions and missiles require improvements in fire support (FS) capabilities for both close range and over-the-horizon missions. All extended range munitions require an inertial navigation system to achieve the required delivery accuracy.

A critical component of this system is the IMU. Today the IMU is costly and cannot survive the high-G setback acceleration experienced by projectiles; it cannot provide tactical accuracies; and it cannot be produced in quantity. Accordingly, the Army is focusing on development of a common MEMS-configured IMU product. Although the specific application requirement varies among munitions (which need high-G capability) and missiles (which need high accuracy), the same processing and manufacturing technologies are necessary for high-yield, low-cost MEMS devices for both weapon systems.

These MEMS-based guidance systems will enable the development of faster, smaller, lighter, lower cost, and more precise munitions and missiles. MEMS technology also provides inherent cost savings and size reduction, making it ideal for application to navigation and control systems for small missiles and munitions and other applications. In addition to the size and weight savings, the new MEMS IMUs are being designed to meet the requirements for more than 90 percent of the DOD tactical weapons; therefore, economies of scale in production will also result in major cost savings for DOD.

Ground Vehicles

Ground Vehicle technologies will develop both manned and unmanned solutions that expand warfighting capabilities while reducing the risk to Soldiers and the logistics footprint of the force. Ground Vehicles will take advantage of emerging and layered survivability concepts enabled by physical protection, superior lethality, and networked enabled situational awareness. Superior sustainment and mobility will be achieved by advanced power management and drive train components enabled by advances in hybrid electric and robotic/perception technologies. Small unmanned ground vehicles (UGVs) will be employed in complex terrain (urban, jungles, caves) with sensor/imagery payloads providing continuous information superiority. Larger UGVs can be used to perform high-risk (minefield breaching, attack well-armed threats, chemical bio detection) or sustainment functions (truck re-supply, Soldier mule, and medical evacuation).

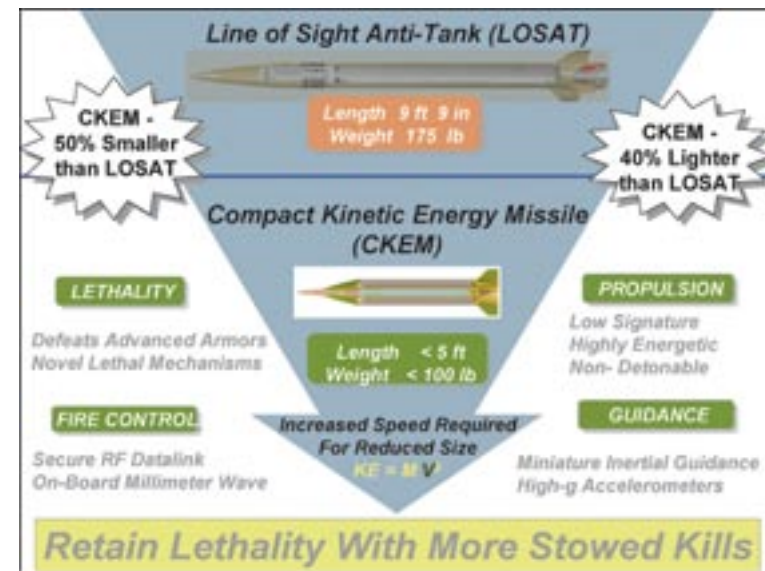
Robotic Follower ATD

The Robotic Follower ATD will develop, integrate, and demonstrate control and perception technology required to achieve unmanned follower capabilities for future land combat vehicles. This technology supports a wide variety of FCS/Future Force unmanned ground vehicles applications such as the Ruck Carrier, Supply Platoon, NLOS/ BLOS Fire, and Rear Security.

Key to the robustness and speed of the follower systems is the "assistance" of the manned leader (whether an individual Soldier or a manned vehicle). This provides a high-level proofing of the follower's path, avoiding areas that would impede or confuse the unmanned followers, and operates with minimal user intervention. This cooperative effort between Tank Automotive Research and Development Center (TARDEC) and Army Research Laboratory (ARL) focuses on a series of demonstrations that successively increases the follower mobility performance and improves the maturity of the software algorithms, Soldier/machine interface, and sensor technology for transition to FCS.

Power and Energy Hardware-in-the-Loop Systems Integration Laboratory (P&E SIL)

The Power and Energy Hardware-in-the-Loop Systems Integration Laboratory (P&E SIL) provides a cost-effective, enhanced development environment for evaluating and demonstrating the performance of enhanced technologies for a compact, reduced weight hybrid electric (HE) power system for FCS-class ground vehicles. The program utilizes, leverages, and enhances the SIL developed under the Combat Hybrid Power Systems (CHPS) program to develop, characterize, and demonstrate advanced architectures, system controls, power and energy generation, intelligent management and compact components, and subsystems through Technology Readiness Level 5 (TRL 5).



The P&E SIL environment provides system reconfiguration capability to evaluate variable bus voltages, component upgrades, and multiple controls in a highly instrumented laboratory. The P&E SIL will be used to iteratively evolve the vehicle design and configuration of FCS Increment I and II HE propulsion systems.

Compact, lightweight HE continuous and pulse-power subsystems will be matured for FCS ground vehicles. CHPS set modules and ARL power budget tools will be utilized in development of a real-time power and energy system-of-systems modeling and simulation tool.

Rotorcraft

Rotorcraft research and technology is designed to enhance the performance and effectiveness of future rotorcraft, including rotors and structures, propulsion and drive systems, avionics and weapons, and human systems integration (e.g., crew station) technologies. The Army has reoriented the aviation S&T strategy to focus on unmanned aerial vehicles (UAV) to support the FCS goal of dominant situational awareness.

The strategy seeks creative and innovative approaches to integrate technological advances in aeronautics as well as mission equipment for UAVs. This strategy focuses on advances that are achievable by designing the UAV



systems from the ground up, without the limitations that a manned platform imposes, and which take advantage of the warfighting synergy gained when manned and unmanned systems combine to accomplish a common objective.

The strategy also avoids the "man in the cockpit" and leverages the unique ability of the UAV to accomplish "dull, dirty, and dangerous" missions. The Army strategy aims to conduct research to mature technologies that result in UAV products that represent leap-ahead capability for the warfighter and are technically ready to transition to production. Following are some of the ATOs that will enable rotorcraft capabilities.

Hunter Standoff Killer Team (HSKT) ACTD

The Hunter Standoff Killer Team (HSKT) ACTD (FY01-FY06) will demonstrate advanced precision targeting, manned and unmanned vehicle teaming, and battlefield cognitive decision-aiding. These advanced warfighting capabilities will be integrated from mature technologies. The elements will be linked with other service assets as part of a joint maneuver task force to show the utility of teamed airborne reconnaissance, surveillance, targeting, and attack operations in a joint environment. The HSKT ACTD will also demonstrate tactics, techniques, and procedures and a concept of operations (CONOPS) while conducting a joint military utility assessment. The combatant commander sponsor for this ACTD is Pacific Command/U.S. Forces Korea.

The HSKT will:

- Improve the ability to mass fires and effects
- Increase force effectiveness in lethality, survivability, and operational tempo
- Improve intelligence and battle command situational awareness

This ACTD enables Future Force lethality capabilities by integrating and demonstrating the following technologies and tools:

- Cognitive Decision Aiding (CDA)
- Teaming UAVs with AH-64D Longbow Apaches and the Army Airborne Command and Control UH-60 Black Hawk (manned/unmanned teaming will allow the AH-64D Longbow Apache to use UAVs as wingmen, extend shooter eyes-on-target, increase situational awareness within current cockpit workload, and produce a more lethal, survivable, and responsive manned platform)
- Precision targeting sensor on UAVs
- Upgraded accuracy of Joint Standoff Weapons engagements from Navy F/A-18
- Exploitation of overhead theater surveillance assets

A-160 Hummingbird ATO

The A-160 Hummingbird, a DARPA/ARMY ATO, is a rotary-wing UAV. Performance goals include:

- A 2500-nautical mile range
- 40 hours endurance
- 30,000-foot ceiling
- Out-of-ground-effect (OGE) hover performance of 15,000 feet

The vehicle is designed as either an extended range, multi-purpose UAV or medium altitude, long endurance UAV to support the Future Force units in primarily a C4ISR role. Other roles include tactical deployment of unattended ground sensors (UGSs), UGVs, and micro air vehicles (MAVs).

The A-160 relies on numerous advances in technologies to achieve these unprecedented characteristics. First is a patented optimum speed rotor (OSR) control that allows the rotor to operate over a wide range of operating speeds. The OSR enables the A-160 to operate at an optimum lift-over-drag (L/D) point for the specific flight conditions using high L/D airfoils. The rotor must be very stiff and light to operate over this wide range. The rotor blades are composed of graphite fiber composites that satisfy both requirements. Second, the hingeless, rigid, main rotor system allows the vehicle to be very responsive. Combined with high-speed electrical actuators, the system enables precision control, higher harmonic control, and improved performance in gusty conditions. Third, the A-160 has a high fuel fraction and an efficient power plant.

Designed payload weight will be a minimum of 300 pounds, which can be significantly increased by sacrificing range and endurance. Current maximum payload is 1,000 pounds. Projected aircraft-integrated payloads include the following:

- Electro-optic/infrared (EO/IR) surveillance systems
- Laser rangefinder/designators
- Synthetic aperture radar
- Ground moving target indicator radar
- Foliage penetration radar
- Electronic intelligence (ELINT) systems
- Communications network relays
- Net-centric communication nodes
- Satellite communication links
- Electronic countermeasures payloads

Many payloads will provide a maneuver commander with added situational awareness and increased situational understanding. There are also numerous payloads for remote delivery to include unmanned sensors and tactical resupply. The A-160 Hummingbird is being developed by Frontier Systems, Inc., of Irvine, CA.

Medical

Biomedical research and technology provide new opportunities to reduce casualties and loss of life, protect and treat warfighters to ensure worldwide deployability, and increase warfighter availability. Research efforts are managed by the U.S. Army Medical Research and Materiel Command (USAMRMC), and include Army and Department of Defense (DoD)-funded programs for which the Army is executive or DoD lead agent. Health hazards addressed include endemic infectious diseases (i.e., diseases naturally common to a specific geographic area), chemical and biological warfare agents, environmental injuries, operational stress, and trauma resulting from enemy weapons. The major goals of the Army biomedical S&T program are to provide technologies in the following three investment areas:

- Combat casualty care (prevent and treat casualties under field conditions)
- Infectious diseases (prevent or treat illness and injury)
- Military operational medicine (sustain optimum military effectiveness).

The primary goal of medical, chemical, and biological defense S&T development research is to identify and characterize medical countermeasures that have the potential to protect and sustain the joint service warfighter force in a chemical and/or biological warfare environment.

Following are some of the Army ATOs and other efforts that will enable new force health protection and combat health support technologies.

Combat Casualty Care

Field Medical Monitoring and Therapeutic Devices for Casualty Care ATO

The Army is developing smaller and lighter diagnostic life support and surgical systems that are compatible with far-forward field operations. In such conditions, factors such as high noise, vibration, dirt, moisture, and electromagnetic interference can render many medical devices unusable. These systems will fill a current gap in far-forward treatment capability and enable effective casualty care to be provided in the logistically constrained, highly mobile battlefield of the Future Force. Systems being developed include a two-person portable stretcher system for medical evacuation that integrates improved technologies in power, patient monitoring, and delivery of medication and oxygen.

Other efforts will exploit micro-impulse radar patient-monitoring for medic use, and will use ceramic oxygen-generator technology to provide medical grade oxygen and eliminate logistically burdensome compressed gas cylinders.



Fibrin Dressing



Chitosan Dressing

Other efforts focus on enhancing the current military field anesthesia delivery system to provide reproducible drug delivery and greater patient safety and achieve U.S. Food and Drug Administration (FDA) approval of the system. FDA approval will enable peacetime training and use of the device. Together, these systems will enhance the capability of medics and far-forward surgeons to initiate and sustain essential critical care at the front lines and during evacuation.

Hemorrhage Control ATO

Army medical researchers are working on a variety of products that can save lives by quickly stopping blood loss from severe battlefield wounds. Excessive bleeding is the most common cause of death for wounded Soldiers. Even in hospitals, the major causes of early death among those who die of wounds are uncontrolled bleeding and central nervous system injury. The Army is pursuing drugs, devices, and techniques that slow or control bleeding and are usable far forward on the battlefield, since these have the greatest potential to save lives.

Two varieties of hemostatic bandages are currently under investigation. Designed to stem blood flow at the point of wounding, these bandages can be applied immediately and can stop the bleeding faster.

Army researchers have worked in coordination with Israeli investigators to explore the use of recombinant-activated human clotting factor VII (rFVIIa) in stopping internal bleeding. The protein (rFVIIa) binds to injured tissue and stimulates blood clot formation in the vicinity of the injury. The protein has been used successfully to treat bleeding episodes in hemophiliacs.

