

# INFANTRY NEWS



*EDITOR'S NOTE: The following is a slightly edited version of an article titled "U.S. Army's Warriors for the New Century," reproduced with permission from Jane's Defence Weekly, 8 January 1997. (Copyright Jane's Information Group 1997.)*

NOW IN ENGINEERING and manufacturing development, the U.S. Army's Land Warrior program is a first-generation modular, integrated fighting system for the dismounted infantry soldier. Land Warrior was one of two major program initiatives to emerge from the Soldier Integrated Protective Ensemble (SIPE) Advanced Technology Demonstration. The second initiative was known as the 21st Century Land Warrior/Generation II system (21 CLW/Gen II) (*Jane's Defence Weekly*, 25 March 1995).

The Army combined the two programs in March 1996. Under the merger, Land Warrior continues to serve as the baseline system for the Army's next century soldier while the existing 21 CLW/Gen II contract activities were redirected to pursue advanced components that would fit into the Land Warrior architecture. The process included a number of interface modifications to ensure that future advanced technology components fit smoothly into the Land Warrior system.

The next step in the Land Warrior program is the design review process. Based on lessons learned during early operational evaluation (EOE), the program will conduct a preliminary design review later this month. At that time the Department of Defense will provide the contractor with the authority to enter a detailed design and order requisite long-lead items.

A critical design review was then conducted in July. This review served

as a "design freeze" for the system configuration that will enter developmental and operational tests. Longer range schedules project contractor production qualification testing (PQT) in April-June next year, government PQT-G between July 1998 and February 1999, and an overlapping platoon-sized initial operational test and evaluation planned for October-December 1998.

The present program schedule calls for the first unit equipped to be a battalion-sized element in the fourth quarter of Fiscal Year 2000.

Although the Army has not established formal acquisition levels, one recent projection prepared for the General Accounting Office indicated that about 34,000 Land Warrior Systems would be required to equip selected soldiers in force package 1 and 2 units.

Current Land Warrior development features government participation by the U.S. Army Soldier Systems Command, Army Materiel Command, Program Manager-Soldier, and Training and Doctrine Command Systems Manager-Soldier.

According to Major Marc Collins from the Office of Program Manager-Soldier, the Land Warrior contractors' proposal included the conduct of "risk reduction" exercises that focused on a test-built test-design method. For example, "Risk Reduction 1," conducted 15-19 April 1996, led to further examination of "human engineering issues" in a follow-on "Risk Reduction 1A" investigation.

"Risk Reduction 2" was later held 16-19 September as a final verification to insure that Land Warrior hardware was ready to enter EOE—a user-supported contractor evaluation of 10 Land Warrior systems covering individual and collective activities up to the platoon level.

"As we built the program we de-

## INTEGRATED HELMET ASSEMBLY SUBSYSTEM:

- Lightweight helmet.
- Helmet-mounted monocular display.
- Day/night sensor with integrated flat panel displays.
- Display control interface module.
- Laser detection.
- XM45 chemical/biological mask.
- Ballistic/laser eye protection.

## SOFTWARE SUBSYSTEM:

- Two software Computer Software Configuration Items: tactical and mission data support
- Modular for easy integration upgrades.
- Mature software development processes.

## COMPUTER/RADIO SUBSYSTEM:

- Computer.
- Soldier radio.
- Squad radio
- Global Positioning System.
- Handheld flat panel display.
- Video capture.
- Compatible with combat identification components.
- Remote computer command.

## WEAPON SUBSYSTEM:

- Laser rangefinder.
- Digital compass.
- Wiring harness.
- Video camera.
- Modular weapon system.
- AN/PAS-13 thermal weapon sight.
- Close combat optic.
- AN/PAQ-4C infrared laser aiming light.

## PROTECTIVE CLOTHING AND EQUIPMENT:

- Advanced load carrying capability.
- Modular body armor.
- Chemical/biological garment, gloves, and boots.

signed-in an EOE to provide the contractor and the government an opportunity to take the Land Warrior system, put it in soldiers' hands, and gain feedback against seven objectives," Major Collins said.

Those objectives included determination of the feasibility of the software approach, user interface, and application of program features; determination

of user acceptance of load-bearing equipment and validation of select human factors issues; validation of human factors and analysis of operational tasks; identification of operational and support issues; validation of Land Warrior modularity and configurations; identification of training requirements and strategies; and identification or demonstration of new operational techniques, tactics, doctrine, and support concepts.

