

AMERICAN FORCES PRESS SERVICE
(JULY 22, 2004)

**ARMY ACCELERATES
FUTURE COMBAT SYSTEM**

Jim Garamone

WASHINGTON—For the Army, the future is now. Army officials are accelerating the delivery of selected future combat systems to the current force. Under the program, the Army will speed up deployment of some segments of the system. They will begin reaching the field in fiscal 2008, rather than in fiscal 2014.

“We are an Army at war for a nation at war,” said Lt. Gen. Benjamin Griffin, the Army’s deputy chief of staff for force development. “The technological improvements inherent in the future combat systems can and should be incorporated into the current forces as they become available.”

In addition, the number of brigades equipped with future combat systems technology will speed up. The first FCS unit will be fielded in fiscal 2008, with 32 brigades so equipped by fiscal 2014. Under the old plan, the first unit was set for 2012.

“The Army is committed to providing our soldiers the best equipment possible, and the future combat systems will remain the cornerstone of the Army’s transformational program,” Griffin said.

The Service took the lessons learned from combat actions in Afghanistan and Iraq, he noted, and applied them to the future combat system. “These changes will mature and accelerate the most promising technologies within the FCS,” Griffin said. The systems will cost \$92 billion through 2014, officials said. The money to speed up the deployment comes from the canceled Comanche helicopter and Crusader artillery systems, Army officials said.

The five technologies that will be accelerated are the non-line-of sight cannon, the non-line-of-site launch system, the unattended ground sensors, two classes of unmanned aerial vehicles, and armed robotic vehicles.

At the system’s heart is an integrated network that gives unprecedented situational awareness to soldiers. The move will increase the connectivity and intelligence sharing within combat formations, Griffin said. This “spiral development” approach allows the Army to incorporate technological developments as new technologies ma-

“When the 3rd Infantry Division goes back to Iraq, they will have a much different networking capability than they had when they went north (to Baghdad) the first time.”

—Army Lt. Gen. Joseph Yakovac
military deputy to the assistant
secretary of the Army (acquisition,
logistics and technology)



ture, while allowing the Army to work on how to incorporate the changes in the new brigade combat teams.

“We are already growing that network,” said Lt. Gen. Joseph Yakovac, military deputy to the assistant secretary of the Army (acquisition, logistics and technology). “When the 3rd Infantry Division goes back to Iraq, they will have a much different networking capability than when they went north (to Baghdad) the first time.”

Part of what is driving this is the hothouse growth of technology. Yakovac cited the growth of wireless technologies as an example. The Army now, for example, has a tactical operations center running wireless.

AMERICAN FORCES PRESS SERVICE
(JULY 23, 2004)

**DOD USHERS IN
NEW MISSILE DEFENSE CAPABILITY**

Sgt. 1st Class Doug Sample, USA

WASHINGTON—A historic moment took place July 22 at Fort Greely, Alaska, as the first ground-based missile interceptor (GBI) was placed in an underground silo at the missile defense complex there.

Army Maj. Gen. John W. Holly said the emplacement of the interceptor “marks the end of an era where we have not been able to defend our country against long-range ballistic missile attacks.” He is the director for the Missile Defense Agency’s Ground-based Midcourse Defense Joint Program Office.

Holly noted there are countries that possess weapons of mass destruction and have the ability to launch ballistic missiles that could impact the United States.

The Alaska interceptor emplacement took place the same day that the House and Senate approved the \$417 billion fiscal 2005 DoD budget. About \$10 billion of that

money goes for missile defense. The defense authorization bill now goes to President Bush for signature.

Missile Defense Agency (MDA) spokesman Chris Taylor said up to five more interceptors will be emplaced at Fort Greely, located 100 miles from Fairbanks, by the end of 2004. The agency hopes to have up to 10 more interceptors emplaced by the end of 2005, he added.

The July 22 event signaled the first interceptor in the ground for the MDA, the outcome of President Bush's December 2002 directive that the secretary of defense provide an initial capability in 2004. The system was developed in response to a near-term ballistic missile threat to the United States, deployed forces, and allied countries.

The emplacement of the first GBI does not mean the missile defense system is operational, according to an MDA release. This will happen after more interceptors are emplaced and the interconnected architecture of



The first ground-based interceptor is lowered into its silo at the missile defense complex at Fort Greely, Alaska, July 22. The interceptor is designed to destroy incoming intercontinental ballistic missiles before they reach U.S. airspace.

DoD Photo

radars, sensors, battle management and command, control, and communications is activated.

In December 2001, President Bush gave Russia six months' notice that the United States was withdrawing from its Anti-Ballistic Missile (ABM) Treaty in order to pursue an ABM system.

DoD's initial plan for a missile defense capability called for up to 20 GBIs capable of intercepting and destroying intercontinental ballistic missiles during the midcourse phase of flight, a period that offers the greatest opportunity for a "hit to kill."

In addition to those planned for Fort Greely, another four are slated for Vandenberg Air Force Base, Calif., by 2005. The plan also calls for sea-based interceptors to be employed on existing Navy Aegis-class ships for a shoot-down capability against short- and medium-range ballistic missiles threatening the United States.

Up to 15 Aegis-class destroyers and three cruisers will be equipped with a long-range surveillance and tracking capability by the end of calendar 2006. The cruisers will also have the capability of shooting down potential enemy threats with the Standard Missile-3.

The department also seeks to deploy air-transportable Patriot Advanced Capability-3 systems as another means to stop short- and medium-range missiles.

The plans also call for targeting incoming missiles by using land-, sea-, and space-based sensors and existing early-warning satellites, as well as upgraded radar now located at Shemya, Alaska. By the end of calendar year 2005, a sea-based x-band radar will also be in place at Adak, Alaska.

In addition, DoD requested that the United Kingdom and the Kingdom of Denmark upgrade early-warning radars on their territory.

AMERICAN FORCES PRESS SERVICE (JULY 27, 2004) FUTURE WARRIOR EXHIBITS SUPER POWERS

Phil Copeland

WASHINGTON—The Army's future soldier will resemble something out of a science fiction movie, members of Congress witnessed at a demonstration on Capitol Hill July 23.