Army medical researchers are also developing expandable foams derived from fibrinogen, a protein involved in human blood clotting that is converted into fibrin, the major constituent of clots. These foams could be injected as a liquid into an inaccessible deep-cavity wound of a casualty (e.g., chest, abdomen),

where they would be activated and expand to contact injured internal organs and control bleeding. High Intensity Focused Ultrasound (HIFU) is the third method being explored to stop internal bleeding. It uses ultrasound to locate the point of bleeding and then focuses a high-energy ultrasound beam on that point to cauterize the bleeding vessel.

Soft Tissue Trauma Care ATO

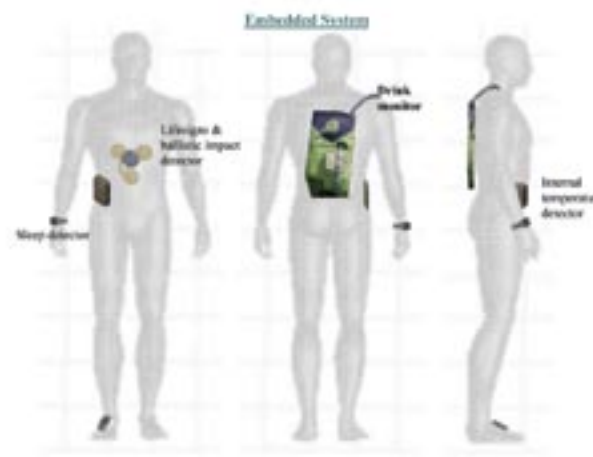
The Army is evaluating methods to effectively treat soft-tissue (flesh) injuries on the battlefield. New spray-on, flexible wound dressings provide pain relief, anti-infective protection, and auto-cleaning of wounds, as well as provide protection from further battlefield contamination. These dressings will preclude further and secondary tissue injury or damage and may allow wounded Soldiers to either continue operating, or will at least minimize their care requirements pending evacuation. Other devices include a new, servo-controlled tourniquet for potential incorporation into advanced combat uniforms, and a lightweight system for wound cleaning and removal of dead tissue from the wound.

Battlefield Treatment of Fractures ATO

The Army is evaluating methods of effectively treating bone fractures that occur on the battlefield. New lightweight splint materials that can be effectively applied by the combat medic may, for upper extremity fractures, permit limited or full battlefield functionality of injured warfighters. For lower extremity fractures, these materials may permit sufficient mobility to reduce the number of unit personnel required to move the casualty pending battlefield evacuation. Other devices include new pins for surgical stabilization of fractures that incorporate anti-infectives to prevent subsequent bone infection, and new bone replacement material for surgical repair of bone injuries that incorporates anti-infectives to prevent subsequent infection complications.

Blood Products ATO

The Army seeks to develop freeze-dried plasma for use in treating bleeding in combat casualties. Current supplies of plasma must be refrigerated and delivery for use on the battlefield is logistically demanding. Successful development and licensing of freeze-dried plasma will make plasma available as a lightweight powder that can be reconstituted when needed. No special storage will be required and shelf-life will be much longer. This ATO also seeks a new method to rapidly sterilize blood products, enabling medical treatment facilities to remove blood from one Soldier, sterilize it, and transfer it immediately into another Soldier without the worry of spreading infections such as HIV.



Warfighter Physiological Status Monitor

Warfighter Physiological Status Monitor (WPSM)

The proposed Warfighter Physiological Status Monitor (WPSM) system will provide remote situational awareness information to warfighters and warrior medics. The WPSM will monitor Soldier hydration status, internal temperature, and sleep status. It will also detect ballistic impacts on the Soldier and the presence of a pulse and respiration. The final deliverable will be an integrated warfighter-worn prototype compatible with the Land Warrior and Future Force Warrior battlefield ensembles. The information provided from each Soldier will enable medical and tactical decision-making at a distance. The WPSM will allow the warfighter to maintain readiness through preventive health interventions (e.g. warning that a certain Soldier is close to becoming a heat casualty or so tired that his thinking is impaired), and the warrior medic to direct his resources (time, equipment, supplies) to the casualties that will most benefit (triage).

Military Operational Medicine Research Program

The Military Operational Medicine Research program provides biomedical “skin-in” solutions that protect Soldiers and enhance their performance in the face of multiple stressors in operational and training environments. It is a unique biomedical research program with relevant core capabilities, a problem-solving orientation, and a human physiology research focus. The program’s biomedical research products have diverse applications that transition to Army planners,

doctrine and materiel developers, and the Army medical community. These products also find service-specific applications elsewhere in DOD. The program’s research products include the following:

- Physiological response and injury prediction tools.
- Biomedically-based equipment design guidelines, behavioral models and mental status assessment measurement techniques.
- Weapon system health hazard assessment methods.

Head-Supported Mass (HSM) - Warfighter Health and Performance ATO

Head-supported devices (HSDs), such as protective helmets and weapon sighting and communication systems, are critical components of combat systems; however, HSDs increase the weight supported by the head and neck and may place Soldiers at risk of degraded performance or neck injury. System developers and health hazard assessors lack biomedically-based design guidelines and health hazard assessment methods to support the development of effective HSDs that will not degrade performance or injure Soldiers. This research effort will use epidemiological studies, biomechanics and injury studies with human cadavers and mannequins, and advanced biofidelic neck models to develop and validate neck injury criteria. HSM research products will include biomedically based HSD design guidelines for system developers and a health hazard assessment method for HSDs.

Body Armor Blunt Trauma Assessment ATO

Soldiers need effective and lightweight body armor, but future body armor systems made with effective, lightweight ballistic materials are likely to fail the current, overly conservative body armor performance standard for blunt trauma protection. This research effort employs novel force characterization techniques, advanced human and animal finite element models, and animal injury validation studies to correlate measured forces behind body armor to blunt trauma injury. The research product will be a biomedically valid, user-friendly, and cost-effective body armor blunt trauma performance standard and testing method for body armor developers.

Medical Countermeasures for Laser Eye Injury ATO

The human eye is extremely vulnerable to the directed energy from military lasers. In an instant, and without warning, temporary or permanent visual impairment can be produced at tactical ranges and beyond. In the absence of proven medical countermeasures, the threat of visual impairment can seriously degrade force effectiveness. The Army needs effective diagnostic tools and treatments to rapidly evaluate and treat laser eye injuries on the battlefield to mitigate long-term damage, and laser eye exposure limits to guide the development of advanced laser systems that pose reduced risks of injury

to Soldiers who use them. This research will produce exposure limits for a new generation of frequency-agile laser systems. It will also produce a laser eye injury field therapy kit containing comprehensive laser eye injury diagnostic tools and advanced genomic and proteomic derived treatment strategies. These will enable combat medics to rapidly diagnose and treat laser eye injuries on the battlefield.

High-Altitude Warfighter Readiness Strategies (HWRS) ATO

The High-Altitude Warfighters Readiness (HWRS) ATO will address the need of the Future Force to rapidly deploy and effectively fight in any environment, including high altitude environments. Rapid deployment of unacclimatized troops to high altitudes can cause debilitating effects on performance and health. Current acclimatization techniques can take 6-14 days of continuous exposure to high altitude. Available medications that reduce acute mountain sickness (AMS) also impair work performance and have other adverse effects. This research will use advances in the understanding of altitude acclimatization and AMS pathophysiology to develop strategies to protect and sustain Soldier performance and decrease AMS susceptibility during rapid deployments to altitude. The research products will include specifications for performance enhancing nutritional supplements for high-altitude rations; procedures to induce and time-compress altitude acclimatization prior to deployment; prediction models of military work performance and altitude illness; and a decision aid to plan and manage unit task performance, altitude illness, and logistical needs.

Infectious Disease Research

The Military Infectious Diseases Research program is an Army-funded and directed program that involves Army and Navy scientists deployed in an Army-Navy network of laboratories and field sites in the U.S. and overseas. The program focuses on developing drugs, vaccines, and vector-control products to prevent the operational impact of endemic infectious diseases in the battle area—a common cause of military casualties during combat deployments. Recent emphasis is on developing diagnostic devices to assist the field medic in evaluation, management, and other decision-making relative to infected warfighters.

An Intravenous Drug to Treat Severe and Complicated Malaria Caused by Multi-Drug-Resistant Malaria ATO

This ATO addresses a need for a new intravenous drug to treat severe and complicated malaria caused by multi-drug-resistant malaria parasites. The ATO aims to demonstrate drug efficacy and safety sufficient to obtain FDA approval for human studies and transition the candidate drug to advanced development.

Anti-Malarial Drug Discovery ATO

This ATO will explore the feasibility of using genomic approaches, such as DNA microarray technology, to identify new malarial parasite targets. Targets will be used to develop assays for drug discovery. The goal is to identify two new unknown targets and two drugs for each target to carry on to development for either treatment and/or prophylaxis of malaria.

Congressionally Directed Medical Research Programs (CDMRP)

The U.S. Army Medical Research and Materiel Command (USAMRMC) Office of Congressionally Directed Medical Research Programs (CDMRP) manages targeted biomedical research programs mandated by Congress. The seven core programs managed by the CDMRP include Peer Reviewed Medical Research, Breast Cancer Research, Prostrate Cancer Research, Ovarian Cancer Research, Neurofibromatosis Research, Chronic Myelogenous Leukemia Research, and Tuberosus Sclerosis Complex Research. The mission of the CDMRP is to promote innovative research, recognize untapped opportunities, create partnerships, and guard the public trust in these target areas. Since its inception in FY92, the CDMRP has managed approximately \$3.4 billion to support peer-reviewed research, spanning approximately 50 programs. Approximately 6,000 contracts and grants have been awarded and are managed by the CDMRP.

Logistics Reduction

Logistics reduction technologies enhance deployability and reduce logistics demand. Examples include the following:

- Precision roll-on and roll-off air delivery
- Technologies for airfields and pavements to support force projection
- Twenty-first century trucks and robotics to support resupply and demand for food, fuel, and water

For convenience, environmental programs managed by the U.S. Army Corps of Engineers are also included in this section. Following are some of the Army programs and ATOs that will enable logistics reduction and environmental technologies.

Joint Rapid Airfield Construction (JRAC) ATO

The Joint Rapid Airfield Construction (JRAC) ATO will produce engineering tools that will vastly improve the military's capability to rapidly construct contingency airfields in the theater of operations. The primary objectives of this program are to:

- Integrate advanced terrain analysis technologies and performance prediction modeling to optimize contingency airfield site selection

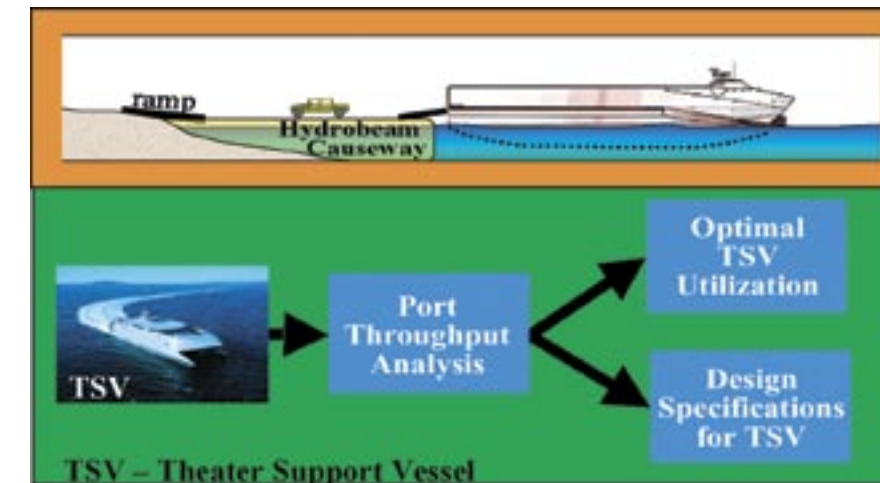
- Exploit advanced construction technologies to enhance airfield construction productivity
- Utilize emerging commercial soil stabilization technologies to rapidly provide contingency airfield surfaces capable of sustaining mission operations

Rapid deployment of the Future Force will require airfields in-theater to sustain intense aircraft traffic associated with stability and support operations and small-scale conflict scenarios. In many force projection operations, in-theater airfields are either nonexistent or severely deteriorated. Currently, light and medium military engineer units do not have the capability to rapidly upgrade existing airfields or to construct contingency airfields to support Future Force mission requirements.

The objectives of this ATO are to bring together technologies that will assist the Interim and Future Forces in achieving optimal force projection throughput. This effort will create a rapid and effective site-selection process, enhance construction productivity by 30 percent using computer assisted methods, and develop innovative stabilization techniques that will reduce required additive amounts by 50 percent and improve material cure times by as much as 96 percent.

