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Training Impact Analysis for Land Warrior Block II

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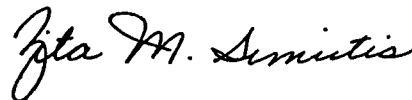
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TRAINING IMPACT ANALYSIS FOR LAND WARRIOR BLOCK II

EXECUTIVE SUMMARY

Research Requirement:

In preparation for the Joint Requirements Oversight Review (JROC) for the Land Warrior (LW) Block II system, an analysis of alternatives (AoA) and a capability gap analysis were conducted by the TRADOC Analysis Center-White Sands Missile Range (TRAC-WSMR). The AoA specified different basis of issue plans for the Land Warrior system and compared their combat effectiveness, via simulations, to a base case consisting of currently fielded equipment. One component of the AoA was a training impact analysis (TIA) that compared the estimated training impact of the alternatives in the study. The Infantry Forces Research Unit of the Army Research Institute conducted this training impact analysis in support of the overall AoA. The training costs associated with each alternative were determined by TRAC-WSMR. The overall AoA results were briefed to the LW Analysis Study Advisory Group in February 2005. This report contains the TIA that was conducted in support of the overall AoA for the LW Block II system, and the TIA document that was provided to TRAC-WSMR.

Procedure:

The AoA study specified a base case and four alternatives. The basecase was defined as the equipment in the Stryker Brigade Combat Team plus rapid fielding initiative (RFI) equipment. One of the four alternatives was a non-LW alternative, where every Soldier in the platoon had a radio. The three LW alternatives specified the LW system down to the squad leader, to the team leader, or to all Soldiers, respectively. The training questions specified in the study plan for each alternative were to: identify the required individual tasks, identify the critical individual tasks, identify prerequisite skills for each alternative, and estimate the resources required to train the tasks to different levels of proficiency. The major training resources examined were the number of instructors, training time, ammunition, and number of LW systems. Time and ammunition estimates were based on historical data obtained from LW training reports. The number of instructors was based on current instructor numbers. Lastly, it was assumed that every Soldier/leader in a course would have a LW system throughout the course.

In accordance with the Infantry School's LW System Training Plan (STRAP), the impact of each alternative was analyzed for two phases of fielding for the LW system. This plan called for LW functional leader and operator courses when less than 50% of the LW systems are fielded. When more than 50% of the LW systems have been fielded, these functional courses would cease to exist and LW training would be incorporated in current institutional courses. The resources required for New Equipment Training (NET) were also identified.

Findings:

The LW fielding alternative where all Soldiers had the LW system had the greatest impact on training. This was primarily the result of the substantial increase in the numbers of Soldiers to be trained. The difference between the two alternatives where only leaders had the LW system was much less. To illustrate, with the alternative where each Soldier had a LW system, the number of LW systems needed in Infantry One Station Unit Training (OSUT) was estimated to be 6,275. The numbers required for the two other LW alternatives, where the LW was given to team leaders and above or to squad leaders and above, totaled 976 and 592 for Infantry School leader courses (e.g., Infantry Officer Basic Course, Advanced Noncommissioned Officer Course). It was not possible to simply replace all current training with LW training in existing courses as core subjects and prerequisite skill training could not be deleted, resulting in increases in course length.

The functional courses required additional resources as these courses could not be supported with current Infantry School resources. The primary impacts were additional instructors and training hours. Even though the training times for current Infantry School courses increased, the Infantry School leader course training times were estimated to be 45 to 55% less as compared to the corresponding functional course time for leaders, and 18% less for Infantry OSUT as compared to the corresponding functional course time for operators.

Two tasks had a major impact on training time: marksmanship and land navigation. Training time was high because of the high proficiency levels specified by the school and constraints on student through-put due to restrictions in training area/range size for land navigation and marksmanship. The LW system's greatest impact was estimated to be on the youngest, least experienced Soldiers, as this target population is the least likely to possess the prerequisite military knowledge and skills required by the system, compared to noncommissioned officers and officers.

Utilization and Dissemination of Findings:

The TIA results were incorporated as part of the AoA briefing to the LW Analysis Study Advisory Group in February 2005. The results provide a solid analytic base for estimating future training impacts if the LW system is modified, additional data on training times are obtained, or programs of instruction are modified. The analysis was modular by task, making it easy to add or eliminate tasks when estimating the training impact associated with future changes. Because several levels of proficiency were examined, it is possible to estimate impacts associated with changes in these desired levels as well. It is critical to state that the TIA examined the relative impact of the study alternatives. The findings do not reflect final Infantry School decisions on the execution of LW training.

TRAINING IMPACT ANALYSIS FOR LAND WARRIOR BLOCK II

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Training Impact Analysis for Land Warrior Block II

Purpose and Scope

This report addressed the training impact of the Land Warrior (LW) Block II system. It supported the LW Block II Analysis of Alternatives (AoA) for the Joint Requirements Oversight Review (JROC). The structure of the training impact analysis (TIA) mirrored the base case and each of the alternatives examined in the overall study conducted by the TRADOC Analysis Center-White Sands Missile Range (Habic, Johnson & Nantze, 2005). The TIA centered on the general training question cited below and four subordinate essential elements of analysis (EEA).

What are the operator, leader, and maintainer training impacts of fielding for each study alternative?

- EEA 1: What are the required individual tasks for each study alternative?
- EEA 2: What are the critical individual tasks for each study alternative?
- EEA 3: What are the prerequisite skills/tasks for each study alternative?
- EEA 4: What are the resources (fiscal, facilities, and personnel) required to train LW tasks to different levels of proficiency (operate versus operate and employ) and by degree of criticality for each LW alternative?

The TIA addressed the impact of the LW system on operator and leader training conducted by the U.S. Army Infantry School (USAIS) and on New Equipment Training (NET), in accordance with the strategy outlined in the System Training Plan (STRAP) for the Ground Soldier System (LW Block II) developed by the Directorate of Operations and Training (G3), U.S. Army Infantry School (Foster, 2004b). The TIA for maintainers was not conducted because of the absence of a long-term supportability strategy. According to current plans (Project Manager- Soldier Warrior, 2004), the long-term LW supportability strategy will be determined during the initial three years of LW fielding. During this interim period, contractor logistics support will be used, an assessment of supportability strategies will then be conducted, and the best supportability strategy will be determined. Until the supportability strategy is identified, it will not be possible to identify specific maintainer military occupational specialties (MOSSs) impacted by fielding of the LW system, a critical step in the TIA.

Disclaimer. The TIA compared the training impacts of the study alternatives. The findings were coordinated with and briefed to the Infantry School, but they do not reflect final decisions by the Infantry School on the execution of Land Warrior training.

The overall study as well as the TIA compared four alternatives to a base case. Each is outlined below.

Base Case: Stryker Brigade Combat Team (SBCT) Infantry Platoon Modified Table of Organization and Equipment (MTOE) with the Program Objective Memorandum (POM) 06-11 items provided to every Infantry Platoon Soldier, and rapid fielding initiative (RFI) equipment provided to every Soldier.

A major assumption associated with the base case was that a radio, specifically the Multi-Band Inter/Intra Team Radio (MBITR), which is part of the RFI equipment, was only fielded down to the rank of squad leader within the SBCT.¹ Thus for the base case in the TIA, it was assumed that only Soldiers down to the rank of squad leader were proficient with the MBITR. It was also assumed that squad leaders were trained on Force XXI Battle Command Brigade and Below (FBCB2) software, as it is the digital command and control (C2) software in the Stryker vehicle.

Alternative 1 (Non-LW Alternative): Base case plus a radio to every Soldier in the platoon.

In Alternative 1 it was assumed that a “stand-alone” radio with features similar to the MBITR or the Enhanced Position Location System (EPLRS)-Light radios was issued to Soldiers at the rank of team leader and below.

Alternative 2 (LW Alternative): Base case with LW system down to the rank of squad leader with all leaders having a multi-function laser (MFL). However, the platoon leader and platoon sergeant also have a commander’s digital assistant (CDA) with both FBCB2 and LW software applications. It was assumed that the platoon leader would have been trained on FBCB2 in the Basic Officer Leader Course III Infantry (BOLC III IN), and the platoon sergeant would have been trained on FBCB2 in the Basic Noncommissioned Officer Course (BNCOC)². Since the LW system has an embedded radio, all leaders at the squad level and above have a radio. Everyone else in the platoon was assigned a “stand-alone” radio, with functions equivalent to the EPLRS-Light and the MBITR.

Alternative 3 (LW Alternative): Base case with LW system down to the rank of team leader, with all leaders, including the team leader with a MFL. As with Alternative 2, only the platoon leader and platoon sergeant have a CDA. Everyone else in the platoon has a “stand-alone” radio equivalent in function to EPLRS-Light and the MBITR. Consistent with the basis of issue plan (BOIP) used for the study, the machine gunners in the weapons squad were considered team leaders.

Alternative 4 (LW Alternative): Base case with LW system to every individual in the platoon. Leaders (team leader and above) have a MFL. The platoon leader and platoon sergeant have a CDA.

The training plan in the STRAP is based on this alternative – all Soldiers within the platoon have a LW system. Again, since the LW system has an embedded radio, there was no need to specify a “stand-alone” radio in this alternative.

¹ Assumption based on input from U.S. Army Infantry School representative.

² FBCB2 training is currently integrated in the Infantry Officer Basic Course and in BNCOC.

A LW training impact analysis was conducted in 2000 (Centric, Wampler, & Dyer). That analysis examined several options for integrating LW training in USAIS courses. Since that time, a formal training strategy was adopted by the Infantry School and is specified in the STRAP. In addition, other changes have occurred. The LW system design has changed, and the courses at the Infantry School either have been modified or will be modified in the near future. There have been several major training events using the LW system that provided objective data about task difficulty, effectiveness of training techniques, and training time. Consequently, the TIA on LW-Block II reported here is not an update of the prior analysis, even though some of the findings made in the prior analysis apply to the current analysis.

Method

The major steps in the analysis were:

- Generate a generic training strategy that could be applied consistently to all the alternatives as well as reflect the guidelines in the LW System Training Plan (STRAP).
- Review prior tests and reports with data on LW training – instructional methods, Soldier performance, and training times.
- Review LW training documents such as critical individual and collective task lists, and the STRAP.
- Interview subject matter experts (SMEs) on the LW system and other equipment associated with variations in the study alternatives.
- Determine changes in the proposed LW system from the system as described in previously published LW documents, and the system used in training Soldiers on prior LW versions (0.6 and 1.0).
- Obtain copies of all USAIS programs of instruction (POIs) affected by the LW system, and any projected changes to these POIs. Review content to determine where LW tasks could reduce or replace current blocks of instruction, and determine where LW tasks could be integrated into current blocks of instruction.
- Identify the training resources required to support low, medium, and high levels of expertise for each individual task through synthesis of input data and information from training-related documents. Document differences in training resources associated with different levels of expertise. Review results with LW training project officer in USAIS in order to ascertain a recommended level of resourcing/expertise for costing purposes and to depict overall training impact.
- Determine yearly student throughput for each course.
- Identify any additional major resources required to support training that were not identified via the analysis of individual tasks.
- Transfer information on training resources to cost analysts.
- Identify prerequisite skills and tasks.

Generic Training Strategy Applied to the Study Alternatives

A consistent approach to training was applied in the TIA. First, the training impact for all study alternatives was examined in terms of changes from the base case. Resources required to support base case training were not examined.

Stages of Analysis

For the analysis of the LW alternatives, the TIA was divided into two stages that were linked to the extent of fielding of the LW system and were consistent with the overall training plan specified in the LW STRAP. When less than 50% of the force is fielded with the LW system, the STRAP specifies that two functional courses, operator and leader courses, will be

used to train unit replacement personnel. This is called Stage A in the TIA. These functional courses are in addition to the courses currently offered at the USAIS.

When more than 50% of the Infantry force is equipped with the LW system, the STRAP specifies that LW training will be integrated into the current professional development courses at the USAIS. This is called Stage B in the TIA. The impact of the alternatives on four USAIS courses were examined in Stage B: Basic Officer Leadership Course (BOLC) III Infantry³, Advanced Noncommissioned Officer Course (ANCOC), Basic Noncommissioned Officer Course (BNCOC), and Infantry One Station Unit Training (OSUT).

In Stage B, all the required LW training for Alternatives 3 and 4 could not be accomplished via the existing USAIS courses. This resulted from the fact that there is no professional development course specifically for team leaders⁴. To be consistent with the analytic approach, functional courses were used to fill this void for team leaders in Stage B. The correspondence between Infantry platoon positions and the courses in Stages A and B of the TIA is presented in Table 1.

A primary difference between the LW functional courses and the professional development courses is that the functional courses require additional instructors, time, and equipment. For example, the instructor pool at the USAIS is responsible for current courses, and is not adequate to support the insertion of additional courses. The same constraint applies to equipment (weapons, night vision goggles, etc.) that supports current courses. Thus estimates were made of the additional training resources needed for the functional courses.

In consideration of these constraints, and for the training of the radio tasks associated with Alternatives 1, 2, and 3, exportable training packages for radio training and integration of LW training into current courses were considered. Table 2 presents the generic training strategy that was the basis for the TIA.

³ The current Infantry Officer Basic Course (IOBC) will be divided into a common core course for all officers (BOLC II – Basic Officer Leadership Course), followed by BOLC III Infantry (Infantry Officer training only).

⁴ PLDC (Primary Leadership Development Course) is MOS immaterial, and because of this, PLDC was not a viable option for training team leaders.

Table 1

Correspondence Between Infantry Platoon Positions and USAIS Courses

Stage A: < 50% Fielding of LW	Course
Leaders (Team leader and above)	Functional course (new)
Operators (all positions)	Functional course (new)
Stage B: > 50% Fielding of LW	
Rifle team members, weapon squad members, mortar section members	Infantry OSUT
Team leader (TL) and equivalent	Functional course (new) No course exists for Infantry team leaders
Squad leader (SL) and equivalent	BNCOC
Platoon sergeant	ANCOC
Platoon leader	BOLC III Infantry

Note. In Stage A, the functional courses will train Captains and non-Infantry MOSs (medics, engineers, field artillery) who are being assigned to a LW-equipped unit. In Stage B, it was assumed that Infantry officers at the Captain level will have received LW training in prior courses. For the non-Infantry MOSs, the STRAP specifies that some functional courses must remain for replacement training of these individuals. These courses were not examined in Stage B of the TIA.

Table 2

Generic Training Strategy for the Study Alternatives

Alt 1: Radio (TL & below). Exportable Training Package for TL; Train Squad Members in OSUT			
	LW Alt 2: SL ↑	LW Alt 3: TL ↑	LW Alt 4: All
Stage A			
Leaders	LW Operator and Leader Functional Course	—————→	—————→
Squad Members (+)	Radio Exportable for TL and Squad Members	Radio Exportable for Squad Members	LW Operator Course
Stage B			
BOLC III IN	LW Operator and Leader Training	—————→	—————→
ANCOC	Integrate LW	—————→	—————→
BNCOC	LW Operator and Leader Training	Integrate LW	—————→
Team Ldr	Radio Exportable	LW Operator and Leader Functional Courses	LW Leader Functional Course
OSUT	Radio	Radio	LW Operator Training

The Generic Training Strategy for Land Warrior

This section briefly describes the generic training strategy for LW used in the analysis. In Stage A, as indicated in Table 2, all leaders receive both operator and leader training on the LW system, although the target population of leaders varies with the alternative. It is only with Alternative 4 that squad members are trained as operators. Stand-alone radio training for team leaders and squad members is an exportable training package to the unit in Alternatives 2 and 3, as appropriate.

In Stage B, platoon leaders receive operator and leader training in BOLC III Infantry regardless of alternative. LW training is integrated into ANCOC as platoon sergeants will have received training on the LW system as a squad leader, team leader, and/or squad member depending on the study alternative. With Alternative 2, the LW system is introduced at the squad leader level, therefore, BNCOC must incorporate LW operator and leader training. However, with the other two alternatives, squad leaders will have been trained previously as a team leader and/or squad member. Therefore, LW training was integrated into BNCOC for Alternatives 3 and 4. For team leaders, the appropriate LW functional courses were included in Alternatives 3 and 4 in order to compensate for the lack of a professional development course for Infantry team leaders.⁵ Squad members receive LW training only in Alternative 4, Infantry OSUT. When required by Alternative 2 and/or 3, stand-alone radio training was specified to be an exportable training package for team leaders, but was included in OSUT for squad members.

In Table 2 and Stage B, the phrase "Integrate LW" is cited under some alternatives. Integration of LW into an existing USAIS course assumes that the target population for the course has been trained previously on the LW system, that no additional blocks of instruction are required, and that course training time is not reduced. When the LW system is integrated in a course, the LW system will be used in the appropriate blocks of instruction as a means of executing practical exercises and of supporting other applications of doctrinal and tactical concepts. Reductions in training time and any replacement of time devoted to specific blocks of instruction were distinct from the concept of LW integration, and were addressed separately in the analysis.

Operator and Leader Tasks

Land Warrior

The TIA was based on the LW critical task list. The critical LW operator and leader tasks to be trained came from the results of a Task Selection Board held by the LW Training Functional Working Group in January 2004. The Task Selection Board also specified the Soldier skill level for each task (i.e., skill levels 1 through 4). The critical task list was based on a total task list. From the total task list, only tasks which were new because of the LW system or which were substantially changed because of the LW system were deemed as critical.

⁵ The Primary Leadership Development Course (PLDC) was considered as a course for training team leaders on the LW system. However, as PLDC is a military occupational specialty (MOS) immaterial course, integration of LW training was not a reasonable course of action.

For the TIA, the critical tasks were grouped by functional areas. These areas were: system preparation/configuration, system operation, communications (voice and digital), move (land navigation), shoot (reduced exposure firing and MFL), maintenance/logistics, planning (leaders only), and tactical training (skill integration and application of leader skills).

Stand-alone Radio

Subject matter experts on the MBITR and EPLRS radios were interviewed to identify the stand-alone radio tasks for Alternatives 1, 2 and 3.

Supporting Documentation

System Training Plan (STRAP)

The STRAP (Foster, 2004b), produced by the G3, USAIS was a basic resource document for the TIA. The training plans in the STRAP assume that everyone in the rifle platoon has a LW system, which corresponds to study Alternative 4. Whenever possible, the training assumptions in the STRAP were applied to the TIA. In addition, the STRAP provided a list of training aids, devices, simulations, and simulators (TADSS) that had been identified for the LW system.

The STRAP was also the basis for the class sizes and number of instructors used in the Stage A analysis. The class sizes specified in the STRAP were used for the functional operator and leader courses in Alternatives 3 and 4. The decision on class size for the operator and leader courses in Alternative 2 Stage A was made in conjunction with the LW training project officer in the USAIS. Per the STRAP, the number of instructors for the functional courses was based on a ratio of 1 instructor per 5 students. This ratio was also applied to the functional courses for team leaders specified in Stage B.

Reports on LW Training

Several reports described LW training in some detail, and provided the basis for many time estimates, task difficulty estimates, prerequisite tasks/skills, training resources and prerequisite skills. One report was based on training observations conducted prior to the Joint Contingency Force Advanced Warfighting Experimentation (JCF AWE) held in 2000 (Dyer, Fober, Wampler, Blankenbeckler, Dlubac, & Centric). This training involved version 0.6 of the Land Warrior system. An Infantry platoon from Ft. Bragg was trained in this effort.

Another series of reports (Dyer & Wampler, 2002a, 2002b; Wampler, Beal, & Dyer, 2003) described the LW version 1.0 and the training that occurred with this version prior to Technical Testing in 2002. Differences in LW features between version 1.0 and the LW Block II system were verified by interviewing LW SMEs. A reduced exposure firing experiment was also conducted with version 1.0 (Dyer, Beal, Salvetti, Vaughan, & D'Errico, 2004), and provided the rationale for the training requirements and resources for reduced exposure firing tasks.

The LW manpower and personnel integration (MANPRINT) reports written in 2002 and 2003 provided additional information.

Training materials prepared for the LW system were considered in the analysis. These materials included a training video-tape on reduced exposure firing (Omega Training Group, 2003), and a CD-ROM on selected prerequisite skills (map reading, messages, combat orders and graphic control symbols; ARI, 2003). Both the video-tape and the CD-ROM were available for review. Government reviews of contractor-developed storyboards for Interactive-Multimedia-Instruction (IMI) CD-ROM on the LW system were also considered in the TIA.

Programs of Instruction (POIs)

For Stage A, no formal POI existed for the operator and leader functional courses. However, the proposed critical tasks to be trained in these courses are listed in the STRAP and the critical task list. Because the TIA had to be consistent with the study alternatives, some modifications were made to the allocation of tasks to the leader and operator courses (see Results section). The STRAP also specified training times for certain topics. However for the TIA, an independent time analysis was conducted, and times were estimated for each level of proficiency. A cross-walk with the STRAP tasks and training times was conducted to determine overlap and potential discrepancies.

For the Stage B analysis, the POIs for the professional development courses and Infantry OSUT were obtained via the G3, USAIS. The POIs outlined the time required for each block of instruction, and the type of instruction (e.g., classroom, field exercise).

Army Training Requirements and Resources System (ATRRS) and USAIS Instructors

In Stage B, class sizes for the professional development courses and Infantry OSUT were based on the optimum class size in each course as documented in the Army Training Requirements and Resources System (ATRRS). The senior trainer for each course was contacted to determine the number of authorized instructor positions. For OSUT, the number of instructors was the number of drill sergeants authorized per training company.

SME Interviews

LW SMEs were interviewed to obtain the latest information on the LW system. USAIS SMEs were interviewed to determine the training projected for digital systems such as FBCB2. SMEs on the MBITR and EPLRS-Heavy were interviewed.

LW Basis of Issue Plan (BOIP) for Each Alternative

The number of projected LW systems to be fielded (numbers of Soldiers assigned a LW system) for each alternative was based on the LW BOIP developed by the TRADOC Analysis Center – White Sands Missile Range (TRAC-WSMR). This BOIP detailed, by duty position within each unit, who would be assigned a LW system, whether it was a leader system, an RTO's system, a medic's system, or a Soldier system. These numbers were used to determine the

student throughput requirements for the functional courses in Stages A1 and A2. LW system numbers used in the TIA excluded the Special Operations Forces (SOF) numbers, as the vast majority of the SOF individuals will be trained at Ft. Bragg, NC, not at the USAIS.

Other Sources

Other information regarding the LW system was obtained through ARI participation in several LW Integrated Product Teams and working groups (MANPRINT, Supportability, and training). In addition, ARI had access to briefing slides presented at preliminary critical design reviews. Requests for specific information were made to the PM-Land Warrior as well.

Analysis and Identification of Training Resources

A master list of training resources was developed and applied to each operator and leader task. This list of resources is presented in Table 3.

Table 3
Master List of Training Resources Applied to Each Task

Training Resources
<ul style="list-style-type: none"> • # Hours (additional, replacement) • # Instructors (PI & AI) • # Students • LW systems • # LW batteries • Battery chargers • LW training cable • Training Devices/student • Interactive Multimedia Instruction (IMI) CD-ROM on LW tasks and functions • # Overhead projectors • # Slide projectors • # Overhead screens • Sound system • Chalk/white board • # Computers/computer monitors • Digital classroom • Power Supply • Desks/Tables/Chairs • Training Area: Type and size • Firing Ranges: # and type • # Range Safety Personnel • # Medics • Subcaliber ammunition (rds/ student) • Live ammunition (rds/student) • Blank ammunition (rds/student) • Simunitions (rds/student plus adaptor to weapon)

Training Resources
<ul style="list-style-type: none"> • Boresight kit with boresight target • Multiple Integrated Laser Engagement System (MILES) ensembles • Pyrotechnics (type and quantity) • # Opposing force (OPFOR) personnel

Documentation of Training Resources

Data sheets were developed for each task. These sheets were used to record the resources associated with each task for Stages A and B of the analysis, and for each course in which the task was to be trained. Only the resources cited in Table 3 that impacted a task were included in the data sheet for that task. A condensed blank data sheet is illustrated at Table 4.

For each task to be trained and each study alternative, an estimate was made of the resources required to train to three levels of expertise, called low, medium, and high. The scope of the task and/or the conditions of training varied in accordance with these levels. Low expertise was always defined as training to a level where the individual could perform the basic skills associated with each task. This definition means that a low level of training was more than familiarization. Medium expertise was defined as adding training on additional aspects of the task beyond those trained under conditions associated with low expertise. High expertise involved more training conditions, more practice, and/or instruction on technical aspects of the task. The data sheet in Table 4 illustrates how the levels of expertise were integrated into the training impact analysis.

Table 4
Task Data Sheet (condensed) for Documenting Training Resources

LW Prerequisite Tasks // Other Prerequisites // Assumptions // Data Sources:			
Functional Area	Low Expertise	Medium Expertise	High Expertise
Tasks/Skills taught	Task Title and Number		
Description of Training	<i>Description of low expertise.</i>	<i>Description of medium expertise.</i>	<i>Description of high expertise.</i>
<i>Recommended level of expertise/training cited here.</i>			
Common Resources			
<i>Resources common to all levels of expertise cited here (see Table 3)</i>	<i>Quantities for Low</i>	<i>Quantities for Medium</i>	<i>Quantities for High</i>
Functional Courses: Stage A			
Functional Course for Operators: Alt 4 - LW to All			
<i>Specific resources listed here.</i>	<i>Quantities for Low</i>	<i>Quantities for Medium</i>	<i>Quantities for High</i>
Functional Course for Leaders:			

Alt 4 - LW to All			
<i>Specific resources</i>			
Functional Course for Operators: Alt 3 - LW to TL			
<i>Specific resources</i>			
Functional Course for Leaders: Alt 3 - LW to TL			
<i>Specific resources</i>			
Functional Course for Operators: Alt 2 - LW to SL			
<i>Specific resources</i>			
Functional Course for Leaders: Alt 2 - LW to SL			
<i>Specific resources</i>			
Professional Development Courses and IET: Stage B			
BOLC III Infantry Alt 4 - LW to All Alt 3 - LW to TL Alt 2 - LW to SL			
<i>Specific resources</i>			
ANCOG: Alt 4 - LW to All Alt 3 - LW to TL Alt 2 - LW to SL	<i>LW integrated in ANCOG. LW systems required for each Soldier and instructor. LW system issued as TA-50. Used in all field exercises.</i>		
BNCOC: Alt 4 - LW to All Alt 3 - LW to TL	<i>LW integrated in BNCOC for Alt 4 and 3. LW systems required for each Soldier and instructor. LW system issued as TA-50. Used in all field exercises.</i>		
BNCOC: Alt 2 - LW to SL			
<i>Specific resources</i>			
Alt 4 - Tm Ldrs Functional Course for Leader Training			
<i>Specific resources</i>			
Alt 3 - Tm Ldrs Functional Course - Operator & Leader Training			
<i>Specific resources</i>			
Infantry OSUT: Alt 4 - LW to All			
<i>Specific resources</i>			

As part of the training resource analysis, a review of proposed communications/digital reporting equipment was conducted to determine if there was commonality or "cross-over" learning between the various systems. The systems reviewed included FBCB2, Maneuver Control System-Light (MCS-L), EPLRS (Heavy), MBITR, and EPLRS-Light. In voice mode (MBITR and EPLRS-Light), there was some commonality with LW in basic radio procedures, the phonetic alphabet, and number pronunciation (Skill Level 1 tasks). There was also commonality (FBCB2 and MCS-L) with LW in some digital reporting, graphic representations, and overlay content (skill levels 2 and 3 tasks).

The EPLRS-Light tactical data radio system transmits data from dismounted locations to the vehicular mounted EPLRS-Heavy networked data communication system. EPLRS-Heavy serves as the communications network for the Army's lower Tactical Internet (TI) and is the communications system for FBCB2. FBCB2, a digital battle command information system, provides position/location, tactical combat, combat support, and some combat service support information. MCS-L is used for operations planning, sending and receiving reports, and battle tracking. MCS-L and FBCB2 are not interoperable.

MCS-L training is projected for ANCOC and the Infantry Captain's Career Course (ICCC) in FY05. FBCB2 is included BNCOC and IOBC. Both systems, as well as LW, employ the joint variable message format (JVMF) to transmit digital reports. Additionally, both systems build and transmit operation orders, and contain common graphic representations and overlay content. As the intent of the review was only to identify the existence of cross-over training, no metric was developed to capture the exact amount of cross-over training to LW-specific software provided by any of the systems.

Number of LW Systems

A major training resource is the LW system itself. The ratio of LW systems to students was 1 to 1, consistent with the STRAP. Consequently, the LW equipment was treated as part of the Soldier's/Leader's TA-50⁶ during a course. With this approach it was assumed that each individual would be issued a LW system at the start of a course and use it throughout. This is in contrast to the weapons pool concept established for some equipment, where the item is provided for certain blocks of instruction only, not the entire course. In addition, in accordance with the STRAP, every squad leader and team leader have a MFL. Per the alternatives, the platoon leader and platoon sergeant have a CDA. Each instructor has a LW system with a CDA. The CDA assists the instructor in monitoring the Soldier's use of the system.

Of interest is that the one-to-one ratio of students and LW systems is supported by the Johnston, Leibrecht, Holder, Coffey, and Quinkert (2003) report on sustainment of digital skills within unit staffs. Because digital skills are perishable, it was recommended that individuals should use the tactical digital system for all headquarters taskings, e-mail, plans, etc. as this would enable Soldiers and leaders to become very proficient with digital systems. This recommendation supports the assumption in the STRAP that every individual should be issued a

⁶ TA-50 refers to all items issued to personnel from the Central Issue Facility, such as sleeping bags, field pack, case small arms, cover canteen, etc.

LW system. This basis of issue allows students to integrate the system throughout their training, allowing repetitive practice and application. A higher level of proficiency and less degradation of skill will result as compared to using the system in blocks of instruction labeled "LW."

To determine the number of LW systems for Stages A and B, it was necessary to calculate the maximum number of LW systems used at any time in training. Course overlap had to be determined. For Stage B, the number of professional development courses held per year is specified in ATRRS, and course overlap was identified through ATRRS. However, for OSUT, the number of LW systems was based on the number of training companies, as TA-50 items are assigned to a company and stay with the company regardless of the training cycle.

For all functional courses in Stages A and B, additional analyses were required to determine the required number of LW systems. For Stage A, the number of functional courses increases as fielding of the LW system continues. To provide a better picture of the training impact (number of LW systems and student throughput) during Stage A, two point-estimates of the impact were made. In Stage B, the number of USAIS courses is not affected by the fielding status of the LW system.

The first point, called Stage A1, was when the Stryker Brigades were fielded with the LW system (6 brigades). The second point, called Stage A2, was the half-way point between Stage A1 and the 50% fielding point (24 brigades). Stage A2 corresponded to 15 brigades. The number of LW systems fielded to the Infantry as a function of time, and Stages A1, A2, and B are depicted in Figure 1.