The newest concepts for lightweight, lethal uniform systems to be worn by the future soldiers in battle were displayed at the Russell Senate Building in Washington, D.C.

Two uniform systems are under development. The Future Force Warrior system will be available for fielding to soldiers in 2010. The Vision 2020 Future Warrior system, which will follow on the concept of the 2010 Future Force Warrior system, is scheduled to be ready 10 years later.

The two new uniform systems are being developed under the Future Combat System program. "This Army initiative will develop and demonstrate revolutionary capabilities for the future soldiers in battle," said Jean-Louis "Dutch" DeGay, a Soldier Systems Center representative.

The new systems include a weapon, head-to-toe individual protection, onboard computer network, soldier-worn power sources, and enhanced human performance.



U.S. Army Staff Sgt. Raoul Lopez (left) poses in the new 2020 Future Warrior uniform system, while Army Sgt. Dan Harshman dons the 2010 Future Force Warrior uniform system. They were part of the Future Warrior exhibit for congressmen and their staff members on Soldier Modernization Day, July 23, on Capitol Hill in Washington.

Photo by Phil Copeland

"The Future Force Warrior will be a responsive and formidable member of an invincible battlespace team," DeGay explained, describing the system scheduled to be fielded by 2010.

"The 2010 Future Force Warrior system will meet the more immediate, short-term demands of our fighting warriors in the battlespace, while the 2020 model will remind you of an ominous creature out of a science fiction movie," DeGay said. He added that the system will leverage all the technologies and lessons learned from Afghanistan and Iraq.

Soldiers deployed to Afghanistan and Iraq carry large amounts of external weight, often 120 pounds or more, to be battle-ready. DeGay said the new uniform system—from head to toe—weighs 50 pounds.

The body armor of the new uniforms will absorb the shock of a bullet much better than current bulletproof vests. "The hard body armor has been stood off the body by 2½ to 3 inches, so when the soldier is shot, the force is more evenly distributed to decrease injuries such as broken ribs," DeGay described.

Soldiers will be able to chat online with each other while they are walking down a jungle trail. The new system has the ability for each soldier to be tied into tactical local and wide-area networks with an onboard computer that sits at the base of the soldier's back. "We essentially call the 2010 soldier an 'F-16 on legs' because it gives soldiers the same capabilities as they would normally have on aircraft and other platforms," DeGay explained. The F-16 is an Air Force fighter jet.

Soldiers will also be able to share data with vehicles, aircraft, and other individual soldiers. "If an Apache helicopter was deployed forward and recorded real-time video of the enemy, the helicopter can send the video back to an individual soldier to observe," he said, with obvious enthusiasm and excitement for the new uniform system.

As has been seen in science-fiction movies, a dropdown piece of eyewear from the helmet allows the soldier to see a 17-inch computer screen displaying anything relayed to the soldier. "This eyewear device is see-through, so it hangs out in space," DeGay said. This allows soldiers to take in all supporting data while keeping both hands on their weapons.

Soldiers wearing the new system will have no need for an external microphone to communicate. "The helmet

has sensors that register vibrations of the cranial cavity so I don't have to have a microphone in my mouth. That allows the soldier to control the entire computer via voice-activation," DeGay explained. Soldiers will be able to cycle through onboard menus via their eyewear device.

The onboard computer will monitor soldiers' overall physiological picture of how they are performing in the battle zone. "Warrior Physiological Status Monitoring System gives the soldier's body core temperature, skin temperature, heart rate, whether the soldier is standing or prone, and how much water the soldier has drunk," DeGay said.

A medic, who can be miles away, will now be able to diagnose and treat a soldier who is about to have sunstroke, without even physically seeing the soldier. "So a medic can see how the soldier's core body temperature is rising (and) heart rate is falling, and the soldier then knows to go directly to the medic for treatment," DeGay said. "The computer will drop down a map to direct the soldier where to find the medic for help." He pointed out that with the new system commanders will be able to consider each soldier, aircraft, and vehicle as part of a node of a tactical network that shares data with each other, sending and receiving data inside the battlespace.

The second uniform system, the Vision 2020 Future Warrior concept, will follow the 2010 Future Force Warrior with more advanced nanotechnology. Nanotechnology deals with the creation of incredibly small materials, devices, or systems with a scaled-down size of 100 nanometers or less. A nanometer is a metric measurement equivalent to one billionth of a meter.

"If we were in Detroit, the 2020 Future Warrior system would be the concept car. It leverages a lot of the nanowork being done by the Massachusetts Institute for Technology," DeGay said, noting the Army just awarded MIT a five-year, \$50 million program to establish the Institute for Soldier Nanotechnologies.

Think about a good action movie that shows an average person walking down a street with a nice designer suit. All of a sudden, gunshots are heard and just before a bullet hits this person, his soft fabric suit transforms into an incredible display of alien armor that deflects bullets. If Natick engineers are successful, this movie will become a reality in the future U.S. Army.

"What we hope to gain from this program is body armor that wears like a traditional textile impregnated with nanomachines connected to an onboard computer, DeGay explained. "So when you shoot a round into the

uniform system, it's normally pliable until it senses the strike of a round—it becomes rigid, defeats the strike of the round and becomes soft again."

A shortcoming of traditional body armor is that it can only absorb so many strikes from machine-gun rounds. "When you have a uniform with this new nanotechnology, it can absorb unlimited numbers of machine-gun rounds," DeGay pointed out.

Another potential development is inserting "nanomuscle fibers" that can actually simulate muscles, giving soldiers more strength. Fabric is impregnated with nanomachines that create the same weight, lift, and feel as a muscle. "So I coat the outside of the armor with a nanomuscle fiber that gives me 25 to 35 percent better lifting capability," DeGay explained.

The uniform from the waist down will have a robotic-powered system that is connected directly to the soldier. This system could use pistons to actually replicate the lower body, giving the soldier "upwards of about 300 percent greater lifting and load-carriage capability," DeGay said. "We are looking at potentially mounting a weapon directly to the uniform system, and now the soldier becomes a walking gun platform."