The Land Warrior team began EOE training on 28 October 1996 with members of Company B, 1st Battalion, 15th Infantry Regiment, 3d Infantry Division (Mechanized). The exercise was a two-phase evaluation. First-phase events focused on individual tasks and training on system performance and the soldier-system interface.

Second-phase events focused on small-unit operations of the nine-man infantry squad as well as the platoon to obtain data on employment concepts and support issues, and to further validate Land Warrior system requirements. Platoon level operations were simulated by equipping a platoon leader, platoon sergeant, squad leaders, and two team leaders.

EOE was completed in late December 1996. Major Collins said, "The EOE prototypes have allowed us to meet our goals in terms of going in and finding out where there were issues we needed to fix." As an example, he identified certain design issues surrounding the comfort of the back frame design. "Certainly when a soldier is trying to crawl on his back or roll over on his back, there are certain things we have to work on to make him more fightable."

Major Collins also identified a need for additional work in such areas as cables and connectors, the battery configuration, load carrying adjustments, and body armor.

"Weapon balance and bulk is another thing we need to work on some more. We're also going to take a look at the night sight in relation to helmet weight and balance.

"Basically, the helmet comes out at roughly the same weight as a PASGT

(personnel armor system for ground troops) helmet with an AN/PVS-7 night vision device mounted to it. But we've still got to work to see if we can improve the center of gravity somewhat."

Major Collins emphasized that "the soldiers very much liked the Land Warrior concept. But the weight of the prototypes and fightability of the prototypes had some problems that must be resolved."

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**SOLDIER ENHANCEMENT Program (SEP)** proposals are submitted each year to the TRADOC System Manager-Soldier (TSM-S). By the end of last year, TSM-S had received 177 separate proposals as SEP new start programs for Fiscal Year 1998.

An SEP candidate must meet the following criteria:

- Be a soldier system item—an item of equipment that is worn, carried, or consumed by the soldier for his or her individual use in a tactical environment.
- Be commercially available (off-the-shelf with little or no modification needed for field military use).
- Satisfy an operational need or a battlefield deficiency.

An item that also makes the soldier more effective or efficient on the battlefield—reduces his load (in either weight or bulk), enhances lethality, survivability, command and control, sustainment, mobility, safety, training, or quality of life—or if soldiers are already spending their own money to buy it, may well be a strong SEP candidate.

During the annual review in March 1997, the executive council approved the following 21 programs as Fiscal Year 1998 new starts, beginning on October of this year:

**Machinegun assault bag.** Gives machinegunners a minimum of 300 rounds of linked ammunition ready to fire.

**12-gauge breaching round.** Enables soldiers to breach locks and hinges in an urban environment while minimizing collateral damage.

**M203 enhanced fire control system.** Increases probability of first-round hit

with the M203 grenade launcher.

**Tactical cartridge for long range sniper rifle.** Provides significantly improved probability of hit performance at longer ranges.

**Accessory shotgun for rifles or carbines.** Gives soldiers additional lethality breaching and non-lethal capability.

**Lightweight fragmentation hand grenade.** Weighs less and is less bulky than the current M67 fragmentation grenade.

**Short barrel M249 light machinegun.** Improves airborne/air assault jumpability and MOUT maneuverability by shortening the weapon by 10 inches.

**Emergency breathing device.** Gives helicopter crews a small, compact, lightweight, emergency breathing source with regulated supply of air to allow egress from a submerged helicopter.

**Grappling hook, collapsible.** Enables soldiers to climb during MOUT assaults, breach wire/mine obstacles, and clear minefields.

**Low-profile flotation collar.** Reduces bulk and eliminates compatibility problems with the current life preservers (LPU 10 and 21).

**Low-profile lightweight voice amplifier.** Amplifies voice for wearers of the M40 series, M45 aircrew, and Air Force/Navy MCU-2P series protective masks.

**Aviator cable tether.** Allows the extraction of downed aircraft crewmen using attack or scout aircraft.

**Micro rappel system.** Gives soldiers a compact, lightweight, inexpensive rope system for use in entry or escape operations.

**Tuff tie.** Gives soldiers in MOUT or operations other than war lightweight, disposable restraining devices.

**MP combat/law enforcement ensemble.** Provides standardized clothing and individual equipment for the military police for use in law enforcement operations.

**Protective gloves.** Protects soldiers involved in combat and stability and support operations from knives, barbed wire, cut, and slash threats.

**Advanced protective eyewear system.** Offers better utility and performance than the current sun, wind, and dust goggles.

**Improved combat shelter.** Provides soldiers with a lightweight, easily assembled, one- or two-man shelter that can also be used as a poncho.