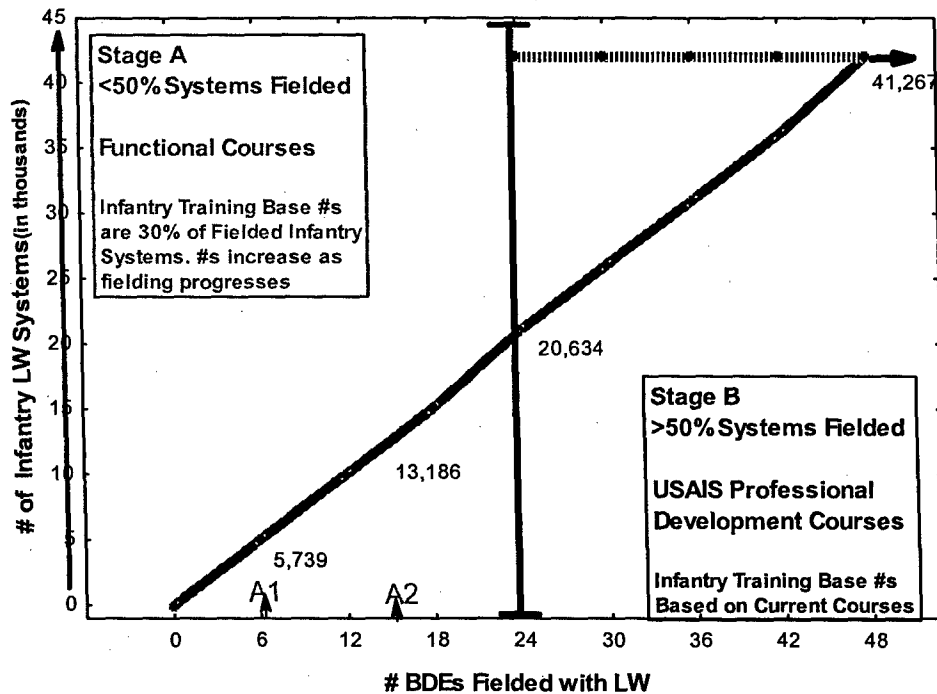


Figure 1. Analysis stages as a function of number of fielded LW systems.

For Stages A1 and A2 and in accordance with the STRAP, the student load was projected to be 30% of the number of fielded systems. The resulting number was used to determine yearly student throughput, number of courses required at each stage, course overlap, and number of LW systems.

For the team leader functional courses in Stage B, the number of courses needed was estimated to be twice the number of BNCOC courses, as there are two team leaders for every squad leader in the rifle platoon. The number of LW systems was determined in the same manner as for the other courses.

Training Time

In determining training times, a training day was assumed to be 8 hours in length. Training times for tasks, whenever possible, were based on prior LW training data and the times to train similar tasks in existing USAIS courses.

As cited previously, with regard to USAIS professional development courses, a distinction was made between training replaced by LW training and integration of LW into the training. Replacement training referred to instances where current initial training on an item of equipment could be replaced by training on a similar piece of LW equipment. The resulting training time could be less than, equal to, or greater than the current time. When LW was integrated into a block of instruction, it was used as the means by which the training was executed. There was no change in the training time for that block of instruction because of the LW system. Integration could only occur if Soldiers had already been trained on LW system.

As indicated in Table 2, integration applied to ANCOC, as it was assumed noncommissioned officers (NCOs) at this rank would have been trained previously as operators and leaders on the LW system. Therefore, the LW system became the means by which exercises in the class or the field were executed (e.g., use it in the ANCOC tactical field exercises, use it to develop operation orders (OPORDs) in the classroom). Training on the LW radio provides examples of replacement and integration training. Training OSUT Soldiers on using the LW system for voice communication replaced the two hours of the Single Channel Ground and Airborne Radio System (SINCGARS) training. Since the LW training time was estimated to be only one hour, the LW training replaced one hour of SINCGARS training and allowed another hour to be used for other LW training. LW communications training was integrated into the OSUT squad tactical exercises, as the mode of squad communication, with no change in time for this block of training.

In addition, lessons learned from the 4th Infantry Division's transition from an analog to a digital division (Johnston, et al., 2003) were applied to the time estimates made in the TIA. Digitization added to the unit's training load. If "an individual Soldier lacked basic warfighting skills, digitization did not correct this deficiency because basic warfighting skills were a prerequisite for successful digital training. The unit's model called for training the basic warfighting skills and then following with digital training. This model has been referred to as additive training." (p. 3-4). This philosophy was applied to the analysis of each LW task and identification of prerequisite skills, as well as to which LW tasks could replace training on

current tasks within institutional courses. Current blocks of instruction within existing USAIS courses were not eliminated whenever they served as the foundation for acquiring skill with LW tasks and/or would be needed as back-up skills when LW systems/capabilities were degraded or nonfunctional.

Prerequisite Skills

Prerequisite skills were identified in the process of defining the training resources for each task and documented in the data sheets (see Table 4). For each task, the specific LW tasks that should be trained prior to the LW task of interest were identified.

In addition, when successful task performance assumed skills and knowledge not related to LW, these were identified. The course POIs were examined to determine whether these skills and knowledge requirements were trained in the appropriate courses. Prior work with the LW systems (versions 0.6 and 1.0) had shown that the system required skills and knowledge of all Soldiers that only leaders at certain levels currently possess (Dyer, et al, 2000; Dyer & Wampler, 2002a, 2002b), such as map reading skills, messages, graphic control symbols, and orders. In addition, it was found that not all Soldiers had been trained on government furnished equipment (GFE) that was an integral part of the LW system. Lack of such requisite skills was found to increase training time as LW instructors had to address these limitations in the Soldiers' prior military training.

New Equipment Training (NET)

The STRAP outlines the NET concept corresponding to Alternative 4. This approach was re-examined for Alternatives 2 and 3 where only leaders are trained.

Analysis Assumptions, Constraints, and Limitations

Assumptions

- In accordance with the STRAP, every individual in each course has a LW system throughout the course. Leaders also have a MFL; platoon leader and platoon sergeant have a CDA. Each instructor has a LW system with a CDA. The CDA assists the instructor in monitoring the Soldier's use of the system.
- All leaders must have LW operator training prior to leader training.
- In Stage B, course length for existing USAIS courses was increased when necessary, rather than adding instructors. [With most tasks, additional instructors did not make training more efficient.]
- Current firing ranges and training areas could support the courses.
- Stryker vehicles would not be available in sufficient number to support all the courses.

- USAIS digital classrooms could support vehicle integration kit (VIK) training for leaders
- The LW IMI CD-ROM and the LW prerequisite training IMI CD-ROM will be provided to Soldiers for use prior to course initiation.
- Equipment in the weapons pool at Ft. Benning supports existing courses, and the quantities are not sufficient to support the GFE requirement for the LW systems in the LW functional courses.

Constraints

- In accordance with the STRAP, USAIS will continue basic map reading and land navigation with map and compass in OSUT, BOLC (IOBC) and BNCOC. LW land navigation training will not replace this training. [In the TIA, LW navigation training replaced current navigation classes using the Precision Lightweight GPS Receiver (PLGR).]
- TIA training resource estimates were based primarily on observations of training on LW versions 0.6 and 1.0. Complete information on the LW Block II system was not available.
- It was not possible to determine reduction in training time from the following factors:
 - Soldiers using the LW system throughout training.
 - Transfer of skill from FBCB2 training to LW training in BOLC III Infantry and BNCOC. Given that the total design for the LW software was not known when the TIA was conducted, it was not possible to estimate the reduction in LW training time from leaders knowing FBCB2 software.
 - Soldier use of the LW IMI CD-ROM prior to and/or during LW training.
- Some tailoring of training times and resources were made based on the target population, thereby adjusting for advantages from prior military knowledge and training. However it was not possible to verify whether additional tailoring could be made.
- Numbers of Soldiers in prior LW training ranged from platoon to squad size. It was not possible to verify TIA times for larger numbers of Soldiers (160 to 200).

Limitations

- In estimating the time required to train the LW system, time to train non-LW prerequisite skills was not included. It was assumed these prerequisite skills would be acquired prior to LW training. However, prerequisite skills were identified in the TIA.
- The TIA did not address the impact on training resources that will occur from increased numbers of Soldiers in the Infantry resulting from force transformation.
- TIA results showed USAIS courses needed to be longer to support LW training. The TIA did not address the varied impacts of increased length on training resources under circumstances where the yearly throughput could not be maintained with the current course structure.

Results: Training Strategy for all Alternatives

The training strategy table presented in the Method section of the report is repeated in the Results section as the training strategy was a primary outcome of the TIA. It also provides the needed context for the other findings.

Table 5

Generic Training Strategy for the Study Alternatives (same as Table 2)

Alt 1: Radio (TL and below). Exportable Training Package for TL, Train Squad Members in OSUT			
	LW Alt 2: SL ↑	LW Alt 3: TL ↑	LW Alt 4: All
Stage A			
Leaders	LW Operator and Leader Functional Course	→	→
Squad Members (+)	Radio Exportable for TL and Squad Members	Radio Exportable for Squad Members	LW Operator Course
Stage B			
BOLC III IN	LW Operator and Leader Training	→	→
ANCOC	Integrate LW	→	→
BNCOC	LW Operator and Leader Training	Integrate LW	→
Team Ldr	Radio Exportable	LW Operator and Leader Functional Courses	LW Leader Functional Course
OSUT	Radio	Radio	LW Operator Training

Results for Alternative 1: Non-LW Alternative (EEA 1-4)

One critical task was identified for Alternative 1: Operate the stand-alone radio (voice). For this Alternative, radios were only needed in Infantry OSUT (reference Table 5), as an exportable training package for the unit was specified for team leaders. The rationale for this distinction was that there is no USAIS course for team leaders, whereas OSUT is designed for future squad members. Prerequisite skills identified for the radio were basic radio procedures, the phonetic alphabet, and number pronunciation. These skills are currently covered in the OSUT POI.

The recommended level of expertise was low – voice communications only – for a total of 6 hours of training. However, since the radio training replaced the current two hours of SINCGARS training in OSUT, the increased training time in OSUT was only four hours (see Appendix C, C-68). The radio and employment of the radio were integrated in field exercises in OSUT, with no impact on training time. The number of radios needed for Soldiers and instructors for both formal instruction and the field exercises was specified to be 1,068 with two batteries per radio (see Appendix C). There was no change in the number of instructors (drill sergeants) per OSUT training company ($n=12$), nor was there a change in class size ($n=200$).

Results for Alternatives 2, 3, and 4: LW Alternatives

Stand-alone Radio Results for Alternatives 2 and 3 (EEAs 1-4)

In Stage A, the generic training strategy specified that both team leaders and squad members be trained on the stand-alone radio in their unit via an exportable training package. This approach applied to team leaders in Alternative 2 and to squad members in Alternatives 2 and 3. An exportable training package appeared to be the most cost-effective means of training, given the limited number of Soldiers to be trained during this stage of LW fielding. One critical task was identified: Operate the stand-alone radio (voice). Prerequisite skills identified were basic radio procedures, the phonetic alphabet, and number pronunciation. These skills are currently covered in the OSUT POI.

In Stage B, an exportable training package was again used for team leaders (Alternative 2), as there is no USAIS course designed for team leaders (reference Table 5), and establishing a course for radio training only would not be cost-effective. However, for squad members the radio training (Alternatives 2 and 3) was included in Infantry OSUT. The recommended level of expertise was low – voice communications only – for a total of six hours of training. However, since the stand-alone radio training replaced the current two hours of SINCGARS training in OSUT, the increased training time in OSUT was four hours. As was the case with Alternative 1, the radio itself and employment of the radio were integrated in field exercises in OSUT, with no impact on training time.

For OSUT, the number of radios needed for Soldiers and instructors for both formal instruction and the field exercises was specified to be 1,068 with two batteries per radio (see Appendix C). There was no change in the number of instructors (drill sergeants) per OSUT training company ($n=12$), nor was there a change in class size ($n=200$).

Critical LW Tasks (EEA 1 and 2)

The critical tasks identified by the LW task selection board are cited in Table 6, a total of 60 from the original 156 in the total task list (Appendix A). All task numbers have a LW suffix indicating they are LW-related tasks, and also that they have not been through a formal task and site selection board conducted by the USAIS and approved by the Commandant. There are 31 skill level (SL) 1 tasks, 3 SL 2 tasks, 13 SL 3 tasks, and 13 SL 4 tasks.

Table 6

LW Stryker-Interoperable Critical Tasks (MOS11B, Skill levels 1-4, Platoon Level)

No	TASK NUMBER	TASK TITLE	Skill Level
1	071-800-01LW	Assemble the Land Warrior Helmet subsystem	1
2	071-800-02LW	Assemble the Land Warrior Body subsystem	1
3	071-800-03LW	Assemble the Land Warrior Weapon subsystem	1
4	071-800-04LW	Don the Land Warrior system	1

No	TASK NUMBER	TASK TITLE	Skill Level
5	071-800-05LW	Power On the Land Warrior system	1
6	071-800-06LW	Log On to the Land Warrior system	1
7	071-800-07LW	Load Mission Data Packages on the Land Warrior system	1
8	071-800-08LW	Configure the Land Warrior system for operation	1
9	071-800-09LW	Configure the Land Warrior Navigation subsystem	1
10	071-800-10LW	Operate the Land Warrior Map functions	1
11	071-800-11LW	Perform Digital Messaging functions	1
12	071-800-12LW	Perform Digital Imaging functions	1
13	071-800-13LW	Perform Voice Communications using the Land Warrior system	1
14	071-800-14LW	Operate the Multifunction Laser	1
15	071-800-15LW	Zeroize the Land Warrior system	1
16	071-800-16LW	Boresight the Daylight Video Sight	1
17	071-800-17LW	Boresight the Thermal Weapon Sight	1
18	071-800-18LW	Boresight the Multifunction Laser	1
19	071-800-19LW	Zero the Daylight Video Sight	1
20	071-800-20LW	Zero the Thermal Weapon Sight	1
21	071-800-21LW	Zero the Multifunction Laser	1
22	071-800-22LW	Engage Targets with weapon using a Daylight Video Sight	1
23	071-800-23LW	Engage Targets with weapon using a Thermal Weapon Sight	1
24	071-800-24LW	Engage Targets with weapon using a Multifunction Laser	1
25	071-800-25LW	Maintain the Land Warrior system	1
26	071-800-26LW	Operate the Stryker Vehicle Integration Kit	1
27	071-800-27LW	Adjust Indirect Fire using the Land Warrior system	1
28	071-800-28LW	Operate the Mission Data Support Equipment	1
29	071-326-01LW	Move as a Member of a Fire Team	1
30	071-329-01LW	Navigate from One Point on the Ground to Another Point While Dismounted	1
31	301-348-01LW	Report Information of Potential Intelligence Value	1
32	071-326-02LW	Control Movement of a Fire Team	2
33	071-410-01LW	Conduct Occupation of an Overwatch Position	2
34	071-410-02LW	Control Organic Fires	2
35	071-326-03LW	Prepare Combat Orders using the Land Warrior system	3
36	071-326-04LW	Issue Combat Orders using the Land Warrior system	3
37	071-326-05LW	Prepare Overlays using the Land Warrior system	3
38	071-326-06LW	Conduct Movement Techniques by a Squad	3
39	071-326-07LW	Conduct the Maneuver of a Squad	3
40	071-410-03LW	Conduct a Leader's Reconnaissance	3
41	071-430-01LW	Consolidate a Unit Following Enemy Contact	3
42	071-430-02LW	Reorganize a Unit Following Enemy Contact	3
43	071-430-03LW	Conduct a Defense by a Squad	3
44	071-440-01LW	Conduct an Attack on a Building by a Squad During an Urban Operation	3

No	TASK NUMBER	TASK TITLE	Skill Level
45	071-440-02LW	Conduct a Defense by a Squad During an Urban Operation	3
46	071-450-01LW	Conduct a Passage of Lines	3
47	071-450-02LW	Conduct a Point Ambush	3
48	071-326-08LW	Conduct Movement Techniques by a Platoon	4
49	071-326-09LW	Coordinate with an Adjacent Platoon	4
50	071-420-01LW	Conduct the Maneuver of a Platoon	4
51	071-420-02LW	Conduct a Movement to Contact by a Platoon	4
52	071-420-03LW	Conduct an Attack by a Platoon	4
53	071-430-04LW	Conduct a Defense by a Platoon	4
54	071-440-03LW	Conduct a Defense by a Platoon During an Urban Operation	4
55	071-440-04LW	Conduct an Attack by a Platoon During an Urban Operation	4
56	071-450-03LW	Conduct a Raid	4
57	071-450-04LW	Conduct an Area Ambush by a Platoon	4
58	071-720-01LW	Conduct a Zone Reconnaissance by a Platoon	4
59	101-521-01LW	Request Supplies and Logistical Services	4
60	191-377-01LW	Establish a Roadblock/Checkpoint	4

Six tasks were excluded from the TIA as they were categorized as prerequisite LW skills. These tasks were:

- Boresight the thermal weapon sight (TWS)
- Zero the thermal weapon sight
- Engage targets using the thermal weapon sight
- Boresight the multifunction laser (MFL)
- Zero the multifunction laser
- Engage targets with the multifunction laser

The thermal weapon sight (TWS) is GFE. Prior proficiency was assumed regarding boresighting, zeroing, operating, and engaging targets from exposed positions with this sight. With respect to reduced exposure firing, the reduced exposure firing trials (Dyer, Beal, et al., 2004) showed transfer of firing positions and target acquisition techniques from the daylight video sight (DVS) to the TWS, and therefore reduced exposure firing with the TWS was excluded as a training requirement in the TIA. Only the DVS firing tasks were included.

The two multifunction laser (MFL) tasks that were excluded relate to using the infrared aiming light component and boresighting techniques. These skills should have been acquired by leaders from prior use of the PAQ-4C or PEQ-2A aiming lights. The one exception to this generalization is the students in BOLC III Infantry. Training on aiming lights was not deleted from this POI in order to provide the necessary MFL training. It is important to note that tasks related to MFL operation, calibration and use in call-for-fire were *not* eliminated from the TIA.

Leader tasks that involved a modification to planning and or execution because of the LW system were integrated into the tactical training and field training phases of the leader courses. This included all SL 2, 3 and 4 tasks except for preparing combat orders, issuing

combat orders, and preparing overlays. Although these planning tasks were included in the tactical/field training phases, specific blocks of LW instruction were necessary to enable leaders to develop the required planning skills using the LW software interface.

Based on these factors, the tasks that were specifically analyzed in terms of low, medium and high levels of training were a subset of the critical task list. GFE tasks were not included in the analysis. Leader tasks were incorporated in tactical exercises, which, as a whole, were examined in terms of the three levels of training.

Because of the structure of the training alternatives and in order to have a complete training program, it was necessary to specify two additional skills required by all operators. These skills were not necessarily derived from the critical tasks. One skill was called "use the LW software interface." This referred to learning about the structure of the major screen displays in the LW software and the primary functions served by these displays. The other skill was called "use/view the LW overlays." This refers to operator skills related to the seven overlays, the echelon overlay features, and some basic skills in placing point symbols on the map. Leaders are taught the specifics of creating overlays, but all operators must know how to interpret the overlays and select what they need for the combat mission.

Class Size (EEA 4)

In Stage A, the class sizes for the Operator and Leader Courses were based on the STRAP. The class sizes in the STRAP, which corresponded to study Alternative 4, were 105 for the Operator Course and 45 for the Leader Course. The Leader course in Alternative 4 included team leaders and above, and therefore this class size also applied to Alternative 3 (both the Leader and Operator courses). In conjunction with the Infantry School's LW training representative, the class sizes for the Operator and Leader Courses in Alternative 2 (squad leader and above) were each determined to be 30.

In Stage B, the class size was based on the optimum class size as cited in ATRRS, except for the Team Leader Functional course. There was no change in size for USAIS professional development courses due to introduction of the LW system in the course POIs. ATRRS specifies 160 students in IOBC, ANCOC, and BNCOC, and 200 in Infantry OSUT (a training company). The IOBC numbers were assumed to apply to BOLC III IN. For the Team Leader Functional Course that had to be added for study Alternatives 3 and 4, the class size was assumed to be 160. Class sizes are summarized for each Alternative and each course in Table 7.

Table 7
Class Sizes for LW Training

Stage and Course	Study Alternative		
	Alternative 2	Alternative 3	Alternative 4
A: Operator	30	45	45
A: Leader	30	45	105
B: BOLC III IN	160	160	160
B: ANCOC	160	160	160
B: BNCOC	160	160	160
B: Team Leader Functional	NA	160	160
B: Infantry OSUT	NA	NA	200

Training Time (EEA 4)

The length of each course was based on the cumulative time required to train all tasks appropriate for the course. The training times and other training resources were derived from the estimates of what was required to train to low, medium, and high levels of expertise⁷. As necessary, distinctions were made between operator tasks required by all, and tasks only executed by leaders. For six tasks, there was no difference between the three levels. For example when low, medium and high levels of expertise were defined as being the same, this typically meant that everyone had to have the same knowledge, understanding, and skill to execute the task. Power-on/log-off and assemble/don the system were two such tasks.

There were differences in level of training defined for the other tasks. For six tasks, each of the levels differed from each other (that is Low < Medium < High). Two examples of this condition are engaging targets using reduced exposure firing with the DVS and land navigation. Reduced exposure firing at the low level consisted of dry fire and known distance firing from defensive positions; field fire scenarios were added at the medium level; assault firing techniques were added at the high level. Land navigation training at the low level consisted of navigating to 2 points during the day; at the medium level 2 points at night were added; at the high level 5 points were required during the day and 3 points at night.

For the other tasks, there was a difference between at least two levels of training. Also for many tasks, leaders were to perform at a different level of expertise than operators, because they needed more technical knowledge or were responsible for additional aspects of a task.

To generate course times, one level of expertise was identified for each task. This recommended level of expertise was based on recommendations by the LW training project

⁷ Definitions given previously are repeated. Low expertise is training to a level where the individual performs the basic skills associated with each task. Medium expertise is defined as adding training on additional aspects of the task beyond those trained under low proficiency. High expertise involves more training conditions, more practice, and/or instruction on technical aspects of the task.

officer representing the G3, Directorate of Operations and Training, USAIS. The times associated with the recommended level of expertise for each task were then cumulated to generate the total course time. The recommended level of expertise for each task is documented in Appendix B, as well as the relationship between the levels of expertise. The recommended level is repeated again in the detailed training impact analysis for each task at Appendix C. This detailed analysis also documents, by level of expertise, the components of each task that are trained and the required training resources. Critical training assumptions, prerequisite skills, and source documents are cited. These detailed results are not repeated in the body of the report.

Stage A: Functional Courses

A summary of the course hours for Stage A is in Table 8.

Table 8
Course Hours for Stage A

Area	LW Operator Course			LW Leader Course		
	Alt 2 N = 30	Alt 3 N = 45	Alt 4 N = 105	Alt 2 N = 30	Alt 3 N = 45	Alt 4 N = 45
Introduction	0.50	0.50	0.50	0.00	0.00	0.00
Prepare/Configure System	7.50	7.50	7.50	1.50	1.50	1.50
Operate System	5.45	5.45	5.45	3.00	3.00	3.00
Communicate	8.00	8.00	8.00	2.00	2.00	2.00
Move	8.00	8.00	8.00	0.00	0.00	0.00
Maintain System	1.00	1.00	1.00	0.50	0.50	0.50
Shoot: Reduced Exposure Firing	8.00	9.25	16.00	0.00	0.00	0.00
Shoot: MFL	0.00	0.00	0.00	6.25	6.25	6.25
Plan	0.00	0.00	0.00	8.00	8.00	8.00
Tactical Training	0.00	0.00	0.00	24.00	24.00	24.00
Evaluation	8.00	8.00	8.00	4.00	4.00	4.00
Functional Checks & System Accountability	6.00	6.00	7.00	6.00	6.00	6.00
In/out Processing	8.00	8.00	16.00	8.00	8.00	8.00
Total Course Hours	60.45	61.70	77.45	63.25	63.25	63.25
Total Days	8 days	8 days	10 days	8 days	8 days	8 days

Functional Course comparison with STRAP. The Operator Course in the STRAP (corresponding to Alternative 4) was 120 hours (3 weeks) and the Leader Course was 40 hours (1 week), for a total of 160 hours (4 weeks). The total time for the Operator and Leader Courses computed for the TIA was similar (141 hours or 3.6 weeks), but the distribution of training time shifted, with less time in the Operator Course and more time in the Leader Course.

In comparison with STRAP times, the time for the Operator Course was reduced because all training on GFE was removed (e.g., TWS, Objective Individual Combat Weapon (OICW), AN/PVS-14 night vision goggles). These prerequisite requirements were documented separately

in the TIA. In addition, the MFL training was moved to the Leader Course as the study alternatives specified the MFL as a leader device only. Military Oriented Protective Posture (MOPP) training was deleted (not reflected in critical tasks). Shooting focused on reduced exposure firing with the DVS only. Tasks related to configuring the system and operating the system were estimated to take less time than cited in the STRAP, based on time data from prior LW training. Land navigation and evaluation times were similar. Times for personnel in- and out-processing, and functional checks/system accountability were added.

The time for the Leader Course was expanded due to incorporation of the MFL, evaluations, Stryker vehicle integration kit (VIK) leader functions, more stress on messages and technical information, in/out processing, and functional checks/system accountability. On the other hand, the STRAP and TIA times were similar for mission planning, logistics, and tactical considerations.

Functional Course time requirements across Alternatives. For almost every content area, the time required to train was the same across the three alternatives. The clear exception to this was in the area of shooting, where time was a function of class size. Shooting times, regardless of the course or the alternative, were a function of the number of firing points on a range. The record fire ranges used for the pop-up target scenarios have a limited number of firing points. Consequently, as the class size increases, the time required to shoot also increases.

The basics of operating the system were covered in the Operator Course, accounting for about 23 hours, plus an additional 8 hours of experience in day/night land navigation. The tactical training for leaders was the means by which leaders gained experience in executing leader tasks with the LW system (most of the SL 2-4 tasks cited in Table 6). One day was devoted to planning functions using the LW system. These skills were applied in the tactical, field training.

In-processing and out-processing times vary with the alternatives. For leaders, it was assumed that they would in-process during the Operator Course and out-process during the Leader Course. For squad members (Alternative 4), they had to in-process and out-process during the Operator Course. Time for functional checks and LW system accountability was based on class size (1 hour per training day for 110 students or less; 1.5 hours per training day for more than 110 students).

Stage B: Professional Development Courses

The summary of course hours for Stage B is in Table 9. BOLC III Infantry hours were the same across alternatives. Yet, the other course times varied with the study alternatives. It is important to remember that both operator and leader training had to be included in the current USAIS leader courses (BOLC III IN, BNCOC). Only OSUT focused solely on operator skills.

Additional course hours could have an impact on the number of courses held per year and/or class size if the current throughput of Soldiers must be maintained. Potential problems regarding this issue were examined; however, decisions on the best course of action were beyond the purview of the TIA. For IOBC/BOLC, and BNCOC, there is typically a month break

between classes.⁸ This time allows for an increase in course length of 9 to 10 days, but might not be a desirable solution. Another solution would be to add another course and therefore create course overlap, which does not exist now.

For OSUT, the picture is different. As soon as one training company finishes its cycle, another training company begins. The break time between training cycles cannot accommodate the increased time for OSUT. Some solutions to providing the needed throughput of Soldiers, despite the increased time in OSUT, are to increase the size of a training company or add a sixth training company to a battalion. Whatever decision is made would impact the training resource estimates cited in the TIA, particularly the number of LW systems.

Table 9

Additional Course Hours for Professional Development Courses in Stage B, and Total Hours for Team Leader Functional Courses in Stage B

Area	BOLC III IN	BNCOC	Functional Operator	Functional Leader	Functional Leader	OSUT
	Alts 2-4 N = 160	Alt 2 N = 160	Alt 3 N = 160	Alt 3 N = 160	Alt 4 N = 160	Alt 4 N = 200
Introduction	0.00	0.00	0.50	0.00	0.00	0.00
Prepare/Configure System	8.00	8.00	7.50	1.50	1.50	9.50
Operate System	8.45	8.45	5.45	3.00	3.00	5.45
Communicate	10.00	10.00	8.00	2.00	2.00	6.00*
Move	4.00*	-2.00*	8.00	0.00	0.00	8.00
Maintain System	1.50	1.50	1.00	0.50	0.50	1.00
Shoot – Reduced Exposure Firing	22.00	22.00	22.00	0.00	0.00	25.50
Shoot: MFL	6.00*	6.25	0.00	6.25	6.25	0.00
Plan	8.00	8.00	0.00	8.00	8.00	0.00
Tactical Training	Integrate	Integrate	0.00	24.00	24.00	Integrate
Evaluation	Integrate	Integrate	8.00	4.00	4.00	Integrate
Functional Checks & System Accountability	13.5	12.00	12.00	9.00	9.00	10.50
In/out Processing	0.00	0.00	8.00	8.00	16.00	0.00
Total Hours	81.45	74.20	80.45	66.25	74.25	65.95
Total Days	10 days	9 days	10 days	8 days	9 days	8 days
LW training integrated into ANCOC for all Alternatives. No additional hours for LW.						
LW training integrated into BNCOC for Alternatives 3 and 4. No additional hours for LW.						

* Some current training replaced by LW training.

⁸ Based on the ATTRS for FY05.

Integration of LW. As stated in the Method section, “LW integration” is defined as using the LW system as the means to conduct exercises in the classroom or the field. For BOLC III Infantry, substantial integration occurred in two areas: tactical training and evaluation. For ANCOC, LW training was integrated across all Alternatives. Total integration occurred for BNCOC in Alternatives 3 and 4. However, for Alternative 2, LW training was new for BNCOC NCOs, and integration occurred only in the tactical training and evaluation periods of instruction. In OSUT, again, LW integration occurred in tactical training and evaluation. Integration was possible during evaluations as some tasks could involve the LW system. There was no need to develop a special block of time for evaluation in the USAIS courses, as was required with the functional courses. No integration was possible with the Team Leader Functional Courses.

Reduction or replacement of training times. There were specific periods of instruction where LW equipment training replaced current equipment training. In OSUT, this occurred with the SINCGARS training, for which there is currently two hours. However, SINCGARS training in BOLC III Infantry was not replaced with LW communications training as the SINCGARS is a platoon-level asset with which the platoon leader must be skilled. In addition, current training time on boresighting aiming lights (e.g., AN/PEQ-2A) in BOLC III IN was replaced by boresighting the multifunction laser).

It was assumed that the land navigation training with the LW system could replace training time with the PLGR, but not basic land navigation using map and compass. OSUT training does not include PLGR; IOBC has 4 hours, and BNCOC has 10 hours. The estimated time for LW land navigation was 8 hours, and the times in Table 9 reflect replacement of PLGR training with LW training.

Appendix D presents outlines of the IOBC, ANCOC, BNCOC, and OSUT programs of instruction. The major subjects covered in each course are listed, along with the associated training hours and whether the LW replaced a part of the training or whether it was integrated into blocks of instruction.

Number of LW Systems, Student Throughput, and Number of Instructors (EEA 4)

The number of Land Warrior systems was dependent on slightly different dimensions for the two analysis phases. As such the two stages are treated separately.

Stage A: Functional Courses

The number of functional courses and consequently the number of LW systems were a function of the number of Brigades fielded with the LW system. The purpose of the functional courses is “replacement” training; to train Soldiers who must fill positions in LW-equipped units that have “lost” personnel through permanent change of station moves, Soldiers leaving the Army, and other reasons. These units have already received LW new equipment training (NET). The yearly attrition rate was estimated to be 30%, as stated in the STRAP. The resource estimates for Stages A1 and A2 differ, because the numbers of brigades fielded with LW differ (Stage A1 – 6 Brigades; Stage A2 – 15 Brigades). In the process of determining the number of LW systems needed in Stages A1 and A2, several other critical training variables had to be

calculated in addition to the class size and length of course (number of hours) which have already been presented.