The Future Force Warrior is the Army's short-term change, with a complete rebuild of the soldier from skin out being planned through the Future Warrior system. "We are already starting to look at the 2020 Future Warrior concept, which is integrating stuff that is just starting to show promise in the lab," DeGay concluded. He said researchers hope to see this developing technology mature in the next 15 to 20 years. "Future Warrior is a visionary concept of how the individual warrior may be equipped in the 2015-2020 timeframe," he said.

**AMERICAN FORCES PRESS SERVICE
ROBOTS PUT DISTANCE BETWEEN
TROOPS, DANGER (JULY 26, 2004)**

K.L. Vantran

WASHINGTON—U.S. troops are using remote-controlled assistants to find and disable improvised explosive devices in Afghanistan and Iraq.

The Omni-Directional Inspection System, ODIS, searches the underside of vehicles for improvised explosive devices and can see things a hand-held mirror doesn't, said Bill Smuda, a research engineer with the U.S. Army Tank Automotive Research, Development and Engineering Center, in Warren, Mich.

Another device, the Percussion-Actuated Non-electric Disruptor, uses a high velocity of water to disable improvised explosive devices, noted David Kowachek, project engineer with the center. The PAN Disruptor can be mounted on a small unmanned ground vehicle, such as a Talon, to give explosives experts access via remote control to suspected bomb sites.

Both remote-controlled vehicles allow troops to do their jobs from a distance. Examples of both vehicles were on display in the Russell Senate Office Building in Washington, D.C., July 23.

ODIS stands about 4 inches high, weighs 40 pounds, and is like a "hovercraft on wheels," said Smuda. "It can move in circles or go sideways."

The operator can be up to 100 meters away from the vehicle being inspected as he or she maneuvers the robot underneath the chassis. "Robotics is a good tool to save people's lives," said Smuda. "It gets kids out of harm's way. It gets soldiers out of the line of fire, out of the blast zone."

The controls for the robot are portable. The control panel may be strapped to the operator's leg, while the case for the small video screen, which shows images from the robot, can be worn as a vest.

Smuda and coworkers recently spent two months in Iraq and Afghanistan testing and making some refinements to the system. They trained 40 soldiers on how to operate the robot. After about a half-day of hands-on training, Smuda said, the soldiers get a good feeling for operating the small robot.

"They learn what to look for—especially clean areas, especially dirty areas, loose wires," he added.

The Talon, which weighs about 80 pounds, can hold up to seven cameras that feed images back to screens on a control box. The range of the robot varies with the environment, noted Kowachek. "On flat terrain, soldiers can be as far as a mile away."

The Talon also has lights to enhance night maneuvers and is quite rugged, he added. "It can climb rocks, go through sand and mud."

There are about 50 Talons with the mounted disruptor in theater now, said Kowachek.

Although the Talon is one of the larger unmanned ground vehicles, the engineer said the soldiers like it. "It does what they need it to do," he added.

The remote-controlled robot allows troops to investigate suspected explosive devices while minimizing the danger. "It keeps troops away from vehicles or from being lured into places where they could be shot at by snipers," said Kowachek.

**DEPARTMENT OF DEFENSE NEWS RELEASE (JULY 30, 2004)
DOD RELEASES ANNUAL REPORT ON
"PROCUREMENT FROM SMALL AND
OTHER BUSINESS FIRMS"**

Acting Under Secretary of Defense for Acquisition, Technology and Logistics Michael W. Wynne today released the Department of Defense annual report on "Procurement from Small and Other Business Firms" for fiscal 2003.

Prime contract awards during fiscal 2003 to U.S. small business concerns totaled \$42.0 billion, compared with \$33.3 billion for 2002. Defense awards to all U.S. business firms totaled \$187.5 billion during 2003, compared with \$157.1 billion during 2002. Of the \$187.5 billion awarded by the DoD to all U.S. business concerns during 2003, 22.4 percent of the awards were made to small business concerns, versus 21.2 percent in fiscal 2002. The increase is attributed to greater small business participation in acquisitions related to ships, services, construction, commercial items, and other major hard goods.

The remote-controlled robot Omni-Directional Inspection System is designed to search under vehicles for explosive devices. It stands about 4 inches high and weighs about 40 pounds. Photo by K.L. Ventrone



For 2003, large business prime contractors reported subcontracts totaling \$86.5 billion, of which \$32.0 billion or 37.0 percent was awarded to U.S. small businesses. This compares to fiscal 2002 subcontracts totaling \$75.5 billion, of which \$25.8 billion or 34.1 percent was awarded to small business concerns.

Small businesses significantly contribute to the U.S. defense industrial base through their offerings of innova-

tive technology and quality supplies and services at reasonable prices. The annual report can be found at the following Web site: <<http://www.dior.whs.mil/peidhome/procstat/procstat.htm>>.

Additional information regarding small business procurement opportunities with the DoD can be found at its Office of Small and Disadvantaged Business Utilization website: <<http://www.acq.osd.mil/sadbu>>.

AMERICAN FORCES PRESS SERVICE (AUG. 2, 2004) COAST GUARD MODERNIZATION MOVES FULL STEAM AHEAD

Donna Miles

WASHINGTON—With the approach of its 214th birthday this week, the U.S. Coast Guard is undergoing the largest and most sweeping modernization in its history, the Coast Guard commandant said during a joint interview with the Pentagon Channel and the American Forces Press Service.

Adm. Thomas H. Collins said Operation Deepwater, a long-term project designed to replace all the Coast Guard's

major aircraft and vessels, will bring new capabilities to the force needed at a time when operational tempo is "very, very high."

Plans call for the Coast Guard to replace all ships in what the Service calls its "white hull fleet"—the patrol boat, law enforcement and security fleets that Collins acknowledged are "old and tired."

In fact, Collins said, the Coast Guard's fleet is among the oldest in the world. "If you count the major maritime nations of the world and their navies and coast guards, we are 39 out of 41 in terms of having the oldest fleet on this planet," he said. "So it's with some sense of urgency



Artist's rendition of the Maritime Security Cutter, Large, which will be produced by Northrop Grumman's Ship Systems sector under the U.S. Coast Guard's Deepwater program.