Rapid Port Enhancement for the Theater Support Vessel (TSV) ATO

The Rapid Port Enhancement for the Theater Support Vessel (TSV) ATO will develop rapidly installed causeways for offloading TSV at small ports, utilizing high strength fabric technologies. The program also will develop objective tools for evaluating existing port throughput capacity, port upgrade potential, and potential power projection throughput.



The product of this ATO will be a TSV-transportable causeway system that will build upon technologies produced by the Enhanced Coastal Mobility and Sea-State Mitigation ATD. This work will lead to a dramatic increase in the ability of the TSVs to accomplish required discharge rates, even in locations where the port infrastructure is extremely limited. Analytical tools will also be developed for identifying potential bottlenecks and predicting TSV throughput at small ports.

In FY04, an analytical modeling capability to predict causeway motions/responses was developed and technologies for continued development and demonstration of the causeway system will be evaluated and down-selected. By FY06, modeling and simulation tools for bottleneck identification and prediction of TSV throughput capabilities at small ports will be completed and validated and a rapidly installed lightweight causeway system will be transitioned to system development and demonstration.

Waste to Energy Converter (WEC) ATO

The onsite Waste to Energy Converter (WEC) will reformulate waste to nonhazardous by products while producing useful energy. Military field-feeding produces tons of packaging and food waste that must be buried, burned, or backhauled to disposal sites at great expense. A typical maneuver battalion or force provider base camp produces over a ton of solid waste per day. For overseas operations, reliance upon a host nation's often inadequate waste disposal infrastructure presents human health and environmental concerns, force protection challenges, and potential future liabilities.

The program objective is to convert 250 pounds of mixed plastic to 2 million BTUs of energy (equivalent to 16 gallons of jet-propulsion fuel 8 [JP8]) in a 24-hour period. The Army objective is to convert 1,500 pounds of organic mixed waste to 7.5 million BTUs (60 gallons of JP8) (technology readiness level [TRL] 6). The WEC will thereby reduce two logistical burdens, waste and fuel, while enhancing force protection and reducing signature and environmental impacts.

Personnel

Personnel technologies include advanced training tools and methods to enhance warfighter and commander abilities and performance; advanced human engineering concepts to ensure human system physical compatibility; and cognitive engineering concepts to avoid information overload and optimize task allocation to enhance warfighting effectiveness. Following are some of the Army ATOs that will enable personnel technologies.



Methods and Measures of Commander-Centric Training ATO

This ATO will develop and assess training methods for Future Force commanders and operators and formulate principles of effective training and measurement in the Army's future environment. This ATO will provide changes in unit behavior associated with digitization, identify key skills for digital system operators, identify key commander and operator skills, and develop measures of performance with defined levels of proficiency.

It will also describe requirements for automated measurement tools in realistic, simulated environments, employ controlled research environments for assessing training method, and formulate and assess training principles for key command, control, communications, computers, intelligence, surveillance, and reconnaissance (C4ISR) skills to provide to materiel, training, doctrine, and training device developers.

Selection, Classification, and Performance Metrics for the Future Force ATO

This ATO will develop and test methods for identifying knowledge, skills, and attributes needed for effective future performance and for validating predictor measures needed for selecting and classifying Soldiers in 2008 and beyond.

This ATO will identify common demands for future Army initial-entry jobs, identify selected future demands for two job groups, and identify the knowledge, skills, and attributes needed to effectively perform future jobs in these groups.

The knowledge, skills, and attributes will include those linked to Army-wide demands as well as those unique to these groupings. The ATO will develop predictors and measures of future performance, then link predictors and performance measures to provide recommendations for future enlisted selection and classification.

Embedded Combined Arms Team Training and Mission Rehearsal

The goal of embedded training research is to develop simulation technology that will be embedded within Future Force systems to provide training and mission rehearsal capabilities that are available anytime, anywhere. Research is being conducted to support embedded training for both mounted and dismounted warfighters. Embedded training will provide individuals, crews, and leaders with realistic training, skill development, and mission rehearsal capabilities that will be an integral part of their FCS and Future Force Warrior systems. When fielded, it will permit Soldiers to train with their "go to war equipment" anytime, anywhere.

Embedded training will integrate constructive and virtual simulations with actual warfighter machine interfaces, creating an "on-board" environment that will allow individuals and crews to use sensors, displays, and controls to interact with virtual terrain and computer-generated forces. The research will also explore the feasibility of using tactical C4ISR network and communications systems for net-based embedded training.

Advanced Simulation

Advanced Simulation tools provide increasingly realistic environments and systems to support acquisition, requirements, and training. This includes technologies for networked simulations, embedded training, constructive simulations, virtual environments, and range systems for live use. Following is one of the Army ATOs that will enable Advanced Simulation leading to immersive virtual training.

Modeling Architecture for Technology, Research and Experimentation (MATREX) ATO

The Modeling Architecture for Technology, Research and Experimentation (MATREX) ATO will evolve a component-based architecture to address fundamental deficiencies in the integration of current simulation systems. Currently, the Army's ability to examine the questions related to Army transformation is limited by:

- The lack of interoperability between key DOD simulations
- Inconsistent data and algorithm representations in Army simulations

- Modeling and simulation (M&S) expertise that is geographically distributed, thus difficult and costly to bring together for simulation needs throughout the acquisition process

This ATO will also develop new techniques to support high fidelity, distributed, and secure wide-area networked simulation that includes the Army, other services, and industry.

Enhanced Learning Environment with Creative Technologies ATO

The Army needs the capability to rapidly deploy effective, engaging training solutions using modern training technology to address not only the operational problems of lessons learned in the COE, but also the procedural issues that impede effective deployment (e.g., lack of onsite mentors and coaches). The objective of this ATO is to develop the academic design, methods, tools, and metrics for the use of interactive simulation technology as the means to deliver effective training. Interactive simulation technology is expected to increase the Soldier's engagement in the training experience, thereby increasing retention and decreasing the burden of retraining.

Army Combat Organizations

Glossary of Terms

Systems by Contractors

Contractors by State

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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

Commander 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

Commanded by a lieutenant colonel
 Tactically and administratively self-sufficient
 Armored cavalry and air cavalry equivalents called
 squadrons
 Two or more combat battalions make up a brigade

Brigade

Commanded by 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

Commanded by 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

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]). ACAT I programs have two sub-categories:

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. A MAIS is an AIS acquisition program that is:

1. Designated by the ASD (C3I) as a MAIS, or
2. Estimated to require program costs in any single year in excess of \$30 million in FY96 constant dollars, total program costs in excess of \$120 million in FY96 constant dollars, or total life-cycle costs in excess of \$360 million in FY96 constant dollars.

ACAT IA programs have two sub-categories:

1. **ACAT IAM**, for which the MDA is the Chief Information Officer (CIO) of the Department of Defense (DOD), the ASD (C3I). The “M” (in ACAT IAM) 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” (in ACAT IAC) 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:

Concept and Technology Development:

Concept and 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. In this phase, the initiation concept is approved, a lead Component is designated, and exit criteria are established. The leader of the concept development team will work with the integrated test team to develop an evaluation strategy that describes how the capabilities will be evaluated once the system is developed.

Major components of this phase are Concept Exploration, Decision Review, and Component Advanced Development. Concept Exploration evaluates the feasibility of alternative concepts and assesses the merits of these concepts. This phase ends with a Decision Review, at which the preferred concept for technologies available is selected. The Decision Review may also determine whether additional component development is necessary before key technologies can enter System Development and Demonstration. Component Advance Development occurs when the project leader has a concept for the needed capability, but does not yet know the system architecture. The project exits Component Advanced Development when a system architecture has been developed and the component technology has been demonstrated in the relevant environment or the Milestone Decision Authority (MDA) decides to end this effort. This effort is intended to reduce risk on components that have only been demonstrated in a laboratory environment and to determine the appropriate set of subsystems to be integrated into a full system.

System Development and Demonstration:

System development and demonstration is the process of developing concepts into producible and deployable products that provide capability to the user. The purpose of this phase is to develop a system, reduce program risk, ensure operational supportability, design for producibility, ensure affordability, and demonstrate system integration, interoperability, and utility. The major components of this phase are System Integration, System Demonstration, and Interim Progress Review. Development is aided by the use of simulation-based acquisition and guided by a system acquisition strategy and test and evaluation master plan (TEMP). System modeling, simulation, and test and evaluation

activities are integrated into an efficient continuum planned and executed by a test and evaluation integrated product team (T&E IPT).

The independent planning, execution, and evaluation of dedicated Initial Operation Test and Evaluation (IOT&E), as required by law, and Follow-on Operational Test and Evaluation (FOT&E), if required, are the responsibility of the appropriate operational test activity (OTA). The program enters System Integration when the Project Manager has an architecture for the system, but has not yet integrated the subsystems into a complete system. This effort is intended to integrate the subsystems and reduce system-level risk. The purpose of the Interim Progress Review is to confirm that the program is progressing as planned or to adjust the plan to better accommodate progress made to date, changed circumstances, or both. The program enters System Demonstration when the Project Manager has demonstrated the system in prototype articles.

Production and Deployment:

The purpose of the Production and Deployment phase is to achieve an operational capability that satisfies mission needs. In this phase, software has to prove its maturity level prior to deploying to the operational environment. Once maturity has been proven the system or block is baselined and a methodical and synchronized deployment plan is implemented to all applicable locations. A system must be demonstrated before DOD will commit to production and deployment. For DOT&E Oversight programs, a system cannot be produced at full-rate until a Beyond Low-Rate Initial Production Report has been completed and sent to Congress, the Secretary of Defense, and the USD(AT&L).

The components of this phase include Low-Rate Initial Production (LRIP), the Full-Rate Production Decision Review, and Full-Rate Production and Deployment. LRIP is intended to result in completion of manufacturing development to ensure adequate manufacturing capability and to produce the minimum quantity necessary for initial operational test and evaluation. The Full-Rate Production Decision Review considers the cost estimate, manpower, results of test and evaluation, compliance and interoperability certification. Following the completion of a Full-Rate Production Decision Review, the program enters Full-Rate Production and Deployment.

Operations and Support:

The objective of the Operations and Support phase is the execution of a support program that meets operational support performance requirements and sustainment of systems in the most cost-effective manner throughout their life-cycle. The sustainment program includes all elements necessary to maintain the readiness and operational capability of deployed systems. The scope of support varies among programs but generally includes supply, maintenance, transportation, sustaining engineering, data management, configuration management, manpower, personnel, training, habitability, survivability, safety, IT supportability, and environmental management functions. This activity also includes the execution of operational support plans.

Programs with software components must be capable of responding to emerging requirements that will require software modification or periodic enhancements after a system is deployed. A follow-on operational test and evaluation program that evaluates operational effectiveness,

survivability, suitability, and interoperability, and that identifies deficiencies is conducted, as appropriate.

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 PM 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 \$30 million in FY96 constant dollars, total program costs in excess of \$120 million in FY96 constant dollars, or total life-cycle costs in excess of \$360 million in FY96 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 Under Secretary of Defense (Acquisition and Technology) (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 \$355 million in FY96 constant dollars or, for procurement, of more than \$2.135 billion in FY96 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 System:

A combination of elements that shall function together to produce the capabilities required to fulfill a mission need, including hardware, equipment, software, or any combination thereof, but excluding construction or other improvements to real property. A system shall be considered a major system if it is estimated by the DOD Component Head to require an eventual total expenditure for RDT&E of more than \$135 million in FY96 constant dollars, or for procurement of more than \$640 million in FY96 constant dollars, or if designated as major by the DOD Component Head.

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 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 (9 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 Web at http://www.army.mil/usapa/epubs/pdf/r70_1.pdf; or DA PAM 70-3, Army Acquisition Procedures, available on the Web at http://www.army.mil/usapa/epubs/pdf/p70_3.pdf.

Systems By Contractors

AAI Corporation

Tactical Unmanned Aerial Vehicle (TUAV)

Action Manufacturing

2.75" Family of Rockets

Advanced Systems Technology, Inc.

Close Combat Tactical Trainer (CCTT)

Aerojet

Army Tactical Missile System (ATMS)

Guided Multiple Launch Rocket System (GMLRS)

Joint Common Missile

Aerojet General

Tow Missiles

Alliant Tech

Artillery Ammunition

Alliant Techsystems

2.75" Family of Rockets

Medium Caliber Ammunition

Small Caliber Ammunition

Tank Ammunition

XM25

Allied Signal

High Mobility Artillery Rocket Systems (HIMARS)

Allison Transmissions

Family of Medium Tactical Vehicles (FMTV)

Light Equipment Transport

Line Haul Tractor

AM General

High Mobility Artillery Rocket Systems (HIMARS)

High Mobility Multipurpose Wheeled Vehicle (HMMWV)

Improved Ribbon Bridge (IRB)

American Ordnance

Artillery Ammunition

Medium Caliber Ammunition

American Systems Technology, Inc.