- Yearly student throughput
- Number of courses needed per year
- Number of courses to be conducted simultaneously to meet time and student throughput requirements
- Number of instructors needed to meet time and student throughput requirements

Lastly, it was assumed that four (4) rechargeable batteries were required per LW system.

Estimated yearly student throughput. The numbers of Soldiers in the LW-equipped brigades at Stages A1 and A2 are shown in Table 10. Also, the number of Soldiers who must be trained as “replacement” Soldiers per year is shown. For example, for Alternative 4 in Stage A1, 5,739 Soldiers in the Stryker Brigade Combat Teams (SBCT) have an assigned LW system. However, the expectation is that 30% will leave a LW position each year. Thus 1,722 Soldiers coming into the unit must be trained on LW to account for personnel turnover.

Table 10

Number of Fielded LW Systems and Estimated Soldier Requirements for Replacement Training by Study Alternative in Stage A

Alternative	Stage A1	Stage A2
	6 Brigades (SBCT)	15 Brigades
Alternative 4		
# fielded LW Systems	5,739	13,186
30%, estimated yearly throughput replacement #s	1,722	3,956
Alternative 3		
# fielded LW Systems	2,706	6,385
30%, estimated yearly throughput replacement #s	812	1,916
Alternative 2		
# fielded LW Systems	1,914	4,473
30%, estimated yearly throughput replacement #s	572	1,331

The number of LW systems for the SBCT for each alternative was based directly on the BOIP developed by TRAC-WSMR for the Stryker brigades, as they are scheduled to be the first units fielded with the LW system. The number of LW systems for the 15 brigades was mathematically derived, rather than being based on the fielding schedule. The formula for the 15 Brigade number was as follows: $\{[(48 \text{ Bde} \times .5 - 6 \text{ SBCT})/2] + 6 \text{ SBCT}\}$. See Appendix E for explanation for formula.

The Soldier throughput numbers in Table 10 differ from those in the STRAP (Alternative 4 for Stage A1). The STRAP only estimated numbers for the Stryker Brigade Combat Teams, and did not contain estimates beyond that phase of LW fielding. In addition, the base number used in the STRAP to determine yearly throughput for replacement training in the Functional Courses was based on all Soldiers in the brigade, not just the Soldiers who have an assigned LW system, as was the case in the TIA. Thus, the yearly student throughput requirement presented in Table 10 is lower than that stated in the STRAP.

Number of courses per year, number of courses conducted simultaneously, maximum student load, number of instructors, and number of LW systems. The STRAP was the basis for the number of training cycles per year; that is, 10 courses. This number was used in the TIA as well, since the total time for the Operator and Leader Functional Courses in Alternative 4 (per TIA hour estimates, see Table 8) was very similar to the total estimated time in the STRAP. The 10-course cycle meant that if there were a requirement for 20 courses, two courses would be conducted simultaneously 10 times a year to accommodate the student throughput for 20 courses. If the requirement were 15 courses, then five times a year two courses would have to be conducted simultaneously to accommodate the student throughput.

Using the 30% throughput numbers cited previously in Table 10, the optimum number of classes per year was determined. The number of courses varied slightly with the study alternative (from 17-19 courses for Stage A1 and from 38 to 44 courses with Stage A2). However, for estimation purposes in the TIA, the number of courses was set at 18 for Stage A1 and at 40 for Stage A2 in order to provide continuity in numbers between the Operator and Leader Courses. Neither the number of LW systems nor the number of instructors required to handle the maximum student load were affected by this simplification; as the maximum number of courses to be conducted simultaneously did not change with the 18/40 split.

The maximum number of courses that must be conducted simultaneously, not the throughput requirement, determined the number of LW systems. Once a functional course is completed the LW systems assigned to that course can then be used for the following course. However, if two or more courses are held simultaneously, then there must be sufficient LW systems to accommodate the maximum number of students and instructors in both courses.

The number of instructors per functional course was based on the STRAP ratio of 1 instructor per 5 students. It is important to state again that the instructors for the functional courses are "additional" instructors. The functional courses proposed in both Stages A and B require instructors above and beyond the current instructor pool at the USAIS.

Table 11 summarizes the number of LW systems needed for Stages A1 and A2, as well as other critical training resource data. The number of LW systems is the sum of the maximum student load plus the maximum instructor requirement. The total number of LW systems for the Leader Course is the same as the Operator course except for Alternative 4. With Alternative 4, the number of systems for the Leader course is the same as that for Alternative 3. The Leader Course follows the Operator Course, with the LW systems used in the Operator Course used in the following Leader Course. Thus the LW systems needed for the Operator Course are the maximum number of systems required.

By using the generic numbers of 18 courses per year for Stage A1 and 40 courses per year for Stage A2 in the TIA, the student throughput numbers differed slightly from the optimum 30% numbers in Table 10. As stated above, the number of courses does not affect the number of LW systems and number of instructors. However, the number of courses does impact ammunition consumption.

Table 11

LW Ensemble Requirements by Course and Study Alternative in Stages A1 and A2

Course and Analysis Phase	LW Alternative		
	2 SL↑	3 TL↑	4 All
Stage A1 : Functional Courses			
Operator Course			
Class size	30	45	105
# classes per year	18	18	18
# Concurrent classes	2	2	2
Max student load	60	90	210
Yearly student throughput	(540)	(810)	(1890)
Instructors per class	6	9	21
Maximum instructor requirement	12	18	42
# LW systems reqd with max student load (max student load plus maximum instructor requirement)	72	108	252
Leader Course: LW systems for the Leader Course are the same as in Operator Course <u>except</u> for Alt 4, which is identical to the Leader Course for Alt 3.			
Stage A1 Total # LW systems	72	108	252
Stage A2: Functional Courses			
Operator Course			
Class size	30	45	105
# Classes per year	40	40	40
# Concurrent classes	3	3	4
Max student load	90	135	420
Yearly student throughput	(1,200)	(1,800)	(4,200)
Instructors per class	6	9	21
Maximum instructor requirement	18	27	84
# LW systems reqd with max student load (max student load plus maximum instructor requirement)	108	162	504
Leader Course: LW systems for the Leader Course are the same as in Operator Course <u>except</u> for Alt 4, which is identical to the Leader Course for Alt 3.			
Stage A2 Total # LW systems	108	162	504

Note. It was assumed that four rechargeable batteries were needed for each LW system. The LW systems for the Operator Course cover the requirement in the Leader Course; no additional systems are required for the Leader Course.

Stage B: Professional Development Courses

Differences from the Stage A analysis. In Stage B, the number of courses did not vary with the extent of LW fielding, as was the case in Stage A. Student throughput did not increase as the LW system fielding increased from 20,634 systems (24 Brigades fielded) to 41,267 systems (48 Brigades fielded). The consequence of this is that until all units are LW-equipped, some Soldiers will have LW training but will be assigned to a unit without the LW system.⁹ Also in Stage B, LW training was incorporated into existing USAIS courses, and the number of

⁹ This situation is not unique to the LW system, and has happened with other systems whose fielding occurred over a substantial period of time.

course-cycles per year was fixed. As discussed in the prior section on training time for Stage B, the TIA did not examine the potential impacts of various approaches that decision-makers might choose when an increase in course length could impact the desired Soldier yearly throughput.

The number of instructors authorized for existing USAIS courses was not changed, and no new instructor requirements were identified. The analysis showed that additional instructors would not always reduce training time. For example, the times for land navigation and training on live-fire ranges are impacted by the size of the training area and the number of firing points on the range, respectively. Additional instructors do not reduce training times for these skills. The number of instructors applied to BOLC III IN was the same as that currently authorized for IOBC. For the Team Leader Functional Courses, the instructor-student ratio (1 to 5) used for the functional courses in Stage A was applied.

ATRRS provides the schedule for Infantry School courses. The FY05 course schedule was used to determine the number of courses held per year, start and end dates of courses, and course overlap. Per ATRRS, there are six BNCOC and six ANCOC courses per year. No concurrent courses were shown in ATRRS for BNCOC and ANCOC. As the BOLC III Infantry requirement has not yet been determined, we applied the IOBC data – seven courses per year. Although some IOBC courses overlapped it was determined that once IOBC was divided into BOLC II and BOLC III IN, there would be no overlap in BOLC III IN, since BOLC III IN is shorter than IOBC.

With Infantry OSUT, the number of concurrent courses that overlap was not the determining factor with respect to the number of LW systems. Instead, the determining factor was the number of training companies within the Infantry Training Brigade, as LW systems would be assigned permanently to each training company, regardless of the training cycle. Currently, there are 5 battalions each with 5 companies, for a total of 25 companies.¹⁰ (In this TIA report, for Infantry OSUT, a training company corresponds to a “course.”)

For the Team Leader Functional Courses it was assumed the class size was the same as BNCOC, whose focus is squad leaders. It was also assumed that the number of courses needed per year was twice that of BNCOC, given that the number of team leaders in a rifle platoon is twice the number of squad leaders.

It was also necessary to include LW systems for instructors from the 29th Infantry Regiment who support specific blocks of instruction in OSUT, IOBC, ANCOC and BNCOC such as land navigation, marksmanship, and communications. The number of systems for the 29th Infantry was determined in conjunction with the LW training project officer G3, USAIS.

Number of courses per year, maximum student load, number of instructors, and number of LW systems. Table 12 summarizes the number of LW systems needed for Stage B as well as other critical training resource data. The number of required LW systems is the sum of the maximum student load and the maximum instructor requirement.

¹⁰ Due to the conflict in Iraq, there has been a temporary surge in the number of training companies with six training battalions instead of five. However, for purposes of the TIA it was decided to use the historical number of five battalions.

Table 12

LW Ensemble Requirements by Course and Study Alternative in Stage B

Course in Stage B	LW Alternative		
	2 SL↑	3 TL↑	4 All
BOLC III Infantry			
Class size (same as maximum student load)	160	160	160
Yearly throughput (7 courses/yr no overlap)	(1120)	(1120)	(1120)
Instructors per class	30	30	30
Instructor requirement	30	30	30
# LW systems to meet student load and instructor requirement	190	190	190
ANCOC			
Class size (same as maximum student load)	160	160	160
Yearly throughput (6 courses per year)	(960)	(960)	(960)
Instructors per class	6	6	6
Instructor requirement	6	6	6
# LW systems required to meet student load and instructor requirement	166	166	166
BNCOC			
Class size (same as maximum student load)	160	160	160
Yearly throughput (6 classes per year)	(960)	(960)	(960)
Instructors per class	26	26	26
Instructor requirement	26	26	26
# LW systems required to meet student load and instructor requirement	186	186	186
Functional Course for Team Leaders (Operator or Leader)			
Class size	NA	160	160
Maximum student load		320	320
Yearly throughput (2 courses, 6 times per year)		(1920)	(1920)
Instructors per class		32	32
Instructor requirement		64	64
# LW systems required to meet student load and maximum instructor requirement		384	384
Infantry OSUT			
Training company size (25 training companies)	NA	NA	200
LW systems to equip all training companies			5000
Drill Sergeants per company			12
Maximum instructor requirement – 1 system/drill sergeant/Co (25 companies, 12 drill sergeants each)			300
# LW systems required to equip all training companies and instructors			5300
29th Infantry Regiment			
# LW systems	50	50	50
Stage B Total # LW systems	592	976	6276

Notes. OSUT – 21 companies in training simultaneously, but every company (n = 25) must have a full complement of LW systems. Yearly throughput is approximately 12,800 Soldiers (64 training cycles). It was assumed that four rechargeable batteries were needed for each LW system.

The data in Table 12 clearly indicate that the number of LW systems increased substantially with the requirement to train Soldiers in OSUT.

Ammunition (EEA 4)

Ammunition (5.56 ball) was only needed for reduced exposure firing in the operator phase of training. The recommended level of expertise was high. Ammunition was required for zeroing the daylight video sight (18 rounds) and for firing the required exercises (80 rounds), a total of 98 rounds per Soldier. In addition to dry-fire target scanning exercises, four live-fire exercises were specified, each with 20 rounds: known distance firing from defensive position, pop-up target scenario with extended exposure times from defensive position, pop-up target scenario with standard exposure times from defensive position, and pop-up target scenario firing with sling from an assault position. A summary of the ammunition requirement is in Table 13.

Table 13
Ammunition Requirements for Reduced Exposure Firing

Analysis Stage	Course	Alt 2	Alt 3	Alt 4
A1	Operator Functional	52,920	79,380	185,220
A2	Operator Functional	117,600	176,400	411,600
B	BOLC II IN	109,760	109,760	109,760
	ANCOC	NA	NA	NA
	BNCOC	94,080	NA	NA
	Tm Ldr Operator Functional	NA	188,160	NA
	OSUT	NA	NA	1,254,400
Total Stage B		203,840	297,920	1,364,160

Note. OSUT based on a yearly throughput of 64 training companies for a total of 12,800 Soldiers

Training Aids, Devices, Simulations and Simulators (TADSS) (EEA 4)

The following TADSS were assumed in the conduct of the task analyses and are included in the life-cycle system costs. These are listed in the STRAP.

System specific TADSS are the following:

- Computer support for monitoring Soldier performance
- IMI CD-ROM on operation of LW system for every Soldier
- Training cable to computer monitor and/or HHD
- Power adaptor for reducing battery usage in classroom instruction
- Videotape on reduced exposure firing (Omega Training Group, 2003)
- Electronic technical manual
- Tactical engagement system (MILES 2000 w/ embedded components)
- Support for digitized ranges
- Interface with Stryker VIK

Nonsystem specific TADSS include marksmanship devices such as the EST 2000. There may be some modifications needed to adapt to LW-unique features.

Another IMI product was developed to address prerequisite training deficiencies. This IMI product focuses on some LW prerequisite skills (orders, graphic control symbols, map reading, messages, thermal weapon sight). The IMI CD-ROM on prerequisite skills (ARI, 2003) was delivered to the PM-LW for use during the NET.

Additional Resources for Functional Courses (EEA 4)

Additional resources are required to support functional course training and to have a complete LW system for each Soldier. The two major categories of additional resources are GFE and instructors.

The LW system integrates LW unique equipment with GFE. For example, every Soldier must have a modular weapon system. Soldiers use the AN/PVS-14 monocular night vision goggles. Some, but not all the required GFE items, are in the weapons pool at USAIS. There are insufficient numbers of items to support the additional LW functional courses, as these GFE items are dedicated to supporting existing USAIS courses. The quantities of GFE items required for Stages A1 and A2 are in Table 14.

Table 14
GFE Needed for Functional Courses in Stage A

GFE	Alt 2	Alt 3	Alt 4
Stage A1 Functional Courses			
M4 Carbine with Picatinny rail	60	90	210
M68 Close combat optic	60	90	210
AN/PVS-14 Monocular Night Vision Device	60	90	210
AN/PAS-13B Light Thermal Weapon Sight	60	90	210
Modular Lightweight Load Carrying Equipment (MOLLE):	60	90	90
Stage A2 Functional Courses			
M4 Carbine with Picatinny rail	90	135	420
M68 Close combat optic:	90	135	420
AN/PVS-14 Monocular Night Vision Device	90	135	420
AN/PAS-13B Light Thermal Weapon Sight	90	135	420
Modular Lightweight Load Carrying Equipment (MOLLE)	90	135	180

It was assumed that the additional GFE items used in Stage A could meet the requirement in the Stage B Team Leader Functional Course for Alternative 4 and most of the requirement for Alternative 3. The rationale for this assumption is as follows. For each GFE item, the maximum number required in Stage B is 384 (see Table 12). At the end of Stage A (the 50% fielding point), the number of fielded LW systems would be approximately 20,634. At the end of Stage

A for Alternative 4, the yearly training requirement would be 30% of 20,634 or 6,190 Soldiers, with approximately 630 Soldiers being trained simultaneously. Consequently, the GFE for these Soldiers exceeds the requirement for the Team Leader Functional Course in Stage B, Alternative 4. At the end of Stage A for Alternative 3, the yearly training requirement for leaders is estimated to be 45% of the 6,190 Soldiers in Alternative 4, which is 2,785 leaders, with about 280 leaders being trained simultaneously. This number is less than the 384 estimated requirement.

The other major resource requirement for the Functional Courses is additional instructors. These numbers were presented previously (reference Tables 11 and 12), but are repeated here for both Stages A and B.

Table 15
Total Number of Instructors Required for Functional Courses (additional requirement) in Stages A and B

Analysis Stage	Alt 2	Alt 3	Alt 4
Stage A1 Operator/Leader Courses	12/12	18/18	42/18
Stage A2 Operator/Leader Courses	18/18	27/27	84/27
Stage B Team Leader: Operator/Leader Courses	NA	64/64	NA/64

Note. The same instructors are used in both the Operator and the follow-on Leader Course.

New Equipment Training (NET) (EEA 4)

The STRAP specified a NET training strategy for each battalion, which applies to study Alternative 4. A train-the-trainer approach is used, using leaders from the unit. These leaders would, in turn, assist the NET team in training everyone in the unit. The train-the-trainer strategy was designed to accommodate the large number of Soldiers to train, and to keep the size of the NET team reasonable. With this NET strategy, the NET team was composed of 11 individuals, one USAIS supervisor and 10 instructor personnel, from the 29th Infantry Regiment at Ft. Benning, GA. The NET required 10 weeks. The training sequence is outlined in Table 16.

With Alternatives 2 and 3, the NET was estimated to require seven weeks. The NET strategy for Alternatives 2 and 3 was determined in conjunction with the training representative in USAIS. With Alternatives 2 and 3, the train-the-trainer approach was not necessary given the smaller target population of leaders only. Thus the weeks devoted to training unit trainers (train-the-trainer) were deleted. But the core training was expanded from three to four weeks to ensure leader competency within the unit for future training. The NET team size remained the same. This strategy is outlined in Table 16.

Table 16

NET Strategy: Training Sequence and Time to Train a Battalion by Study Alternative

Alternative 4 (STRAP Strategy)		Alternatives 2 and 3 (Modification to STRAP)	
Week	Topic	Week	Topic
1	<u>NET introduction to LW:</u> LW functions, mission data support equipment, unit level maintenance and training requirements	1	<u>NET introduction to LW:</u> LW functions, mission data support equipment, unit level maintenance and training requirements
2,3,4	<u>NET Train-the-Trainer:</u> The NETT trains 63 unit trainers on LW system operation, leader tasks, and TTP	2,3,4,5	<u>NET Operator/Leader Training.</u> The NET team trains leaders (IAW study alternative) on the LW system operation, leader tasks, and TTP.
5	<u>Unit Trainer Preparation.</u> Unit trainers prepare to train other leaders and the Soldiers within their unit.	6,7	<u>Unit collective training.</u> The NETT serves a mentoring and advisory function.
6,7,8	<u>Operator/Leader training.</u> Soldiers and leaders are trained on LW. NETT instructors are primary instructors; unit trainers are assistant instructors.		
9,10	<u>Unit collective training.</u> The NETT serves a mentoring and advisory function.		

Regardless of alternative, for NET it was assumed that the unit had the required GFE integral to the LW system (e.g., modular weapon system, AN/PVS-14 night vision goggles, thermal weapon sight, MOLLE). Total ammunition requirements for reduced exposure firing differed across alternatives as the target population varies with the alternatives. As with the prior analyses, a total of 98 rounds (18 for zeroing the DVS and 80 for reduced exposure practice) were required per Soldier in the platoon for reduced exposure firing.

Prerequisite Skills (EEA 3)

Prerequisite skills were examined as a function of duty position: platoon leader/platoon sergeant, squad leader, team leader, and squad member. If Soldiers do not have the required prerequisite skills, the instructor must take additional time to train them so the Soldier can progress to the appropriate LW training. Prerequisites were classified as skills with GFE and military knowledge and skills that support use of the LW software interface. Each area is discussed in turn below.

Past observations of LW training (Dyer et al., 2000; Dyer & Wampler, 2002a) indicated that not all Soldiers were skilled with the various types of IR (infrared) aiming lights, night vision goggles/devices, borelight for small arms, and the thermal weapon sight. However, there is increased emphasis on the use of night vision devices and aiming lights for shooting at night within USAIS courses. The current marksmanship FM 3-22.9 (DA, 2003) includes a qualification course with aiming lights, a course that did not exist in the late 1990s or early

2000s. However, the qualification course is not a requirement for graduation from OSUT or IOBC. Experience with aiming lights transfers to the multi-function laser.

Of the GFE equipment cited here, the TWS presents the greatest training challenge. No training on the TWS currently exists at the USAIS, and at the date of this report, there were no TWSs in the weapons pool. However, during the reduced exposure firing experience, it was observed that Soldiers with Bradley Fighting Vehicle experience were relatively quick to learn how to adjust the TWS for a quality image, due to their prior experience with the Bradley's integrated sight unit, which has thermal capability.

With regard to skills related to using the LW interface, most Soldiers are proficient with using the computer basics related to e-mail, menus, etc. (Dyer, 2002). However, the same research has shown that young Soldiers typically have limited experience necessary with graphics. A computer graphics background assists with the creation of overlays on the LW system, and is needed at the squad leader level and above.

The other major impact of the LW interface is that it assumes military knowledge and skills that are not taught at all skill levels. For example, SL 1 Soldiers are not taught combat orders and overlays in OSUT, and have limited exposure to certain basics of map reading and messages. Overlays and graphic control symbols are taught only in ANCOC and IOBC. The orders process is addressed in IOBC and BNCOC. Although squad members do not need to know how to create orders and overlays, they do need to know how to interpret them. Squad members also have limited knowledge and experience with basic military messages, map reading, and land navigation, although there is a trend to increase this training in OSUT.

Table 17 summarizes the subjective assessments of the training status on prerequisite skills by duty position within the Infantry platoon. The assessments were made by the authors based on previous training observations of individuals serving in these positions, and the skills and information covered in the courses required for each duty position. The training status is indicated by green, amber, and red codes. At one end of the spectrum red indicates a training deficiency. At the other end of the spectrum, green indicates the training status is satisfactory. A mixture of colors means that the target population is divided in terms of skill. The TIA did not include the estimated times required to train the prerequisite skills.

Table 17
Status of Prerequisite Skills for the LW System by Platoon Duty Position

Prerequisite Domain	Duty Position			
	Platoon Leader & Platoon Sergeant	Squad Leader	Team Leader	Squad Member
GFE Skills				
Monocular NVD	Green	Green	Green	Amber
IR aiming light	Green/Amber ^a	Green/Amber	Green/Amber	Amber
Borelight	Green/Amber ^a	Green	Green	Red (Done by trainer)

Prerequisite Domain	Duty Position			
	Platoon Leader & Platoon Sergeant	Squad Leader	Team Leader	Squad Member
TWS	Red (Soldiers w/ BFV crew experience have some skills)	Red/Amber (Soldiers w/ BFV crew experience have some skills)	Red/Amber (Soldiers w/ BFV crew experience have some skills)	Red (No experience)
Skills and military knowledge required for the software interface				
Computer skills (e-mail, menus, graphics)	Green	Green	Green	Amber (Lmt'd graphics skill)
Combat orders	Green	Green	Amber (Need training on orders preparation)	Red (Need training on interpretation of orders)
Overlays/ graphic control symbols	Green	Red (Need training on preparation)	Red (Need training on preparation)	Red (Need training on interpretation)
Basic map reading	Green	Green	Green	Amber
Other map & navigation skills: declination angle, overhead imagery	Green	Green/Amber	Green/Amber	Red (not trained)
Messages (types, precedence, content)	Green	Green	Green	Amber

^a Coded green/amber: platoon sergeant has experience, while platoon leader has limited experience.

Conclusions with Supporting Findings

EEAs 1 and 2: Required and Critical Tasks

- LW: 156 required tasks
- LW: 60 critical tasks
- Stand-alone Radio: 1 required/critical task

The total number of tasks identified for the Land Warrior system by the task selection board was 156. Of these, 60 were identified as critical tasks. Of these 60 tasks, 31 were Skill level (SL) 1, 3 were SL 2, 13 were SL 3 and 13 were SL 4. These tasks were the foundation for EEAs 3 and 4.

With regard to the “stand-alone” radio used in three of the alternatives, there was one required and critical SL 1 task.

EEA 3: Prerequisite Skills

LW prerequisite skills in an amber or red status are listed below by platoon duty position. Frequently the status is indicated as “mixed” (e.g., green/amber) due to the diversity of expertise within the target population as result of different unit assignments and/or unit duty positions.

Skill	Duty Position	Status
• TWS	• All Soldiers except those with Bradley Fighting Vehicle experience	• Red
• AN/PVS-14	• Squad members	• Amber
• Infrared aiming light	• Squad and team leaders • Platoon leader and squad members	• Green/Amber • Amber
• Borelight	• Platoon leader • Squad members	• Amber • Red
• Computer Skills	• Squad members	• Amber
• Combat Orders	• Team leaders • Squad members	• Amber • Red
• Overlays/ Symbols	• Squad and team leaders, squad members	• Red
• Basic map reading	• Squad members	• Amber
• Other map & navigation skills	• Squad & team leaders • Squad members	• Green/Amber • Red
• Messages	• Squad members	• Amber

None of the prerequisite skills identified for the “stand-alone” radio was designated as in an amber or red status.

EEA 4: Impact on Training Resources

The generic training strategy, in accordance with the STRAP, used Functional Courses when less than 50% of the LW systems had been fielded (called Stage A). When more than 50% of the LW systems had been fielded, LW training was incorporated in existing USAIS courses (called Stage B). It was necessary to include a Functional Course for team leaders in Stage B.

The Functional Courses in Stages A and B are new courses. Resources associated with these courses are in addition to the resources that support existing USAIS courses. The primary additional resources were instructors, training hours, and GFE items integral to the LW system.

Training Time

- Alternative 1 – Stand-alone radio training resulted in an increase of four hours in OSUT.
- Alternatives 2-4 (LW Alternatives)

LW Stage A¹¹

- The Leader Functional Courses were the same length, 8 days, regardless of alternative.
- The Operator Functional Courses were 8 days for Alternatives 2 and 3, and were 10 days for Alternative 4.
- Total time to train leaders was 16 days for Alternatives 2 and 3; 18 days for Alternative 4.
- Stand-alone radio training in Alternatives 2 and 3 resulted in an increase of four hours in OSUT.

¹¹

Stage A: Summary of Course Hours for LW Operator and Leader Functional Courses

	LW Operator Course			LW Leader Course
	Alt 2	Alt 3	Alt 4	Alts 2,3,4
Core system tasks (operator & leader)	30.45	30.45	30.45	7.00
Shooting	8.00	9.25	16.00	6.25
Leader planning & tactical training	0.00	0.00	0.00	32.00
Evaluation	8.00	8.00	8.00	4.00
System & course admin	14.00	14.00	23.00	14.00
Total hours	60.45	61.70	77.45	63.25
Total days	8 days	8 days	10 days	8 days

Note. Time for reduced exposure firing relates to class size.

LW Stage B¹²

- BOLC III IN increased by 10 days for each alternative.
- There was no increase in training time for ANCOC in any alternative. Because of NCO progression, the LW system could be integrated into the ANCOC POI.
- BNCOC increased by 9 days for Alternative 2. There was no increase in time for Alternatives 3 and 4 as the LW system could be integrated into BNCOC because of NCO progression.
- OSUT increased by 8 days in Alternative 4.
- Stand-alone radio training in Alternatives 2 and 3 resulted in an increase of 4 hours in OSUT.
- Functional Courses were specified to address team leader training in Alternatives 2 and 3. In Alternative 2, a total of 18 days was required for both the Operator and Leader courses. In Alternative 3, the Leader Course was 9 days.

Functional Course Times vs. Professional Development Course Times

- With the professional development courses, it was possible to replace some blocks of instruction with LW training and to integrate LW as the means of executing training in other blocks of instruction. These factors resulted in less training time as compared to the Functional Courses (when equating for class size).
 - BOLC III IN: 45% less time (Alternatives 2-4)¹³
 - ANCOC: 100% less time (Alternatives 2-4)

¹² Stage B: Summary of Additional Course Hours for Professional Development Courses and Course Hours for Team Leader Functional Courses

	Professional Development Courses			Team Leader Functional Courses		
	BOLC II IN (Alts 2-4)	BNCOC (Alt 2)	OSUT (Alt 4)	Operator (Alt 3)	Leader (Alt 3)	Leader (Alt 4)
Core system tasks (operator & leader)	31.95	25.95	29.95	30.45	7.00	7.00
Shooting	28.00	28.25	25.50	22.00	6.25	6.25
Leader planning & tactical training	8.00 ^a	8.00 ^a	0.00	0.00	32.00	32.00
Evaluation	0.00 ^b	0.00 ^b	0.00 ^b	8.00	4.00	4.00
System & course admin	13.50	12.00	10.50	20.00	17.00	25.00
Total hours	81.45	74.20	65.95	80.45	66.25	74.25
Total days	10 days	9 days	8 days	10 days	8 days	9 days

^a Tactical training integrated in course.

^b Evaluations integrated in existing course evaluations.

Time for reduced exposure firing is a function of class size.

¹³ Comparison of the additional training time for leaders (operator and leader training) in the Professional Development Courses and the total time for the corresponding functional courses was based on BOLC III IN and BNCOC to the Team Leader Functional Operator and Leader courses (Alt 3, Stage B), as the class sizes were the same (160 Soldiers).

- BNCOC: 55% less time (Alternative 2)
 - BNCOC: 100% less time (Alternatives 3 and 4)
 - OSUT: 18% less time (Alternative 4)¹⁴
- The apparent discrepancy in the reduction in training times for leaders versus operators only is due to the fact that there are more opportunities to integrate LW training in the leader courses of BOLC III IN, BNCOC, and ANCOC than is the case for OSUT.

Number of LW Systems

The number of LW systems was based on several critical factors. First, in each course, every Soldier and instructor has a LW system. Second, the number of systems available was affected by course overlap. Third, it was necessary to provide LW systems to each OSUT training company. Lastly, in Stage B, instructors from the 29th Infantry Regiment had to have LW systems as they support critical blocks of instruction in USAIS courses (e.g., communication, marksmanship, land navigation). It was assumed that four rechargeable batteries were needed per LW system.

As shown below, clearly the greatest impact on the number of LW systems required for training occurred in Alternative 4. This was the direct result of equipping the OSUT training companies with the system. In Stage A, the number of LW systems increases as LW fielding increases, where as in Stage B, the number of systems stays the same. A comparison of Stage A1 and A2 provides an indication of the relative increase in LW systems needed as the extent of LW fielding progresses to 50%.

Analysis Stage	Alt 2	Alt 3	Alt 4
• Stage A1 Total (<i>Operator/Leader Functional Courses</i>)	• 72	• 108	• 252
• Stage A2 Total (<i>Operator/Leader Functional Courses</i>)	• 108	• 162	• 504
• Stage B Total	• 592	• 976	• 6276
<i>IOBC</i>	190	190	190
<i>ANCOC</i>	166	166	166
<i>BNCOC</i>	186	186	186
<i>TL Operator or Leader Functional Course</i>	NA	384	384
<i>OSUT</i>	NA	NA	5300
<i>29th Infantry Regiment</i>	50	50	50

Two other factors were identified that could impact the number of LW systems. However, the magnitude of these potential impacts was not quantified. One factor is force transformation where there will be increased numbers in the Infantry. A second factor is the increase in USAIS course hours, which could impact the number of courses held concurrently and/or class size. This impact appeared to be greatest with OSUT, where there is minimal time between training cycles.