Photo courtesy Northrop Grumman



This is an artist's rendition of the Deepwater Program's Fast Response Cutter (FRC) design concept. Upon approval by the U.S. Coast Guard, this ship will be the first in a series of 150-foot fast patrol vessels that will eventually replace the Service's aging fleet of Island Class boats. A partnership has been established with Northrop Grumman's Ship Systems sector and Kockums AB and its parent company, Howaldtswerke Deutsche Werft AG to include cooperative work in the design and construction of this composite lead ship technology demonstrator.

Photo courtesy Northrop Grumman

for us to replace them, particularly in today's world when we are working them hard in the national interest."

Earlier this year in his "State of the Coast Guard" address, Collins pointed to serious "warning signals" that show this "aging and technologically obsolete" fleet may threaten the Coast Guard's ability to sustain its readiness in the future.

"We are experiencing system failure at a steadily increasing rate," he said. For example, the Coast Guard's HH-65 helicopters, which Collins called the "core of our helicopter fleet," have experienced 70 in-flight power losses since October. As a result, he said, the Coast Guard has had to institute operational flight restrictions to maintain safety.

Last year, the Coast Guard had 676 unscheduled maintenance days for its cutters, a 41 percent increase over the previous year. "This is equivalent to losing the operating hours of four cutters," Collins said. And the Service's 110-foot cutters, "all well beyond their planned service lives," have experienced 20 hull breaches. "Yes, that's water coming in—resulting in emergency dry docks," the commandant said.

To address these and other shortcomings in its vessels and aircraft, the Coast Guard is undergoing the biggest acquisition in its history. This "big gulp theory of acqui-

sition" will continue over a 20-year timeframe, but Collins said it "can't come fast enough in my mind."

When completed, the Coast Guard's new Integrated Deepwater System will include three classes of new cutters and their associated small boats, a new fixed-wing manned aircraft fleet, a combination of new and upgraded helicopters, and both cutter-based and land-based unmanned aerial vehicles.

Collins said this "network-centric system" will go a long way toward enhancing the Coast Guard's coastal and deepwater maritime capabilities, as well as its ability to conduct surveillance and tracking—all vital to the Service's missions.

Among projects on the drawing board, he said, is a 150- to 160-foot patrol boat, to be built with composite hull materials that will make the vessels lighter, faster, and easier to maintain. "That's exciting," Collins said. "We are trying to accelerate it."

In addition, construction is expected to begin soon on a new 4,000-ton national security cutter, with delivery slated for fiscal 2006.

As part of this modernization, the Coast Guard recently replaced its seagoing and coastal buoy tender fleet, which Collins said are affectionately referred to in the Service as the "black hulls" due to their paint color. Also new are

some of the Service's 47-foot motor lifeboats, designed for first-response rescues in high seas, surf, and heavy weather environments. Both new additions are "terrific, terrific platforms," Collins said.

The commandant said these new vessels and other anticipated additions through Operation Deepwater are arriving at what he called "an incredibly important inflection point in the evolution of the Coast Guard."

"We are in the midst of decisions and actions that will lay the groundwork in determining the Coast Guard of tomorrow," he said. "We are also defining and developing the competencies our people must have to continue operational excellence in tomorrow's missions, using tomorrow's equipment."

**AMERICAN FORCES PRESS SERVICE
(AUG. 3, 2004)
EXPERTS DEVELOP FUTURE FOOD FOR
FUTURE WARRIORS**

Phil Copeland

WASHINGTON—The Defense Department's Combat Feeding program at the U.S. Army Soldier System Center in Natick, Mass., is a "one-stop shop for all combat-rations development, field food-service equipment, and total combat feeding systems," according to the Defense Department's combat-feeding director.

Gerald Darsch said the joint-service program is an effort to provide not only the appropriate types and distribution of food needed by the military services, but also to supply food products to astronauts at the International Space Station.

Combat rations and their distribution have improved considerably over the last five to seven years, Darsch said. The Combat Feeding program elicits "what soldiers like to eat and what they don't like to eat. All of the rations are soldier-requested, soldier-tested, soldier-approved."

When servicemembers ask for a certain food item, such as Spanish rice or Thai chicken, food specialists develop recipes that will meet the request.

Test panels are randomly selected to evaluate recipes during development. Once a recipe is finished, it is field tested with soldiers to ensure the goal is met.

One type of ration, the Meal, Ready-to-Eat, or MRE, is currently used by the military to sustain individuals in the field until an organized food facility is established.



Two pieces of the new "Jolt" caffeine energy gum are equal to a cup of coffee for U.S. warriors in the battlefield to help sustain a high energy level. This gum is included as part of the prototype "First Strike" rations that provide highly mobile ground troops with total eat-on-the-move capability.

Photo by Phil Copeland

At present, mobile troops, who may not have much time to eat, take out only certain food components from the MRE rations. "They leave up to 50 percent of the unused portion behind, only to be thrown away," Darsch noted.

The prototype "First Strike" ration program provides highly mobile ground troops with total eat-on-the-move capability. He said the idea is to provide a single ration per day containing only food items that are easy to use and consume.

Recently, both the Marines and Army soldiers have requested First Strike rations developed by the Combat Feeding program.

“The Marines have asked for these rations to use in Afghanistan and Iraq,” Darsch said. “[The Army’s] 1st Cavalry Division in Iraq has also requested to try these rations for their soldiers.” Both Services said it would provide a capability they really don’t have, he added.

Darsch said this ration package includes a pocket sandwich with a three-year shelf life at room temperature, developed by the Army Soldier Center. This sandwich is a good idea for those who can’t take a microwave or refrigerator out in the field, he added.

“We put three zip-lock bags in with the rations, so the person can break it up into three separate meals and easily store unused portions in the uniform pockets, wherever is most comfortable and fits the best,” he explained. “The beverage mix included with the rations is in a flexible package so you can reconstitute it right in the package and consume it directly from the package.”

Tube food, another type of ration, has been provided for the Air Force’s U-2 long-range surveillance aircraft pilots during their reconnaissance flights. According to Air Force officials, the U-2 is the most difficult aircraft to fly because of its unusually challenging takeoff and landing characteristics. Due to its high-altitude mission, pilots must wear full pressure suits.

The Combat Feeding program, in a joint effort with the Air Force Research Lab, developed two foods that actually enhance the pilots’ cognitive performance.