Movement Tracking System (MTS)

Anniston Army Depot

Paladin

AOT

Tank Ammunition

APC

Air/Missile Defense Planning and Control System

(AMDPACS)

Apptis

Combat Service Support Automated Information System

Interface (CAISI)

ARC

Line-of-Sight Anti-Tank (LOSAT)

Aqua Chem

Tactical Water Purification System (TWPS)

Argon

Aerial Common Sensor (ACS)

Armace

Interceptor Body Armor (IBA)

Armor Works

Interceptor Body Armor (IBA)

Armtec Defense

Artillery Ammunition

Assurance Technology Corporation (ASC)

Joint Tactical Radio System (JTRS) Waveform

ATK

Tow Missiles

Austin Info Systems

All Source Analysis System (ASAS)

AVTEL

Fixed Wing

BAE Systems

2.75" Family of Rockets

Advanced Threat Infrared Countermeasures (ATIRCM)

Aerial Common Sensor (ACS)

Army Data Distribution System (ADDS)/ Enhanced

Position Location Reporting System (EPLRS)

Countermine

Improved Target Acquisition System (ITAS)

Joint Chemical Agent Detector (JCAD)

Joint Tactical Ground Stations/Multi-Mission Mobile

Processor (JTAGS M3P)

Joint Tactical Radio System (JTRS) Cluster 1

Joint Tactical Radio System (JTRS) Cluster 5

Lightweight 155mm Howitzer (LW 155)

Line-of-Sight Anti-Tank (LOSAT)

Longbow Hellfire

Mobile Tactical High Energy Laser (MTHL)

Warfighter Information Network – Tactical (WIN-T)

Bechtel Aberdeen

Chemical Demilitarization

Bell Helicopter

Kiowa Warrior

BF Goodrich

Army Tactical Missile System (ATMS)

BioPort Corporation

Biological Vaccine Program – Anthrax Vaccine Adsorbed

(AVA)

Boeing

Chinook

Future Combat Systems (FCS)

Joint Tactical Radio System (JTRS) Cluster 1

Joint Tactical Radio System (JTRS) Waveform

Longbow Apache

PATRIOT (PAC-3)

Bollinger/Incat USA

Theater Support Vessel (TSV)

Brashears, LP

Mobile Tactical High Energy Laser (MTHL)

XM25

Brown International

Air/Missile Defense Planning and Control System

(AMDPACS)

Bruhn NewTech

Joint Warning and Reporting Network (JWARN)

Bruker Daltonics

Joint Service Lightweight Stand-Off Chemical Agent

Detector (JSLSCAD)

CACI

Airborne Reconnaissance Low (ARL)

Guardrail Common Sensor (GR/CS)

Medical Communications for Combat Casualty Care (MC4)

Nuclear Biological Chemical Reconnaissance Vehicle

(NBCRV) - Stryker

CAS, Inc.

Army Airborne Command and Control System (A2C2S)

Joint Land Attack Cruise Missile Defense Elevated Netted

Sensors Systems (JLENS)

Camber

Paladin

Carleton Technologies, Inc.

Air Warrior (AW)

Caterpillar Defense and Federal Products

Construction Equipment Service Life Extension Program

(CE SLEP)

Family of Medium Tactical Vehicles (FMTV)

CECOM Software Engineering Center

Maneuver Control System (MCS)

Cementech, Inc.

Engineer Mission Module (EMM)

Ceradyne, Inc.

Interceptor Body Armor (IBA)

CERCOM

Interceptor Body Armor (IBA)

Cessna Aircraft

Fixed Wing

Chamberlain Manufacturing

Artillery Ammunition

Mortar Systems

CherryRoad Technologies

Battle Command Sustainment Support System (BCS3)

CMC Electronics, Cincinnati

Lightweight Laser Designator Range Finder (LLDR)

CMI

Tactical Unmanned Aerial Vehicle (TUAV)

Colt's Manufacturing

Small Arms

COMTECH Mobile Datacom

Force XXI Battle Command Brigade-and-Below (FBCB2)

Movement Tracking System (MTS)

Composite Structures

Longbow Apache

Composix

Interceptor Body Armor (IBA)

Computer Giant

Combat Service Support Automated Information System

Interface (CAISI)

Computer Sciences Corporation

Advance Field Artillery Tactical Data System (AFATDS)

Land Warrior (LW)

Transportation Coordinators' Automated Information for

Movement System II (TC-AIMS II)

Condor Pacific

Tow Missiles

Creative Apparel Associates

Joint Service Lightweight Integrated Suit Technology

(JLIST)

Crossroads Industrial Services

Joint Combat Identification Marking System (JCIMS)

Crysteel Manufacturing

Engineer Mission Module (EMM)

CSS

Army Key Management System (AKMS)

Cubic Simulation Systems

Engagement Skills Trainer (EST) 2000

Cummings Power

Forward Repair System (FRS)

CyTerra Corporation

Countermine

Dana Corporation

Tactical Fire Fighting Truck (TFFT)

Defiance

High Mobility Multipurpose Wheeled Vehicle (HMMWV)

Detroit Diesel

Heavy Expanded Mobility Tactical Truck (HEMTT)/

HEMTT- Recapitalization (RECAP)

Light Equipment Transport (LET)

Line Haul Tractor

Palletized Load System (PLS)

Tactical Fire Fighting Truck (TFFT)

Dewey Electronics

Tactical Electrical Power (TEP)

DPA

Tactical Unmanned Aerial Vehicle (TUAV)

DRS Technologies

Bradley Upgrade

Force XXI Battle Command Brigade-and-Below (FBCB2)

Integrated Family of Test Equipment (IFTE)

Duncan

Fixed Wing

DynCorp

Fixed Wing

Eagle Industries, Inc.

Joint Combat Identification Marking System (JCIMS)

Eclipse Electronic Systems

Prophet

E.D. Etnyre

Engineer Mission Module (EMM)

Systems By Contractors

EFW

Bradley Upgrade

EG&G

Chemical Demilitarization

Engineering Air Systems, Inc.

Chemical Biological Protective Shelter (CBPS)

Engineering Professional Services

Advance Field Artillery Tactical Data System (AFATDS)

Army Data Distribution System (ADDS)/Enhanced

Position Location Reporting System (EPLRS)

Engineering Solutions and Products

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

Ensign Bickford Aerospace and Defense

Countermine

Envionics USA, Inc.

Joint Chemical Agent Detector (JCAD)

Evans and Sutherland

Close Combat Tactical Trainer (CCTT)

EyakTek

Combat Service Support Automated Information System

Interface (CAISI)

Fairchild

Fixed Wing

FATS, Inc.

Engagement Skills Trainer (EST) 2000

FC Business Systems

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

Fermont

Tactical Electrical Power (TEP)

FN Manufacturing

Small Arms

Fontaine Trailer Company

Trailers

Force One

Interceptor Body Armor (IBA)

Freightliner, LLC

Light Equipment Transport (LET)

Line-Haul Tractor

GenCorp

Joint Tactical Ground Stations/Multi-Mission Mobile

Processor (JTAGS M3P)

General Dynamics

2.75" Family of Rockets

Abrams Upgrade

Advance Field Artillery Tactical Data System (AFATDS)

Air Warrior (AW)

All Source Analysis System (ASAS)

Bradley Upgrade

Common Hardware System (CHS)

Conventional Ammunition Demilitarization

Excalibur (XM982)

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

Improved Ribbon Bridge (IRB)

Joint Biological Point Detection System (JBPDS)

Joint Common Missile

Joint Service Lightweight Stand-Off Chemical Agent

Detector (JSLSCAD)

Joint Tactical Radio System (JTRS) Waveform

Lightweight 155mm Howitzer (LW 155)

Maneuver Control System (MCS)

Small Arms

Tactical Operations Center (TOC)

Warfighter Information Network – Tactical (WIN-T)

General Dynamics Armament and Technical Products

2.75" Family of Rockets

Joint Biological Point Detection System (JBPDS)

XM307

General Dynamics C4 Systems

Land Warrior (LW)

General Dynamics Decision Systems

Joint Tactical Radio System (JTRS) Cluster 5

Prophet

General Dynamics Land Systems

Common Hardware Systems (CHS)

Land Warrior (LW)

Nuclear Biological Chemical Reconnaissance Vehicle

(NBCRV) – Stryker

Stryker

General Dynamics Ordnance and Tactical Systems

2.75" Family of Rockets

Conventional Ammunition Demilitarization

Excalibur (XM982)

Medium Caliber Ammunition

Tank Ammunition

XM307

General Dynamics Versatron

Excalibur (XM982)

General Electric

Army Tactical Missile System (ATMS)

Black Hawk

General Motors

High Mobility Multipurpose Wheeled Vehicle (HMMWV)

GEP

High Mobility Multipurpose Wheeled Vehicle (HMMWV)

Global Communications Solutions

Combat Service Support Automated Information System

Interface (CAISI)

GNK Westland

Black Hawk

Green Metal Products

Paladin

Group Home Foundation/Belfast Industries, Inc.

Joint Service Lightweight Integrated Suit Technology

(JLIST)

Grove Worldwide

Forward Repair System (FRS)

GTSI Corporation

Global Combat Support System – Army (GCSS-Army)

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

Medical Communications for Combat Casualty Care (MC4)

Gulfstream

Fixed Wing

Harris Corporation

Aerial Common Sensor (ACS)

Defense Satellite Communications System (DSCS)

High Mobility Artillery Rocket System (HIMARS)

Joint Tactical Radio System (JTRS) Waveform

Warfighter Information Network – Tactical (WIN-T)

Heckler & Koch Defense

XM8

Heil Trailer International

Trailers

Holland Hitch

Light Equipment Transport (LET)

Line Haul Tractor

Honeywell

Abrams Upgrade

Chinook

Excalibur (XM982)

Guided Multiple Launch Rocket System (GMLRS)

Kiowa Warrior

Line-of-Sight Anti-Tank (LOSAT)

Mortar Systems

Howmet Castings

Lightweight 155mm Howitzer (LW 155)

Hydro-Mill

Lightweight 155mm Howitzer (LW 155)

IBM

Battle Command Sustainment Support System (BCS3)

Distributed Common Ground System – Army (DCGS-A)

Distributed Learning System (DLS)

Idaho Technologies

Joint Biological Agent Identification Diagnostic System

(JBAIDS)

i-Gov

Battle Command Sustainment Support System (BCS3)

Indigo Systems

Lightweight Laser Designator Range Finder (LLDR)

Information Systems Support, Inc.

Army Key Management System (AKMS)

Ingersoll-Rand

Forward Repair System (FRS)

Innolog

Army Data Distribution System (ADDS)/Enhanced

Position Location Reporting System (EPLRS)

Insight Technologies, Inc.

Night Vision Devices

XM8

Inter4

Army Key Management System (AKMS)

ITT Industries

Defense Satellite Communications System (DSCS)

Night Vision Devices

JANUS Research

Secure Mobile Anti-Jam Reliable Tactical Terminal

(SMART-T)

JLG, Inc.

All Terrain Lifting Army System (ATLAS)

Johns Hopkins University Applied Physics Laboratory

Defense Satellite Communications System (DSCS)

Medical Communications for Combat Casualty Care (MC4)

Kaman Dayron

XM307

Kalyn Siebert

Trailers

L-3 Communications

Aerial Common Sensor (ACS)

Analytical Laboratory System – System Enhancement

Program (ALS-SEP)

Aviation Combined Arms Tactical Trainer (AVCATT)

Global Combat Support System – Army (GCSS-Army)

Guardrail Common Sensor (GR/CS)

Mortar Systems

Tank Ammunition

Lear Siegler Services, Inc.