¹⁴ Comparison of operator only training times was based on the increase in OSUT time to the total time in the Team Leader Functional Operator Course (Stage B). However the OSUT class size was 200 vs. 160 in the functional course. When equating for class size, assuming an OSUT company of 160 soldiers, the reduction in training time in OSUT was 22%.

Number of Stand-alone Radios for OSUT

- Alt 1: 1,068 plus 2 batteries per radio
- Alts 2 and 3 (Stage B) 1,068 plus 2 batteries per radio.

Ammunition

Reduced exposure firing was conducted during the operator phase of training. The ammunition (5.56 rounds) required was a function of the student throughput, with Alternative 4 requiring the most ammunition in both stages of the analysis. The differences between Alternatives 2 and 3 were not substantial in any stage of the analysis.

<u>Analysis Stage</u>	<u>Alternative 2</u>	<u>Alternative 3</u>	<u>Alternative 4</u>
• Stage A1	• 52,920 rds	• 79,380 rds	• 185,220 rds
• Stage A2	• 117,600 rds	• 176,400 rds	• 441,600 rds
• Stage B	• 203,840 rds	• 297,920 rds	• 1,364,160 rds

Instructor Requirement

Additional instructors were required for only the functional courses in Stages A and B. For these courses, the instructor to student ratio applied was 1 to 5, as stated in the STRAP. The class sizes in Stage A were consistent with the STRAP; the class size for team leaders in Stage B was consistent with the professional development courses.

In Stage A, the class sizes for operator and leader courses were 30 and 45 in Alternatives 2 and 3 respectively. In Alternative 4, the Operator course had 105 students; the Leader course had 45. In Stage B, the class size for the team leader functional courses was 160.

<u>Analysis Stage and Alternative</u>	<u>Functional Courses: Rationale</u>	<u>Additional Instructor Requirement</u>
• A1: Alt 2	18 classes/year, maximum of 2 concurrent classes, 6 instructors/class	• 12
• A1: Alt.3	18 classes/year, maximum of 2 concurrent classes, 9 instructors/class	• 18
• A1: Alt 4	18 classes/year, maximum of 2 concurrent classes, 21 instructors/class	• 42
• A2: Alt 2	40 classes/year, maximum of 3 concurrent classes, 6 instructors/class	• 18
• A2: Alt 3	40 classes/year, maximum of 3 concurrent classes, 9 instructors/class	• 27
• A2: Alt 4	40 classes/year, maximum of 3 concurrent classes, 21 instructors/class	• 84
• B: Alts 2-3	6 classes/year, maximum of 2 concurrent classes, 32 instructors/class	• 64

No new or additional instructors were required for the existing USAIS professional development courses. The numbers of authorized instructors are 30, 6, and 26 respectively for BOLC III IN, ANCOC, and BNCOC. Optimum class size per ATRRS for each course is 160. In OSUT, 12 drill sergeants are authorized per training company, and the optimum size for a training company is 200 Soldiers.

GFE Requirements for Functional Courses

The LW system integrates LW-unique components with GFE. These GFE items are the M4 carbine with Picatinny rail (modular weapon system), M68 close combat optic, AN/PVS-14 monocular night vision device, AN/PAS-13B light thermal weapon sight, and the Modular lightweight load carrying equipment (MOLLE). There are not sufficient numbers of these items in the Weapons Pool at USAIS to support the LW Functional Courses, creating an additional training resource requirement. The additional quantities needed for each of these items for Stages A1 and A2 are presented below. It was determined that the additional GFE items used to support the Functional Courses at the end of Stage A, at the 50% fielding point, could meet the requirement for the Team Leader Functional Course in Stage B for Alternative 4, and could meet most of the quantities needed for Alternative 3 in Stage B.

<u>Required quantities for each GFE item in the Functional Courses</u>	<u>Alt 2</u>	<u>Alt 3</u>	<u>Alt 4</u>
• Stage A1	• 60	• 90	• 210
• Stage A2	• 90	• 135	• 420

New Equipment Training (NET)

The NET plan in the STRAP was used for Alternative 4 and served as the basis for Alternatives 2 and 3. NET time was reduced for Alternatives 2 and 3 because the target population was smaller.

	<u>NET Team Size</u>	<u>Length of Training</u>
• Alternatives 2 and 3	• 11 military personnel	• 7 weeks
• Alternative 4	• 11 military personnel	• 10 weeks

Conclusions

- Alternative 4, where every Soldier has a LW system, had the greatest impact on training resources regardless of analysis stage. The differences between Alternatives 2 and 3 were not great.
- Functional Courses required more training hours than equivalent USAIS courses. Incorporation of LW training in USAIS courses reduced time by 45 to 55% for leaders, 18% for operators.
- The Functional Courses required additional instructors and the GFE components of the LW system, whereas these resources were already incorporated in existing USAIS courses. These additional resources did not change the order of the alternatives in terms of training impact, but the resources impact absolute costs and must be provided to execute the Functional Course training.

- The analysis reinforced the premise in the STRAP that a LW system should be issued to each Soldier during training. A one-to-one ratio is needed, given the large number of Soldiers to be trained, the different courses impacted, and the many periods of instruction within each course where the system will be used. This ratio also provides a better learning environment.
- In terms of a training challenge, Land Warrior's greatest impact is with the youngest, least experienced Soldier (Alternative 4). This target population is the least likely to possess the prerequisite military knowledge and skills required by the system.
- Because LW leaders must also be operators, the LW system has a substantial impact upon USAIS leader courses. The impact occurs when the course is the first time the leader is exposed to the LW system and varies with the study alternatives.

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Interviews with SMEs

Land Warrior
MBITR
EPLRS Heavy
USAIS FBCB2 Training
MCS-L

Appendix A

Land Warrior - Stryker Interoperable Total Task List (156 tasks)

Item	NUMBER	TITLE	Skill Level
68	071-326-0502	Move Under Direct Fire	1
69	071-326-0503	Move Over, Through, or Around Obstacles	1
70	071-326-0510	React to Indirect Fire While Dismounted	1
72	071-326-0512	Estimate Range	1
143	071-326-0541	Perform Movement Techniques During an Urban Operation	1
171	071-329-1006	Navigate from One Point on the Ground to Another Point While Dismounted	1
176	071-329-1002	Determine the Grid Coordinates of a Point on a map	1
178	071-329-1008	Measure Distance on a Map	1
180	071-329-1012	Orient a Map to the Ground by Map-Terrain	1
232	071-331-0815	Practice Noise, Light and Litter Discipline	1
239	301-348-1050	Report Information of Potential Intelligence Value	1
278	031-503-1015	Protect Yourself from NBC Injury/Contamination with the Appropriate Mission-Oriented Protective Posture	1
279	031-503-1018	React to Nuclear Hazard or Attack	1
280	031-503-1019	React to Chemical or Biological Hazard or Attack	1
67	071-326-0501	Move as a Member of a Fire Team	1
144	071-326-0542	Enter a Building During an Urban Operation	1
146	071-326-0557	Select Hasty Firing Positions During an Urban Operation	1
243	071-331-0001	Perform as a Member of a Patrol	1
19	113-571-1022	Perform Voice Communications	1
54	061-283-1001	Determine Direction Within the Target Area	1
228	071-750-0001	Operate Night Vision Goggles AN/PVS-14	1
229	071-750-0002	Maintain Night Vision Goggles AN/PVS-14	1
283	031-503-1031	Use the Chemical Agent Monitor	1
459	071-008-0006	Zero an AN/PAS-13 Series Thermal Sight to an M16	1
460	071-008-0007	Engage Targets with an M16 Series Rifle Using an AN/PAS-13 Series Thermal Sight	1
595	071-010-0010	Zero an AN/PAS-13 Series Thermal Sight to an M249 Machine Gun	1
596	071-010-0011	Engage Targets with an M249 Machine Gun Using an AN/PAS-13 Series Thermal Sight	1
622	071-100-0015	Zero an AN/PAS-13 Series Thermal Sight to an M4 or M4A1 Carbine	1
623	071-100-0016	Engage Targets with an M4 or M4A1 Carbine Using an AN/PAS-13 Series Thermal Sight	1
301	031-506-1053	Report NBC Information Using NBC 4 Report	1

Item	NUMBER	TITLE	Skill Level
418	071-317-0000	Prepare an Antiarmor Range Card	1
1	New LW	Assemble the Land Warrior Helmet subsystem	1
2	New LW	Assemble the Land Warrior Body subsystem	1
3	New LW	Assemble the Land Warrior Weapon subsystem	1
4	New LW	Don the Land Warrior system	1
5	New LW	Doff the Land Warrior system	1
6	New LW	Disassemble the Land Warrior Helmet subsystem	1
7	New LW	Disassemble the Land Warrior Body subsystem	1
8	New LW	Disassemble the Land Warrior Weapon subsystem	1
9	New LW	Power On the Land Warrior system	1
10	New LW	Log On to the Land Warrior system	1
11	New LW	Log Off of the Land Warrior system	1
12	New LW	Load Mission Data Packages on the Land Warrior system	1
13	New LW	Configure the Land Warrior system for operation	1
14	New LW	Configure the Land Warrior Navigation subsystem	1
15	New LW	Operate the Soldier Control Unit	1
16	New LW	Operate the Land Warrior Map functions	1
17	New LW	Perform Digital Messaging functions	1
18	New LW	Perform Digital Imaging functions	1
19	New LW	Perform Voice Communications using the Land Warrior system	1
20	New LW	Perform Call For Medical Assistance using the Land Warrior system	1
21	New LW	Operate the Multifunction Laser	1
22	New LW	Operate the Joint Chemical Agent Detector	1
23	New LW	Zeroize the Land Warrior system	1
24	New LW	Boresight the Daylight Video Sight	1
25	New LW	Boresight the Thermal Weapon Sight	1
26	New LW	Boresight the Multifunction Laser	1
27	New LW	Zero the Daylight Video Sight	1
28	New LW	Zero the Thermal Weapon Sight	1
29	New LW	Zero the Multifunction Laser	1
30	New LW	Engage targets with the Daylight Video Sight	1
31	New LW	Engage Targets with the Thermal Weapon Sight	1
32	New LW	Engage Targets with the Multifunction Laser	1
33	New LW	Maintain the Land Warrior system	1
34	New LW	Prepare a Range Card using the Land Warrior system	1
35	New LW	Operate the Stryker Vehicle Integration Kit	1
36	New LW	Connect to the Stryker Integration Kit via tether	1

Item	NUMBER	TITLE	Skill Level
37	New LW	Charge the Land Warrior batteries via the Stryker Vehicle Integration Kit	1
38	New LW	Adjust Indirect Fire using the Land Warrior system	1
39	New LW	Prepare Land Warrior system for Air Operations	1
40	New LW	Operate the Mission Data Support Equipment	1
60	061-283-6003	Adjust Indirect Fire	2
115	071-400-0003	Prepare Personnel and Equipment for Air Assault	2
55	061-283-1002	Locate a Target by Grid Coordinates	2
77	071-326-5605	Control Movement of a Fire Team	2
78	071-326-5606	Select an Overwatch Position	2
101	071-410-0019	Control Organic Fires	2
169	071-329-1030	Navigate from One Point on the Ground to Another Point While Mounted	2
173	071-326-0515	Select a Movement Route Using a Map	2
181	071-329-1014	Locate an Unknown Point on a Map and on the Ground by Intersection	2
182	071-329-1015	Locate an Unknown Point on a Map and on the Ground by Resection	2
183	071-329-1019	Use a Map Overlay	2
75	071-326-3002	React to Indirect Fire While Mounted	2
238	071-730-0006	Enforce Operations Security	2
253	081-831-0101	Request Medical Evacuation	2
290	031-503-2004	Prepare and Submit NBC 4 Reports	2
293	031-503-3005	Submit NBC 1 Report	2
201	071-326-5705	Establish an Observation Post	2
158	071-440-0029	Conduct a Breach During an Urban Operation	2
425	052-192-1119	Install US Anti-handling Devices on AT Mines	2
98	071-410-0016	Conduct Occupation of an Overwatch Position	2
159	071-440-0030	Conduct an Explosive Breach During an Urban Operation	2
245	071-720-0009	Conduct a Local Security Patrol	2
127	071-420-0025	Conduct a Breach	2
41	New LW	Operate the Leader Display and Keyboard	2
42	New LW	Select a Movement Route using a Land Warrior system	2

Item	NUMBER	TITLE	Skill Level
107	071-430-0003	Consolidate a Squad Following Enemy Contact While in the Defense	3
108	071-430-0004	Reorganize a Squad Following Enemy Contact While in the Defense	3
11	071-326-5502	Issue a Fragmentary Order	3
12	071-326-5503	Issue a Warning Order	3
13	071-326-5505	Issue an Oral Operation Order	3
88	071-331-0820	Analyze Terrain	3
95	071-410-0010	Conduct a Leader's Reconnaissance	3
118	071-420-0003	Consolidate a Unit Following Enemy Contact	3
119	071-420-0004	Reorganize a Unit Following Enemy Contact	3
135	071-450-0030	Conduct a Passage of Lines	3
79	071-326-5610	Conduct Movement Techniques by a Squad	3
80	071-326-5611	Conduct the Maneuver of a Squad	3
106	071-430-0002	Conduct a Defense by a Squad	3
141	071-450-0041	Conduct a Point Ambush	3
244	071-720-0006	Conduct Operation of a Patrol Base	3
131	071-450-0014	Conduct a Point Antiarmor Ambush by a Squad	3
147	071-440-0003	Conduct an Attack on a Building by a Squad During an Urban Operation	3
148	071-440-0006	Conduct a Defense by a Squad During an Urban Operation	3
91	071-410-0002	React to Direct Fire While Mounted	3
240	301-348-6001	Protect Classified Information and Material	3
430	052-192-3060	Conduct a Breach of a Minefield	3
276	071-316-2538	Charge a Battery Using a PP-7382/TAS Battery	3
43	New LW	Prepare Combat Orders using the Land Warrior system	3
44	New LW	Issue Combat Orders using the Land Warrior system	3
45	New LW	Prepare Overlays using the Land Warrior system	3
46	New LW	Prepare a Sector Sketch using the Land Warrior system	3

Item	NUMBER	TITLE	Skill Level
4	071-332-5021	Prepare a Situation Map	4
134	071-450-0027	Conduct a Relief	4
273	101-521-4051	Request Supplies and Logistical Services	4
14	071-326-5626	Prepare an Oral Operation Order	4
81	071-326-5630	Conduct Movement Techniques by a Platoon	4
83	071-326-5770	Prepare a Platoon Sector Sketch	4
84	071-326-5775	Coordinate with an Adjacent Platoon	4
105	071-326-5832	Conduct a Disengagement by a Platoon While Under Enemy Pressure	4
242	071-326-5805	Conduct a Route Reconnaissance Mission	4
109	071-430-0006	Conduct a Defense by a Platoon	4
252	071-600-0009	Coordinate with Supported Units	4
3	071-332-5000	Prepare an Operation Overlay	4
6	071-900-0001	Prepare an Operation Plan	4
7	071-900-0003	Prepare a Battalion Operation Order	4
120	071-420-0005	Conduct the Maneuver of a Platoon	4
132	071-450-0017	Conduct a Raid	4
246	071-720-0012	Conduct a Zone Reconnaissance by a Platoon	4
247	071-720-0015	Conduct an Area Reconnaissance by a Platoon	4
125	071-420-0021	Conduct a Movement to Contact by a Platoon	4
126	071-420-0023	Conduct an Attack by a Platoon	4
136	071-450-0035	Conduct an Area Ambush by a Platoon	4
137	071-450-0036	Conduct an Antiarmor Area Ambush by a Platoon	4
149	071-440-0009	Conduct a Defense by a Platoon During an Urban Operation	4
150	071-440-0012	Conduct an Attack by a Platoon During an Urban Operation	4
10	551-721-3359	Prepare a Strip Map	4
96	071-410-0012	Conduct Occupation of an Assembly Area	4
275	301-337-6001	Process Captured Materiel	4
15	071-940-0002	Conduct Resupply of a Platoon	4
76	071-326-3013	Conduct a Tactical Road March	4
103	071-410-0021	Report Situation	4
5	071-332-5051	Post a Daily Staff Journal	4
129	071-450-0005	Conduct a Screen by a Platoon	4
206	191-377-4203	Establish a Roadblock/Checkpoint	4
1	071-332-5034	Extract Information from a Route Reconnaissance	4

Appendix B

Recommended Levels of Expertise/Training by Task

This table summarizes the differences in the levels of expertise/training by task documented in the detailed analysis of resources in Appendix C. In addition, the recommended level of expertise/training is cited, as it was the basis for the final resource estimates. The recommendation reflects the lowest level of expertise/training, whenever levels were the same.

Task	Relations Among Levels of Expertise	Recommendation for Operators (Op) and Leaders (Ldr)	Task	Relations Among Levels of Expertise	Recommendation for Operators (Op) and Leaders (Ldr)
Prepare/configure system			Communicate		
Assemble/Don	L=M<H	Op = L Ldr = H	Voice commo	L=M<H	Op/Ldr =L
Power on/Log off	L=M=H	Op/Ldr = L	Digital Messaging	L<M=H	Op =L Ldr = M
Load MDP	L=M<H	Op = L Ldr= H	Digital Imaging	L<M<H	Op/Ldr = M
Configure for Operation	L<M= H	Op/Ldr = M	Move		
Configure for Navigation	L=M<H	Op = L Ldr = H	Navigate dismounted	L<M<H	Op/Ldr = H
Operate system			Shoot		
Use Software Interface	L=M=H	Op/Ldr = L	Boresight & Zero DVS	L=M=H	Op/Ldr = L
Map Functions	L<M=H	Op/Ldr = M	Reduced Exposure	L<M<H	Op/Ldr = H
Use/view Overlays	L=M=H	Op/Ldr = L	Operate MFL	L=M< H	Ldr = H
Zeroize	L<M=H	Op/Ldr =M	Boresight & Zero MFL	L=M=H	Ldr = L
Operate VIK	L<M<H	Ldr = M	Engage Targets, MFL	L=M=H	Ldr = L
Maintain			Plan		
Maintain	L<M<H	Op =L Ldr = H	Prepare/issue Orders	L<M= H	Ldr = L (more training in Tactical Exercises)
Tactical Exercises	L<M< H	Ldr = H (23 leader tasks)	Prepare Overlays	L<M=H	Ldr = L (more training in Tactical Exercises)

Note. Relationships among the levels of expertise reflect the number of hours estimated to train. For example, if "L=M=H," then the levels were defined the same and the training time was the same. If L<M=H," then "low" required fewer hours than "medium" and "high," both of which had the same hours. Recommendation for the "stand-alone" radio was L (voice only)

Appendix C
Task Data Sheets

Contents

System Preparation	C-3 to C-26
Operate and Maintain	C-27 to C-56
Communicate	C-57 to C-76
Move	C-77 to C-82
Shoot	C-83 to C-102
Plan	C-103 to C-114
Tactical Exercises	C-115 to C-123

Functional Area: System Preparation

Assemble and Don the Land Warrior System (includes disassemble and doff)

Power On and Log-on to the Land Warrior System

Load Mission Data Package (MDP) on the Land Warrior System

Configure Land Warrior System for Operation

Configure Land Warrior Navigation Subsystem

SYSTEM PREPARATION

ASSEMBLE AND DON LAND WARRIOR SYSTEM

(includes disassemble and doff)

071-800-01LW (Assemble LW helmet subsystem)

071-800-02LW (Assemble LW body subsystem)

071-800-03LW (Assemble LW weapon subsystem)

071-800-04LW (Don LW system).

LW Prerequisites:

- Completed Assemble and Don sections of the LW IMI (may not be possible with OSUT)

Assumptions:

- One hour is allocated for web gear assembly training during current IOBC, ANCOG and, BNCOC courses. LW system assembly time is additional time.
- Time allocations.
 - In prior observations of LW version 1.0 training (see data sources below), it required 1.5 to 1.75 hours to train Soldiers to assemble, don, doff, and disassemble the LW system, as well as provide the necessary instruction. The instructor to student ratio for this training was 1 instructor per two to three Soldiers.
 - The instructor to student ratio in all courses but OSUT ranges from 1 to 5 to 1 to 8. Time estimated for these courses for the basic operator tasks of assemble and don the LW system is 2 hours. However, for OSUT, the instructor student ratio is 1 to 16, and OSUT Soldiers are inexperienced with Army equipment. Given these differences in instructor numbers (drill sergeants) and military experience, the time estimated for OSUT is 4 hours.
- Training on disassembly and doffing of the LW system can be incorporated into the assembly and don training with no additional time.
- As Soldiers will use the LW system throughout a course, they will become very skilled at assembling and disassembling the LW system.

Data Sources:

- USAIS. (2003, October). *Program of Instruction (POI) for Infantry Officer Basic Course (IOBC)*. Fort Benning, GA: United States Army Infantry School ATSH-OTT: Author.
- USAIS. (2003, January). *Program of Instruction for 11B30 Basic Noncommissioned Officer Course (BNCOC)*. Fort Benning, GA: United States Army Infantry School, ATSH-OTT: Author.
- USAIS. (2002, November). *Program of Instruction (POI) for 11B10-OSUT One Station Unit Training (OSUT)*. Fort Benning, GA: United States Army Infantry School, ATSH-OTT: Author.
- USAIS. (2002, January). *Program of Instruction for 11B40 Advanced Noncommissioned Officer Course (ANCOG)*. Fort Benning, GA: United States Army Infantry School, ATSH-OTT: Author.
- Foster, T. (2004, May). *System training plan (STRAP) for the Ground Soldier system (Land Warrior Block III, version 5.4)*. Ft. Benning, GA: Systems Division, G-3, U.S. Army Infantry School.
- Memorandum (2004, January), *Land Warrior-Stryker Interoperable Command-Approved Critical Task List For Infantrymen MOS 11B, Skill Levels 1 Through 4, at the Platoon Level*.

- Interviews with LW SMEs on 23 July 2004.
- Wampler, R. L., Beal, S. A., & Dyer, J. L. (2003). *Observations of the Land Warrior Tester Training Course #1A conducted during safety training* (Special Report to PM-LW and TSM-S). Fort Benning, GA: Infantry Forces Research Unit, U.S. Army Research Institute.
- Dyer, J. L., & Wampler, R. L. (2002). *Observations of the Land Warrior Tester Training Course #1 conducted prior to safety training* (Special Report to PM-LW and TSM-S). Fort Benning, GA: Infantry Forces Research Unit, U.S. Army Research Institute.
- Dyer, J. L., & Wampler, R. L. (2002). *Observations of the Land Warrior Tester Training Course #3 conducted prior to reliability growth phase I* (Special Report to PM-LW and TSM-S). Fort Benning, GA: Infantry Forces Research Unit, U.S. Army Research Institute.
- Dyer, J. L., Fober, G. W., Wampler, R., Blankenbeckler, N., Dlubac, M., & Centric, J. (2000, December). *Observations and assessments of Land Warrior Training*. Ft. Benning, GA: Infantry Forces Research Unit, U.S. Army Research Institute.

SYSTEM PREPARATION	Low Expertise	Medium Expertise	High Expertise
Tasks/Skills taught	Assemble and Don LW subsystems [Tasks are 071-800-01LW (Assemble LW helmet subsystem), 071-800-02LW (Assemble LW body subsystem), 071-800-03LW (Assemble LW weapon subsystem), and 071-800-04LW (Don LW system). Includes disassembly and doffing of the system		
Description of Training	<ul style="list-style-type: none"> • Instruction and demonstration • Identify components • Assemble each subsystem • Attach WUID and HMD; install batteries • Connect weapon and helmet subsystems to body subsystem • Don system • PE • Instructor inspection/correction • Doff/disassemble the system: disconnect batteries, HMD, WUID, cables. 	<ul style="list-style-type: none"> • Same as Low 	<ul style="list-style-type: none"> • Same as Low • Add: Attach cables to computer hub, and attach HHD Leader training only
Recommended Expertise Level:			
Low = Medium = High: 2 hours for operator training except for OSUT which is 4 hours			
High for Leader: 1 additional hour in leader courses (IAW High Expertise definition)			
Common Resources			
# Overhead projectors	1 per class	1 per class	1 per class
# Overhead screens	1 per class	1 per class	1 per class
Sound system	1 per class	1 per class	1 per class

SYSTEM PREPARATION	Low Expertise	Medium Expertise	High Expertise
Tasks/Skills taught	Assemble and Don LW subsystems [Tasks are 071-800-01LW (Assemble LW helmet subsystem), 071-800-02LW (Assemble LW body subsystem), 071-800-03LW (Assemble LW weapon subsystem), and 071-800-04LW (Don LW system). Includes disassembly and doffing of the system		
Chalk/white board	1 per class	1 per class	1 per class
# Computers	1 per class	1 per class	1 per class
Functional Courses: Stage A			
Functional Course for Operators: Alt 4 - LW to All			
# Students	105	105	105
# Instructors (PI, AI)	21	21	21
#Hours	2 hrs	2 hrs	2 hrs
#LW systems	126	126	126
Functional Course for Leaders: Alt 4 - LW to All			
# Students	NA	NA	45
# Instructors (PI, AI)	NA	NA	9
# Hours	NA	NA	1 hr
# LW systems	NA	NA	54
Functional Course for Operators: Alt 3 - LW to TL			
# Students	45	45	45
# Instructors (PI, AI)	9	9	9
# Hours	2 hrs	2 hrs	2 hrs
# LW systems	54	54	54
Functional Course for Leaders: Alt 3 - LW to TL			
# Students	NA	NA	45
# Instructors (PI, AI)	NA	NA	9
# Hours	NA	NA	1 hr
# LW systems	NA	NA	54
Functional Course for Operators: Alt 2 - LW to SL			
# Students	30	30	30
# Instructors (PI, AI)	6	6	6
# Hours	2 hrs	2 hrs	2 hrs
# LW systems	36	36	36

SYSTEM PREPARATION	Low Expertise	Medium Expertise	High Expertise
Tasks/Skills taught	Assemble and Don LW subsystems [Tasks are 071-800-01LW (Assemble LW helmet subsystem), 071-800-02LW (Assemble LW body subsystem), 071-800-03LW (Assemble LW weapon subsystem), and 071-800-04LW (Don LW system). Includes disassembly and doffing of the system		
Functional Course for Leaders: Alt 2 - LW to SL			
# Students	NA	NA	30
# Instructors (PI, AI)	NA	NA	6
# Hours	NA	NA	1 hr
# LW systems rqd	NA	NA	36
Professional Development Courses and IET: Stage B			
BOLC III Infantry Alt 4 - LW to All Alt 3 - LW to TL Alt 2 - LW to SL			
# Students	160	160	160
# Instructors (PI, AI)	30	30	30
#Hours	Replacement = 1 hr Additional = 1 hr Total = 2 hours	Replacement = 1 hr Additional = 1 hr Total = 2 hours	Replacement = 1 hr Additional = 2 hrs Total = 3 hours
#LW systems	190	190	190
ANCOC: Alt 4 - LW to All Alt 3 - LW to TL Alt 2 - LW to SL	<i>No training required - Taught in as squad leader (Alternative 2 - BNCOC), team leader (Alternative 3 - Functional Course), or squad member (Alternative 4 - OSUT)</i>		
BNCOC: Alt 4 - LW to All Alt 3 - LW to TL	<i>No training required - Taught as team leader (Alternative 3 - Functional Course) or squad member (Alternative 4 - OSUT)</i>		
BNCOC: Alt 2 - LW to SL			
# Students	160	160	160
# Instructors (PI, AI)	26	26	26
# Hours	Replacement = 1 hr Additional = 1 hrs Total = 2 hours	Replacement = 1 hr Additional = 1 hrs Total = 2 hours	Replacement = 1 hr Additional = 2 hrs Total = 3 hours
# LW systems	186	186	186
Alt 4 - Tm Ldrs Functional Course for Leader Training			
# Students	NA	NA	160
# Instructors (PI, AI)	NA	NA	32
# Hours	NA	NA	Additional = 1 hour
# LW systems	NA	NA	192

SYSTEM PREPARATION	Low Expertise	Medium Expertise	High Expertise
Tasks/Skills taught	Assemble and Don LW subsystems [Tasks are 071-800-01LW (Assemble LW helmet subsystem), 071-800-02LW (Assemble LW body subsystem), 071-800-03LW (Assemble LW weapon subsystem), and 071-800-04LW (Don LW system). Includes disassembly and doffing of the system		
Alt 3 – Tm Ldrs Functional Course – Operator and Leader Training			
# Students	160	160	160
# Instructors (PI, AI)	32	32	32
# Hours	Additional =2 hours	Additional =2 hours	Additional 2 hrs in Operator Additional 1 hr in Leader
# LW systems	192	192	192
Infantry OSUT: Alt 4 – LW to All			
# Students	200	200	200
# Instructors (PI, AI)	12	12	12
# Hours	Additional = 4 hrs	Additional = 4 hrs	Additional = 4 hrs
# LW systems	212	212	212

SYSTEM PREPARATION

POWER ON/LOG-ON TO LAND WARRIOR SYSTEM

Power On the Land Warrior system [071-800-05LW],

Log On to the Land Warrior system [071-800-06LW]

LW Prerequisites:

- 071-800-01LW Assemble the LW helmet subsystem
- 071-800-02LW Assemble the LW body subsystem
- 071-800-03LW Assemble the LW weapon subsystem
- 071-800-04LW Don the LW system
- Completed Power on and Log on sections of the LW IMI

Data Sources:

- USAIS. (2003, October). *Program of Instruction (POI) for Infantry Officer Basic Course (IOBC)*. Fort Benning, GA: United States Army Infantry School ATSH-OTT: Author.
- USAIS. (2003, January). *Program of Instruction for 11B30 Basic Noncommissioned Officer Course (BNCOC)*. Fort Benning, GA: United States Army Infantry School, ATSH-OTT: Author.
- USAIS. (2002, November). *Program of Instruction (POI) for 11B10-OSUT One Station Unit Training (OSUT)*. Fort Benning, GA: United States Army Infantry School, ATSH-OTT: Author.
- USAIS. (2002, January). *Program of Instruction for 11B40 Advanced Noncommissioned Officer Course (ANCOC)*. Fort Benning, GA: United States Army Infantry School, ATSH-OTT: Author.
- Foster, T. (2004, May). *System training plan (STRAP) for the Ground Soldier system (Land Warrior Block III, version 5.4)*. Ft. Benning, GA: Systems Division, G-3, U.S. Army Infantry School.
- Memorandum (2004, January), *Land Warrior-Stryker Interoperable Command-Approved Critical Task List For Infantrymen MOS 11B, Skill Levels 1 Through 4, at the Platoon Level*.
- Interviews with LW SMEs on 23 July 2004.
- Wampler, R. L., Beal, S. A., & Dyer, J. L. (2003). *Observations of the Land Warrior Tester Training Course #1A conducted during safety training* (Special Report to PM-LW and TSM-S). Fort Benning, GA: Infantry Forces Research Unit, U.S. Army Research Institute.
- Dyer, J. L., & Wampler, R. L. (2002). *Observations of the Land Warrior Tester Training Course #1 conducted prior to safety training* (Special Report to PM-LW and TSM-S). Fort Benning, GA: Infantry Forces Research Unit, U.S. Army Research Institute.
- Dyer, J. L., & Wampler, R. L. (2002). *Observations of the Land Warrior Tester Training Course #3 conducted prior to reliability growth phase I* (Special Report to PM-LW and TSM-S). Fort Benning, GA: Infantry Forces Research Unit, U.S. Army Research Institute.
- Dyer, J. L., Foer, G. W., Wampler, R., Blankenbeckler, N., Dlubac, M., & Centric, J. (2000, December). *Observations and assessments of Land Warrior Training*. Ft. Benning, GA: Infantry Forces Research Unit, U.S. Army Research Institute.