After the pilots have been flying their aircraft for a long period of time, they can become lethargic and sluggish when they try to land. Darsch explained that adding a certain naturally occurring food ingredient to the tube foods ensures a safe landing.

The Natick research center also has launched a robust program to upgrade food-distribution systems for the Navy fleet. Darsch described how they recently used a new modular process to install a piece of food-distribution equipment on two Los Angeles-class submarines.

In the past, crewmembers would have had to cut up the equipment deckside and lower in the pieces one at a time through a 30-inch hatch and re-assemble all of those pieces down in the galley, he said. This old process re-

quired up to 500 manhours. And once everything was put back together, it didn’t always work or didn’t work as well as intended.

The Combat Feeding program worked with a commercial company to come up with equipment designed and built in modules.

“The new idea is to lower the modules down through the hatch and then put the pieces together again, like LEGO® bricks, in the galley,” Darsch said. “This now reduces the 500 manhours down to possibly less than 75 manhours to complete this task. And now, everything works the way it is supposed to work.”

The bottom line, he concluded, is that the Combat Feeding program covers the gamut of everything required for feeding the armed forces “from deep sea to deep space.”

ARMY NEWS SERVICE (AUG. 3, 2004) TASK FORCE LOGISTICS RESTRUCTURES THEATER SUPPORT

John Runyan

WASHINGTON—A Task Force Logistics conference July 28-30 at Fort Lee, Va., asked operations officers from the field to provide their take on the new Theater Sustainment Command.

This conference was the most recent phase of Task Force Logistics’ design of a new organizational structure that will help the Army be more effective and efficient in its battlefield operations, officials said.

“We’re bringing in the best and brightest from the field to get the field’s expertise,” said Col. John Wharton, Task Force Logistics deputy.



A 3rd Corps Support Command convoy moves supplies north toward Baghdad during the combat phase of Operation Iraqi Freedom in April 2003. U.S. Army photo

Field attendees include operations officers from major military commands, the current theater support commands, and joint commands, Wharton said. The invited joint commands represented a push to involve all the Services in the development of the joint-capable TSC.

“Certainly [Army Chief of Staff Gen. Peter Schoomaker] has made it clear that he is a joint soldier first,” Wharton said.

The changes in logistics have been in the making since February when the chief of staff approved the separate focus area task force for logistics.

The new TSC will eliminate layering of commands by combining operational level functions of the current corps support command and the theater support command, officials said.

“[Theater Sustainment Command] is going to work on [eliminating] redundancy and maximizing flexibility,” said Maj Chris Stolz, Task Force Logistics operations officer. “We want to maximize throughput by knowing demands and tailoring to the needs of the units of actions.”

TSC will be a modular organization with a standard headquarters and subordinate support units tailored for the mission requirements of specific operations. Modular subordinate units will provide capabilities for theater opening; theater distribution; medical; petroleum, oils, and lubricants; aviation; civil engineering; and multi-functional supply, maintenance, and transportation support.

Wharton emphasized the collaboration with Combined Arms Support Command at Fort Lee, Va., to develop new standard requirement codes, known as SRCs, that are associated with tables of organization. He said SRC teams as small as one or two soldiers will be able to provide support based on their specific capabilities. Currently, a whole unit would be required to be mobilized to provide support for a job that could be done by a few.

TSC will work under the new unit of employment operational headquarters known as the UEy, with the TSC commander serving as the senior Army logistics commander in the UEy. TSC headquarters will provide command and control of assigned, attached, and operationally controlled units.

Sustainment brigades will provide support to operational-level units in the UEy's area of operations and sustainment support to tactical-level forces engaged in combat

in forward areas. This will allow throughput of critical sustainment, like fuel and ammunition, from the theater logistics hubs at ports to brigade units of action engaged in combat, Stolz said

Right now, both corps support commands and TSC have to funnel supplies and services through different layers of management before getting to soldiers in the rear and forward of the battle areas. With the new technology, trucks will be able to transport materiel right from the ports to the brigade or units of action where they are needed, officials said.

Eventually, predictive technology will even be able to tell where units of action will be and what they will need, officials said. Consequently, UAs will have their necessary supplies even sooner. This technology is still in the conceptual phase, officials added, but said the prediction will take into account the operational environment of the units and anticipate their needs, Stolz said.

The big difference is in the way that the logistics systems will operate, according to Stolz. He called the present systems “stove-piped systems” that do not talk to each other. The emerging systems have integrated communications, Stolz said. This means that the logistics information system will receive all requirements and the computer network will show that.

“The big difference is everybody will see what everyone else sees,” Stolz said. In the past, units could only see what affected their specific segment, he said. With integrated communications, it will be possible to look down the entire pipeline and speed the process by prioritization and reallocation, Stolz said.

The objective is to get rid of the layering of commands and redundant combat services support activities to get the necessary services to the field, Stolz said.

“The soldier is going to see that he or she is not going to have to ask for the same thing two or three times,” Stolz said. “Soldiers will see shortened echelons of support, but the support that is forward with them is much more robust.”

The goal is have much more rapidly deployed equipment, and the way to do that is through visibility to the soldier and the command, Stolz said. The command will be able to know where the soldier is and what he or she needs, and the soldier will know when he or she will be receiving the supplies needed.

“We are going to have Amazon.com type of visibility,” Stolz said, explaining that soldiers will know the status of their orders and have confidence in when they will arrive.

TF Logistics is working with the Army Logistics community (Army Staff, the Army Materiel Command, the Army theater support commands) to develop the required capabilities based upon tasks, functions, and missions. Collaboration includes work with the Joint Forces Command and several regional combatant commands, according to Stolz.

“Everybody knows we have to do this, everybody wants to see it done, and everybody is working to get it done as quickly as possible,” Stolz said.

The new modular structure is under way with brigade combat teams and the 3rd Infantry Division, which now has four units of action, Stolz said. He said it's now imperative to implement an end-to-end distribution system that can support the modular Army. TF Logistics hopes to have 80 percent of the TSC design in place no later than Sept. 30, Wharton said.