Force XXI Battle Command Brigade-and-Below (FBCB2)

Lincoln Labs

Secure Mobile Anti-Jam Reliable Tactical Terminal

(SMART-T)

Litton Advanced Systems

Airborne Reconnaissance Low (ARL)

Lockheed Martin

Aerial Common Sensor (ACS)

All Source Analysis System (ASAS)

Army Tactical Missile System (ATMS)

Battle Command Sustainment Support System (BCS3)

Close Combat Tactical Trainer (CCTT)

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

Guided Multiple Launch Rocket System (GMLRS)

High Mobility Artillery Rocket System (HIMARS)

Javelin

Joint Common Missile

Joint Tactical Ground Stations/Multi-Mission Mobile

Processor (JTAGS M3P)

Line-of-Sight Anti-Tank (LOSAT)

Longbow Apache

Longbow Hellfire

Maneuver Control System (MCS)

Non-Line of Sight-Launch System (NLOS-LS)

PATRIOT (PAC-3)

Warfighter Information Network – Tactical (WIN-T)

Lockheed Martin Information Systems

Warfighters Simulation (WARSIM)

Systems By Contractors

LTI DATACOM

Combat Service Support Automated Information System Interface (CAISI)

M7 Aerospace

Fixed Wing

M/A Com

Longbow Hellfire

Madentech

Integrated System Control (ISYSCON) (V)4/Tactical Internet Management System (TIMS)

Mantech

All Source Analysis System (ASAS)
Integrated System Control (ISYSCON) (V)4/Tactical Internet Management System (TIMS)

MCII

Tactical Electrical Power (TEP)

MEADS International

Medium Extended Air Defense System (MEADS)

Meritor

Family of Medium Tactical Vehicles (FMTV)
Light Equipment Transport (LET)
Line Haul Tractor

Mevatec

Joint Tactical Ground Stations/Multi-Mission Mobile Processor (JTAGS M3P)

Michelin

Heavy Expanded Mobility Tactical Truck (HEMTT)/HEMTT- Recapitalization (RECAP)
Tactical Fire Fighting Truck (TFFT)

Miltope Corporation

Integrated Family of Test Equipment (IFTE)

Mitre

Integrated System Control (ISYSCON) (V)4/Tactical Internet Management System (TIMS)

Moog

TOW Missiles

National Center for the Employment of the Disabled (NCED)

Joint Service Lightweight Integrated Suit Technology (JSLIST)

Naval Air Warfare Center Aircraft Division

Unified Command Suite (UCS)

Night Vision Equipment Company

Joint Combat Identification Marking System (JCIMS)

Northrop Grumman

Advanced Threat Infrared Countermeasures (ATIRCM)
Air/Missile Defense Planning and Control System (AMDPCS)
Battle Command Sustainment Support System (BCS3)
Countermine
Defense Satellite Communications System (DSCS)
Force XXI Battle Command Brigade-and-Below (FBCB2)
Forward Area Air Defense Command and Control (FAAD C2)
Global Combat Support System – Army (GCSS-Army)
Guardrail Common Sensor (GR/CS)
Integrated Family of Test Equipment (IFTE)
Integrated System Control (ISYSCON) (V)4/Tactical Internet Management System (TIMS)
Joint Service Lightweight Stand-Off Chemical Agent Detector (JSLSCAD)
Joint Tactical Ground Stations/Multi-Mission Mobile Processor (JTAGS M3P)
Joint Tactical Radio System (JTRS) Cluster 1
Longbow Apache
Longbow Hellfire
Mobile Tactical High Energy Laser (MTHL)
Night Vision Devices
Paladin
Tactical Operations Center (TOC)

Northrop Grumman Electronic Systems

Lightweight Laser Designator Range Finder (LLDR)

Northrop Grumman Information Technology

Joint Effects Model (JEM)
Joint Warning and Reporting Network (JWARN)

Northrop Grumman Mission Systems

Air/Missile Defense Planning and Control System (AMDPCS)
Forward Area Air Defense Command and Control (FAAD C2)
Global Combat Support System –Army (GCSS-Army)
Integrated System Control (ISYSCON) (V)4/Tactical Internet Management System (TIMS)
Joint Service Lightweight Nuclear Biological Chemical Reconnaissance System (JSLNBCRS)

O’Gara-Hess & Eisenhardt Armor Company

High Mobility Multipurpose Wheeled Vehicle (HMMWV) XM101

Olin Corporation

Small Caliber Ammunition

Omega Training Group

Land Warrior (LW)

OPM Mortar Systems

Precision Guided Mortar Munitions (PGMM)

Oshkosh Truck

Dry Support Bridge (DSB)
Engineer Mission Module (EMM)
Forward Repair System (FRS)
Future Tactical Truck System – Maneuver Sustainment Vehicle (FTTS-MSV)
and Utility Vehicle (FTTS-UV) ACTD
Heavy Expanded Mobility Tactical Truck (HEMTT)/HEMTT- Recapitalization (RECAP)
Palletized Load System (PLS)
Tactical Fire Fighting Truck (TFFT)

Oshkosh Truck Corporation

Dry Support Bridge
Trailers

Oshkosh Truck Kewanee Fabrication, LLC

Palletized Load System (PLS)

Parker Hannifin

Black Hawk

Parsons Infrastructure & Technology

Chemical Demilitarization

Peckham Vocational Industries, Inc.

Joint Service Lightweight Integrated Suit Technology (JLIST)

Pennsylvania State University

Meteorological Measuring Set – Profiler (MMS-P)

Phoenix Coaters, LLC

Tactical Electrical Power (TEP)

Pierce Manufacturing

Tactical Fire Fighting Truck (TFFT)

Pine Bluff Arsenal

Chemical Demilitarization
Mortar Systems

PM/Nammo

Conventional Ammunition Demilitarization

Point Blank Body Armor

Interceptor Body Armor (IBA)

Precision Castparts Corporation

Lightweight 155mm Howitzer (LW 155)

Pro Tech

Interceptor Body Armor (IBA)

Radian

Tactical Electrical Power (TEP)

Raytheon

Abrams Upgrade
Advance Field Artillery Tactical Data System (AFATDS)
Advanced Threat Infrared Countermeasures (ATIRCM)
Air Warrior (AW)
Army Airborne Command and Control System (A2C2S)
Army Data Distribution System (ADDS)/Enhanced Position Location Reporting System (EPLRS)
Bradley Upgrade
Excalibur (XM982)
Fixed Wing
Force XXI Battle Command Brigade-and-Below (FBCB2)
Guardrail Common Sensor (GR/CS)

Improved Target Acquisition System (ITAS)

Javelin

Joint Tactical Ground Stations/Multi-Mission Mobile

Processor (JTAGS M3P)

Joint Tactical Radio System (JTRS) Cluster 1

Joint Tactical Radio System (JTRS) Waveform

Land Warrior (LW)

Line-of-Sight Anti-Tank (LOSAT)

Non-Line of Sight-Launch System (NLOS-LS)

PATRIOT (PAC-3)

Prophet

Secure Mobile Anti-Jam Reliable Tactical Terminal

(SMART-T)

Surface Launched Advanced Medium Range Air-to-Air

Missile (SLAMRAAM)

Tank Ammunition

TOW Missiles

XM307

Raytheon-Beechcraft

Fixed Wing

Raytheon/Bofors Defence

Excalibur (XM982)

Raytheon Integrated Defense Systems

Joint Land Attack Cruise Missile Defense (LACMD)
Elevated Netted Sensors Systems (JLENS)

Raytheon Systems

Thermal Weapon Sight

Raytheon Technical Services

Air Warrior (AW)

Recon Optical, Inc.

XM101

REMEC

Joint Common Missile

Robertson Aviation

Chinook

Rock Island Arsenal

Forward Repair System (FRS)

Rockwell Collins

Black Hawk

Chinook

Global Positioning System (GPS)

Joint Tactical Radio System (JTRS) Cluster 1

Joint Tactical Radio System (JTRS) Cluster 5

Prophet

Rockwell/Meritor

Family of Medium Tactical Vehicles (FMTV)

Schutt Industries

Trailers

SAIC

Army Key Management System (AKMS)
Future Combat Systems (FCS)
Global Command and Control System – Army (GCCS-A)
Joint Chemical Agent Detector (JCAD)
Joint Network Management System (JNMS)
Mobile Tactical High Energy Laser (MTHL)

Scott Manufacturing

Family of Medium Tactical Vehicles (FMTV)

Sechan Electronics

Secure Mobile Anti-Jam Reliable Tactical Terminal (SMART-T)

Second Chance Body Armor

Interceptor Body Armor (IBA)

Secure Communications Systems, Inc.

Air Warrior (AW)

SESI

Joint Biological Standoff Detection System (JBSDS)

SFA Frederick Manufacturing

Tactical Water Purification System (TWPS)

Sierra Nevada Corporation

Tactical Unmanned Aerial Vehicle (TUAV)

Signal Solutions

Combat Service Support Automated Information System Interface (CAISI)

Systems By Contractors

Silver Eagle Manufacturing Company

Trailers

Simula Safety Systems, Inc.

Air Warrior (AW)

Interceptor Body Armor (IBA)

Smart Technologies

Transportation Coordinators' Automated Information for Movement System II (TC-AIMS II)

Smiths

Kiowa Warrior

Smiths Detection

Joint Chemical Agent Detector (JCAD)

Meteorological Measuring Set – Profiler (MMS-P)

South Eastern Kentucky Rehabilitation Industries

Joint Service Lightweight Integrated Suit Technology (JLIST)

Southeastern Testing Association (SETA)

Army Tactical Missile System (ATMS)

Specialty Defense Systems

Interceptor Body Armor (IBA)

Sprint

Distributed Common Ground System – Army (DCGS-A)

Distributed Learning System (DLS)

Stewart & Stevenson

Family of Medium Tactical Vehicles (FMTV)

Future Tactical Truck System – Maneuver Sustainment Vehicle (FTTS-MSV)

High Mobility Artillery Rocket Systems (HIMARS)

Trailers

Stewart & Stevenson TVS, LLC

Family of Medium Tactical Vehicles (FMTV)

Summa Technology

Palletized Load System (PLS)

Sypris

Army Key Management System (AKMS)

Systems and Electronics, Inc.

Trailers

SYTEX, Inc.

All Source Analysis System (ASAS)

Talbert Manufacturing

Trailers

Tall-Tech

Mortar Systems

Tapestry Solutions

Battle Command Sustainment Support System (BCS3)

Tecom

Tactical Unmanned Aerial Vehicle (TUAV)

Telephonics Corp

Air Warrior (AW)

Textron

Kiowa Warrior

Textron Marine and Land Systems

Armored Security Vehicle (ASV)

Thales Communications Systems

Joint Tactical Radio System (JTRS) Cluster 5

Thales Raytheon Systems

Sentinel

Titan Corporation

Advance Field Artillery Tactical Data System (AFATDS)

Combat Service Support Automated Information System

Interface (CAISI)

Global Combat Support System – Army (GCSS-Army)

Medical Communications for Combat Casualty Care (MC4)

Prophet

Transportation Coordinators' Automated Information for Movement System II (TC-AIMS II)

Tru-Hitch

Trailers

U.S. Army Information Systems Engineering Command

Defense Satellite Communications System (DSCS)

United Defense, LP

Bradley Upgrade

Paladin

United Technologies

Black Hawk

Vickers

High Mobility Artillery Rocket Systems (HIMARS)

Washington Demilitarization Company

Chemical Demilitarization

Washington Group International

Chemical Demilitarization

Westwind

Air Warrior (AW)

Wolf Coach, Inc./L-3 Communications

Aerial Command Sensor (ACS)

Unified Command Suite (UCS)

XMCO

Dry Support Bridge

ZETA

Guardrail Common Sensor (GR/CS)

Contractors By State

Alabama

Anniston Army Depot
BAE Systems
Boeing
Brown International
CAS, Inc.
CAS – Systems Engineering and Technical Assistance Support
Camber
CMI
DRS Technologies
General Dynamics
General Dynamics Land Systems
GNK Westland
Mevatec
Miltope Corporation
Northrop Grumman
Northrop Grumman Mission Systems
Raytheon
SAIC
Southeastern Testing Association (SETA)
Summa Technology
Washington Group International
Westwind

Alaska

EyakTek

Arizona

Armor Works
Boeing
General Dynamics
General Dynamics C4 Systems
General Dynamics Decision Systems
Honeywell
Northrop Grumman
Northrop Grumman Mission Systems
Raytheon
Raytheon/Bofors Defence
Robertson Aviation
Simula Safety Systems, Inc.
U.S. Army Information Systems Engineering Command

Arkansas

Aerojet
General Dynamics Ordnance and Tactical Systems
Lockheed Martin
Pine Bluff Arsenal
Washington Demilitarization Company

California

Aerojet
Armcel
Armtec Defense
AVTEL
Boeing
Ceradyne, Inc.
CERCOM
Composite Structures
Composix
DRS Technologies
GenCorp
General Dynamics Versatron
Hydro-Mill
Indigo Systems
Inter4
Lockheed Martin
Northrop Grumman
Northrop Grumman Information Technology
Northrop Grumman Mission Systems
Parker Hannifin
Raytheon
REMEC
SAIC
Secure Communications Systems, Inc.
Tapestry Solutions
Tecom
Thales Raytheon Systems
Titan Corp.