SYSTEM PREPARATION	Low Expertise	Medium Expertise	High Expertise
Tasks/Skills taught	Power On the Land Warrior system [071-800-05LW], Log On to the Land Warrior system [071-800-06LW]		
Description of Training	<ul style="list-style-type: none"> • Instructions on power on switch, SAM card, log-on procedures • Instructions on trouble-shooting during power on and log-on • PE • Instructor inspection/correction 	• Same as Low	• Same as Low
Recommended Expertise Level: Low = Medium = High = 0.5 hours			
Common Resources			
# Hours	0.5 hrs	0.5 hrs	0.5 hrs
# Overhead projectors	1 per class	1 per class	1 per class
# Overhead screens	1 per class	1 per class	1 per class
Sound system	1 per class	1 per class	1 per class
Chalk/white board	1 per class	1 per class	1 per class
# Computers	1 per class	1 per class	1 per class
Functional Courses: Stage A			
Functional Course for Operators: Alt 4 - LW to All			
# Students	105	105	105
# Instructors (PI, AI)	21	21	21
# Hours	0.5 hrs	0.5 hrs	0.5 hrs
#LW systems	126	126	126
Functional Course for Leaders: Alt 4 - LW to All	<i>No training required – Operator task</i>		
Functional Course for Operators: Alt 3 - LW to TL			
# Students	45	45	45
# Instructors (PI, AI)	9	9	9
# Hours	0.5 hrs	0.5 hrs	0.5 hrs
#LW systems	54	54	54
Functional Course for Leaders: Alt 3 - LW to TL	<i>No training required – Operator task</i>		

SYSTEM PREPARATION	Low Expertise	Medium Expertise	High Expertise
Tasks/Skills taught	Power On the Land Warrior system [071-800-05LW], Log On to the Land Warrior system [071-800-06LW]		
Functional Course for Operators: Alt 2 - LW to SL			
# Students	30	30	30
# Instructors (PI, AI)	6	6	6
# Hours	0.5 hrs	0.5 hrs	0.5 hrs
#LW systems	36	36	36
Functional Course for Leaders: Alt 2 - LW to SL	<i>No training required – Operator task</i>		
Professional Development Courses and IET: Stage B			
BOLC III Infantry Alt 4 – LW to All Alt 3 – LW to TL Alt 2 – LW to SL			
# Students	160	160	160
# Instructors (PI, AI)	30	30	30
# Hours	Total = 0.5 hrs	Total = 0.5 hours	Total = 0.5 hrs
#LW systems	190	190	190
ANCOC: Alt 4 – LW to All Alt 3 – LW to TL Alt 2 – LW to SL	<i>No training required – Taught in as squad leader (Alternative 2 – BNCOC), team leader (Alternative 3 – Functional Course), or squad member (Alternative 4 – OSUT)</i>		
BNCOC: Alt 4 – LW to All Alt 3 – LW to TL	<i>No training required – Taught as team leader (Alternative 3 – Functional Course) or squad member (Alternative 4 – OSUT)</i>		
BNCOC: Alt 2 – LW to SL			
# Students	160	160	160
# Instructors (PI, AI)	26	26	26
# Hours	Total = 0.5 hrs	Total = 0.5 hrs	Total = 0.5 hrs
# LW systems	186	186	186
Alt 4 – Tm Ldrs Functional Course for Leader Training	<i>No training required – Operator task</i>		
Alt 3 – Tm Ldrs Functional Course – Operator and Leader Training	<i>Operator phase of training only</i>		
# Students	160	160	160
# Instructors (PI, AI)	26	26	26
# Hours	0.5 hrs	0.5 hrs	0.5 hrs
# LW systems	186	186	186

SYSTEM PREPARATION	Low Expertise	Medium Expertise	High Expertise
Tasks/Skills taught	Power On the Land Warrior system [071-800-05LW], Log On to the Land Warrior system [071-800-06LW]		
Infantry OSUT: Alt 4 – LW to All			
# Students	200	200	200
# Instructors (PI, AI)	12	12	12
# Hours	Total = 0.5 hrs	Total = 0.5 hrs	Total = 0.5 hrs
# LW systems	212	212	212

SYSTEM PREPARATION

LOAD MISSION DATA PACKAGE (MDP) ON LW SYSTEM

Task #071-800-07LW

LW Prerequisites:

- 071-800-01LW Assemble the LW helmet subsystem
- 071-800-02LW Assemble the LW body subsystem
- 071-800-03LW Assemble the LW weapon subsystem
- 071-800-04LW Don the LW system
- 071-800-05LW Power On the Land Warrior system
- 071-800-06LW Log On to the Land Warrior system
- Complete MDP section of LW IMI.

Assumptions:

- Sufficient equipment is available in leader courses to download MDP within 15 minutes to all students.
- Time Considerations: In TTC#3 with LW v 1.0, the average time was 11 minutes to download the MDP to three Soldiers simultaneously. It is assumed that the fielded equipment will perform faster and allow download to more Soldiers simultaneously.

Data Sources:

- Interviews with LW SMEs on 23 July 2004.
- Wampler, R. L., Beal, S. A., & Dyer, J. L. (2003). *Observations of the Land Warrior Tester Training Course #1A conducted during safety training* (Special Report to PM-LW and TSM-S). Fort Benning, GA: Infantry Forces Research Unit, U.S. Army Research Institute.
- Dyer, J. L., & Wampler, R. L. (2002). *Observations of the Land Warrior Tester Training Course #1 conducted prior to safety training* (Special Report to PM-LW and TSM-S). Fort Benning, GA: Infantry Forces Research Unit, U.S. Army Research Institute.
- Dyer, J. L., & Wampler, R. L. (2002). *Observations of the Land Warrior Tester Training Course #3 conducted prior to reliability growth phase I* (Special Report to PM-LW and TSM-S). Fort Benning, GA: Infantry Forces Research Unit, U.S. Army Research Institute.
- Dyer, J. L., Fober, G. W., Wampler, R., Blankenbeckler, N., Dlubac, M., & Centric, J. (2000, December). *Observations and assessments of Land Warrior Training*. Ft. Benning, GA: Infantry Forces Research Unit, U.S. Army Research Institute.

System Preparation	Low Expertise	Medium Expertise	High Expertise
Tasks/Skills taught	Load Mission Data Package (MDP) on LW System Task #071-800-07LW		
Description of Training	<ul style="list-style-type: none"> • Instruction and talk-through of MDP screens and procedures • Demonstration by PI 	<ul style="list-style-type: none"> • Same as Low 	<ul style="list-style-type: none"> • Same as Low plus • Load MDP – Leaders only

System Preparation	Low Expertise	Medium Expertise	High Expertise
Tasks/Skills taught	Load Mission Data Package (MDP) on LW System Task #071-800-07LW		
Recommended Expertise Level: Low = Medium = High = 0.5 hours for operators Low = Medium < High = 0.5 additional hours for leaders – High recommended for leaders			
Common Resources			
Overhead projector	1 per class	1 per class	1 per class
Overhead screen	1 per class	1 per class	1 per class
Sound system	1 per class	1 per class	1 per class
Chalk/white board	1 per class	1 per class	1 per class
Overhead projector w/ video projection link to instructor's LW ensemble	1 per class	1 per class	1 per class
MDP transfer device	1 per class for instructor	1 per class for instructor	1 per class for instructor
MDP transfer devices	Enough in each leader course to download MDP to all students within 15 minutes.	Enough in each leader course to download MDP to all students within 15 minutes.	Enough in each leader course to download MDP to all students within 15 minutes.
Functional Courses: Stage A			
Functional Course for Operators: Alt 4 - LW to All			
# Students	105	105	105
# Instructors (PI, AI)	21	21	21
# Hours	0.5 hrs	0.5 hrs	0.5 hrs
# LW systems	126	126	126
Functional Course for Leaders: Alt 4 - LW to All			
# Students	45	45	45
# Instructors (PI, AI)	9	9	9
# Hours	0.5 hr	0.5 hr	0.5 hr
# LW systems	54	54	54
Functional Course for Operators: Alt 3 - LW to TL			
# Students	45	45	45
# Instructors (PI, AI)	9	9	9
# Hours	0.5 hr	0.5 hr	0.5 hr
# LW systems	54	54	54
Functional Course for Leaders: Alt 3 - LW to TL			
# Students	45	45	45

System Preparation	Low Expertise	Medium Expertise	High Expertise
Tasks/Skills taught	Load Mission Data Package (MDP) on LW System Task #071-800-07LW		
# Instructors (PI, AI)	9	9	9
# Hours	0.5 hr	0.5 hr	0.5 hr
#LW systems	54	54	54
Functional Course for Operators: Alt 2 - LW to SL			
# Students	30	30	30
# Instructors (PI, AI)	6	6	6
# Hours	0.5 hr	0.5 hr	0.5 hr
# LW systems	36	36	36
Functional Course for Operators: Alt 2 - LW to SL			
# Students	30	30	30
# Instructors (PI, AI)	6	6	6
# Hours	0.5 hr	0.5 hr	0.5 hr
# LW systems	36	36	36
Professional Development Courses and IET: Stage B			
BOLC III Infantry Alt 4 - LW to All Alt 3 - LW to TL Alt 2 - LW to SL			
# Students	160	160	160
# Instructors (PI, AI)	30	30	30
#Hours	Total = 1 hr	Total = 1 hr	Total = 1 hrs
#LW systems	190	190	190
ANCOC: Alt 4 - LW to All Alt 3 - LW to TL Alt 2 - LW to SL	<i>No training required - Taught in as squad leader (Alternative 2 - BNCOC), team leader (Alternative 3 - Functional Course), or squad member (Alternative 4 - OSUT)</i>		
BNCOC: Alt 4 - LW to All Alt 3 - LW to TL	<i>No training required - Taught as team leader (Alternative 3 - Functional Course) or squad member (Alternative 4 - OSUT)</i>		
BNCOC: Alt 2 - LW to SL			
# Students	160	160	160
# Instructors (PI, AI)	26	26	26
# Hours	Total = 1.0 hrs	Total = 1.0 hrs	Total = 1.0 hrs
# LW systems	186	186	186
Alt 4 - Team leaders Functional Course for Leader Training			
# Students	160	160	160
# Instructors (PI, AI)	32	32	32

System Preparation	Low Expertise	Medium Expertise	High Expertise
Tasks/Skills taught	Load Mission Data Package (MDP) on LW System Task #071-800-07LW		
# Hours	0.5 hrs	0.5 hrs	0.5 hrs
# LW systems	192	192	192
Alt 3 – Tm Ldrs Functional Course – Operator and Leader Training			
# Students	160	160	160
# Instructors (PI, AI)	26	26	26
# Hours	0.5/0.5 hrs (Op/Ldr)	0.5/0.5 hrs (Op/Ldr)	0.5/0.5 hrs (Op/Ldr)
# LW systems	186	186	186
Infantry OSUT: Alt 4 – LW to All			
# Students	200	200	200
# Instructors (PI, AI)	12	12	12
# Hours	Total = 0.5 hrs	Total = 0.5 hrs	Total = 0.5 hrs
# LW systems	212	212	212

SYSTEM PREPARATION

CONFIGURE LAND WARRIOR SYSTEM FOR OPERATION

Task #071-800-08LW

Background:

Configuration is based primarily on LW v1.0 as taught in Tester Training Courses 1, 1A, and 3 (see references below). The procedures could change with the next version of the LW software. The 10 menu selections under the Configuration menu were: Time, Messaging, Push-to-Talk buttons, MFL, Alerts, Filter Friendly SA, Radio, DVS Reticle, SCU, and Navigation. Three of these (MFL, DVS reticle, and Navigation) are covered in other tasks. The Unit Task Organization (UTO) screen is introduced here, as it is central to several functions (both voice and digital messages, and map displays – SA overlay) within the LW v1.0 software. This may change with the next version of the software.

Prerequisites:

- Completed configuration section of IMI
- 071-800-01LW Assemble the LW helmet subsystem
- 071-800-02LW Assemble the LW body subsystem
- 071-800-03LW Assemble the LW weapon subsystem
- 071-800-04LW Don the LW system
- 071-800-05LW Power On the Land Warrior system
- 071-800-06LW Log On to the Land Warrior system
- 071-800-07LW Load MDP on the LW System

Data Sources:

- Foster, T. (2004, May). *System training plan (STRAP) for the Ground Soldier system (Land Warrior Block III, version 5.4)*. Ft. Benning, GA: Systems Division, G-3, U.S. Army Infantry School.
- Memorandum (2004, January), *Land Warrior-Stryker Interoperable Command-Approved Critical Task List For Infantrymen MOS 11B, Skill Levels 1 Through 4, at the Platoon Level*.
- Interviews with LW SMEs on 23 July 2004.
- Wampler, R. L., Beal, S. A., & Dyer, J. L. (2003). *Observations of the Land Warrior Tester Training Course #1A conducted during safety training* (Special Report to PM-LW and TSM-S). Fort Benning, GA: Infantry Forces Research Unit, U.S. Army Research Institute.
- Dyer, J. L., & Wampler, R. L. (2002). *Observations of the Land Warrior Tester Training Course #1 conducted prior to safety training* (Special Report to PM-LW and TSM-S). Fort Benning, GA: Infantry Forces Research Unit, U.S. Army Research Institute.
- Dyer, J. L., & Wampler, R. L. (2002). *Observations of the Land Warrior Tester Training Course #3 conducted prior to reliability growth phase I* (Special Report to PM-LW and TSM-S). Fort Benning, GA: Infantry Forces Research Unit, U.S. Army Research Institute.
- Dyer, J. L., Fober, G. W., Wampler, R., Blankenbeckler, N., Dlubac, M., & Centric, J. (2000, December). *Observations and assessments of Land Warrior Training*. Ft. Benning, GA: Infantry Forces Research Unit, U.S. Army Research Institute.

System Preparation	Low Expertise	Medium Expertise	High Expertise
Tasks/Skills taught	Configure Land Warrior System for Operation Task #071-800-08LW		
Description of Training	<ul style="list-style-type: none"> • Instruction on path to configure menus • Instruction on configuration menu selections, how SAM card affects how individual Soldier system is configured <ul style="list-style-type: none"> ○ Time zone ○ Filter Friendly SA ○ Messaging ○ Push-to-talk (PTT) Radio ○ SCU • Training on different means of selecting people as recipients of PTT messages and people for SA display – use of Unit task organization (UTO) screens. Differences between UTO for PTT and SA. • Training on sensitive items and alerts • PE on finding where different configuration settings exist; change PTT and/or SA configurations 	<ul style="list-style-type: none"> • Same as Low • Add Instruction on how to change settings • PE on changing all remaining configuration settings (time, radio, messaging, SCU, etc.) 	<ul style="list-style-type: none"> • Same as Medium
Recommended Expertise Level			
Medium = High = 3 hours			
Common Resources			
Overhead Projector w/video projection link to instructor's LW ensemble	1 per class	1 per class	1 per class
Overhead screen	1 per class	1 per class	1 per class
Sound system	1 per class	1 per class	1 per class
Chalk/white board	1 per class	1 per class	1 per class
Computer	1 per class	1 per class	1 per class
LW systems	1 per student 1 per instructor	1 per student 1 per instructor	1 per student 1 per instructor
Functional Courses: Stage A			

System Preparation	Low Expertise	Medium Expertise	High Expertise
Tasks/Skills taught	Configure Land Warrior System for Operation Task #071-800-08LW		
Functional Course for Operators: Alt 4 - LW to All			
# Students	105	105	105
# Instructors (PI, AI)	21	21	21
# Hours	2.5 hrs	3 hrs	3 hrs
# LW systems	126	126	126
Functional Course for Leaders: Alt 4 - LW to All	<i>No training required – Operator task</i>		
Functional Course for Operators: Alt 3 - LW to TL			
# Students	45	45	45
# Instructors (PI, AI)	9	9	9
# Hours	2.5 hrs	3 hrs	3 hrs
# LW systems	54	54	54
Functional Course for Leaders: Alt 3 - LW to TL	<i>No training required – Operator task</i>		
Functional Course for Operators: Alt 2 - LW to SL			
# Students	30	30	30
# Instructors (PI, AI)	6	6	6
# Hours	2.5 hrs	3 hrs	3 hrs
# LW systems	36	36	36
Functional Course for Leaders: Alt 2 - LW to SL	<i>No training required – Operator task</i>		
Professional Development Courses and IET: Stage B			
BOLC III Infantry Alt 4 – LW to All Alt 3 – LW to TL Alt 2 – LW to SL			
# Students	160	160	160
# Instructors (PI, AI)	30	30	30
# Hours	Total = 2.5 hrs	Total = 3 hrs	Total = 3 hrs
# LW systems	190	190	190
ANCOC: Alt 4 – LW to All Alt 3 – LW to TL Alt 2 – LW to SL	<i>No training required – Taught in as squad leader (Alternative 2 – BNCOC), team leader (Alternative 3 – Functional Course), or squad member (Alternative 4 – OSUT)</i>		

System Preparation	Low Expertise	Medium Expertise	High Expertise
Tasks/Skills taught	Configure Land Warrior System for Operation Task #071-800-08LW		
BNCOC: Alt 4 – LW to All Alt 3 – LW to TL	<i>No training required – Taught as team leader (Alternative 3 – Functional Course) or squad member (Alternative 4 – OSUT)</i>		
BNCOC: Alt 2 – LW to SL			
# Students	160	160	160
# Instructors (PI, AI)	26	26	26
# Hours	Total = 2.5 hrs	Total = 3 hrs	Total = 3 hrs
# LW systems	186	186	186
Alt 4 – Tm Ldrs Functional Course for Leader Training	<i>No training required – Operator task</i>		
Alt 3 – Tm Ldrs Functional Course – Operator and Leader Training	<i>Operator Training only</i>		
# Students	160	160	160
# Instructors (PI, AI)	26	26	26
# Hours	2.5 hrs	3 hrs	3 hrs
# LW systems	186	186	186
Infantry OSUT: Alt 4 – LW to All			
# Students	200	200	200
# Instructors (PI, AI)	12	12	12
# Hours	Total = 2.5 hrs	Total = 3 hrs	Total = 3 hrs
# LW systems	212	212	212

SYSTEM PREPARATION

CONFIGURE LAND WARRIOR NAVIGATION SUBSYSTEM

Task 071-800-09LW

LW Prerequisites:

- Completed configuration section of IMI
- 071-800-01LW Assemble the LW helmet subsystem
- 071-800-02LW Assemble the LW body subsystem
- 071-800-03LW Assemble the LW weapon subsystem
- 071-800-04LW Don the LW system
- 071-800-05LW Power On the Land Warrior system
- 071-800-06LW Log On to the Land Warrior system
- 071-800-07LW Load MDP on the LW System
- 071-800-08LW Configure the Land Warrior system for operation

Other Prerequisites:

- Map reading skills for all.
- A critical skill of leaders is that they must be able to compute declination angle and back azimuth, distinguish magnetic north from true north. Additional training is required if they do not have these skills, as they must establish this information in order to calibrate the dead reckoning device within the Land Warrior system.

Assumptions:

- Time allocations: In TTC#1 for LW version 1.0, 2 hours was used for this instruction, including the PE. Instruction also included other topics. For OSUT 1.5 hours is allocated to this task, allowing time for the drill sergeants to check individual Soldiers. In the leader courses 1.5 hours is also allocated. This time also includes time to determine the declination angle in order to determine true north, which is required to calibrate the dead reckoning device.
- In the Alternatives where only leaders are being trained in an operator's course (e.g., some functional courses, BOLC III IN, BNCOC), the leader training on declination angle is included in that training.

Data Sources:

- USAIS. (2003, October). *Program of Instruction (POI) for Infantry Officer Basic Course (IOBC)*. Fort Benning, GA: United States Army Infantry School ATSH-OTT: Author.
- USAIS. (2003, January). *Program of Instruction for 11B30 Basic Noncommissioned Officer Course (BNCOC)*. Fort Benning, GA: United States Army Infantry School, ATSH-OTT: Author.
- USAIS. (2002, November). *Program of Instruction (POI) for 11B10-OSUT One Station Unit Training (OSUT)*. Fort Benning, GA: United States Army Infantry School, ATSH-OTT: Author.
- USAIS. (2002, January). *Program of Instruction for 11B40 Advanced Noncommissioned Officer Course (ANCOC)*. Fort Benning, GA: United States Army Infantry School, ATSH-OTT: Author.

- Foster, T. (2004, May). *System training plan (STRAP) for the Ground Soldier system* (Land Warrior Block III, version 5.4). Ft. Benning, GA: Systems Division, G-3, U.S. Army Infantry School.
- Memorandum (2004, January), *Land Warrior-Stryker Interoperable Command-Approved Critical Task List For Infantrymen MOS 11B, Skill Levels 1 Through 4, at the Platoon Level.*
- Interviews with LW SMEs.
- Wampler, R. L., Beal, S. A., & Dyer, J. L. (2003). *Observations of the Land Warrior Tester Training Course #1A conducted during safety training* (Special Report to PM-LW and TSM-S). Fort Benning, GA: Infantry Forces Research Unit, U.S. Army Research Institute.
- Dyer, J. L., & Wampler, R. L. (2002). *Observations of the Land Warrior Tester Training Course #1 conducted prior to safety training* (Special Report to PM-LW and TSM-S). Fort Benning, GA: Infantry Forces Research Unit, U.S. Army Research Institute.
- Dyer, J. L., & Wampler, R. L. (2002). *Observations of the Land Warrior Tester Training Course #3 conducted prior to reliability growth phase I* (Special Report to PM-LW and TSM-S). Fort Benning, GA: Infantry Forces Research Unit, U.S. Army Research Institute.
- Dyer, J. L., Fober, G. W., Wampler, R., Blankenbeckler, N., Dlubac, M., & Centric, J. (2000, December). *Observations and assessments of Land Warrior Training.* Ft. Benning, GA: Infantry Forces Research Unit, U.S. Army Research Institute.

System Preparation	Low Expertise	Medium Expertise	High Expertise
Tasks/Skills taught	Configure the Land Warrior Navigation subsystem, Task 071-800-09LW		
Description of Training	<ul style="list-style-type: none"> • Instruction on routes to navigation properties screen • Instruction on screen displays associated with each of the navigation tabs; # of required satellites for tracking • Individual icon • Calibrate the dead reckoning device • Access map display and appropriate tool bar • PE in training area outside classroom. Calibrate DRD; establish satellite coverage, check if calibration works via movement and individual icon (instructor has previously 	<ul style="list-style-type: none"> • Same as Low 	<ul style="list-style-type: none"> • Same as Low plus • For Leaders: Use lensatic compass and map to establish true north.

System Preparation	Low Expertise	Medium Expertise	High Expertise
Tasks/Skills taught	Configure the Land Warrior Navigation subsystem, Task 071-800-09LW		
	established direction of true north.).		
Recommended Expertise Level: Low = Medium = High = 1.5 hours for operators Low = Medium < High for leaders. High recommended. When training leaders, this block of instruction will include PE in establishing true north during the configuration process. No additional time.			
Common Resources			
Overhead projector	1 per class	1 per class	1 per class
Overhead screen	1 per class	1 per class	1 per class
Sound system	1 per class	1 per class	1 per class
Chalk/white board	1 per class	1 per class	1 per class
Overhead projector w/ video projection link to instructor's LW ensemble	1 per class	1 per class	1 per class
Training area	1 per class	1 per class	1 per class
Lensatic compass and map	None	None	1 per 5 students
Functional Courses: Stage A			
Functional Course for Operators: Alt 4 - LW to All	<i>Train leaders on establishing declination angle concurrently with operator training.</i>		
# Students	60	60	45
# Instructors (PI, AI)	12	12	9
# Hours	1.5 hr	1.5 hr	1.5 hr
# LW systems	60	60	45
Map and lensatic compass	1 per 5 leaders in course	1 per 5 leaders in course	1 per 5 leaders in course
Functional Course for Leaders: Alt 4 - LW to All	<i>See comments on Operator Course for Alternative 4</i>		
Functional Course for Operators: Alt 3 - LW to TL	<i>Train leaders on establishing declination angle concurrently with operator training.</i>		
# Students	45	45	45
# Instructors (PI, AI)	9	9	9
# Hours	1.5 hr	1.5 hr	1.5 hr
# LW systems	54	54	54
Map and lensatic compass	1 per 5 leaders in course	1 per 5 leaders in course	1 per 5 leaders in course
Functional Course for Leaders: Alt 3 - LW to TL	<i>See comments on Operator course for Alternative 3</i>		

System Preparation	Low Expertise	Medium Expertise	High Expertise
Tasks/Skills taught	Configure the Land Warrior Navigation subsystem, Task 071-800-09LW		
Functional Course for Operators: Alt 2 - LW to SL	<i>Train leaders on establishing declination angle concurrently with operator training.</i>		
# Students	30	30	30
# Instructors (PI, AD)	6	6	6
# Hours	1.5 hr	1.5 hr	1.5 hr
# LW systems	36	36	36
Map and lensatic compass	1 per 5 leaders in course	1 per 5 leaders in course	1 per 5 leaders in course
Functional Course for Leaders: Alt 2 - LW to SL	<i>See comments on Operator course for Alternative 2</i>		
Professional Development Courses and IET: Stage B			
BOLC III Infantry Alt 4 - LW to All Alt 3 - LW to TL Alt 2 - LW to SL	<i>Train leaders on establishing declination angle concurrently with operator training.</i>		
# Students	160	160	160
# Instructors (PI, AD)	30	30	30
# Hours	Total = 1.5 hr	Total = 1.5 hr	Total = 1.5 hr
# LW systems	190	190	190
Map and lensatic compass	1 per 5 students	1 per 5 students	1 per 5 students
ANCOC: Alt 4 - LW to All Alt 3 - LW to TL Alt 2 - LW to SL	<i>No training required - Taught in as squad leader (Alternative 2 - BNCOC), team leader (Alternative 3 - Functional Course), or squad member (Alternative 4 - OSUT)</i>		
BNCOC: Alt 4 - LW to All Alt 3 - LW to TL	<i>No training required - Taught as team leader (Alternative 3 - Functional Course) or squad member (Alternative 4 - OSUT)</i>		
BNCOC: Alt 2 - LW to SL	<i>Train leaders on establishing declination angle concurrently with operator training.</i>		
# Students	160	160	160
# Instructors (PI, AD)	26	26	26
# Hours	Total = 1.5 hr	Total = 1.5 hr	Total = 1.5 hr
# LW systems	186	186	186
Map and lensatic compass	1 per 5 students	1 per 5 students	1 per 5 students
Alt 4 - Tm Ldrs Functional Course for Leader Training	<i>Team leaders acquire skill in establishing declination angle within leader course (estimated additional time is 15 minutes).</i>		

System Preparation	Low Expertise	Medium Expertise	High Expertise
Tasks/Skills taught	Configure the Land Warrior Navigation subsystem, Task 071-800-09LW		
Alt 3 – Tm Ldrs Functional Course – Operator and Leader Training	<i>Operator training times cited below. Train leaders on establishing declination angle concurrently with operator training.</i>		
# Students	160	160	160
# Instructors (PI, AI)	26	26	26
# Hours	1.5 hr	1.5 hr	1.5 hr
# LW systems	186	186	186
Map and lensatic compass	1 per 5 students	1 per 5 students	1 per 5 students
Infantry OSUT: Alt 4 – LW to All			
# Students	200	200	200
# Instructors (PI, AI)	12	12	12
# Hours	1.5 hrs	1.5 hrs	1.5 hrs
# LW systems	212	212	212
Map and lensatic compass	NA	NA	NA

Functional Areas: Operate and Maintain the LW System

Use the LW Software Interface

Operate LW Map Functions

Use/View LW Overlays

Zeroize the LW System

Operate the Stryker Vehicle Integration Kit (VIK)

Maintain the LW System

OPERATE

USE THE LW SOFTWARE INTERFACE

(No task number – reflects basic instruction on the structure of the major LW display screens)

LW Prerequisite Skills

- 071-800-01LW Assemble the Land Warrior Helmet Subsystem
- 071-800-02LW Assemble the Land Warrior Body Subsystem
- 071-800-03LW Assemble the Land Warrior Weapon Subsystem
- 071-800-04LW Don the Land Warrior System
- 071-800-05LW Power On the Land Warrior System
- 071-800-06LW Log On to the Land Warrior System
- 071-800-07LW Load Mission Data Packages on the Land Warrior System

Additional Prerequisite Skills:

- Basic computer skills with menus and Windows-type computer operating systems.

Assumptions:

- Each Soldier will be equipped with an individual LW ensemble.
- Each instructor will be equipped with an individual LW ensemble capable of being linked to an overhead projector system.
- Time considerations. The skills reflected here are intended to cover skills not directly trained in other tasks, but rather are assumed by those specific tasks. Block of instruction included in recognition of the need to devote some time must be devoted to explaining the structure of the software interface and the major displays. This instruction should precede concentrated training on the LW tasks that require use of the LW software interface such as configure for operation, operate map functions, etc.

Data Sources:

- DA. (2003, August). *Soldier's Manual of Common Tasks Skill Level 1 (STP 21-1-SMCT)*. Washington, D.C., HQDA.
- DA. (2003, August). *Soldier's Manual Of Common Tasks Skill Levels 2, 3, and 4 (STP 21-24-SMCT)*. Washington, D.C., HQDA.
- Foster, T. (2004, May). *System training plan (STRAP) for the Ground Soldier system (Land Warrior Block III, version 5.4)*. Ft. Benning, GA: Systems Division, G-3, U.S. Army Infantry School.
- Memorandum (2004, January), *Land Warrior-Stryker Interoperable Command-Approved Critical Task List For Infantrymen MOS 11B, Skill Levels 1 Through 4, at the Platoon Level*.
- USAIC NCO Academy. (2004, March). *Primary Leadership Development Course (PLDC) Student Guide*. Fort Benning, GA: United States Army Infantry Center, Henry Caro NCO Academy, ATZB-NC-NP: Author.
- USAIS. (2003, October). *Program of Instruction (POI) for Infantry Officer Basic Course (IOBC)*. Fort Benning, GA: United States Army Infantry School ATSH-OTT: Author.
- USAIS. (2003, January). *Program of Instruction for 11B30 Basic Noncommissioned Officer Course (BNCOC)*. Fort Benning, GA: United States Army Infantry School, ATSH-OTT: Author.

- USAIS. (2002, January). *Program of Instruction for 11B40 Advanced Noncommissioned Officer Course (ANCOC)*. Fort Benning, GA: United States Army Infantry School, ATSH-OTT: Author.
- Interviews with subject matter experts (SMEs) on 23 July, 2004
- Dyer, J. L., Fober, G. W., Wampler, R., Blankenbeckler, N., Dlubac, M., & Centric, J. (2000, December). *Observations and assessments of Land Warrior Training*. Ft. Benning, GA: Infantry Forces Research Unit, U.S. Army Research Institute.
- Dyer, J. L., & Wampler, R. L. (2002, December). *Observations of the Land Warrior Tester Trainer Course #3 Conducted Prior to Reliability Growth Phase I*. Fort Benning, GA: U.S. Army Research Institute for the Behavioral and Social Sciences, Infantry Forces Research Unit.