**AIR FORCE PRINT NEWS (AUG. 3, 2004)
ARMY, AIR FORCE SHARING BATTLE
INFORMATION**

1st Lt. James L. Bressendorff, USAF

NELLIS AIR FORCE BASE, Nev.—Parked under camouflaged netting in the heat of the Nevada sun is an extended cab Humvee equipped with all the modern comforts of home: vinyl seats, air conditioning, tinted windows, and four 23-inch plasma displays.

It is not the Army's version of a stretch limousine, but an element of the Army's Future Combat Systems program that is taking part in the Joint Expeditionary Force Experiment 2004 here. The Air Force-sponsored experiment assesses new and emerging technologies.

“The Future Combat System-equipped unit of action (brigade-level force and below) will be more joint,” said Army Col. Jon Maddux, product manager for unit-of-action network systems integration at Fort Monmouth, N.J. “That's one of the reasons we're here at JEFX using some very early developmental software. We're demonstrating early interoperability with joint systems and laying the foundation toward network-centric enterprise services.”

The FCS also serves as the basis for combining multiple platforms and systems to create a force multiplier for the Army's future unit of action.

“FCS is the Army's leading transformation program for unit-of-action tactical systems,” said Army Maj. David



“Future Combat Systems is the Army's leading transformation program for unit-of-action tactical systems. It integrates combat platforms, networks, and sensors—everything a unit-of-action commander needs to execute the mission.”

—Army Maj. David Bassett
product manager for
Unit-of-Action Software Integration
Joint Expeditionary Force Experiment 2004
Nellis AFB, Nev.

Bassett, product manager for unit-of-action software integration. "It integrates combat platforms, networks, and sensors—everything a unit-of-action commander needs to execute the mission."

Part of that system includes the Warrior Machine Interface, an intuitive graphic-user interface to the FCS Battle Command System, acting as an electronic liaison between the soldier on the battlefield and the Air Force's Air Support Operations Center.

"We (WMI operators) run reconnaissance and surveillance with the unmanned aerial vehicles and unmanned ground vehicles," said Army Staff Sgt. Steven Dugan, from the unit-of-action maneuver battlelab at Fort Knox, Ky. "When we find a target that needs to be eliminated, we run a close-air support request through the tactical air control party and the Air Support Operations Center."

Because of the unprecedented battlespace awareness supported by the WMI, friendly fire incidents will be significantly reduced.

"When CAS is requested, the WMI operator should be able to see an aircraft icon on the screen and see the location of the aircraft's strike run. That helps eliminate fratricide on both fronts," said Terry Steinhebel, the subject-matter expert for the lead system integrator's FCS. "We'll be able to light up or ID the targets that we want the strike aircraft to engage as a red icon in the cockpit so the pilot can choose the best method to eliminate the threat."

Dugan also said that a combination of electronic tracking and following proper procedure helps promote better situational awareness and prevent fratricide.

"I have a checklist that I follow to make to sure I have everything set as far as the location of the enemy unit, its direction, and the location of my unit, so we can avoid friendly fire or fratricide incidents," he said.

Aside from battlespace awareness and fratricide prevention, another major benefit of the system is its remote operability.

"One of the main advantages of the WMI is we can operate the UAVs and UGVs from a remote base," Dugan said. "We can remain focused on the mission objective while spotting enemy units from a relatively safe distance. We don't have to place individuals in harm's way, only equipment."

When fielded, the system and WMI will provide the Army's future force with unprecedented network-centric capability and joint operability.

"What we're here for in JEFX is to start integrating with the Air Force at the infancy of FCS," said Steinhebel. "We're trying to make joint interoperability a cornerstone of the system so literally every person on the battlefield can talk to each other and know where everyone is positioned—total situational awareness."

Bressendorff is with Joint Expeditionary Force Experiment 2004 Public Affairs.

**AMERICAN FORCES PRESS SERVICE
(AUG. 5, 2004)
TRANSFORMATION CHIEF OUTLINES
STRATEGY FOR NEW BATTLEFIELD**

Samantha L. Quigley

WASHINGTON—Fighting on the new battlefield means a new strategy is in order, the Defense Department's director of force transformation said here Aug. 4 in an address to the Research and Development Partnership Conference.

The military is moving from the old, monolithic, bounded Red Zone of the Cold War to a huge, diffuse, and diverse Red Zone that is hardly monolithic and defies containment, said retired Navy Vice Adm. Arthur Cebrowski.

This shift requires a change in strategy, Cebrowski added. "It calls for a ... strategy of connectedness," he said. "So the issue then is not so much how one contains it, as how one, indeed, connects to it."

In this case, "connects" means not only tangibly, but, as Cebrowski put it, by becoming competent for the age.

The networking of troop communications, both within and among the Services, is just one of the ways the director mentioned. Lightening the loads the forces carry and speeding transport abilities were also mentioned as methods to fight more effectively on a changing battlefield.

Cebrowski said the time has come to turn old models upside-down. The nation has always been strategically defensive and operationally offensive, he said. As problems like the possibility of weapons of mass destruction move in closer to home, he explained, it's becoming obvious that being operationally defensive is more advantageous. And because the consequences are so grave, strategic offense may be necessary, he added. "This is a



“[National security] is indeed global. It spans every element of human enterprise. It is social, it is political, it is technical, it is scientific, it is economic.”

—Retired Navy Vice Adm. Arthur Cebrowski
Director, Office of Force Transformation

switch. It defies all the thinking we've had ... for American diplomacy for a long time,” he said.

The focus on intelligence has changed, too, he said. Social intelligence—an in-depth knowledge of local culture and customs—is being valued much more over military intelligence.

The issue of national security is all encompassing, Cebrowski said. “It is indeed global. It spans every element of human enterprise. It is social, it is political, it is technical, it is scientific, it is economic.”

Since it is a global concern, there is an increased movement to open up the defense industry to a different kind of international relationship, he said. Opening up the defense industry keeps it from being limited to the ideas, technologies, and research that comes from within the United States.

These changes in the way wars are being fought are bringing about force transformations as well, Cebrowski said. More small units are becoming the norm, he added, and technology is making it easier and safer for servicemembers to do their jobs with greater effectiveness and accuracy.

“We're in the age of the small, the fast, and the many,” Cebrowski said.