Colorado

GenCorp
ITT Industries
Lockheed Martin

Connecticut

Colt's Manufacturing
Condor Pacific
Ensign Bickford Aerospace and Defense
Fermont
Tru-Hitch
United Technologies

Florida

Advanced Systems Technology, Inc.
Alliant Techsystems
Assurance Technology Corporation (ASC)
Cubic Simulation Systems
CyTerra Corporation
DRS Technologies
Envionics USA, Inc.
General Dynamics
General Dynamics Ordnance and Tactical Systems
General Electric
Harris Corporation
Honeywell
Kaman Dayron
Lockheed Martin
Lockheed Martin Information Systems
M/A Com
MEADS International
Northrop Grumman
Northrop Grumman Electronic Systems
Northrop Grumman Information Technology
Point Blank Body Armor
Pro Tech
Raytheon
Sypris
Tall-Tech
Thales Raytheon Systems

Georgia

CSS
FATS, Inc.
Gulfstream
Heckler & Koch
Omega Training Group
SAIC

Illinois

Caterpillar Defense and Federal Products
E.D. Etnyre
General Dynamics Ordnance and Tactical Systems
Northrop Grumman
Olin Corporation
Recon Optical, Inc.
Rock Island Arsenal

Indiana

Allison Transmissions
AM General
Crossroads Industrial Services
Parsons Infrastructure & Technology
Raytheon
Raytheon Technical Services
Talbert Manufacturing

Iowa

American Ordnance
Cementech, Inc.
Rockwell Collins

Kansas

Cessna Aircraft
Detroit Diesel
Raytheon-Beechcraft

Kentucky

Dana Corporation
Ingersoll-Rand
Fontaine Trailer Company
South Eastern Kentucky Rehabilitation Industries

Louisiana

Bollinger/Incat USA
Textron Marine and Land Systems

Maine

Creative Apparel Associates
General Dynamics
Group Home Foundation/Belfast Industries, Inc.

Maryland

AAI Corporation
Bechtel Aberdeen
Bruhn NewTech
COMTECH Mobile Datacom
Johns Hopkins University Applied Physics Laboratory
Lear Siegler Services, Inc.
Litton Advanced Systems
Lockheed Martin Mission Systems
Naval Air Warfare Center Aircraft Division
Northrop Grumman
SESI
SFA Frederick Manufacturing
Smiths Detection
Thales Communications Systems
Titan Corp.

Massachusetts

Bruker Daltonics
CyTerra Corporation
General Dynamics
General Dynamics C4 Systems
General Electric
Lincoln Labs
Raytheon
Raytheon Systems Company Integrated Defense Systems
Wolf Coach, Inc./L-3 Communications

Michigan

AM General
American Systems Technology, Inc.
BioPort Corporation
Detroit Diesel
General Dynamics
General Dynamics Land Systems
General Motors
Green Metal Products
Holland Hitch
Howmet Castings
Meritor
Peckham Vocational Industries, Inc.
Second Chance Body Armor
Smiths
XMCO

Minnesota

Alliant Techsystems
Crysteel Manufacturing
Cummings Power
Honeywell

Mississippi

BAE Systems
Raytheon
Thales Raytheon Systems
Vickers

Missouri

Alliant Techsystems
Boeing
Eagle Industries, Inc.
Engineering Air Systems, Inc.
Systems and Electronics, Inc.

Nebraska

Duncan

Nevada

Sierra Nevada Corporation

New Hampshire

BAE Systems
Insight Technologies, Inc.

New Jersey

Allied Signal
BAE Systems
CACI
CECOM Software Engineering Center
Computer Sciences Corporation
Dewey Electronics
Engineering Professional Services
Engineering Solutions and Products
Information Systems Support, Inc.
Innolog
JANUS Research
Lockheed Martin
Madentech
Mitre
OPM Mortar Systems
SAIC

Contractors By State

New Mexico

Aerojet General
Honeywell

New York

BAE Systems
Carleton Technologies, Inc.
Computer Giant
Global Communications Solutions
Harris Corporation
IBM
L-3 Communications
Lockheed Martin
PM/Nammo
Telephonics Corp

North Carolina

ForceOne
General Dynamics
General Dynamics ATP Division

Ohio

CMC Electronics
Defiance
General Dynamics
General Dynamics Land Systems
GEP
L-3 Communications
O'Gara-Hess & Eisenhardt Armor Company
Rockwell/Meritor

Oklahoma

Engineering Professional Services
MCII
Titan Corp.

Oregon

Freightliner, LLC
Precision Castparts Corporation
Silver Eagle Manufacturing Company
Washington Demilitarization Company

Pennsylvania

Action Manufacturing
Boeing
Brashears, LP
Chamberlain Manufacturing
General Dynamics
General Dynamics Ordnance and Tactical Systems
Grove Worldwide
JLG, Inc.
L-3 Communications
Night Vision Equipment Company
Pennsylvania State University
Sechan Electronics
Specialty Defense Systems
United Defense, LP

South Carolina

FN Manufacturing
Michelin

Tennessee

Alliant Techsystems
American Ordnance
Aqua Chem
Heil Trailer International

Texas

APC
Austin Info Systems
BAE Systems
Bell Helicopter
DynCorp
EFW
Eclipse Electronic Systems
Fairchild
Kalyn Siebert
L-3 Communications
Lockheed Martin
M7 Aerospace
Mantech
National Center for the Employment of the Disabled (NCED)
Northrop Grumman
Raytheon
Scott Manufacturing
Stewart & Stevenson TVS, LLC
Textron

Utah

EG&G
Evans and Sutherland
Idaho Technologies
L-3 Communications
Moog

Vermont

BF Goodrich
General Dynamics
General Dynamics Armament and Technical Products (GDATP)

Virginia

Alliant Techsystems
Apptis
ARC
Argon
ATK
CACI
CherryRoad Technologies
Computer Sciences Corporation
DPA
FC Business Systems
GTSI Corporation
Heckler & Koch Defense
iGov
IBM
ITT Industries
L-3 Communications
LTI DATACOM
Lockheed Martin
Mantech
Northrop Grumman Mission Systems
Radian
Raytheon
SAIC
Signal Solutions
Smart Technologies
Sprint
SYTEX, Inc.
Titan Corp.
ZETA

Washington

General Dynamics Ordnance and Tactical Systems

West Virginia

Alliant Techsystems

Wisconsin

Alliant Techsystems
Oshkosh Truck Corporation
Oshkosh Truck Kewanee Fabrication, LLC
Phoenix Coaters, LLC
Pierce Manufacturing
Schutt Industries

Points of Contact

2.75" Family of Rockets; Advanced Precision Kill Weapon System (APKWS) and Hydra 70

ARM Project Office
ATTN: SFAE-MSL-ARM
Redstone Arsenal, AL 35898-8000

Abrams Upgrade

6501 E. 11 Mile Road
ATTN: SFAE-GCS-CS-A
Warren, MI 48397-5000

Advanced Field Artillery Tactical Data System (AFATDS)

Product Manager
Fire Support Command and Control
ATTN: SFAE-C3T-IE-E
Building 457
Fort Monmouth, NJ 07703-5404

Advanced Threat Infrared Countermeasures (ATIRCM)

PM IRCM
Building 5300
Sparkman Center
Redstone Arsenal, AL 35898-5000

Aerial Common Sensor (ACS)

PM ACS
Building 288
Fort Monmouth, NJ 07703

Air Warrior (AW)

PM Air Warrior
ATTN: SFAE-SDR-AW
Redstone Arsenal, AL 35898

Air/Missile Defense Planning and Control System (AMDPCS)

145 Research Boulevard
Building 12
Madison, AL 35758

Airborne Reconnaissance Low (ARL)

ATTN: SFAE-IEWS-SG
Building 288
Fort Monmouth, NJ 07703

All Source Analysis System (ASAS)

PMO, Intelligence and Effects
10115 Duportail Road
Fort Belvoir, VA 22060-5812

All Terrain Lifting Army System (ATLAS)

Product Manager, Combat Engineer/Material Handling Equipment
ATTN: SFAE-CSS-FP-C, MS, 401
6501 East Eleven Mile Road
Warren, MI 48397-5000

Analytical Laboratory System (ALS)

ATTN: SFAE-CBD-NBCCA
5183 Blackhawk Road
APG, MD 21010-5424

Armored Security Vehicle (M1117 ASV)

ATTN: Product Manager, Light Tactical Vehicles
SFAE-CSS-TV-L
6501 Eleven Mile Road, MS 245
Warren, MI 48397-5000

Army Airborne Command and Control System (A2C2S)

Project Manager, Tactical Operations Centers/Air and Missile Defense Command and Control Systems (PM TOCs/AMDCCS)
ATTN: SFAE-C3T-AD-A2
145 Research Boulevard
Madison, AL 35758

Army Data Distribution System (ADDS)/Enhanced Position Location Reporting System (EPLRS)

Building 456
Fort Monmouth, NJ 07703

Army Key Management System (AKMS)

PdM, NETOPS-CF
ATTN: SFAE-C3T-TRC-NETOPS-CF
Fort Monmouth, NJ 07703

Army Tactical Missile System (ATACMS)

Precision Fires Rocket and Missile Systems Project Office
ATTN: SFAE-MSL-PF-AT
Building 5250
Redstone Arsenal, AL 35898

Artillery Ammunition

PM Combat Ammunition Systems (PM CAS)
ATTN: SFAE-AMO-CAS
Picatinny Arsenal, NJ 07806-5000

Aviation Combined Arms Tactical Trainer-Aviation Reconfigurable Manned Simulator (AVCATT-A)

Air and Command Tactical Trainers, Product Manager
ATTN: SFAE-STRI-PM CATT-AC
12350 Research Parkway
Orlando, FL 32826-3276

Battle Command Sustainment Support System (BCS3)

PM Battle Command Sustainment Support System (BCS3)
ATTN: SFAE-C3T-GC-BCS3
10109 Gridley Road
Fort Belvoir, VA 22060

Biological Vaccine Program - Anthrax Vaccine Absorbed (AVA)

ATTN: SFAE-CBD-CBMS
64 Thomas Johnson Drive
Frederick, MD 21702-5041

Black Hawk (UH-60)

Utility Helicopters
Project Manager
ATTN: SFAE-AV-UH
Building 5308
Redstone Arsenal, AL 35898

Bradley Upgrade

6501 East Eleven Mile Road
ATTN: SFAE-GCS-CS
Warren, MI 48397-5000

Chemical Biological Protective Shelter (CBPS)

Commander
Naval Sea Systems Command
ATTN: SEA 05P5
1333 Isaac Hall SE
Washington Navy Yard
Washington, DC 20376-5150

Chemical Demilitarization

Chemical Materials Agency (CMA)
ATTN: AMSCM-D
5183 Blackhawk Road
APG-EA, MD 21010-5424

Chinook

PM Cargo Helicopters
ATTN: SFAE-AV-CH-ICH
Building 5678
Redstone Arsenal
Huntsville, AL 35898

Close Combat Tactical Trainer (CCTT)

12350 Research Parkway
Orlando, FL 32826-3276

Combat Service Support Automated Information Systems Interface (CAISI) and Combat Service Support Satellite Communications (CSS SATCOM)

Combat Service Support Automated Information System Interface (CAISI) Office
6700 Springfield Center Dr., Rm 106
Springfield, VA 22150

Common Hardware Systems (CHS)

Project Manager
Tactical Operations Centers (TOCs)/Air Defense Command & Control System (AMDCCS)
ATTN: SFAE-C3T-AD-TOC
145 Research Boulevard Madison, AL 35758

Construction Equipment Service Life Extension Program (CE SLEP)

Product Manager, Combat Engineer/Material Handling Equipment
ATTN: SFAE-CSS-FP-C, MS 401
6501 East Eleven Mile Road
Warren, MI 48397-5000

Conventional Ammunition Demilitarization

PM Demil
Attn: SFAE-AMO-JS
Bldg 171
Picatinny Arsenal, NJ 07806-5000

Countermine

PM-CSS
ATTN: SFAE-AMO-CCS
10205 Burbeck Road
Fort Belvoir, VA 22060-5811

Defense Satellite Communications System (DSCS)

ATTN: Project Manager
Defense Communications and Army Transmission Systems
Building 209
Fort Monmouth, NJ 07703-5509

Distributed Common Ground System-Army (DCGS-A)

ATTN: SFAE-IEWS-DCGS-A
Building 550
Saltzman Avenue
Fort Monmouth, NJ 07703-5301

Distributed Learning System (DLS)

PM DLS
ATTN: SFAE-PS-DL
11846 Rock Landing Drive
Newport News, VA 23606

Dry Support Bridge (DSB)

Product Manager, Combat Engineer/Material Handling Equipment (SFAE-CSS-FP-C) MS 401
6501 East Eleven Mile Road
Warren, MI 48397-5000

Engagement Skills Trainer (EST) 2000

PEO STRI
ATTN: SFAE-STRI-PM-CATT-GC
12350 Research Parkway
Orlando, FL 32826-3276

Engineer Mission Modules- Bituminous Distributor (EMM-BD), Concrete Mobile Mixer (EMM-CMM) and Dump Body (EMM-DB)

Product Manager, Combat Engineer/Material Handling Equipment
ATTN: SFAE-CSS-FP-C, MS 401
6501 East Eleven Mile Road
Warren, MI 48397-5000

Excalibur (XM982)

Combat Ammo Systems
ATTN: SFAE-AMO-CAS-EX
Building 171
Picatinny Arsenal, NJ 07806

Family of Loaders (FOL)

Product Manager, Combat Engineer/Material Handling Equipment
ATTN: SFAE-CSS-FP-C, MS 401
6501 East Eleven Mile Road
Warren, MI 48397-5000

Family of Medium Tactical Vehicles (FMTV)