OPERATE	Low Expertise	Medium Expertise	High Expertise
Tasks/Skills Taught Use the LW software interface. No Task Number – (Operator task)			
Note: Purpose of this block of training is to provide Soldiers with an overview of the structure of the major screen displays in the LW software and the primary functions served by these displays. This includes such displays as the main menu (how it is accessed, what is listed), the map display and top and bottom tool bars, etc. The purpose is not to explain every icon, nor to provide training on the other tasks on the task list (such as configure, digital messages, etc.). However, Soldiers need initial training on the structure and purposes of the displays (providing them a cognitive schema/scaffolding) - a framework for the additional training on use of the LW software and its interaction with the hardware.			
Description of Training	<ul style="list-style-type: none"> • Instruction on default display (map display with associated tool bars) • Instruction on main menu and its features. • Instruction on Soldier control unit (SCU) and weapon user interface device (WUID) interactions with displays • PE on locating major elements in the LW software, using WUID to manipulate displays, etc. 	<ul style="list-style-type: none"> • Same as Low 	<ul style="list-style-type: none"> • Same as Low
Recommended Expertise Level: Low = Medium = High: .75 hours			
Common Resources			
# Hours of Instruction	.75 hrs	.75 hr	.75 hr
LW Ensembles	1 per student 1 per instructor	1 per student 1 per instructor	1 per student 1 per instructor
Sound System	1 per training site	1 per training site	1 per training site
Chalk/Whiteboard	1 per training site	1 per training site	1 per training site
# Overhead Projectors w/video projection link to instructor LW ensemble	1 per training site	1 per training site	1 per training site

OPERATE	Low Expertise	Medium Expertise	High Expertise
Tasks/Skills Taught	Use the LW software interface. No Task Number – (Operator task)		
# Overhead Screens	1 per training site	1 per training site	1 per training site
Power Supply	1 per training site	1 per training site	1 per training site
LW Batteries (Type and # per student)	2 per student	4 per student (2 recharging)	4 per student (2 recharging)
Functional Courses: Stage A			
Functional Course for Operators: Alt 4 - LW to All			
# Hours	0.75 hrs	.75 hr	.75 hr
# Students	105	105	105
# Instructors (PI & AI)	21	21	21
# LW Ensembles	126	126	126
Desks/Tables/Chairs	105/1/105	105/1/105	105/1/105
# LW Batteries	252	504	504
Functional Course for Leaders: Alt 4 - LW to All	<i>No training required – Operator Task</i>		
Functional Course for Operators: Alt 3 - LW to TL			
# Hours	0.75 hrs	.75 hr	.75 hr
# Students	45	45	45
# Instructors (PI & AI)	9	9	9
# LW Ensembles	54	54	54
Desks/Tables/Chairs	45/1/45	45/1/45	45/1/45
# LW Batteries	108	216	216
Functional Course for Leaders: Alt 3 - LW to TL	<i>No training required – Operator Task</i>		
Functional Course for Operators: Alt 2 - LW to SL			
# Hrs	0.75 hrs	.75 hr	.75 hr
# Students	30	30	30
# Instructors (PI & AI)	6	6	6
# LW Ensembles	36	36	36
Desks/Tables/Chairs	30/1/30	30/1/30	30/1/30
# LW Batteries	72	144	144
Functional Course for Leaders: Alt 2 - LW to SL	<i>No training required – Operator Task</i>		

OPERATE	Low Expertise	Medium Expertise	High Expertise
Tasks/Skills Taught	Use the LW software interface. No Task Number – (Operator task)		
Professional Development Courses and IET: Stage B			
BOLC III Infantry Alt 4 – LW to All Alt 3 – LW to TL Alt 2 – LW to SL			
# Hours	0.75 hrs	.75 hr	.75 hr
# Students	160	160	160
# Instructors (PI & AI)	30	30	30
# LW Ensembles	190	190	190
Desks/Tables/Chairs	160/1/160	160/1/160	160/1/160
# LW Batteries	380	760	760
ANCOC: Alt 4 – LW to All Alt 3 – LW to TL Alt 2 – LW to SL	<i>No training required - PSG trained prior: As Squad Member (Alternative 4- OSUT), as a Team Leader (Alternative 3 – Functional Course), or as Squad Leader (Alternative 2- BNCOC)</i>		
BNCOC: Alt 4 – LW to All Alt 3 – LW to TL	<i>No training required - SL trained prior: As Squad Member (Alternative 4 – OSUT or as a Team Leader (Alternative 3- Functional Course)</i>		
BNCOC: Alt 2 – LW to SL			
# Hours	0.75 hrs	.75 hr	.75 hr
# Students	160	160	160
# Instructors (PI & AI)	26	26	26
# LW Ensembles	186	186	186
Desks/Tables/Chairs	160/1/160	160/1/160	160/1/160
# LW Batteries	372	744	744
Alt 4 – Tm Ldrs Functional Course for Leader Training	<i>No training required - taught in OSUT</i>		
Alt 3 – Tm Ldrs Functional Courses – Operator and Leader Training	<i>Include only in Operator phase of training</i>		
# Hours	0.75 hrs	.75 hr	.75 hr
# Students	160	160	160
# Instructors (PI & AI)	32	32	32
# LW Ensembles	192	192	192
Desks/Tables/Chairs	160/1/160	160/1/160	160/1/160
# LW Batteries	384	768	768
Infantry OSUT: Alt 4 – LW to All			
# Hours	0.75 hrs	.75 hr	.75 hr
# Students	200	200	200
# Instructors (PI & AI)	12	12	12
# LW Ensembles	212	212	212

OPERATE	Low Expertise	Medium Expertise	High Expertise
Tasks/Skills Taught	Use the LW software interface. No Task Number – (Operator task)		
Desks/Tables/Chairs	200/1/200	200/1/200	200/1/200
# LW Batteries	424	848	848

OPERATE

OPERATE LW MAP FUNCTIONS [Task 071-800-10LW]

LW Prerequisite Skills:

- Completed map functions instruction in the LW IMI
- 071-800-01LW Assemble the Land Warrior Helmet Subsystem
- 071-800-02LW Assemble the Land Warrior Body Subsystem
- 071-800-03LW Assemble the Land Warrior Weapon Subsystem
- 071-800-04LW Don the Land Warrior System
- 071-800-05LW Power On the Land Warrior System
- 071-800-06LW Log On to the Land Warrior System
- 071-800-07LW Load Mission Data Packages on the Land Warrior System
- 071-800-08LW Configure the Land Warrior System for Operation
- 071-800-09LW Configure the Land Warrior Navigation Subsystem

Other Prerequisites:

- Map reading skills: 6-, 8- and 10-digit grid coordinates, Terrain features, distance estimation, map scales, overhead imagery

Assumptions:

- All training is new and requires additional hours

Data Sources:

- USAIS. (2003, October). *Program of Instruction (POI) for Infantry Officer Basic Course (IOBC)*, Fort Benning, GA, United States Army Infantry School, ATSH-OTT: Author.
- USAIS. (2003, January). *Program of Instruction (POI) 11B30 Basic Noncommissioned Officer Course (BNCOC)*, ATSH-OTT, Fort Benning, GA, United States Army Infantry School, ATSH-OTT: Author.
- USAIS. (2003, November.) (Nov 2002). *Program of Instruction (POI 11B10-OSUT One Station Unit Training (OSUT)*, Fort Benning, GA, United States Army Infantry School, ATSH-OTT: Author.
- USAIS. (2002, January). *Program of Instruction (POI) 11B40 Advanced Noncommissioned Officer Course (ANCOC)*, Fort Benning, GA, United States Army Infantry School, ATSH-OTT: Author.
- Foster, T. (2004, 14 May). *System training plan (STRAP) for the Ground Soldier System (Land Warrior Block III, version 5.4)*. Ft. Benning, GA: Systems Division, G-3, U.S. Army Infantry School.
- Interviews with LW SMEs.
- Centric, J. H., Wampler, R. L., & Dyer, J. L. (2000, January). *Observations of Infantry courses: Implications for Land Warrior (LW) Training* (Research Note 2000-04). Alexandria, VA: U.S. Army Research Institute for the Behavioral and Social Sciences. (DTIC No. AD-A372 853)

- Dyer, J. L., Fober, G. W., Wampler, R., Blankenbeckler, N., Dlubac, M., & Centric, J. (2000, December). *Observations and assessments of Land Warrior Training*. Ft. Benning, GA: Infantry Forces Research Unit, U.S. Army Research Institute.
- Dyer, J. L., & Wampler, R. L. (2002, June). *Observations of the Land Warrior Tester Trainer Course #1 Conducted Prior to Safety Testing*. Fort Benning, GA: U.S. Army Research Institute for the Behavioral and Social Sciences, Infantry Forces Research Unit.
- Dyer, J. L., & Wampler, R. L. (2002, December). *Observations of the Land Warrior Tester Trainer Course #3 Conducted Prior to Reliability Growth Phase I*. Fort Benning, GA: U.S. Army Research Institute for the Behavioral and Social Sciences, Infantry Forces Research Unit.
- Centric, J. H., Wampler, R. L., & Dyer, J. L. (2000, January). *Observations of Infantry courses: Implications for Land Warrior (LW) Training* (Research Note 2000-04). Alexandria, VA: U.S. Army Research Institute for the Behavioral and Social Sciences. (DTIC No. AD-A372 853)
- Wampler, R. L., Beal, S. A., & Dyer, J. L. (2003, April). *Observations of the Land Warrior Tester Training Course #1A conducted during Safety Training*. Fort Benning, GA: U.S. Army Research Institute for the Behavioral and Social Sciences, Infantry Forces Research Unit.
- Dyer, J. L., & Salter, R. (2001, December). *Working memory and exploration in training knowledge and skills required of digital systems*. (ARI Research Report 1783). Alexandria, VA: U.S. Army Research Institute for the Behavioral and Social Sciences. DTIC No. AD A399 507

OPERATE	Low Expertise	Medium Expertise	High Expertise
Tasks/Skills taught	Operate the Land Warrior Map Functions Task 071-800-10LW		
Description of Training	<ul style="list-style-type: none"> • Get to map screen • Instruction on map tool bars and icons • Pan, zoom, rotate, track • Individual icon (graphic bearing indicator), other Soldier icons, Situation awareness displays • Plot points • Two-sets of grid coordinates • Instructors check display • PE conducted in outside training area to access satellites 	<ul style="list-style-type: none"> • Same as low <p>PLUS</p> <ul style="list-style-type: none"> • Plot a route, Determine distance and azimuth between points. 	<ul style="list-style-type: none"> • Same as medium
Recommended Expertise Level			
Medium = High = 3 hours			
Common Resources			
# Hours	2 hr.	3 hr.	3 hr.
# Instructors (PI & AI)	See below	See below	See below
# Students	See below	See below	See below
# overhead projectors	1	1	1

OPERATE	Low Expertise	Medium Expertise	High Expertise
Tasks/Skills taught	Operate the Land Warrior Map Functions Task 071-800-10LW		
connected to PI's LW system for display			
Instructor link via system to computer w/ power supply for display to class	2 computers w/ power supply	2 computers w/ power supply	2 computers w/ power supply
# Projection screen	1	1	1
# Slide projectors	1	1	1
Sound system	1	1	1
Chalk/white board	1	1	1
Desks/Tables/Chairs	See Below	See Below	See Below
LW Ensembles	1 per student 1 per instructor	1 per student 1 per instructor	1 per student 1 per instructor
LW Batteries (Type and # per system)	4 LI 145 or LI 105 (2 charging)	4 LI 145 or LI 105 (2 charging)	4 LI 145 or LI 105 (2 charging)
Training area outside of classroom	Yes	Yes	Yes
# battery chargers	TBD	TBD	TBD
Functional Courses: Stage A			
Functional Course for Operators: Alt 4 - LW to All			
# Hours	2 hrs.	3 hrs.	3 hrs.
# Students	105	105	105
# Instructors	21	21	21
Desks/Tables/Chairs	105 / 1 / 105	105 / 1 / 105	105 / 1 / 105
LW Ensembles	126	126	126
LW Batteries	504	504	504
Functional Course for Leaders: Alt 4 - LW to All	<i>No training required – Operator task</i>		
Functional Course for Operators: Alt 3 - LW to TL			
# Hours	2 hr.	3 hr.	3 hr.
# Instructors	9	9	9
# Students	45	45	45
Desks/Tables/Chairs	45 / 1 / 45	45 / 1 / 45	45 / 1 / 45
LW Ensembles	54	54	54
# LW Batteries	216	216	216
Functional Course for Leaders: Alt 3: LW to TL	<i>No training required, Operator task</i>		

OPERATE	Low Expertise	Medium Expertise	High Expertise
Tasks/Skills taught	Operate the Land Warrior Map Functions Task 071-800-10LW		
Functional Course for Operators: Alt 2 - LW to SL			
# Hours	2 hr.	3 hr.	3 hr.
# Instructors	6	6	6
# Students	30	30	30
Desks/Tables/Chairs	30 / 1 / 30	30 / 1 / 30	30 / 1 / 30
LW Ensembles	36	36	36
LW Batteries	144	144	144
Functional Course for Leaders: Alt 2: LW to SL	<i>No training required, Operator task</i>		
Professional Development Courses and IET: Stage B			
BOLC III Infantry Alt 4 - LW to All Alt 3 - LW to TL Alt 2 - LW to SL			
# Hours	2 hr additional.	3 hr additional.	3 hr additional.
# Students	160	160	160
# Instructors	30	30	30
Desks/Tables/Chairs	160 / 1 / 160	160 / 1 / 160	160 / 1 / 160
LW Ensembles	190	190	190
LW Batteries	760	760	760
ANCOC: Alt 4 - LW to All Alt 3 - LW to TL Alt 2 - LW to SL	<i>Not required - PSG trained prior: As Squad Member (Alternative 4 - OSUT), as Team Leader (Alternative 3 - Functional Course), or as Squad Leader (Alternative 2 - BNCOC).</i>		
BNCOC: Alt 4 - LW to All Alt 3 - LW to TL	<i>Not required - SL trained prior: As Squad Member (Alternative 4 - OSUT), or as Team Leader (Alternative 3 - Functional Course).</i>		
BNCOC: Alt 2 - LW to SL			
# Hours	2 hr. additional	3 hr additional.	4 hr additional.
# Students	160	160	160
# Instructors	26	26	26
Desks/Tables/Chairs	160 / 1 / 160	160 / 1 / 160	160 / 1 / 160
LW Ensembles	186	160	160
LW Batteries	558	558	558
Alt 4 - Tm Ldrs Functional Course for Leader Training	<i>Not required - Operator task; taught as squad member in OSUT</i>		
Alt 3 - Tm Ldrs Functional Course -	<i>Include only in Operator phase of training</i>		

OPERATE	Low Expertise	Medium Expertise	High Expertise
Tasks/Skills taught	Operate the Land Warrior Map Functions Task 071-800-10LW		
Operator & Leader Training			
# Hours	2 hr additional	3 hr additional	3 hr additional
# Students	160	160	160
# Instructors	32	32	32
Desks/Tables/Chairs	160 / 1 / 160	160 / 1 / 160	160 / 1 / 160
LW Ensembles	192	192	192
LW Batteries	768	768	768
Infantry OSUT: Alt 4 – LW to All			
# Hours	2 hr additional	3 hr additional.	3 hr additional.
# Instructors	12	12	12
# Students	200	200	200
Desks/Tables/Chairs	200 / 1 / 200	200 / 1 / 200	200 / 1 / 200
LW Ensembles	212	212	212
LW Batteries	848	848	8480

OPERATE

USE/VIEW LAND WARRIOR OVERLAYS

Background

This skill was not specifically cited in the LW individual task list, but was identified as an important skill domain for purposes of the TIA. It refers to enabling every Soldier to use overlays and echelon overlays in the LW system. This block of instruction refers to use of selected overlay-related icons in the top and bottom tool bars of the map screen, as depicted in the LW v1.0 system. It also covers an introduction to the of the seven overlays and the echelon overlay feature. These are operator skills. They do not include creating tactical overlays on the LW system, which is a leader task. It does encompass brief instructions on how to insert point symbols on the map as an "overlay," so Soldiers can see what happens when overlays are sent by a leader.

The ability to understand the LW tactical overlays depends on prerequisite skills, which are not currently taught to all users in the LW system target population (see Other Prerequisite Skills below). The training described below does *not* train Soldiers on these prerequisite skills.

LW Prerequisite Skills:

- Completed IMI portion on using map overlays
- 071-800-01LW Assemble the Land Warrior Helmet Subsystem
- 071-800-02LW Assemble the Land Warrior Body Subsystem
- 071-800-03LW Assemble the Land Warrior Weapon Subsystem
- 071-800-04LW Don the Land Warrior System
- 071-800-05LW Power On the Land Warrior System
- 071-800-06LW Log On to the Land Warrior System
- 071-800-07LW Load Mission Data Packages on the Land Warrior System
- 071-800-08LW Configure the Land Warrior System for Operation
- 071-800-10LW Operate the LW Map Functions
- 071-800-11LW Perform Digital Messaging Functions

Additional Prerequisite Skills:

- Each Soldier is proficient in the following Common Core Tasks commensurate with his grade:
 - (1) Task # 071-329-1019 Use a Map Overlay (knowledge of basic military symbols) (Skill Level 2);
 - (2) Task # 071-332-5000 Prepare an Operation Overlay (Skill Level 3); and
 - (3) Task # 071-332-5021 Prepare a Situation Map (Skill Level 3)
 - IAW Soldier Training Publication (STP) 21-24-SMCT Soldier's Manual Of Common Tasks Skill Levels 2, 3, and 4, DA, dated 31 August 2003.
- Additional training in basic overlays is required for squad and team leaders and individual Soldiers IAW FM 5-0 (101-5) Army Planning and Orders Production. [No map overlay-specific institutional training is conducted in OSUT or BNCOC.]
- All Soldiers know common tactical symbols. Additional training for OSUT Soldiers and team leaders is required to meet this prerequisite.

Assumptions:

- ANCOG will continue to provide instruction on Task # NGEF28 Identify Operational Graphics (Identify Operational Terms, Acronyms, and Abbreviations, Identify Graphic Control Measures,

Identify Basic Unit/CSS Symbols, Identify Equipment Symbols, and Construct an Overlay) IAW FM 5-0 (101-5) and FM 1-02 (101-5-1) Operational Terms –Final Draft.

- BOLC II and III IN (IOBC) will continue to teach officers overlay construction as part of their tactics instruction.
- No replacement gain hours for crossover skill training from FBCB2 (BNCOC and IOBC III IN) are included since the LW software interface is not known at this time. There could be a gain depending on the similarity in which overlays are taught, and if FBCB2 training precedes LW training.
- Time allocations: Time was based on training observations conducted during TTC#1 (June 2002). Initial analysis allocated more time (30minutes) in OSUT because of limited experience of Soldiers, increased class size and fewer instructors.

Data Sources:

- DA (2002, August) FM 1-02 (101-5-1) *Operational Terms* – Final Draft. Washington, D.C., HQDA.
- DA (2004, April) FM 5-0 (101-5) *Army Planning and Orders Production* – Drag. Washington, D.C., HQDA.
- DA (2003, August) STP 21-24-SMCT *Soldier's Manual Of Common Tasks Skill Levels 2, 3, and 4*. Washington, D.C., HQDA.
- Foster, T. (2004, May). *System training plan (STRAP) for the Ground Soldier system (Land Warrior Block III, version 5.4)*. Ft. Benning, GA: Systems Division, G-3, U.S. Army Infantry School.
- Memorandum (2004, January), *Land Warrior-Stryker Interoperable Command-Approved Critical Task List For Infantrymen MOS 11B, Skill Levels 1 Through 4, at the Platoon Level*.
- Interviews with LW subject matter experts (SMEs)
- Dyer, J. L., & Salter, R. (2001, December). *Working memory and exploration in training knowledge and skills required of digital systems*. (ARI Research Report 1783). Alexandria, VA: U.S. Army Research Institute for the Behavioral and Social Sciences. DTIC No. AD A399 507
- Wampler, R. L., Beal, S. A., & Dyer, J. L. (2003, April). *Observations of the Land Warrior Tester Training Course #1A conducted during Safety Training*. Fort Benning, GA: U.S. Army Research Institute for the Behavioral and Social Sciences, Infantry Forces Research Unit.
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- Dyer, J. L., & Wampler, R. L. (2002, December). *Observations of the Land Warrior Tester Trainer Course #3 Conducted Prior to Reliability Growth Phase I*. Fort Benning, GA: U.S. Army Research Institute for the Behavioral and Social Sciences, Infantry Forces Research Unit.
- Dyer, J. L., Fober, G. W., Wampler, R., Blankenbeckler, N., Dlubac, M., & Centric, J. (2000, December). *Observations and assessments of Land Warrior Training*. Ft. Benning, GA: Infantry Forces Research Unit, U.S. Army Research Institute.

OPERATE	Low Expertise	Medium Expertise	High Expertise
Tasks/Skills Taught	Use/View Land Warrior Overlays No Task Number		
NOTE: Training is considered <i>new training</i> and does <i>not</i> replace existing training. No map overlay-specific institutional training is conducted in OSUT or BNCOC. Use of overlays is currently taught in BOLC (extensively) and ANCOC (one task). As a result, no additional training is required for BOLC.			
Description of Training	<ul style="list-style-type: none"> • Describe purpose of overlays • Describe purpose and general content of the overlays in the LW system <ul style="list-style-type: none"> ○ operations ○ enemy ○ fire support ○ obstacle ○ combat service support ○ route ○ SA ○ range card, if available • Describe how to make overlays active/inactive • Describe purpose of echelon overlays, how to make active/inactive, and how to send • Instructions on how to place a point symbol on the map in a specified overlay; basics of insert symbols menu • Use map view and edit tool bars as appropriate • PE on displaying different types of overlays; sending previous constructed overlays; selecting echelon overlays 	<ul style="list-style-type: none"> • Same as Low 	<ul style="list-style-type: none"> • Same as Low
Recommended Expertise Level: Low = Medium= High: 1.5 hours, including OSUT			
Common Resources			
# Hours of Instruction	1.5 hrs (2 hrs OSUT)	1.5 hrs (2 hrs OSUT)	1.5 hrs (2 hrs OSUT)
Overhead projectors w/video projection link to instructor's LW ensemble	1 per training site	1 per training site	1 per training site
Overhead Screens	1 per training site	1 per training site	1 per training site
Power Supply	1 per training site	1 per training site	1 per training site

OPERATE	Low Expertise	Medium Expertise	High Expertise
Tasks/Skills Taught	Use/View Land Warrior Overlays No Task Number		
Sound System	1 per training site	1 per training site	1 per training site
Chalk/Whiteboard	1 per training site	1 per training site	1 per training site
# LW Systems	1 per student 1 per instructor	1 per student 1 per instructor	1 per student 1 per instructor
# LW batteries	2 rechargeable per system	2 rechargeable per system	2 rechargeable per system
Functional Courses: Stage A			
Functional Course for Operators: Alt 4 - LW to All			
# Hours	1.5 hrs	1.5 hrs	1.5 hrs
# Students	105	105	105
# Instructors (PI & AI)	21	21	21
# LW ensembles	126	126	126
Functional Course for Leaders: Alt 4 - LW to All	<i><u>No training required – Taught in Operator Course</u></i>		
Functional Course for Operators: Alt 3 - LW to TL			
# Hours	1.5 hrs	1.5 hrs	3 hrs
# Students	45	45	45
# Instructors (PI & AI)	9	9	9
# LW ensembles	54	54	54
Functional Course for Leaders: Alt 3 - LW to TL	<i><u>No training required – Taught in Operator Course</u></i>		
Functional Course for Operators: Alt 2 - LW to SL			
# Hours	1.5 hrs	1.5 hrs	1.5 hrs
# Students	30	30	30
# Instructors (PI & AI)	6	6	6
# LW ensembles	36	36	36
Functional Course for Leaders: Alt 2 - Leaders LW to SL	<i>No training required – Taught in Operator Course</i>		
Professional Development Courses and IET: Stage B			
BOLC III Infantry Alt 4 – LW to All Alt 3 – LW to TL Alt 2 – LW to SL			
# Hours	1.5 hrs	1.5 hrs	1.5 hrs

OPERATE	Low Expertise	Medium Expertise	High Expertise
Tasks/Skills Taught	Use/View Land Warrior Overlays		
	No Task Number		
# Students	160	160	160
# Instructors (PI & AI)	30	30	30
# LW ensembles	190	190	190
ANCOC: Alt 4 – LW to All Alt 3 – LW to TL Alt 2 – LW to SL	<i>No training required – Taught in as squad leader (Alternative 2 – BNCOC), team leader (Alternative 3 – Functional Course), or squad member (Alternative 4 – OSUT)</i>		
BNCOC: Alt 4 – LW to All Alt 3 – LW to TL	<i>No training required – Taught as team leader (Alternative 3 – Functional Course) or squad member (Alternative 4 – OSUT)</i>		
BNCOC: Alt 2 – LW to SL			
# Hours	1.5 hrs	1.5 hrs	1.5 hrs
# Students	160	160	160
# Instructors (PI & AI)	26	26	26
# LW ensembles	186	186	186
Alt 4 – Tm Ldrs Functional Course for Leader Training	<i>No training required – Taught in Operator Course</i>		
Alt 3 – Tm Ldrs Functional Course – Operator and Leader Training.	<i>Operator training only.</i>		
# Hours	1.5 hrs	1.5 hrs	1.5 hrs
# Students	160	160	160
# Instructors (PI & AI)	32	32	32
# LW systems	192	192	192
Infantry OSUT: Alt 4 – LW to All			
# Hours	2 hrs	2 hrs	2 hrs
# Students	200	200	200
# Instructors (PI & AI)	12	12	12
# LW systems	212	212	212

OPERATE

ZEROIZE THE LAND WARRIOR SYSTEM

LW Prerequisites:

- 071-800-01LW Assemble the LW helmet subsystem
- 071-800-02LW Assemble the LW body subsystem
- 071-800-03LW Assemble the LW weapon subsystem
- 071-800-04LW Don the LW system
- 071-800-05LW Power On the Land Warrior system
- 071-800-06LW Log On to the Land Warrior system
- 071-800-08LW Configure the Land Warrior system for operation

Data Sources:

- Interviews with LW SMEs.
- Wampler, R. L., Beal, S. A., & Dyer, J. L. (2003). *Observations of the Land Warrior Tester Training Course #1A conducted during safety training* (Special Report to PM-LW and TSM-S). Fort Benning, GA: Infantry Forces Research Unit, U.S. Army Research Institute.
- Dyer, J. L., & Wampler, R. L. (2002). *Observations of the Land Warrior Tester Training Course #1 conducted prior to safety training* (Special Report to PM-LW and TSM-S). Fort Benning, GA: Infantry Forces Research Unit, U.S. Army Research Institute.
- Dyer, J. L., & Wampler, R. L. (2002). *Observations of the Land Warrior Tester Training Course #3 conducted prior to reliability growth phase I* (Special Report to PM-LW and TSM-S). Fort Benning, GA: Infantry Forces Research Unit, U.S. Army Research Institute.
- Dyer, J. L., Fober, G. W., Wampler, R., Blankenbeckler, N., Dlubac, M., & Centric, J. (2000, December). *Observations and assessments of Land Warrior Training*. Ft. Benning, GA: Infantry Forces Research Unit, U.S. Army Research Institute.

OPERATE	Low Expertise	Medium Expertise	High Expertise
Tasks/Skills taught	Zeroize the Land Warrior system. This is a performance task, not critical a task. There is no critical task number		
Description of Training	<ul style="list-style-type: none"> • Instruction and demonstration • System zeroize • Instructor inspection/correction • NO PE 	<ul style="list-style-type: none"> • Same as Low • Add: Remote zeroize • NO PE 	<ul style="list-style-type: none"> • Same as Medium
Recommended Level of Expertise: Medium = High = .2 hours (10 minutes)			
Common Resources			
# Overhead projectors	1 per class	1 per class	1 per class
# Overhead screens	1 per class	1 per class	1 per class
Sound system	1 per class	1 per class	1 per class
Chalk/white board	1 per class	1 per class	1 per class
# Computers	1 per class	1 per class	1 per class

OPERATE	Low Expertise	Medium Expertise	High Expertise
Tasks/Skills taught	Zeroize the Land Warrior system. This is a performance task, not critical a task. There is no critical task number		
Functional Courses: Stage A			
Functional Course for Operators: Alt 4 - LW to All			
# Students	105	105	105
# Instructors (PI, AI)	21	21	21
# Hours	0.2 hrs	0.2 hrs	0.2 hrs
# LW systems	126	126	126
Functional Course for Leaders: Alt 4 - LW to All	<i>No training required – Operator task</i>		
Functional Course for Operators: Alt 3 - LW to TL			
# Students	45	45	45
# Instructors (PI, AI)	9	9	9
# Hours	0.2 hrs	0.2 hrs	0.2 hrs
# LW systems	54	54	54
Functional Course for Leaders: Alt 3 - LW to TL	<i>No training required – Operator task</i>		
Functional Course for Operators: Alt 2 - LW to SL			
# Students	30	30	30
# Instructors (PI, AI)	6	6	6
# Hours	0.2 hrs	0.2 hrs	0.2 hrs
# LW systems	36	36	36
Functional Course for Leaders: Alt 2 - LW to SL	<i>No training required – Operator task</i>		
Professional Development Courses and IET: Stage B			
BOLC III Infantry Alt 4 – LW to All Alt 3 – LW to TL Alt 2 – LW to SL			
# Students	160	160	160
# Instructors (PI, AI)	30	30	30
#Hours	Total = 0.2 hrs	Total = 0.2 hours	Total = 0.2 hrs
#LW systems	190	190	190

OPERATE	Low Expertise	Medium Expertise	High Expertise
Tasks/Skills taught	Zeroize the Land Warrior system. This is a performance task, not critical a task. There is no critical task number		
ANCOC: Alt 4 – LW to All Alt 3 – LW to TL Alt 2 – LW to SL	<i>Not Required: No training required – Taught in as squad leader (Alternative 2 – BNCOC), team leader (Alternative 3 – Functional Course), or squad member (Alternative 4 – OSUT)</i>		
BNCOC: Alt 4 – LW to All Alt 3 – LW to TL	<i>Not Required: Taught as team leader (Alternative 3 – Functional Course) or squad member (Alternative 4 – OSUT)</i>		
BNCOC: Alt 2 – LW to SL			
# Students	160	160	160
# Instructors (PI, AI)	26	26	26
# Hours	Total = 0.2 hrs	Total = 0.2 hrs	Total = 0.2 hrs
# LW systems	186	186	186
Alt 4 – Tm Ldrs Functional Course for Leader Training	<i>No training required – Operator task</i>		
Alt 3 – Tm Ldrs Functional Course – Operator and Leader Training	<i>Only in Operator Phase of training</i>		
# Students	160	160	160
# Instructors (PI, AI)	26	26	26
# Hours	0.2 hrs	0.2 hrs	0.2 hrs
# LW systems	186	186	186
Infantry OSUT: Alt 4 – LW to All			
# Students	200	200	200
# Instructors (PI, AI)	12	12	12
# Hours	Total = 0.2 hrs	Total = 0.2 hrs	Total = 0.2 hrs
# LW systems	212	212	212

OPERATE

OPERATE THE STRYKER VIK (Vehicle Integration Kit)

[Task 071-800-26LW]

Background:

- Limited information is available on this task because the VIK has not been built, design drawings are not complete, and the VIK's full capability is not yet determined. It may serve the function of the MDSE (Mission Data Support Equipment).