**DEPARTMENT OF DEFENSE NEWS
RELEASE (AUG. 18, 2004)
DOD ACCEPTS FIRST UID ITEMS**

Acting Under Secretary of Defense for Acquisition, Technology and Logistics Michael W. Wynne today announced that the Department of Defense has accepted its first deliveries under the new unique identifier (UID) policy that requires contractors to mark and identify the cost of items delivered to the department. The accepted items are helicopter replace-

ment cables ordered by the Defense Supply Center Richmond, Richmond, Va., from Lockheed Martin Corp. The cables were delivered on Aug. 9.

Wynne said that UID serves two purposes. It provides valuable business intelligence throughout the life cycle of an item, and it acts as the accurate source of data for valuation of property and equipment. The UID policy was started in July 2003 to enhance inventory management. It promotes greater accuracy in the tracking and control of spare parts.

Additional information on UID is available at <http://www.acq.osd.mil/uid/>.

**DEPARTMENT OF DEFENSE NEWS
RELEASE (AUG. 19, 2004)
SARS REPORT**

The Department of Defense has released details on major defense acquisition program cost and schedule changes since the December 2003 reporting period. This information is based on the Selected Acquisition Reports (SARs) submitted to the Congress for the June 30, 2004, reporting period.

SARs summarize the latest estimates of cost, schedule, and technical status. These reports are prepared annually in conjunction with the president's budget. Subsequent quarterly exception reports are required only for those programs experiencing unit cost increases of at least 15 percent or schedule delays of at least six months. Quarterly SARs are also submitted for initial reports, final reports, and for programs that are rebaselined at major milestone decisions.

The total program cost estimates provided in the SARs include research and development, procurement, military construction, and acquisition-related operations and maintenance (except for pre-Milestone B programs, which

are limited to development costs pursuant to 10 U.S.C. §2432). Total program costs reflect actual costs to date as well as future anticipated costs. All estimates include anticipated inflation allowances.

The current estimate of program acquisition costs for programs covered by SARs for the prior reporting period (December 2003) was \$1,332,027.2 million. After adding the costs for new programs and subtracting the costs for final reports (shown here) from the December 2003 reporting period, the adjusted current estimate of program acquisition costs was \$1,267,552.2 million. There was a net cost increase of \$1,524.9 million (+0.1 percent) during the current reporting period (June 2004), which was due primarily to higher cost estimates for the CVN 21 and Space-Based Infrared System (SBIRS) High programs.

For the June 2004 reporting period, there were quarterly exception SARs submitted for 14 programs. The reasons for the submissions are provided below.

Army

Chem Demil (Chemical Demilitarization)—The SAR was submitted to report schedule slips of six months or more since the December 2003 report. Specifically, the start of operations at Pine Bluff Chemical Agent Disposal Facility is expected to slip seven months from July 2004 to February 2005. The completion of operations at the Aberdeen Chemical Agent Disposal Facility is expected to slip 10 months from July 2005 to May 2006. The 100 percent agent destroyed milestone at Newport Chemical Agent Disposal Facility is expected to slip 16 months from January 2006 to May 2007. Finally, the start of construction at the Blue Grass Chemical Agent Destruction Pilot Plant is expected to slip eight months from January 2005 to September 2005. There were no cost changes reported since the December 2003 SAR.

Navy

AIM-9X Missile—The SAR was submitted to rebaseline from a development to a production estimate following the May 2004 approval of full-rate production (Milestone III) by the assistant secretary of the Navy for research, development, and acquisition. There were no cost changes reported since the December 2003 SAR.

ASDS (Advanced SEAL Delivery System)—The SAR was submitted to report a schedule slip of approximately 17 months (from May 2004 to October 2005). The production decision (Milestone C) was postponed until successful demonstration of the new lithium ion battery in ASDS-1 and testing of other design changes made to im-

CURRENT ESTIMATE (\$ IN MILLIONS)	
December 2003 (78 programs)	.....\$1,332,027.2
Plus three new programs	.....+4,856.6
(COBRA JUDY, MP RTIP, and SDB)	
Less final reports (ABRAMS UPGRADE, COMANCHE, the FCR portion of LONGBOW APACHE, the BLOCK I-III portion of SM-2, AWACS RSIP, and JSTARS)	.....-69,331.6
December 2003 Adjusted (77 programs)	.....+1,267,552.2
Changes Since Last Report:	
Economic	.....\$ +18.5
Quantity	.....-6,119.0
Schedule	.....+72.1
Engineering	.....-412.0
Estimating	.....+7,949.0
Other	.....0.0
Support	.....+16.3
Net Cost Change	.....\$+1,524.9
Plus initial procurement cost estimate for CVN 21 Future Aircraft Carrier (previous reports limited to development costs per 10 U.S.C. 2432)	.....+31,748.7
June 2004 (77 programs)	.....\$1,300,825.8

prove acoustic signature and reliability. There were no cost changes reported since the December 2003 SAR.

CVN 21 (Future Aircraft Carrier)—The SAR was submitted to rebaseline the program from a planning to a development estimate following approval of entry into system development and demonstration (Milestone B) in April 2004. Program development costs increased by \$727.6M (+20.2 percent) from \$3,605.8 million to \$4,333.4 million, due primarily to a revised estimate of development costs approved at Milestone B. As a result of Milestone B approval, the program entered into the system development and demonstration phase in April 2004, and \$31,748.7 million of procurement for three carriers has been added to the SAR. Previously, the CVN 21 SAR was limited to development costs only (per 10 U.S.C. §2432).

H-1 Upgrades—The SAR was submitted to report schedule slips of six months or more. Completion of integrated testing slipped by eight months (from August 2004 to April 2005) and the start of full-rate production (Milestone III) slipped by six months (from August 2005 to

February 2006), due to the tailboom annealing issues and associated schedule growth. Initial operational capability (IOC) for the AH-1Z slipped by 15 months (from March 2008 to June 2009), due to a change in the Marine Corps procurement profile to expedite replacement of the aging UH-1Y fleet. There were no cost changes reported since the December 2003 SAR.

MIDS-LVT (Multi-Functional Information Distribution System-Low Volume Terminal)—The SAR was submitted to rebaseline the program from a development to a production estimate following Navy approval of full-rate production (Milestone III) in June 2004. There were no cost changes reported since the December 2003 SAR.