ATTN: SFAE-CSS
6501 East Eleven Mile Road
Warren, MI 48397-5000

Fixed Wing

ATTN: SFAE-AV-AS-FW
Building 5308
Redstone Arsenal, AL 35898-5000

Force XXI Battle Command Brigade-and-Below (FBCB2)

ATTN: SFAE-C3T-FB-BMD
Building 2525, Bay 2
Fort Monmouth, NJ 07703-5408

Forward Area Air Defense Command and Control (FAAD C2)

145 Research Boulevard
Building 12
Madison, AL 35758

Forward Repair System (FRS)

PM SKOT - Forward Repair System (FRS)
ATTN: AMSTA-LC-CTT-M
Building 104, 1st Floor, East Wing
Rock Island, IL 61299-7630

Future Combat Systems (FCS)

SAAL-SSI
Washington, DC 20310

Points of Contact

Future Tactical Truck System - Maneuver Sustainment Vehicle (FTTS - MSV) and Utility Vehicle (FTTS-UV)

ATTN: SFAE-CS-TV
MS 414
6501 East Eleven Mile Road
Warren, MI 48397-5000

Global Combat Support System-Army (GCSS-Army)

PM LIS
800 Lee Avenue, Bldg 5100
Fort Lee, VA 23801-1718

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

PEO C3T
ATTN: SFAE-C3T-GC
Building 5100
Fort Monmouth, NJ 07703-5404

Global Positioning System (GPS)

ATTN: SFAE-IEW&S-NS-GPS
2420 Vela Way, Suite 1866
El Segundo, CA 90245

Guardrail/Common Sensor (GR/CS)

SFAE-IEWS-SG
Building 288
Fort Monmouth, NJ 07703

Guided Multiple Launch Rocket System (GMLRS)

Precision Fires Rocket and Missile Systems Project Office
ATTN:SFAE-MSL-PF-PGM/R
Building 5250
Redstone Arsenal, AL 35898

Heavy Expanded Mobility Tactical Truck (HEMTT)

ATTN: SFAE-CSS-TV-H
MS 429
6501 East Eleven Mile Road
Warren, MI 48397-5000

High Mobility Artillery Rocket System (HIMARS)

Precision Fires Rocket and Missile Systems Project Office
ATTN: SFAE- MSL- PF-FAL
Building 5250
Redstone Arsenal, AL 35898

High Mobility Engineer Excavator (HMEE)

Product Manager, Combat Engineer/Material Handling Equipment
ATTN: SFAE-CSS-FP-C, MS 401
6501 East Eleven Mile Road
Warren, MI 48397-5000

High Mobility Multipurpose Wheeled Vehicle (HMMWV)

Product Manager Light Tactical Vehicles
ATTN: SFAE-CSS-TV-L
6501 Eleven Mile Road, MS 245
Warren, MI 48397-5000

Improved Ribbon Bridge (IRB)

Product Manager
Combat Engineer/Material Handling Equipment (SAFE-CSS-FP-C) MS 401
6501 East Eleven Mile Road
Warren, MI 48397-5000

Improved Target Acquisition System (ITAS)

Project Manager
CCWS Project Office
ATTN: SFAE-MSL-CWS
Building 4505
Redstone Arsenal, AL 35898-5750

Integrated Family of Test Equipment (IFTE)

Product Manager - Test, Measurement and Diagnostic Equipment
Building 5300
Redstone Arsenal, AL 35898-5000

Integrated System Control (ISYSCON) (V)4/ Tactical Integrated System Control (v)4/Tactical Internet Management System (TIMS)

PdM, Netops-CF
ATTN: SFAE-C3T-TRC-NETOPS-CF
Fort Monmouth, NJ 07703

Interceptor Body Armor (IBA)

ATTN: SFAE-SDR-EQ
10170 Beach Road
Building 325
Fort Belvoir, VA 22060-5800

Javelin

Project Manager, Close Combat Weapon Systems Project Office
ATTN: SFAE-MSL-CWS-J
Redstone Arsenal, AL 35898

Joint Biological Agent Identification Diagnostic System (JBAIDS)

ATTN: SFAE-CBD-CBMS
64 Thomas Johnson Drive
Frederick, MD 21702-5041

Joint Biological Point Detection System (JBPDS)

ATTN: SFAE-CBD-NBC-J
5183 Blackhawk Road
APG, MD 21010-5424

Joint Biological Standoff Detection System (JBSDS)

Joint Project Manager
NBC Contamination Avoidance
5183 Blackhawk Road
Building E4465
APG, MD 21010-5424

Joint Chemical Agent Detector (JCAD)

ATTN: SFAE-CBD-NBC-D
5183 Blackhawk Road
APG, MD 21010-5424

Joint Combat Identification Marking System (JCIMS)

ATTN: SFAE-IEWS-NS-TIMS
Avenue of Memories (563)
Fort Monmouth, NJ 07703

Joint Common Missile

Joint Common Missile Project Office
ATTN: SFAE-MSL-CM
5250 Martin Road
Redstone Arsenal, AL 35898-8000

Joint Effects Model (JEM)

Space and Naval Warfare Systems Command
4301 Pacific Highway
San Diego, CA 92110

Joint Land Attack Cruise Missile Defense (LACMD) Elevated Netted Sensors System (JLENS)

PEO Air, Space and Missile Defense
ATTN: SFAE-ASMD-JLN
P.O. Box 1500
Huntsville, AL 35807-3801

Joint Network Management System (JNMS)

PdM, NETOPS-CF
ATTN: SFAE-C3T-TRC-NETOPS-CF
Fort Monmouth, NJ 07703

Joint Service Lightweight Integrated Suit Technology (JSLIST)

Marine Corps Systems Command
ATTN: NBCDS
2200 Lester Avenue
Quantico, VA 22134

Joint Service Lightweight Nuclear Biological Chemical Reconnaissance System (JSLNBCRS)

ATTN: SFAE-CBD-NBC-R
5183 Blackhawk Road
APG, MD 21010-5424

Joint Service Lightweight Standoff Chemical Agent Detector (JSLSCAD)

ATTN: SFAE-CBD-NBC-D
5183 Blackhawk Road
APG, MD 21010-5424

Joint Tactical Ground Station (JTAGS)/Multi-Mission Mobile Processor (M3P)

PEO Air, Space and Missile Defense
ATTN: SFAE-ASMD-AMD-JTG
P.O. Box 1500
Huntsville, AL 35807-3801

Joint Tactical Radio System (JTRS) Cluster 1

PM WIN-T
Building 739
Fort Monmouth, NJ 07703

Joint Tactical Radio System (JTRS) Cluster 5

PM WIN-T
Building 739
Fort Monmouth, NJ 07703

Joint Tactical Radio System (JTRS) Joint Program Office (JPO) Waveforms

Director, Joint Tactical Radio System, Joint Program Office
1777 North Kent Street
Arlington, VA 22209

Joint Warning and Reporting Network (JWARN)

Space and Naval Warfare Systems Command
4301 Pacific Highway
San Diego, CA 92110

Kiowa Warrior

Product Manager
ATTN: SFAE-AV-AS-ASH
Building 5308
Sparkman Center
Redstone Arsenal, AL 35898

Land Warrior (LW)

ATTN: SFAE-SDR-SWAR
Building 317
10125 Kingman Road
Fort Belvoir, VA 220260-5820

Light Equipment Transport (LET)

SFAE-CSS-HT
MS 429
6501 East Eleven Mile Road
Warren, MI 48397-5000

Lightweight 155mm Howitzer (LW 155)

Project Manager
ATTN: SFAE-GCS-JLW
Picatinny Arsenal, NJ 07806-5000

Line Haul Tractor M915A3

ATTN: SFAE-CSS-HT
MS 429
6501 East Eleven Mile Road
Warren, MI 48397-5000

Line-of-Sight Anti-Tank (LOSAT)

Project Manager, CCWS Project Office
ATTN: SFAE-MSL-CWS-A
Building 4505
Redstone Arsenal, AL 35898-5750

Lightweight Laser Designator Rangefinder (LLDR)

Lightweight Laser Designator Rangefinder (LLDR)
ATTN: SFAE-SDR-EQ
10170 Beach Road
Building 325
Fort Belvoir, VA 22060-5800

Apache

Project Manager Apache
Building 5681
Redstone Arsenal, AL 35898-5000

Longbow Hellfire

ARM Project Office
ATTN: SFAE-MSL-ARM
Redstone Arsenal, AL 35898-8000

Maneuver Control System (MCS)

PM GCC2
ATTN: SFAE-C3T-GC-B
Fort Monmouth, NJ 07703

Medical Communications for Combat Casualty Care (MC4)

Product Manager, MC4
ATTN: SFAE: EIS-MC4, 524 Palacky Street
Fort Detrick, MD 21702-9241

Medium Caliber Ammunition

Product Manager Small and Medium Caliber Ammunition
Building 354
Picatinny Arsenal, NJ 07806-5000

Medium Extended Air Defense System (MEADS)

PATRIOT/MEADS COMBINED AGGREGATE PROGRAM (CAP)
Program Executive Office
Air, Space and Missile Defense
ATTN: SFAE-ASMD-LT-MEADS
P.O. Box 1500
Huntsville, AL 35807-3801

Points of Contact

Meteorological Measuring Set - Profiler (MMS-P)

Target Identification & Meteorological Sensors (PM TIMS)
ATTN: SFAE-IIEWS-NS-TIMS
Avenue of Memories (563)
Fort Monmouth, NJ 07703

Mobile Tactical High Energy Laser (MTHL)

PEO Air, Space and Missile Defense
ATTN: SFAE-ASMD-SHO-DE
Redstone Arsenal, AL 35898-5000

Mortar Systems

ATTN: SFAE-AMO-CAS-MS
Building 162 South
Picatinny Arsenal, NJ 07806

Movement Tracking System (MTS)

Movement Tracking System
Project Manager, Logistics Information Systems
800 Lee Avenue, Bldg 5100
Fort Lee, VA 23801-1718

Night Vision Devices

PM Sensors and Lasers
ATTN: SFAAE-SDR-SEN
10170 Beach Road
Building 325
Fort Belvoir, VA 22060

Non-Line of Sight-Launch System (NLOS-LS)

(NLOS-LS)Director, NLOS-LS Task Force
ATTN: SFAE-MSLNL
Building 5250, Room B300
Redstone Arsenal, AL 35898-5750

Nuclear Biological and Chemical Reconnaissance Vehicle (NBCRV) - Stryker

ATTN: SFAE-CBD-NBC-R
5183 Blackhawk Road
APG, MD 21010-5424

Paladin

Product Manager
ATTN: AMSTA-DSA-PF
Picatinny Arsenal, NJ 07806-5000

Palletized Load System (PLS)

Palletized Load System (PLS)
ATTN: SFAE-CSS-TV-H
MS 429
6501 East Eleven Mile Road
Warren, MI 48397-5000

Patriot (PAC-3)

Program Executive Office
Air, Space and Missile Defense
ATTN: SFAE-ASMD-LT-PM-RM
P.O. Box 1500
Huntsville, AL 35807-3801

Precision Guided Mortar Munition (PGMM)

Precision Guided Mortar Munitions (PGMM)
ATTN: SFAE-AMO-CAS-MS
Picatinny Arsenal, NJ 07806-5000

Prophet

PM SW
ATTN: SFAE-IEW&S-SG
Building 288
Sherrill Avenue
Fort Monmouth, NJ 07703

Rapid Equipping Force (REF)

Rapid Equipping Force
10236 Burbeck Road
Fort Belvoir, Virginia 22060

Rapid Fielding Initiative (RFI)

Rapid Fielding Initiative (RFI)
Program Executive Office Soldier
5901 Putman Road
Building 317
Fort Belvoir, VA 22060-5422

Secure Mobile Anti-Jam Reliable Tactical-Terminal (SMART-T)

PM WIN-T
ATTN: SFAE-C3T-WIN-ESS
Fort Monmouth, NJ 07703-5508

Sentinel

PEO Air, Space and Missile Defense
ATTN: SFAE-ASMD-SHO
Redstone Arsenal, AL 35898-5000

Small Arms

Small Arms U.S. Army Armament Research, Development and Product Manager
ATTN: AMSTA-DSA-SA
Picatinny Arsenal, NJ 07806-5000

Small Caliber Ammunition

Product Manager Small and Medium Caliber Ammunition
Building 354
Picatinny Arsenal, NJ 07806-5000

Stryker

ATTN: SFAE-GCS-BCT MS 325
6501 East Eleven Mile Road
Warren, MI 48397-5000

Surface Launched Advanced Medium Range Air-to-Air Missile (SLAMRAAM)

PEO Air, Space and Missile Defense
ATTN: SFAE-ASMD-SHO
Redstone Arsenal, AL 35898-5000

Tactical Electric Power (TEP)

Tactical Electric Power
10205 Burbeck Road
Fort Belvoir, VA 22060-5863

Tactical Fire Fighting Truck (TFFT)