**Canteen insert water purifier.** Enables soldiers to purify water directly from the canteen as they drink.

**Ballistic helmet weight reduction.** Incorporates new ballistic composites to reduce the weight of CVC (combat vehicle commander) and PASGT (personnel armor system for ground troops) helmets.

**Multipurpose cart (PACK RAT).** Gives the individual soldier an off-body load-bearing capability to make him more mobile.

Last year, a total of 24 new-start projects were selected for the FY 1997 program. These included:

- Long-range sniper weapon system.
- M249 feed-tray cover.
- M249 flexmount.
- M4 improved buttstock.
- Weapon flashlight mount.
- Sling, close quarters battle, for the M4 carbine.
- Boresighting device for the PAQ-4 and thermal weapon sight.
- 12-gauge non-lethal point and crowd control munitions.
- Pistol belt extender.
- Improved underlying insulating layers for the extreme cold weather clothing system (ECWCS).
- Alternate-wear hot-weather boot.
- Extreme cold-weather boot.
- Knee and elbow pads.
- On-the-move hydration system.
- Handheld infrared flare/smoke grenade.
- Black light illumination to complement image intensification goggles.
- Ballistic shin guards.
- Ballistic/nonballistic face and body shield.
- Blast protective boots.
- Cooler canteen cup.
- 40mm high-velocity canister cartridge.
- Fuel bar.
- Physical fitness uniform,
- Modular weapon system backup iron sight.

In addition to these new starts, re-

search, development, test, and evaluation on 15 programs was completed during FY 96.

Anyone who has an idea for SEP should understand that it is not an incentive award program. No monetary awards are given for proposals that are adopted for use and result in a cost saving to the Government.

THE RANGER COURSE has continually been evaluated and refined since it began in the 1950s. Recently, a group of Rangers, past and present officers and noncommissioned officers, studied the current program of instruction (POI) and modified it to reflect a more aggressive and physically demanding and modern course. As a result, the course for Fiscal Year 1998 will incorporate a number of training adjustments.

The POI has changed some, but the standards for the Ranger tab are still the same. The Ranger Training Brigade (RTB) will incorporate the most up-to-date weapons and equipment—including the M-4 carbine, the AN/PAQ-4C aiming light, and the precision lightweight GPS receiver (PLGR)—as they become available, to stay current with units in the field. Under the new POI, the course is 61 days in length. Training starts at Fort Benning, Georgia, then moves to Camp Merrill in the North Georgia mountains, and concludes in the swamps of Camp Rudder at Eglin AFB, Florida. Ranger students then conduct a tactical insertion, normally a night airborne operation, back to Fort Benning for graduation.

The students operate at squad level during their Fort Benning training. At Camp Merrill, they start out at section level and work up to platoon level during their training. In Florida, they operate as platoon size elements at a more demanding operational pace. All movement between camps is tactical, which allows for more airborne and heliborne operations, greater training realism, and more experience.

The most significant changes in the

course occur during the Fort Benning phase at the 4th Ranger Training Battalion. To instill aggressiveness, the course places more emphasis on events requiring physical stamina, strength, and courage. Rangers conduct more runs, negotiate the Malvesti Obstacle Course (Worm Pit) more frequently, and road march 16 miles instead of the previous 12 miles. Combatives include hand-to-hand, boxing, and bayonet training. The bayonet training includes rifle PT, pugil sticks, and the bayonet assault course. Greater emphasis is placed on land navigation training, including limited use of the PLGR. The scenario the Ranger students face has also been improved, and the objectives have been fashioned to increase the tactical realism.

The mountain phase of the course has also undergone some significant adjustments. The 10-day field training exercise (FTX) has been split into two FTXs—one four-day and one five-day—with the mountaineering training in between them. A student is now tested on his mountaineering skills in a new event called the Yonah Challenge. Additionally, navigation skills are tested in several infiltration and exfiltration operations.

Some exciting new training has also been added to the swamp phase at Camp Rudder. Ranger students conduct an amphibious assault onto the beaches of Florida in a ship-to-shore mission. To preserve their force and make the best use of limited truck assets, the Rangers also conduct a tactical shuttle march after the tactical insertion back at Fort Benning. This operation, which has several branches and sequels, serves as an excellent training opportunity for the Ranger student.

The prerequisites for the Ranger Course remain the same. Only soldiers in the MOSs shown below are allowed to attend, in accordance with Army policy. The Chief of Infantry is the approval authority for all attendance exceptions.

Anyone who is interested may visit the RTB home page at [WWW.ning.Army.mil/RTB/RTBmain.HTM](http://WWW.ning.Army.mil/RTB/RTBmain.HTM).