V-22—The SAR was submitted to report a schedule slip of 30 months (from September 2004 to March 2007) in initial operational capability of the MV-22, and a schedule slip of 15 months (from June 2006 to September 2007) in initial operational test and evaluation completion of the CV-22. These delays were due to a new and expanded definition of IOC for the MV-22 in a change to the V-22 Joint Operational Requirements Document, and to a delay in developmental test of the CV-22 due to late return to flight, parts shortages, and transfer of test points from MV to CV. There were no cost changes reported since the December 2003 SAR.

Air Force

EELV (Evolved Expendable Launch Vehicle)—The SAR was submitted to report a schedule slip of six months (from March 2005 to September 2005) in the heavy lift vehicle first operational flight. This delay was due to

scheduling conflicts at the Spacecraft Processing and Integration Facility at Cape Canaveral Air Force Station. Program costs decreased \$557.1 million (-1.7 percent) from \$32,346.5 million to \$31,789.4 million, due primarily to variances between previous and new launch vehicle prices (-\$8,249.0 million), launch quantity reductions (-\$6,119.0 million), and shifts in payloads between vehicle classes (-\$135.0 million). These decreases were partially offset by increases for infrastructure sustainment payments (+ \$12,791.3 million), program office technical support and operation expenses (+ \$908.4 million), and amortization of construction cost for the west coast launch pad (+ \$231.0 million).

SBIRS (Space Based Infrared System) High—The SAR was submitted to report a Nunn-McCurdy unit cost breach (i.e., a unit cost increase of 15 percent or more) and schedule delays of six months or more. Program costs increased \$1,354.4 million (+ 15.7 percent) from \$8,631.2 million to \$9,985.6 million, due primarily to an increased engineering and manufacturing development estimate associated with technical performance challenges (+ \$1,118.4 million). Other cost increases are due to a one-year slip in geosynchronous earth orbit (GEO) satellites 1 and 2 deliveries (from September 2006 to September 2007, and from September 2007 to September 2008, respectively) (+ \$45.0 million), an extension of the contract beyond FY 2010 (+ \$131.8 million), an increased requirement associated with GEO satellites 3, 4, and 5 parts obsolescence due to program delays (+ \$182.0 million), addition of GEO 4 (FY 2012) and GEO 5 (FY 2013) funding due to restoration of launch support capability (+ \$66.2 million), and increased sustainment costs (+ \$111.6 million). These increases were partially offset by decreases associated with removal of Block II redesign funds that were reported in the last two annual SARs but were not included in the approved acquisition program baseline (-\$412.0 million). The under secretary of the Air Force signed a Nunn-McCurdy Unit Cost breach notification letter to Congress on June 17, 2004.

New SARs (As of June 30, 2004)

The Department of Defense has submitted initial SARs for five new programs (listed here). These reports do not represent cost growth. Baselines established on these programs will be the point from which future changes will be measured. The current cost estimates are provided to the left.

For more detailed information on the SARs report, please go to <<http://www.defenselink.mil/news/Aug2004/d20040819PP.pdf>>.

CURRENT ESTIMATE (\$ IN MILLIONS)	
Program	
JCM (Joint Common Missile)	\$8,141.3
JTRS (Joint Tactical Radio System) CLUSTER 5	10,717.0
LCS (Littoral Combat Ship)	1,211.7
MMA (Multi-Mission Maritime Aircraft)	31,428.6
TSAT (Transformational Satellite Communications System)	17,661.3
Total	\$69,159.9
<i>Pre-Milestone B program reporting development (Research, Development, Test and Evaluation) costs only in accordance with the provisions of 10 U.S.C. §2432.</i>	

**ARMY NEWS SERVICE (AUG. 20, 2004)
NEW TECHNOLOGY IMPROVES
HELICOPTER LIFECYCLE**

Raini Wright

WASHINGTON—New technology being installed on helicopters provides preventive maintenance information that will increase the lifespan of its components. The 101st Airborne Division and the Utility Helicopter Project Office co-hosted a demonstration of the Integrated Mechanical Diagnostic Device Health Usage Monitoring System (IMD HUMS) at the Pentagon Heliport Aug. 19.

The primary goal of the IMD HUMS is to enhance maintenance by collecting and processing data about the critical mechanical systems and life-limited components on the aircraft. Aircraft parts will no longer need to be replaced based on their predicted lifespan; instead, parts will be replaced as needed. “This is the first system that recognizes regime profiles, which allows us to extend component lives,” said Army Col. Cory Mahanna, project manager for utility helicopters. “The system monitors in real time what the aircraft does.”

The information collected by the IMD HUMS is stored on a data card. That information can be downloaded onto the battalion’s intranet so that the status of all aircraft can be monitored. In remote locations without intranet access it can be downloaded onto a stand-alone computer. The system also generates e-mails regarding flight maintenance.

Maintenance officers, pilots, commanders, and safety and standards officers view data collected by the IMD HUMS. The information collected shows restrictions, inefficiencies, inspections, and service schedules of aircraft. Additionally, the system directs signals and data to the Cockpit Voice/Flight Data Recorder to meet flight safety objectives. Not only will the IMD HUMS

create changes for aircraft maintenance, but the system could also affect operations. Col. Will Harrison, 159th Brigade commander, predicts that the turnaround time between combat missions will decrease.

The cost of IMD HUMS installation is \$150,000 per aircraft. Congress has allocated \$56 million through 2005 for the project. Funding was not derived from the termination of the Comanche re-modernization project.

IMD HUMS were first installed on 20 UH-60L Black Hawk helicopters between September 2003 and January 2004 in Mosul, Iraq. The program started before Sept. 11 but was delayed. When the 101st Airborne Division re-deployed from Iraq, IMD HUMS were installed on the last 10 helicopters.

“We realized we needed as quickly as possible the benefits from the IMD HUMS—great reduction in manpower costs while in theater and the opportunity to take real measurements in combat, not measurements based on projected data,” said Harrison.



A Department of Defense employee checks out an Army Black Hawk helicopter equipped with new technology, which will improve the life cycle of critical components Aug. 19 at the Pentagon heliport.

Photo by Alicia Pettit