ATTN: SFAE-CSS-TV-HT
MS 429
6501 East Eleven Mile Road
Warren, MI 48397-5000

Tactical Operations Center (TOC)

Tactical Operations Center (TOC)
145 Research Boulevard
Building 12
Madison, AL 35758

Tactical Unmanned Aerial Vehicle (TUAV)

Product Manager
Unmanned Aerial Vehicle Systems
ATTN: SFAE-AV-UAVS
Restone Arsenal, AL 35898

Tactical Water Purification System (TWPS)

Product Manager
Petroleum and Water Systems
ATTN: SFAE-CSS-FP-P
Warren, MI 48397

Tank Ammunition

Project Manager
Maneuver Ammunition Systems
Picatinny Arsenal, NJ 07806

Theater Support Vessel (TSV)

Product Manager
Army Watercraft Systems
ATTN: SFAE-CSS-FP-W
Warren, MI 48397-5000

Thermal Weapon Sight

PM Sensors and Lasers
ATTN: SFAAE-SDR-SEN
10170 Beach Road
Building 325
Fort Belvoir, VA 22060

Trailers

ATTN: SFAE-CSS-TV-T
Warren, MI 48397-5000

Transportation Coordinators' Automated Information for Movement System II (TC-AIMS II)

8000 Corporate Court
Springfield, VA 22153

TOW Missiles

Project Manager, CCWS Project Office
ATTN: SFAE-MSL-CWS-F
Building 4505
Redstone Arsenal, AL 35898-5750

Unified Command Suite (UCS)

ATTN: SFAE-CBD-NBCCA
5183 Blackhawk Road
APG, MD 21010-5424

Warfighter Information Network (WIN)-Tactical

Project Manager, WIN-Tactical
ATTN: SFAE-C3T-WIN
Building 909
Murphy Dr.
Fort Monmouth, NJ 07703

Warfighters Simulation (WARSIM)

PEO STRI, PM Constructive Simulation
12350 Research Parkway
Orlando, FL 32826

XM8 Modular Assault Weapon

XM8 Modular Assault Weapon System
ATTN: SFAE-SDR-SW
Building 151
Picatinny Arsenal, NJ 07806

XM25 Airburst Weapon

XM25 Airburst Weapon System
ATTN: SFAE-SRD-SW
Building 151
Picatinny Arsenal, NJ 07806

XM101 Common Remotely Operated Weapon Station

Attn: SFAE-SDR-CSW
Building 151
Picatinny Arsenal, NJ

XM307 Advanced Crew Served Weapon System

XM307 Weapon System
ATTN: SFAE-SRD-SW
Building 151
Picatinny Arsenal, NJ 07806

Foreign Military Sales by System

2.75" Family of Rockets; Advanced Precision Kill Weapon System (APKWS) and Hydra 70

APKWS: None

Hydra 70: Denmark, Egypt, Jordan, Kuwait, Netherlands, Columbia, Saudi Arabia, Singapore, Thailand, Tunisia, UAE, Taiwan, and Japan

Abrams Upgrade

Egypt: 1005 M1A1 Kits; Kuwait: 218 M1A2s; Saudi Arabia: 315 M1A2s; Australia: 59 M1A1

Advanced Field Artillery Tactical Data System (AFATDS)

Egypt, Bahrain, Portugal, Turkey

Advanced Threat Infrared Countermeasures (ATIRCM)

None

Aerial Common Sensor (ACS)

None

Air Warrior

None

Air/Missile Defense Planning and Control System (AMDPCS)

None

Airborne Reconnaissance Low (ARL)

None

All Source Analysis System (ASAS)

None

All Terrain Lifting Army System (ATLAS)

Egypt, Turkey, Afghanistan

Analytical Laboratory System (ALS)

None

Apache

Egypt, Greece, Israel, Kuwait, Netherlands, Saudi Arabia, Singapore, United Arab Emirates (UAE)
Direct Commercial Sales: Japan and the United Kingdom

Armored Security Vehicle (ASV)

Pending to Iraq

Army Airborne Command and Control System (A2C2S)

None

Army Data Distribution System/Enhanced Position Location Reporting System (ADDS/EPLRS)

None

Army Key Management System (AKMS)

None

Army Tactical Missile System (ATACMS)

Bahrain, Greece, South Korea, Turkey

Artillery Ammunition

Numerous foreign countries purchase U.S. ammunition

Aviation Combined Arms Tactical Trainer – Aviation Reconfigurable Manned Simulator (AVCATT-A)

None

Battle Command Sustainment Support System (BCS3)

None

Biological Vaccine Program - Anthrax Vaccine Adsorbed (AVA)

Australia (approved), Germany (approved), Israel (pending)

Black Hawk (UH-60)

Bahrain, Colombia, Egypt, Israel, Saudi Arabia
Commercial Sales: Argentina, Austria, Australia, Bahrain, Brazil, Brunei, China, Greece, Xianggang, Japan, Jordan, Malaysia, Mexico, Morocco, Philippines, Spain, Taiwan, Thailand, Turkey
Co-production: Republic of Korea

Bradley Upgrade

Bradley M2A2s: Saudi Arabia

Chemical Biological Protective Shelter (CBPS)

None

Chemical Demilitarization

None

Chinook

Australia, Egypt, Greece, Taiwan. Direct Sales: Korea, Netherlands, Singapore, Spain, and United Kingdom

Close Combat Tactical Trainer (CCTT)

None

Combat Service Support Automated Information Systems Interface (CAISI)

None

Common Hardware Systems (CHS)

None

Construction Equipment Service Life Extension Program (CE SLEP)

None

Conventional Ammunition Demilitarization

None

Countermine

None

Defense Satellite Communications System (DSCS)

None

Distributed Common Ground System-Army (DCGS-A)

None

Distributed Learning System (DLS)

None

Dry Support Bridge (DSB)

None

Engagement Skills Trainer (EST) 2000

Israel

Engineer Mission Modules (EMM)

None

Excalibur XM982

None

Family of Loaders (FOL)

None

Family of Medium Tactical Vehicles (FMTV)

Greece, Macedonia, Saudi Arabia, Taiwan, Thailand, Jordan, Djibouti

Fixed Wing

Egypt: Beechcraft-200 (C-12) maintenance services;
Greece: two Beechcraft-200s (C-12), plus modifications;
Israel: eight Beechcraft-200s (C-12), plus modifications, with a four-additional-aircraft option

Force XXI Battle Command Brigade-and-Below (FBCB2)

None

Forward Area Air Defense Command and Control (FAAD C2)

Approved FMS case with Egypt

Forward Repair System (FRS)

None

Future Combat Systems (FCS)

None

Future Tactical Truck System - Maneuver Sustainment Vehicle (FTTS - MSV)

None

Global Combat Support System-Army (GCSS-Army)

None

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

None

Global Positioning System (GPS)

PPS-capable GPS receivers have been sold to 38 authorized countries.

Guardrail Common Sensor (GR/CS)

None

Guided Multiple Launch Rocket System (GMLRS)

None

Heavy Expanded Mobility Tactical Truck (HEMTT)

Most significant recent sales have been to Korea, Turkey, Saudi Arabia, Egypt, and Israel.

High Mobility Artillery Rocket System (HIMARS)

None

High Mobility Engineer Excavator (HMEE)

None

High Mobility Multipurpose Wheeled Vehicle (HMMWV)

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

Improved Ribbon Bridge (IRB)

None

Improved Target Acquisition System (ITAS)

NATO Maintenance and Supply Agency, and Canada

Integrated Family of Test Equipment (IFTE)

Bahrain, Djibouti, Egypt, Ethiopia, Jordan, Korea, Kuwait, Lithuania, Macedonia, Morocco, Poland, Saudi Arabia, Taiwan, United Arab Emirates, Uzbekistan, Yemen

Integrated System Control (ISYSCON) (V)4/Tactical Integrated System Control (v)4/Tactical Internet Management System (TIMS)

None

Interceptor Body Armor (IBA)

None

Javelin

United Kingdom, Australia, Ireland, Jordan, Lithuania, Taiwan, Norway, and New Zealand

Joint Biological Agent Identification Diagnostic System (JBAIDS)

None

Joint Biological Point Detection System (JBPDS)

None

Joint Biological Standoff Detection System (JBSDS)

None

Joint Chemical Agent Detector (JCAD)

None

Joint Combat Identification Marking System (JCIMS)

None

Joint Common Missile (JCM)

None

Joint Effects Model (JEM)

None

Joint Land Attack Cruise Missile Defense Elevated Netted Sensors System (JLENS)

None

Joint Network Management System (JNMS)

None

Joint Service Lightweight Integrated Suit Technology (JSLIST)

Egypt

Joint Service Lightweight Nuclear Biological Chemical Reconnaissance System (JSLNBCRS)

None

Joint Service Lightweight Standoff Chemical Agent Detector (JSLSCAD)

None

Joint Tactical Ground Station/Multi-Mission Mobile Processor (JTAGS M3P)

None

Joint Tactical Radio System (JTRS) Cluster 1

None

Joint Tactical Radio System (JTRS) Cluster 5

None

Joint Tactical Radio System (JTRS) Waveforms

None

Joint Warning and Reporting Network (JWARN)

None

Kiowa Warrior

Taiwan: Delivery of 39 Kiowa Warriors (not system enhancement program [SEP] configuration) completed.

Foreign Military Sales by System

Land Warrior (LW)

LW has been demonstrated to more than 40 foreign countries, many of which (including the United Kingdom, Australia, Canada, and the Netherlands) have expressed continued interest in LW technology. Panel III NATO has approved the NATO Soldier Modernization Plan, which includes a requirement for the LW.

Light Equipment Transport (LET)

20 each for Afghanistan

Lightweight 155mm Howitzer (LW 155)

The LW 155 development was a cooperative effort with both the United Kingdom and Italy. A cooperative production agreement with the United Kingdom provides for 34 to 45 additional systems.

Lightweight Laser Designator Rangefinder (LLDR)

None

Line Haul Tractor

None

Line-of-Sight Anti-Tank (LOSAT)

None

Longbow Hellfire

Singapore, Israel, Kuwait
Direct Commercial Sale: United Kingdom

Maneuver Control System (MCS)

None

Medical Communications for Combat Casualty Care (MC4)

None

Medium Caliber Ammunition

None

Medium Extended Air Defense System (MEADS)

None

Meteorological Measuring Set - Profiler (MMS-P)

None

Mobile Tactical High Energy Laser (MTHL)

None

Mortar Systems

None

Movement Tracking System (MTS)

None

Night Vision Devices

Numerous foreign countries purchase AN/PVS-7 and AN/PVS-14. ENVG: none

Non-Line of Sight-Launch System (NLOS-LS)

None

Nuclear Biological and Chemical Reconnaissance Vehicle (NBCRV) - Stryker

None

Paladin

M109A6 Paladin: None.
Older M109 models: Numerous

Palletized Load System (PLS)

None

PATRIOT

Germany, Greece, Israel, Japan, Kuwait, Saudi Arabia, Taiwan, and the Netherlands are currently participating in PATRIOT acquisition programs.

Precision Guided Mortar Munition (PGMM)

None

Prophet

None

Rapid Equipping Force (REF)

None

Rapid Fielding Initiative (RFI)

None

Secure Mobile Anti-Jam Reliable Tactical-Terminal (SMART-T)

A memorandum of understanding was signed with Canada, the United Kingdom, and the Netherlands for the development, production, and operational and support phase of the AEHF satellite program.

Sentinel

Egypt, Lithuania, Turkey

Small Arms

Numerous countries buy U.S. small arms

Small Caliber Ammunition

None

Stryker

Israel – 3 x ICV's

Surface Launched Advanced Medium Range Air-to-Air Missile (SLAMRAAM)

None

Tactical Electric Power (TEP)

Tactical quiet generators have been purchased by: Egypt, Israel, Korea, Kuwait, Saudi Arabia, Turkey, United Arab Emirates, and eleven other countries.

Tactical Fire Fighting Truck (TFFT)

None

Tactical Operations Center (TOC)

None

Tactical Unmanned Aerial Vehicle (TUAV)

None

Tactical Water Purification System (TWPS)

None

Tank Ammunition

M829: Kuwait, Saudi Arabia; M830: Kuwait, Egypt
KE-W/A1 and KE-W/A2: Egypt

Theater Support Vessel (TSV)

None

Thermal Weapon Sight

None

TOW Missiles

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

Trailers

None

Transportation Coordinators' Automated Information for Movement System II (TC-AIMS II)

None

Unified Command Suite (UCS)

None

Warfighter Information Network (WIN)-Tactical

None

Warfighters Simulation (WARSIM)

None

XM8 Modular Assault Weapon

None

XM25 Airburst Weapon

None

XM101 Common Remotely Operated Weapon Station

None

XM307 Advanced Crew Served Weapon System

None

Design & Layout:

Integrated Communications Team, SAIC

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