Assumptions:

- The analysis assumes that the VIK when fielded will have the "planned for" capabilities and that only the vehicle commander and squad leader will be required to operate the VIK. However, training is planned for one level of leader down from squad leader positions, therefore team leaders will be trained as well.
- The VIK will be taught in a digital classroom. This will require the VIK software being on a server in order to display the software on training stations to students and have them work with it. It is assumed that the VIK training (2 to 4 hours depending on level of expertise desired) can be scheduled around Maneuver Control System -Light (MCS-L) and Force XXI Battle Command Brigade and Below (FBCB2) software training in the digital classrooms within the Infantry School. There are eight digital classrooms available with 22 student stations each, for a total of 176 student stations. It is assumed that four of the eight classrooms will be used for VIK training with 2 iterations of the instruction to account for all students in each course. This leaves four classrooms available for courses other than LW training.
- It is also assumed that there will be limited to no Stryker vehicles available for this training, and that there will be no VIK functional mockup.
- This is designated a SL 1 task. However the squad member requirement is minimal (e.g., hook system to the VIK), and an actual VIK is desired for this training. On the other hand, the leader is responsible for other skills such as receiving a mission data package (MDP), distributing the MDP, using the VIK to communicate, battery charging, etc. As such, VIK training is only included in leader courses. It is not included in the functional Operator course for All Soldiers (Alternative 4), nor in OSUT (Alternative 4).

LW Prerequisite training:

- Completed VIK and MDP sections of the LW IMI
- 071-800-01LW Assemble the Land Warrior Helmet subsystem
- 071-800-02LW Assemble the Land Warrior Body subsystem
- 071-800-03LW Assemble the Land Warrior Weapon subsystem
- 071-800-04LW Don the Land Warrior system
- 071-800-05LW Power On the Land Warrior system
- 071-800-06LW Log On to the Land Warrior system
- 071-800-07LW Load Mission Data Packages on the Land Warrior system
- 071-800-08LW Configure the Land Warrior system for operation
- 071-800-09LW Configure the Land Warrior Navigation subsystem
- 071-800-10LW Operate the Land Warrior Map functions
- 071-800-11LW Perform Digital Messaging functions
- 071-800-13LW Perform Voice Communications using the Land Warrior system
- 071-800-25LW Maintain the Land Warrior system

- 071-326-03LW Prepare Combat Orders using the Land Warrior system
- 071-326-04LW Issue Combat Orders using the Land Warrior system
- 071-326-05LW Prepare Overlays using the Land Warrior system
- 101-521-01LW Request Supplies and Logistical Services

Data sources:

- Interviews with Land Warrior subject matter experts.
- Foster, T. (2004, May). *System training plan (STRAP) for the Ground Soldier system (Land Warrior Block III, version 5.4)*. Ft. Benning, GA: Systems Division, G-3, U.S. Army Infantry School.
- Memorandum (2004, January), *Land Warrior-Stryker Interoperable Command-Approved Critical Task List For Infantrymen MOS 11B, Skill Levels 1 Through 4, at the Platoon Level*.

OPERATE	Low Expertise	Medium Expertise	High Expertise
Tasks/Skills taught	Operate the Stryker Vehicle Integration Kit (VIK) Task 071-800-26LW		
Description of Training	<ul style="list-style-type: none"> • Introduction / Capabilities • Place into Operation • Receive Mission Data Package • Communicate with higher and lower 	<ul style="list-style-type: none"> • Same as Low ADD • Receive and Distribute Mission Data Package • Communicate with higher and lower • Battery Charging and Storage in Stryker 	<ul style="list-style-type: none"> • Same as Medium ADD • Troubleshooting procedures
Recommended Expertise Level: Medium = 3 hours – Leaders only.			
Common Resources			
# Hours	2 hrs per 22 students in a single digital classroom	3 hrs per 22 students in a digital classroom	4 hrs per 22 students in a digital classroom
# Instructors (PI & AI)	See Below	See Below	See Below
# Students	See Below	See Below	See Below
Digital classroom with VIK software on server	4 classrooms (2 cycles of students in each)	4 classrooms (2 cycles of students in each)	4 classrooms (2 cycles of students in each)
# Student stations in digital classroom	22 per classroom	22 per classroom	22 per classroom
# Overhead projectors	1	1	1
# Overhead screens	1	1	1
Sound system	1	1	1
Chalk/white board	1	1	1
Desks/Tables/Chairs	See Below	See Below	See Below

OPERATE	Low Expertise	Medium Expertise	High Expertise
Tasks/Skills taught	Operate the Stryker Vehicle Integration Kit (VIK) Task 071-800-26LW		
LW Ensembles – only if Stryker available	1 per student	1 per student	1 per student
LW Batteries (Type and # per student) – only if Stryker available.	2 LI 145 or LI 105	2 LI 145 or LI 105	2 LI 145 or LI 105
Functional Courses: Stage A			
Functional Course for Operators - LW to ALL	<i>Not taught, squad members receive required training in unit using the Stryker vehicle</i>		
Functional Course for Leaders: Alt 4 – LW to ALL			
# Hours	2 hrs per classroom (assume use 2 classrooms)	3 hrs per classroom (assume use 2 classrooms)	4 hrs per classroom (assume use 2 classrooms)
# Instructors	9 (# per classroom depends on whether classes are held simultaneously or sequentially)	9 (# per classroom depends on whether classes are held simultaneously or sequentially)	9 (# per classroom depends on whether classes are held simultaneously or sequentially)
# Students	45	45	45
# Student stations per classroom	22	22	22
# Digital classrooms	2 (or one used twice)	2 (or one used twice)	2 (or one used twice)
Functional Course for Operators - LW to TL	<i>Not taught, squad members receive required training in unit using the Stryker vehicle</i>		
Functional Course for Leaders: Alt 3 – LW to TL			
# Hours	2 hrs per classroom (assume use 2 classrooms)	3 hrs per classroom (assume use 2 classrooms)	4 hrs per classroom (assume use 2 classrooms)
# Instructors	9 (# per classroom depends on whether classes are held simultaneously or sequentially)	9 (# per classroom depends on whether classes are held simultaneously or sequentially)	9 (# per classroom depends on whether classes are held simultaneously or sequentially)
# Students	45	45	45
# Student stations per classroom	22	22	22
# Digital classrooms	2 (or one used twice)	2 (or one used twice)	2 (or one used twice)

OPERATE	Low Expertise	Medium Expertise	High Expertise
Tasks/Skills taught	Operate the Stryker Vehicle Integration Kit (VIK) Task 071-800-26LW		
Functional Course for Operators Alt 2 – LW To SL	<i>Not taught, squad members receive required training in unit using the Stryker vehicle</i>		
Functional Course for Leaders: Alt 2 – LW to SL			
# Hours	2 hrs per classroom (assume use 2 classrooms)	3 hrs per classroom (assume use 2 classrooms)	4 hrs per classroom (assume use 2 classrooms)
# Instructors	6 (# per classroom depends on whether classes are held simultaneously or sequentially)	6 (# per classroom depends on whether classes are held simultaneously or sequentially)	6 (# per classroom depends on whether classes are held simultaneously or sequentially)
# Students	30	30	30
# Student stations per classroom	22	22	22
# Digital classrooms	2 (or one used twice)	2 (or one used twice)	2 (or one used twice)
Professional Development Courses and IET: Stage B			
BOLC III Infantry Alt 2 – LW to SL Alt 3 – LW to TL Alt 4 – LW to ALL			
# Hours	2 hrs per classroom. Each classroom used twice; 4 classrooms required Total time = 4 hrs	3 hrs per classroom. Each classroom used twice; 4 classrooms required Total time = 6 hrs	4 hrs per classroom. Each classroom used twice; 4 classrooms required Total time = 8 hrs
# Instructors	30 (~ 7 per classroom)	30 (~ 7 per classroom)	30 (~ 7 per classroom)
# Students	160	160	160
# Student stations per classroom	22	22	22
# Digital classrooms	4	4	4
ANCOC: Alt 4 – LW to All Alt 3 – LW to TL Alt 2 – LW to SL	<i>No training required – PSG Will have learned as Squad Leader (Alternative 2-BNCOC) and as team leader (Alternatives 5 and 6 – Functional Courses).</i>		
BNCOC: Alt 4 – LW to All Alt 3 – LW to TL	<i>No training required: Squad leader trained as team leader (Alternatives 5 and 6 – Functional Courses)</i>		
BNCOC: Alt 2 – LW to SL			
# Hours	2 hrs per classroom. Each classroom used	3 hrs per classroom. Each classroom used	4 hrs per classroom. Each classroom used

OPERATE	Low Expertise	Medium Expertise	High Expertise
Tasks/Skills taught	Operate the Stryker Vehicle Integration Kit (VIK) Task 071-800-26LW		
	twice; 4 classrooms required Total time = 4 hrs	twice; 4 classrooms required Total time = 6 hrs	twice; 4 classrooms required Total time = 8 hrs
# Instructors	26 (~ 6 per classroom)	26(~ 6 per classroom)	26(~ 6 per classroom)
# Students	160	160	160
# Student stations per classroom	22	22	22
# Digital classrooms	4	4	4
Alt 4: Tm Ldrs: Functional Course for Leader Training			
# Hours	2 hrs per classroom. Each classroom used twice; 4 classrooms required Total time = 4 hrs	3 hrs per classroom. Each classroom used twice; 4 classrooms required Total time = 6 hrs	4 hrs per classroom. Each classroom used twice; 4 classrooms required Total time = 8 hrs
# Instructors	32 (~ 8 per classroom)	32 (~ 8 per classroom)	32 (~ 8 per classroom)
# Students	160	160	160
# Student stations per classroom	22	22	22
# Digital classrooms	4	4	4
Alt 3 - Tm Ldrs: Functional Courses for Operator and Leader Training	<i>Leader phase of training only</i>		
# Hours	2 hrs per classroom. Each classroom used twice; 4 classrooms required Total time = 4 hrs	3 hrs per classroom. Each classroom used twice; 4 classrooms required Total time = 6 hrs	4 hrs per classroom. Each classroom used twice; 4 classrooms required Total time = 8 hrs
# Instructors	32 (~ 8 per classroom)	32 (~ 8 per classroom)	32 (~ 8 per classroom)
# Students	160	160	160
# Student stations per classroom	22	22	22
# Digital classrooms	4	4	4
Infantry OSUT: Alt 4 LW to All	<i>Train squad member skills in unit with Stryker vehicle and LW systems</i>		

MAINTAIN

MAINTAIN THE LAND WARRIOR SYSTEM [LW 071-800 25LW}

LW Prerequisite Skills

- 071-800-01LW Assemble the Land Warrior Helmet Subsystem
- 071-800-02LW Assemble the Land Warrior Body Subsystem
- 071-800-03LW Assemble the Land Warrior Weapon Subsystem
- 071-800-04LW Don the Land Warrior System
- 071-800-05LW Power On the Land Warrior System
- 071-800-06LW Log On to the Land Warrior System
- 071-800-07LW Load Mission Data Packages on the Land Warrior System
- 071-800-08LW Configure the Land Warrior System for Operation
- 071-800-10LW Operate the Land Warrior Map Functions
- 071-800-09LW Configure the Land Warrior Navigation Subsystem
- 071-800-14LW Operate the Multifunction Laser
- 071-800-16LW Boresight the Daylight Video Sight
- 071-800-17LW Boresight the Thermal Weapon Sight (TWS)
- 071-800-18LW Boresight the Multifunction Laser
- 071-800-19LW Zero the Daylight Video Sight
- 071-800-20LW Zero the Thermal Weapon Sight
- 071-800-21LW Zero the Multifunction Laser
- 071-800-22LW Engage Targets With Weapon Using Daylight Video Sight
- 071-800-23LW Engage Targets With Weapon Using a TWS
- 071-800-24LW Engage Targets With Weapon Using a Multifunction Laser

Additional Prerequisite Skills:

- Basic knowledge and understanding of the purpose and organization of the Army maintenance system and the actions and standards normally associated with preventive maintenance checks and services (PMCS). Assume OSUT and BOLC II will continue to provide basic instruction in this area.

Assumptions:

- Each Soldier will be equipped with an individual LW ensemble.
- Each instructor will be equipped with an individual LW ensemble capable of being linked to an overhead projector system.
- Time considerations. During Tester Trainer Course #1 (April 2002), 35 minutes was spent on the maintenance concept and the Help screens (including the Interactive Electronic Technical Manual (IETM) displays and structure). This time covers some but not all of the required skills. During train-up for the JCF AWE, Soldiers were given a hand-out that described the primary troubleshooting procedures to use.

Data Sources:

- DA. (2003, August). *Soldier's Manual of Common Tasks Skill Level 1 (STP 21-1-SMCT)*. Washington, DC: HQDA.
- DA. (2003, August). *Soldier's Manual of Common Tasks Skill Levels 2, 3, and 4 (STP 21-24-SMCT)*. Washington, DC: HQDA.

- USAIC NCO Academy. (2004, March). *Primary Leadership Development Course (PLDC) Student Guide*. Fort Benning, GA: United States Army Infantry Center, Henry Caro NCO Academy, ATZB-NC-NP: Author.
- USAIS. (2003, October). *Program of Instruction (POI) for Infantry Officer Basic Course (IOBC)*. Fort Benning, GA: United States Army Infantry School ATSH-OTT: Author.
- USAIS. (2003, January). *Program of Instruction for 11B30 Basic Noncommissioned Officer Course (BNCOC)*. Fort Benning, GA: United States Army Infantry School, ATSH-OTT: Author.
- USAIS. (2002, January). *Program of Instruction for 11B40 Advanced Noncommissioned Officer Course (ANCOC)*. Fort Benning, GA: United States Army Infantry School, ATSH-OTT: Author.
- Foster, T. (2004, May). *System training plan (STRAP) for the Ground Soldier system (Land Warrior Block III, version 5.4)*. Ft. Benning, GA: Systems Division, G-3, U.S. Army Infantry School.
- Memorandum (2004, January), *Land Warrior-Stryker Interoperable Command-Approved Critical Task List For Infantrymen MOS 11B, Skill Levels 1 Through 4, at the Platoon Level*.
- Interviews with subject matter experts (SMEs) on 23 July 2004.
- Dyer, J. L., Foer, G. W., Wampler, R., Blankenbeckler, N., Dlubac, M., & Centric, J. (2000, December). *Observations and assessments of Land Warrior Training*. Ft. Benning, GA: Infantry Forces Research Unit, U.S. Army Research Institute
- Dyer, J. L., & Wampler, R. L. (2002, December). *Observations of the Land Warrior Tester Trainer Course #3 Conducted Prior to Reliability Growth Phase I*. Fort Benning, GA: U.S. Army Research Institute for the Behavioral and Social Sciences, Infantry Forces Research Unit.

MAINTAIN	Low Expertise	Medium Expertise	High Expertise
Tasks/Skills Taught	Maintain the Land Warrior System Task LW 071-800-25LW		
Note: Includes maintenance-related software displays and hands-on trouble shooting procedures.			
Description of Training	<ul style="list-style-type: none"> • Maintenance concept • Instruction on trouble shooting procedures – hands-on • Instruction on maintenance display accessed from Main menu • Instruction on accessing the major features of the ETM (Electronic technical manual) via the software interface – Help • Instruction on built-in test (BIT) • PE on using the Help menu and ETM, and other maintenance-related displays 	<ul style="list-style-type: none"> • Same as Low <p>PLUS</p> <ul style="list-style-type: none"> • PE – Additional practice problems on using the help menus and maintenance-related displays 	<ul style="list-style-type: none"> • Same as Medium <p>Leaders - ADD</p> <ul style="list-style-type: none"> • Instruction on batteries/ battery chargers • Information on logistics

MAINTAIN	Low Expertise	Medium Expertise	High Expertise
Tasks/Skills Taught	Maintain the Land Warrior System Task LW 071-800-25LW		
Recommended Expertise Level: All – Operators (includes Leaders) Low = 1.0 hours. Leaders – additional 0.5 hours (logistics)			
Common Resources			
# Hours of Instruction	1.0/1.5 hrs	1.5/2r	1.5/2
LW Ensembles	1 per student 1 per instructor	1 per student 1 per instructor	1 per student 1 per instructor
Sound System	1 per training site	1 per training site	1 per training site
Chalk/Whiteboard	1 per training site	1 per training site	1 per training site
# Overhead Projectors w/video projection link to instructor's LW ensemble	1 per training site	1 per training site	1 per training site
# Overhead Screens	1 per training site	1 per training site	1 per training site
Power Supply	1 per training site	1 per training site	1 per training site
LW Batteries (Type and # per student)	2 per student	4 per student (2 recharging)	4 per student (2 recharging)
Functional Courses: Stage A			
Functional Course for Operators: Alt 4 - LW to All			
# Hours	1.5 hrs (additional time because of limited military experience of squad members)	2 hr	2 hr
# Students	105	105	105
# Instructors	21	21	21
# LW Ensembles	126	126	126
Desks/Tables/Chairs	105/1/105	105/1/105	105/1/105
# LW Batteries	252	504	504
Functional Course for Leaders: Alt 4 - LW to All	<i>Logistics only required in Leader Course</i>		
# Hours	0 hrs	0 hrs	0.5 hrs
# Students	45	45	45
# Instructors	9	9	9
# LW Ensembles	NA	NA	54
Desks/Tables/Chairs	NA	NA	45/1/45
# LW Batteries	NA	NA	108
Functional Course for Operators: Alt 3 - LW to TL			
#Hours	1.0 hrs	1.5 hr	1.5 hr
# Students	45	45	45
# Instructors	9	9	9
# LW Ensembles	54	54	54
Desks/Tables/Chairs	45/1/45	45/1/45	45/1/45

MAINTAIN	Low Expertise	Medium Expertise	High Expertise
Tasks/Skills Taught	Maintain the Land Warrior System Task LW 071-800-25LW		
# LW Batteries	108	216	216
Functional Course for Leaders: Alt 3 - LW to TL	<i>Logistics only required in Leader Course</i>		
# Hours	0 hrs	0 hrs	0.5 hrs
# Students	45	45	45
# Instructors	9	9	9
# LW Ensembles	NA	NA	54
Desks/Tables/Chairs	NA	NA	45/1/45
# LW Batteries	NA	NA	108
Functional Course for Operators: Alt 2 - LW to SL			
# Hours	1.0 hrs	1.5 hr	1.5 hr
# Students	30	30	30
# Instructors	6	6	6
# LW Ensembles	36	36	36
Desks/Tables/Chairs	30/1/30	30/1/30	30/1/30
# LW Batteries	72	144	144
Functional Course for Leaders: Alt 2 - LW to SL	<i>Logistics only required in Leader Course</i>		
# Hours	0 hrs	0 hrs	0.5 hrs
# Students	30	30	30
# Instructors	6	6	6
# LW Ensembles	NA	NA	36
Desks/Tables/Chairs	NA	NA	30/1/30
# LW Batteries	NA	NA	72
Professional Development Courses and IET: Stage B			
BOLC III Infantry Alt 4 - LW to All Alt 3 - LW to TL Alt 2 - LW to SL			
# Hours	1.0 hrs	1.5 hrs	2.0 hrs
# Students	160	160	160
# Instructors	30	30	30
# LW Ensembles	190	190	190
Desks/Tables/Chairs	160/1/160	160/1/160	160/1/160
# LW Batteries	380	760	760
ANCOC: Alt 4 - LW to All Alt 3 - LW to TL Alt 2 - LW to SL	<i>No training required - PSG trained as Squad Leader (Alternative 2 - BNCOC), as Team Leader (Alternative 3 & 6 - Functional Course), as Squad Member (Alternative 4 - OSUT)</i>		

MAINTAIN	Low Expertise	Medium Expertise	High Expertise
Tasks/Skills Taught	Maintain the Land Warrior System Task LW 071-800-25LW		
BNCOC: Alt 4 – LW to All Alt 3 – LW to TL	<i>No training required - SL trained as a Team Leader (Alternative 3 – Functional Course) or squad member (Alternative 4 - OSUT)</i>		
BNCOC: Alt 2 – LW to SL			
# Hours	1 hrs	1.5 hrs	2.0 hrs
# Students	160	160	160
# Instructors	30	30	30
# LW Ensembles	190	190	190
Desks/Tables/Chairs	160/1/160	160/1/160	160/1/160
# LW Batteries	380	760	760
Alt 4 – Tm Ldrs Functional Course for Leader Training	<i>Logistics only required in Leader Course</i>		
# Hours	0 hrs	0 hrs	0.5 hrs
# Students	160	160	160
# Instructors	32	32	32
# LW Ensembles	NA	NA	192
Desks/Tables/Chairs	NA	NA	160/1/160
# LW Batteries	NA	NA	384
Alt 3 – Tm Ldrs Functional Course – Operator and Leader Training	<i>Operator/Leader Courses</i>		
# Hours	1 hrs/0 hrs	1.5 hr/0 hrs	1.5 hrs/0.5 hrs
# Students	160	160	160
# Instructors	32	32	32
# LW Ensembles	192	192	192
Desks/Tables/Chairs	160/1/160	160/1/160	160/1/160
# LW Batteries	384	768	768
Infantry OSUT: Alt 4 – LW to All			
# Hours	1.5 hrs (Additional time because of limited military experience)	2 hrs	2 hrs
# Students	200	200	200
# Instructors	12	12	12
# LW Ensembles	212	212	212
Desks/Tables/Chairs	200/1/200	200/1/200	200/1/200
# LW Batteries	424	848	848

Functional Area: Communicate

Perform Voice Communications using the LW System

Perform Digital Messaging Functions

Perform Digital Imaging Functions

Operate the Stand-Alone Radio

COMMUNICATE

PERFORM VOICE COMMUNICATIONS WITH LW SYSTEM [Task #071-800-13LW]

LW Prerequisites:

- Completed communications section of IMI
- 071-800-01LW Assemble the LW helmet subsystem
- 071-800-02LW Assemble the LW body subsystem
- 071-800-03LW Assemble the LW weapon subsystem
- 071-800-04LW Don the LW system
- 071-800-05LW Power On the Land Warrior system
- 071-800-06LW Log On to the Land Warrior system
- 071-800-07LW Load MDP on the LW System
- 071-800-10LW Operate the Land Warrior Map functions

Assumptions:

- Assume that every Soldier has a LW system.
- Functional courses are all additional resources
- OSUT: Saves 1 hr of SINCGARS training; Replaces 1 hr of SINCGARS training
- Task does not replace SINCGARS training in IOBC/BOLC III IN

Data Sources:

- Interviews with LW SMEs.
- Wampler, R. L., Beal, S. A., & Dyer, J. L. (2003). *Observations of the Land Warrior Tester Training Course #1A conducted during safety training* (Special Report to PM-LW and TSM-S). Fort Benning, GA: Infantry Forces Research Unit, U.S. Army Research Institute.
- Dyer, J. L., & Wampler, R. L. (2002). *Observations of the Land Warrior Tester Training Course #1 conducted prior to safety training* (Special Report to PM-LW and TSM-S). Fort Benning, GA: Infantry Forces Research Unit, U.S. Army Research Institute.
- Dyer, J. L., & Wampler, R. L. (2002). *Observations of the Land Warrior Tester Training Course #3 conducted prior to reliability growth phase I* (Special Report to PM-LW and TSM-S). Fort Benning, GA: Infantry Forces Research Unit, U.S. Army Research Institute.
- Dyer, J. L., Fober, G. W., Wampler, R., Blankenbeckler, N., Dlubac, M., & Centric, J. (2000, December). *Observations and assessments of Land Warrior Training*. Ft. Benning, GA: Infantry Forces Research Unit, U.S. Army Research Institute.

COMMUNICATE	Low Expertise	Medium Expertise	High Expertise
Tasks/Skills taught	Perform Voice Communications [task #071-800-13LW]		
Description of Training	<ul style="list-style-type: none"> • Instruction on communications settings associated with SAM card • Instruction and demonstration to include: use of 	<ul style="list-style-type: none"> • Same as Low 	<ul style="list-style-type: none"> • Same as Low PLUS • Add: Hot call using map display

COMMUNICATE	Low Expertise	Medium Expertise	High Expertise
Tasks/Skills taught	Perform Voice Communications [task #071-800-13LW]		
	PTT/PTA buttons and WUID <ul style="list-style-type: none"> • Instruction on transmission range • Review UTO settings and procedures PE – on sending and receiving voice messages		
Recommended Expertise Level:			
Low (L=M)			
1 hour of training. Replacement time occurs in OSUT			
Common Resources			
# Hours	1 hr	1 hr	1 hr
Overhead screen	1 per class	1 per class	1 per class
Sound system	1 per class	1 per class	1 per class
Chalk/white board	1 per class	1 per class	1 per class
Overhead projector w/ video projection link to instructor's LW ensemble	1 per class	1 per class	1 per class
Functional Courses: Stage A			
Functional Course for Operators: Alt 4 - LW to All			
# Students	105	105	105
# Instructors (PI, AI)	21	21	21
# Hours	1 hr	1 hr	1 hr
# LW systems	126	126	126
Functional Course for Leaders: Alt 4 - LW to All	<i>Not Required: Operator Task</i>		
Functional Course for Operators: Alt 3 - LW to TL			
# Students	45	45	45
# Instructors (PI, AI)	9	9	9
# Hours	1 hr	1 hr	1 hr
# LW systems	54	54	54
Functional Course for Leaders: Alt 3 - LW to TL	<i>Not Required: Operator Task</i>		
Functional Course for Operators: Alt 2 - LW to SL			
# Students	30	30	30

COMMUNICATE	Low Expertise	Medium Expertise	High Expertise
Tasks/Skills taught	Perform Voice Communications [task #071-800-13LW]		
# Instructors (PI, AI)	6	6	6
# Hours	1 hr	1 hr	1 hr
# LW systems	36	36	36
Functional Course for Leaders: Alt 2 - LW to SL	<i>Not Required: Operator Task</i>		
Professional Development Courses and IET: Stage B			
BOLC III Infantry Alt 4 - LW to All Alt 3 - LW to TL Alt 2 - LW to SL			
# Students	160	160	160
# Instructors (PI, AI)	30	30	30
# Hours	Additional = 1 hr Total = 1 hr	Additional = 1 hr Total = 1 hr	Additional = 1 hr Total = 1 hr
# LW systems	190	190	190
ANCOC: Alt 4 - LW to All Alt 3 - LW to TL Alt 2 - LW to SL	<i>Not Required: Assume skills previously acquired.</i>		
BNCOC: Alt 4 - LW to All Alt 3 - LW to TL	<i>Not Required: Assume skills previously acquired.</i>		
BNCOC: Alt 2 - LW to SL			
# Students	160	160	160
# Instructors (PI, AI)	26	26	26
# Hours	Additional = 1 hr Total = 1 hr	Additional = 1 hr Total = 1 hr	Additional = 1 hr Total = 1 hr
# LW systems	186	186	186
Alt 4 - Team leaders Functional Course for Leader Training	<i>Not Required: Assume skills previously acquired</i>		
Alt 3 - Team Leaders Functional Course - Operator and Leader Training	<i>Operator phase of training only</i>		
# Students	160	160	160
# Instructors (PI, AI)	32	32	32
# Hours	1 hr	1 hr	1 hr
# LW systems	186	186	186
Infantry OSUT: Alt 4 - LW to All			
# Students	200	200	200

COMMUNICATE	Low Expertise	Medium Expertise	High Expertise
Tasks/Skills taught	Perform Voice Communications [task #071-800-13LW]		
# Instructors (PI, AI)	12	12	12
# Hours	LW requirement – 1 hr Replaces SINCGARS training of 2 hrs Save = 1 hr No additional hours	LW Requiremt = 1 hr Replaces SINCGARS training of 2 hrs Save = 1 hr No additional hours	LW requirement = 1 hr Replace SINCGARS training of 2 hrs Save = 1 hr Total = 0 additional hrs
# LW systems	212	212	212

COMMUNICATE

PERFORM DIGITAL MESSAGING FUNCTIONS

[Task 071-800-11LW]

Background:

Digital messages within the LW system refer to tactical messages such as a Spot report, and also to orders, and graphics/overlays. For purposes of the Training Impact Analysis, the "perform digital messaging functions" task includes generic message functions (analogous to e-mail). It also covers "tactical messages" which can be sent by Soldiers. It does not include orders and overlays. The Medium and High levels of expertise are reserved for additional message training for leaders.

LW Prerequisite Skills:

- Completed appropriate digital messaging sections of the LW IMI
- 071-800-01LW Assemble the Land Warrior Helmet Subsystem
- 071-800-02LW Assemble the Land Warrior Body Subsystem
- 071-800-03LW Assemble the Land Warrior Weapon Subsystem
- 071-800-04LW Don the Land Warrior System
- 071-800-05LW Power On the Land Warrior System
- 071-800-06LW Log On to the Land Warrior System
- 071-800-07LW Load Mission Data Packages on the Land Warrior System
- 071-800-08LW Configure the Land Warrior System for Operation
- 071-800-09LW Configure the Land Warrior Navigation Subsystem

Additional Prerequisite Skills:

- Each Soldier is proficient in the Common Core Tasks commensurate with his grade: (1) 071-329-1006 Navigate from One Point on the Ground to Another Point While Dismounted (Skill Level 1) and the following supporting tasks IAW Appendix C, Soldier Training Publication (STP) 21-1-SMCT Soldier's Manual Of Common Tasks Skill Level 1, dated 31 August 2003: (1) 301-371-1000 Report intelligence information (Skill Level 1)
- Soldiers should have a basic knowledge of e-mail procedures.
- Soldiers should also know the purpose of common messages and required content elements. The Chief of Staff of the Army has required that all Soldiers be able to send the following four messages: Spot Report, Call for Fire, MEDEVAC, and SITREP.
- Knowledge of message precedence classification (FIPROA). This is not trained in OSUT.

Assumptions:

- The training is necessary to reinforce Soldier training in integrated LW-related capabilities and procedures applied to current doctrinal training and to confirm the Soldier's ability to correctly employ the LW system.
- Each instructor will be equipped with an individual LW ensemble capable of being linked to an overhead projector system.
- If BOLC III IN and BNCOC students take FBCB2 instruction prior to LW, the time for this task will be reduced substantially due to the fact that both systems require use of JVMF (Joint variable message format).
- Time allocations: During Tester Training Course #1, many, but not all, of the skills cited below were taught in a period of 2 hours 45 minutes.

Data Sources:

- DA. (2003, August). *Soldier's Manual Of Common Tasks Skill Level 1 (STP 21-1-SMCT)*. Washington, D.C., HQDA.
- Dyer, J. L., & Salter, R. (2001, December). *Working memory and exploration in training knowledge and skills required of digital systems*. (ARI Research Report 1783). Alexandria, VA: U.S. Army Research Institute for the Behavioral and Social Sciences. DTIC No. AD A399 507
- Wampler, R. L., Beal, S. A., & Dyer, J. L. (2003, April). *Observations of the Land Warrior Tester Training Course #1A conducted during Safety Training*. Fort Benning, GA: U.S. Army Research Institute for the Behavioral and Social Sciences, Infantry Forces Research Unit.
- Dyer, J. L., & Wampler, R. L. (2002, June). *Observations of the Land Warrior Tester Trainer Course #1 Conducted Prior to Safety Testing*. Fort Benning, GA: U.S. Army Research Institute for the Behavioral and Social Sciences, Infantry Forces Research Unit.
- Dyer, J. L., & Wampler, R. L. (2002, December). *Observations of the Land Warrior Tester Trainer Course #3 Conducted Prior to Reliability Growth Phase I*. Fort Benning, GA: U.S. Army Research Institute for the Behavioral and Social Sciences, Infantry Forces Research Unit.
- Dyer, J. L., Fober, G. W., Wampler, R., Blankenbeckler, N., Dlubac, M., & Centric, J. (2000, December). *Observations and assessments of Land Warrior Training*. Ft. Benning, GA: Infantry Forces Research Unit, U.S. Army Research Institute.
- Foster, T. (2004, May). *System training plan (STRAP) for the Ground Soldier system (Land Warrior Block III, version 5.4)*. Ft. Benning, GA: Systems Division, G-3, U.S. Army Infantry School.
- Memorandum (2004, January), *Land Warrior-Stryker Interoperable Command-Approved Critical Task List For Infantrymen MOS 11B, Skill Levels 1 Through 4, at the Platoon Level*.
- USAIC NCO Academy. (2004, March). *Primary Leadership Development Course (PLDC) Student Guide*. Fort Benning, GA: United States Army Infantry Center, Henry Caro NCO Academy, ATZB-NC-NP: Author.
- USAIS. (2003, October). *Program of Instruction (POI) for Infantry Officer Basic Course (IOBC)*. Fort Benning, GA: United States Army Infantry School ATSH-OTT: Author.
- USAIS. (2003, January). *Program of Instruction for 11B30 Basic Noncommissioned Officer Course (BNCOC)*. Fort Benning, GA: United States Army Infantry School, ATSH-OTT: Author.
- USAIS. (2002, January). *Program of Instruction for 11B40 Advanced Noncommissioned Officer Course (ANCOC)*. Fort Benning, GA: United States Army Infantry School, ATSH-OTT: Author.
- Interviews with subject matter experts (SMEs)

COMMUNICATE	Low Expertise	Medium Expertise	High Expertise
Tasks/Skills taught	Perform Digital Messaging Functions Task 071-800-11LW		
Description of Training	<ul style="list-style-type: none"> • Basic e-mail: inbox, outbox, sent • Select recipients for sending messages • FIPROA signals (Message precedence classification) • Create message screens • Basic JVMF formats, 	<ul style="list-style-type: none"> • Same as Low PLUS • Leader Only. Adding attachments, file management • Training on other messages available. 	<ul style="list-style-type: none"> • Same as Medium

COMMUNICATE	Low Expertise	Medium Expertise	High Expertise
Tasks/Skills taught	Perform Digital Messaging Functions Task 071-800-11LW		
	softkey board <ul style="list-style-type: none"> • Training on four common messages designated by CSA (content – and format): Spot, SITREP, CFF& MEDEVAC) plus call for media. • PE generating and sending messages; Use inbox, outbox, selecting recipients. 	<ul style="list-style-type: none"> • PE on creating and sending other messages. 	
Recommended Expertise Level: Operator training – 4 hours (Low) Leader training – additional 2 hours on more than the common messages and e-mail variations (M= H)			
Common Resources			
# Hours	4 hrs.	6 hrs.	6 hrs.
# Instructors (PI & AI)	See Below	See Below	See Below
# Students	See Below	See Below	See Below
Devices/student	LW System per student	LW System per student	LW System per student
Overhead projection system w/video link to instructor's LW ensemble	1 per class	1 per class	1 per class
# Overhead screens	1	1	1
Sound system	1	1	1
Chalk/white board	1	1	1
# Computers w/ Power Supply	1	1	1
Desks/Tables/Chairs	See Below	See Below	See Below
Batteries (Type and # per student)	2 per LW system plus 2 recharging	2 per LW system plus 2 recharging	2 per LW system plus 2 recharging
Functional Courses: Stage A			
Functional Course for Operators: Alt 4 - LW to All			
# hours	4 hrs.	4 hrs.	4 hrs.
# Students	105	105	105
# Instructors (PI & AI)	21	21	21
Desks/Tables/Chairs	105 / 1/ 105	105 / 1/ 105	105 / 1/ 105
Functional Course for Leaders: Alt 4 - LW to All			
# Hours	0 hrs	2 hrs	2 hrs

COMMUNICATE	Low Expertise	Medium Expertise	High Expertise
Tasks/Skills taught	Perform Digital Messaging Functions Task 071-800-11LW		
# Students	NA	105	105
# Instructors (PI & AI)	NA	21	21
Desks/Tables/Chairs	NA	105 / 1/ 105	105 / 1/ 105
Functional Course for Operators: Alt 3 - LW to TL			
# Hours	4 hrs.	4 hrs.	4 hrs.
# Students	45	45	45
# Instructors (PI & AI)	9	9	9
Desks/Tables/Chairs	45 / 1/ 45	45 / 1/ 45	45 / 1/ 45
Functional Course for Leaders: Alt 3 - LW to TL			
# Hours	0 hrs.	2 hrs.	2 hrs.
# Students	NA	45	45
# Instructors (PI & AI)	NA	9	9
Desks/Tables/Chairs	NA	45 / 1/ 45	45 / 1/ 45
Functional Course for Operators: Alt 2 - LW to SL			
# Hours	4 hrs.	4 hrs.	4 hrs.
# Students	30	30	30
# Instructors (PI & AI)	6	6	6
Desks/Tables/Chairs	30 / 1/ 30	30 / 1/ 30	30 / 1/ 30
Functional Course for Leaders: Alt 2 - LW to SL			
	Part of operator course		
# Hours	0 hrs.	2 hrs.	2 hrs.
# Students	NA	30	30
# Instructors (PI & AI)	NA	6	6
Desks/Tables/Chairs	NA	30 / 1/ 30	30 / 1/ 30
Professional Development Courses: Stage B			
BOLC III Infantry Alt 4 - LW to All Alt 3 - LW to TL Alt 2 - LW to SL			
# Hours	4 hrs.	6 hrs.	6 hrs.
# Students	160	160	160
# Instructors (PI & AI)	30	30	30
Desks/Tables/Chairs	160 / 1/ 160	160 / 1/ 160	160 / 1/ 160
ANCOC: Alt 4 - LW to All Alt 3 - LW to TL Alt 2 - LW to SL			
	<i>No training required.</i>		

COMMUNICATE	Low Expertise	Medium Expertise	High Expertise
Tasks/Skills taught	Perform Digital Messaging Functions Task 071-800-11LW		
BNCOC: Alt 4 – LW to All Alt 3 – LW to TL	<i>No training required.</i>		
BNCOC: Alt 2 – LW to SL			
# Hours	4 hrs.	6 hrs.	6 hrs.
# Students	160	160	160
# Instructors (PI & AI)	26	26	26
Desks/Tables/Chairs	160 / 1/ 160	160 / 1/ 160	160 / 1/ 160
Alt 4 – Team Leaders Functional Course for Leader Training			
# Hours	0 hrs.	2 hrs.	2 hrs.
# Students	NA	160	160
# Instructors (PI & AI)	NA	26	26
Desks/Tables/Chairs	NA	160 / 1/ 160	160 / 1/ 160
Alt 3 – Team Leaders Functional Course – Operator and Leader Training	<i>Operator and leader training phases</i>		
# Hours	4 hrs (Op).	4 hrs (Op)/ 2 hrs (Ldr)	4 hrs (Op)/ 2 hrs (Ldr)
# Students	160	160	160
# Instructors (PI & AI)	32	32	32
Desks/Tables/Chairs	160 / 1/ 160	160 / 1/ 160	160 / 1/ 160
Infantry OSUT Alt 4 LW to All			
# Hours	4 hrs.	4 hrs.	4 hrs.
# Students	200	200	200
# Instructors (PI & AI)	12	12	12
Desks/Tables/Chairs	200 / 1/ 200	200 / 1/ 200	200 / 1/ 200

COMMUNICATE

PERFORM DIGITAL IMAGING FUNCTIONS

[Task #071-800-12LW]

LW Prerequisites:

- Completed digital imaging section of IMI
- 071-800-01LW Assemble the LW helmet subsystem
- 071-800-02LW Assemble the LW body subsystem
- 071-800-03LW Assemble the LW weapon subsystem
- 071-800-04LW Don the LW system
- 071-800-05LW Power On the Land Warrior system
- 071-800-06LW Log On to the Land Warrior system
- 071-800-07LW Load MDP on the LW System
- 071-800-08LW Configure the Land Warrior system for operation
- 071-800-09LW Configure the Land Warrior Navigation subsystem
- 071-800-10LW Operate the Land Warrior Map functions
- 071-800-11LW Perform Digital Messaging functions
- 071-800-13LW Perform Voice Communications using the Land Warrior system

Other Prerequisites:

- For high expertise, assume Soldiers/leaders know how to operate the TWS controls to obtain good images
- Soldiers have basic computer-software drawing skills

Other Assumptions:

- Assume that every Soldier has a LW system.
- Additional requirement to all courses.

Data Sources:

- Interviews with LW SMEs.
- Wampler, R. L., Beal, S. A., & Dyer, J. L. (2003). *Observations of the Land Warrior Tester Training Course #1A conducted during safety training* (Special Report to PM-LW and TSM-S). Fort Benning, GA: Infantry Forces Research Unit, U.S. Army Research Institute.
- Dyer, J. L., & Wampler, R. L. (2002). *Observations of the Land Warrior Tester Training Course #1 conducted prior to safety training* (Special Report to PM-LW and TSM-S). Fort Benning, GA: Infantry Forces Research Unit, U.S. Army Research Institute.
- Dyer, J. L., & Wampler, R. L. (2002). *Observations of the Land Warrior Tester Training Course #3 conducted prior to reliability growth phase I* (Special Report to PM-LW and TSM-S). Fort Benning, GA: Infantry Forces Research Unit, U.S. Army Research Institute.

COMMUNICATE	Low Expertise	Medium Expertise	High Expertise
Preparation			
Tasks/Skills taught	Perform Digital Imaging Functions (with DVS and TWS) [task #071-800-12LW]		
Description of Training	<ul style="list-style-type: none"> • Instruction and demonstration of procedures • Capture image with DVS using WUID • Transmit image as attachment to text message • PE on image capture and transfer 	<ul style="list-style-type: none"> • Same as Low • Add: annotation and editing of image • Store image • Save image • Retrieve saved image • PE on image capture and annotation, retrieving saved image 	<ul style="list-style-type: none"> • Same as Medium • Add: Capture image with TWS • Transmit image • PE with TWS image
Recommended Expertise Level			
Medium = 3 hours			
(Assume skill with DVS will transfer to TWS digital images. TWS included in High level)			
Common Resources			
# Hours	2 hrs	3 hrs	4 hrs
Overhead projector	1 per class	1 per class	1 per class
Overhead screen	1 per class	1 per class	1 per class
Sound system	1 per class	1 per class	1 per class
Chalk/white board	1 per class	1 per class	1 per class
Overhead projector w/ video projection link to instructor's LW ensemble	1 per class	1 per class	1 per class
TWS requirement	None	None	1 per 5 students (also see below)
Functional Courses: Stage A			
Functional Course for Operators: Alt 4 - LW to All			
# Students	105	105	105
# Instructors (PI, AI)	21	21	21
# Hours	2 hrs	3 hrs	4 hrs
# LW systems	126	126	126
TWS requirement	None	None	1 per 5 students
Functional Course for Leaders: Alt 4 - LW to All	<i>Not Required: Operator task</i>		

COMMUNICATE Preparation	Low Expertise	Medium Expertise	High Expertise
Tasks/Skills taught	Perform Digital Imaging Functions (with DVS and TWS) [task #071-800-12LW]		
Functional Course for Operators: Alt 3 - LW to TL			
# Students	45	45	45
# Instructors (PI, AI)	9	9	9
# Hours	2 hrs	3 hrs	4 hrs
# LW systems	54	54	54
TWS requirement	None	None	1 per 5 students
Functional Course for Leaders: Alt 3 - LW to TL	<i>Not Required: Operator Task</i>		
Functional Course for Operators: Alt 2 - LW to SL			
# Students	30	30	30
# Instructors (PI, AI)	6	6	6
# Hours	2 hrs	3 hrs	4 hrs
# LW systems	36	36	36
TWS requirement	None	None	1 per 5 students
Functional Course for Leaders: Alt 2 - LW to SL	<i>Not Required: Operator Task</i>		
Professional Development Courses and IET: Stage B			
BOLC III Infantry Alt 4 - LW to All Alt 3 - LW to TL Alt 2 - LW to SL			
# Students	160	160	160
# Instructors (PI, AI)	30	30	30
# Hours	Additional = 2 hrs Total = 2 hrs	Additional = 3 hrs Total = 3 hrs	Additional = 4 hrs Total = 4 hrs
# LW systems	190	190	190
TWS requirement	None	None	1 per 5 students (assuming TWS taught in marksmanship)
ANCOC: Alt 4 - LW to All Alt 3 - LW to TL Alt 2 - LW to SL	<i>Not Required: Assume skills previously acquired.</i>		
BNCOC: Alt 4 - LW to All Alt 3 - LW to TL	<i>Not Required: Assume skills previously acquired.</i>		

COMMUNICATE Preparation	Low Expertise	Medium Expertise	High Expertise
Tasks/Skills taught	Perform Digital Imaging Functions (with DVS and TWS) [task #071-800-12LW]		
BNCOC: Alt 2 – LW to SL			
# Students	160	160	160
# Instructors (PI, AI)	26	26	26
# Hours	Additional = 2 hrs Total = 2 hrs	Additional = 3 hrs Total = 3 hrs	Additional = 4 hrs Total = 4 hrs
# LW systems	186	186	186
TWS requirement	None	None	1 per 5 students (assuming TWS taught in marksmanship)
Alt 4 – Team leaders Functional Course for Leader Training	<i>Not Required: Assume skills previously acquired</i>		
Alt 3 – Team Leaders Functional Course – Operator and Leader Training	<i>Operator phase of training only</i>		
# Students	160	160	160
# Instructors (PI, AI)	32	32	26
# Hours	2 hrs	3 hrs	4 hrs
# LW systems	186	186	186
TWS requirement	None	None	1 per 5 students
Infantry OSUT: Alt 4 – LW to All			
# Students	200	200	200
# Instructors (PI, AI)	12	12	12
# Hours	Additional = 2 hrs Total = 2 hrs	Additional = 3 hrs Total = 3 hrs	Additional = 3 hrs Total = 3 hrs
# LW systems	212	212	212
TWS requirement	None	None	None – assume TWS not available for Advanced Infantry Rifle Marksmanship

COMMUNICATE

OPERATE THE "STAND-ALONE" RADIO (Alternatives 1, 2, and 3)

Background:

- The base case assumes that squad leaders and above in the SBCT have a radio with digital and voice capabilities.
- Alt 1 states that a stand-alone radio, with voice and digital capabilities, is distributed below squad leader, to team leaders and all remaining squad members.
- It is assumed that this "stand-alone" radio is similar to the current Multi-band Inter/Intra Team Radio (MBITR) and the Enhanced Position Location Reporting System (EPLRS)-Light (or E-LITE).
- Alt 2 states that a stand-alone radio will be used by team leaders and squad members.
- Alt 3 states that the radio will be used by squad members
- For Alt 1, team leaders will be trained via an exportable training package, and squad members will be trained in OSUT.
- In Stage A, and for LW Alts 2 and 3, team leaders and squad members will be trained via an exportable training package, as appropriate.
- In Stage B, for Alt 2, team leaders will be trained via an exportable training package, as it is not cost effective to bring back team leaders for a short course on a radio. For Alts 2 and 3, squad members will be trained in OSUT.
- It is assumed each Soldier is proficient in the following Common Core Tasks commensurate with his grade: (1) Task # 113-571-1022 Perform Voice Communications and, (2) #113-637-2001 Communicate Via a Tactical Radio in a Secure Net (revised to include LW equipment) IAW Soldier Training Publication (STP) 21-1-SMCT Soldier's Manual of Common Tasks Skill Level 1, DA, dated 31 August 2003.
- A review of STP 21-24-SMCT Soldier's Manual of Common Tasks Skill Level 2-4, DA, dated 31 August 2003, indicated no skill levels 2-4 training ramifications for the stand-alone radio.
- OSUT Soldier currently receive 2 hours of training on Single Channel Ground and Airborne Radio System (SINCGARS). Replacing this training with the new stand-alone radio results in a replacement gain savings of 2 hours.

Assumptions

- As the basis of issue for the radio is at the individual squad member level, it is assumed the radio is part of the Soldier's personal equipment, and therefore he should be trained to use it in field exercises (as he would if he had an embedded radio with the LW system). This requirement means there must be more radios than that required for classroom instruction alone. The estimate is that 4 OSUT companies could be conducting 1 week of *field exercises* simultaneously, and there should be sufficient radios for every Soldier and each drill sergeant within these companies – a total of 848 radios.
- Classroom instruction on the radio for OSUT training companies not in field exercises may also occur at the same time as the field exercises cited above for the 4 companies. *Additional* radios for *classroom instruction* are needed. Currently OSUT training on radios is conducted with a platoon-size unit in the class (round robin instruction with other topics). The task analysis assumed one (1) "stand-alone" radio for every 2 Soldiers. The 29th Infantry regiment instructors are responsible for communications training; Drill sergeants assist in this training.
 - With all levels of expertise, it is assumed that all Soldiers will be trained at one time (200-person class). It is also assumed that classroom communications training in two OSUT companies will overlap. Number of radios is 1 for every 2 Soldiers; 10 radios for instructors.

The number of additional radios needed to handle the maximum classroom student load is 220.

- The radio will have a built-in test (BIT) unit.
- The radio contains FBCB2 message formats and integrated operating system.

Prerequisite skills:

- Basic radio procedures, phonetic alphabet, and number pronunciation.

Data Sources:

- DA. (2003, August). *Soldier's Manual of Common Tasks Skill Level 1 (STP 21-1-SMCT)*. Washington, D.C., HQDA.
- DA. (2003, August). *Soldier's Manual Of Common Tasks Skill Levels 2, 3, and 4 (STP 21-24-SMCT)*. Washington, D.C., HQDA.
- Dyer, J. L., & Salter, R. (2001, December). *Working memory and exploration in training knowledge and skills required of digital systems*. (ARI Research Report 1783). Alexandria, VA: U.S. Army Research Institute for the Behavioral and Social Sciences. DTIC No. AD A399507
- Foster, T. (2004, May). *System training plan (STRAP) for the Ground Soldier system (Land Warrior Block III, version 5.4)*. Ft. Benning, GA: Systems Division, G-3, U.S. Army Infantry School.
- Memorandum (2004, January), *Land Warrior-Stryker Interoperable Command-Approved Critical Task List For Infantrymen MOS 11B, Skill Levels 1 Through 4, at the Platoon Level*.
- Interviews with subject matter experts (SMEs) on EPLRs and MBITR (2004).
- USAIC NCO Academy. (2004, March). *Primary Leadership Development Course (PLDC) Student Guide*. Fort Benning, GA: United States Army Infantry Center, Henry Caro NCO Academy, ATZB-NC-NP: Author.
- USAIS. (2002, November). *Program of Instruction (POI) for 11B10-OSUT One Station Unit Training (OSUT)*. Fort Benning, GA: United States Army Infantry School ATSH-OTT: Author.
- Dyer, J. L., Fober, G. W., Wampler, R., Blankenbeckler, N., Dlubac, M., & Centric, J. (2000, December). *Observations and assessments of Land Warrior Training*. Ft. Benning, GA: Infantry Forces Research Unit, U.S. Army Research Institute

COMMUNICATE	Low Expertise	Medium Expertise	High Expertise
Tasks/Skills Taught	No Task Number – Operate the Stand-Alone Radio		
Note: Prerequisite Common Core task training on executing proper radio procedures (voice communications) should be completed prior to this training. All radio training is estimated since no specific radio was specified for the alternatives. It is assumed that there is some commonality with FBCB2 digital training on JVMF message formats.			
Description of Training	<ul style="list-style-type: none"> • Overview and Voice Communication only • Operation Principles including: Overview, Components, Capabilities, and Installation Procedures • Radio Set Procedures including: Controls and Indicators, Power Up, Need lines, and Troubleshooting 	<ul style="list-style-type: none"> • Same as Low PLUS <ul style="list-style-type: none"> • Digital training to include: Message Set Familiarization including: Message Sets, and Message Sets w/ Practice • PE – Scenario Practice 	<ul style="list-style-type: none"> • Same as Medium PLUS: <ul style="list-style-type: none"> • PE – Additional Scenario Practice

	• PE – Voice Communications		
Recommended Expertise Level:			
Low – Voice communications training only. 6 hours total, but replaces 2 hours of SINCGARS in OSUT, leaving an increase or additional 4 hours (training impact).			
Common Resources			
# Hours of Instruction	6 hrs	12 hrs	15 hrs
Sound System	1 per training site	1 per training site	1 per training site
Chalk/Whiteboard	1 per training site	1 per training site	1 per training site
# Overhead Projectors	1 per training site	1 per training site	1 per training site
# Overhead Screens	1 per training site	1 per training site	1 per training site
Alternative 1:			
Team Leaders	Unit training via an Exportable Training Package. Soldiers will use the stand-alone radio in the unit.		
Squad Members	Infantry OSUT		
# Hours	Classroom total = 6 hrs Replacement = 2 hrs Additional = 4 hrs No additional hours for field exercises	Classroom total = 12 hrs Replacement = 2 hrs Additional = 10 hrs No additional hours for field exercises	Classroom total = 15 hrs Replacement = 2 hrs Additional = 13 hrs No additional hours for field exercises
# Students	200	200	200
# Instructors (PI & AI)	17 (need 5 instructors from 29 th Inf Regmt)	17 (need 5 instructors from 29 th Inf Regmt)	17 (need 5 instructors from 29 th Inf Regmt)
# Radios/student in one (1) classroom (estimate 2 classes held simultaneously)	1 to 2 (100 radios plus 10 for instructors) Total = 110	1 to 2 (100 radios plus 10 for instructors) Total = 110	1 to 2 (100 radios plus 10 for instructors) Total = 110
Desks/Tables/Chairs	200/1/200	200/1/200	200/1/200
Training Aids	Manufacturer's Instruction Sheet	Manufacturer's Instruction Sheet	Manufacturer's Instruction Sheet
# Radios/student in field exercises (1 week in length)	1 to 1 212 radios (includes Drill Sergeants)	1 to 1 212 radios (includes Drill Sergeants)	1 to 1 212 radios (includes Drill Sergeants)
Equipment Requirements for Maximum Training Load in OSUT			
Radios for Classroom (2 classrooms)	220	220	220
Radios for Field Exercises (4 companies)	848	848	848
Total Radios	1068	1068	1068
Radio batteries	2 per radio	2 per radio	2 per radio

LW: Stage A			
Team Leaders Alt 2 – LW to SL	Unit training via an Exportable Training Package. Team leaders will use the stand-alone radio in the unit.		
Squad Members Alt 2 – LW to SL Alt 3 - LW to TL	Unit training via an Exportable Training Package. Soldiers will use the stand-alone radio in the unit.		
LW: Stage B			
Team Leaders Alt 2 – LW to SL	Unit training via an Exportable Training Package. Team leaders will use the stand-alone radio in the unit.		
Squad Members Alt 2- LW to SL Alt 3 – LW to TL	Infantry OSUT		
# Hours	Classroom total = 6 hrs Replacement = 2 hrs Additional = 4 hrs No additional hours for field exercises	Classroom total = 12 hrs Replacement = 2 hrs Additional = 10 hrs No additional hours for field exercises	Classroom total = 15 hrs Replacement = 2 hrs Additional = 13 hrs No additional hours for field exercises
# Students	200	200	200
# Instructors (PI & AI)	17 (need 5 instructors from 29 th Inf Regmt)	17 (need 5 instructors from 29 th Inf Regmt)	17 (need 5 instructors from 29 th Inf Regmt)
# Radios/student in one (1) classroom (estimate 2 classes held simultaneously)	1 to 2 (100 radios plus 10 for instructors) Total = 110	1 to 2 (100 radios plus 10 for instructors) Total = 110	1 to 2 (100 radios plus 10 for instructors) Total = 110
Desks/Tables/Chairs	200/1/200	200/1/200	200/1/200
Training Aids	Manufacturer's Instruction Sheet	Manufacturer's Instruction Sheet	Manufacturer's Instruction Sheet
# Radios/student in field exercises (1 week in length)	1 to 1 212 radios (includes Drill Sergeants)	1 to 1 212 radios (includes Drill Sergeants)	1 to 1 212 radios (includes Drill Sergeants)
	Equipment Requirements for Maximum Training Load in OSUT		
Radios for Classroom (2 classrooms)	220	220	220
Radios for Field Exercises (4 companies)	848	848	848
Total Radios	1068	1068	1068
Radio batteries	2 per radio	2 per radio	2 per radio

Functional Area: Move

071-329-01LW NAVIGATE FROM ONE POINT ON THE GROUND TO ANOTHER POINT WHILE DISMOUNTED

LW Prerequisite Skills:

- 071-800-01LW Assemble the Land Warrior Helmet Subsystem
- 071-800-02LW Assemble the Land Warrior Body Subsystem
- 071-800-03LW Assemble the Land Warrior Weapon Subsystem
- 071-800-04LW Don the Land Warrior System
- 071-800-05LW Power On the Land Warrior System
- 071-800-06LW Log On to the Land Warrior System
- 071-800-07LW Load Mission Data Packages on the Land Warrior System
- 071-800-08LW Configure the Land Warrior System for Operation
- 071-800-09LW Configure the Land Warrior Navigation Subsystem
- 071-800-10LW Operate the Land Warrior Map Functions

Prerequisite LW skills include being able to Configure the LW Navigation Subsystem and Operate the LW Map Functions. This means the individual knows how to calibrate the system, plot way points, select maps, pan/zoom, etc. Therefore these skills are not taught under the subject task. The task focuses only on navigating with the system.

Additional Prerequisite Skills:

- Each Soldier is proficient in the Common Core Tasks commensurate with his grade: (1) 071-329-1006 Navigate from One Point on the Ground to Another Point While Dismounted (Skill Level 1) and the following supporting tasks IAW Appendix C, Soldier Training Publication (STP) 21-1-SMCT Soldier's Manual Of Common Tasks Skill Level 1, dated 31 August 2003:
 - (1) Select a movement route using a map;
 - (2) Identify topographic symbols on a military map;
 - (3) Identify terrain features on a map;
 - (4) Determine the grid coordinates of a point on a military map
 - (5) Determine a magnetic azimuth using a lensatic compass;
 - (6) Determine the elevation of a point on the ground using a map;
 - (7) Determine a location on the ground by terrain association;
 - (8) Measure distances on a map;
 - (9) Convert azimuths;
 - (10) Orient a map using a lensatic compass;
 - (11) Orient a map to the ground by terrain association;
 - (12) Locate an unknown point on a map and on the ground by intersection;
 - (13) Locate an unknown point on a map and on the ground by resection;
 - (14) Determine direction without a compass;
 - (15) Determine azimuths using a protractor; and
 - (16) Compute back azimuths.

Assumptions:

- The training is necessary to reinforce Soldier training in integrated LW-related capabilities and procedures applied to current doctrinal training and to confirm the Soldier's ability to correctly employ the LW system.
- The training will be at a field training site containing an appropriate number of registered land navigation points.
- Each Soldier will be equipped with an individual LW ensemble.
- Each instructor will be equipped with an individual LW ensemble.
- LW navigation capabilities will replace the Precision Lightweight GPS Receiver (PLGR). There are replacement gain hours in IOBC and BNCOC; the number of hours varies with the level of expertise.
- Since no BOLC II/III POIs were available for review, the assumption is that BOLC III IN will have the same PLGR training as is currently in IOBC.
- USAIS Courses will continue to teach map reading as presented below and execute map land navigation day/night courses as presented below. LW Land Navigation will not replace current map and compass training, but will be additional training.

Table 1. Current USAIC map/land navigation POIs

Course	Map Reading Classroom	Map Land Navigation Day/Night	PLGR Classroom	PLGR Land Navigation Day/Night
OSUT	6 hrs.	4 hrs. Day 0 hrs. Night	None	None
PLDC	13 hrs.	12 hrs.	None	None
BNCOC		7 hrs. Day/Night Combined	10 hrs	1 hr. Day/Night Combined (10 hrs total)
ANCOC	None	8 hrs.	None	8 hrs.
BOLC II	No POI available (see IOBC)			
BOLC III IN	No POI available (see IOBC)			
IOBC	5 hrs.	8 hrs. Day Retest 3 hrs. Day Retest 2 hrs. Night	1 hr.	2 hrs. Retest 1 hr.

Data Sources:

- DA. (2003, August). *Soldier's Manual of Common Tasks Skill Level 1 (STP 21-1-SMCT)*. Washington, D.C., HQDA.
- DA. (2003, August). *Soldier's Manual of Common Tasks Skill Levels 2, 3, and 4 (STP 21-24-SMCT)*. Washington, D.C., HQDA.
- Foster, T. (2004, May). *System training plan (STRAP) for the Ground Soldier system (Land Warrior Block III, version 5.4)*. Ft. Benning, GA: Systems Division, G-3, U.S. Army Infantry School.
- Memorandum (2004, January), *Land Warrior-Stryker Interoperable Command-Approved Critical Task List For Infantrymen MOS 11B, Skill Levels 1 Through 4, at the Platoon Level*.
- USAIC NCO Academy. (2004, March). *Primary Leadership Development Course (PLDC) Student Guide*. Fort Benning, GA: United States Army Infantry Center, Henry Caro NCO Academy, ATZB-NC-NP: Author.

- USAIS. (2003, October). *Program of Instruction (POI) for Infantry Officer Basic Course (IOBC)*. Fort Benning, GA: United States Army Infantry School ATSH-OTT: Author.
- USAIS. (2003, January). *Program of Instruction for 11B30 Basic Noncommissioned Officer Course (BNCOC)*. Fort Benning, GA: United States Army Infantry School, ATSH-OTT: Author.
- USAIS. (2002, January). *Program of Instruction for 11B40 Advanced Noncommissioned Officer Course (ANCOC)*. Fort Benning, GA: United States Army Infantry School, ATSH-OTT: Author.
- Interviews with subject matter experts (SMEs)
- Wampler, R. L., Beal, S. A., & Dyer, J. L. (2003, April). *Observations of the Land Warrior Tester Training Course #1A conducted during Safety Training*. Fort Benning, GA: U.S. Army Research Institute for the Behavioral and Social Sciences, Infantry Forces Research Unit.
- Dyer, J. L., & Wampler, R. L. (2002, June). *Observations of the Land Warrior Tester Trainer Course #1 Conducted Prior to Safety Testing*. Fort Benning, GA: U.S. Army Research Institute for the Behavioral and Social Sciences, Infantry Forces Research Unit.
- Dyer, J. L., & Wampler, R. L. (2002, December). *Observations of the Land Warrior Tester Trainer Course #3 Conducted Prior to Reliability Growth Phase I*. Fort Benning, GA: U.S. Army Research Institute for the Behavioral and Social Sciences, Infantry Forces Research Unit.
- Dyer, J. L., Fober, G. W., Wampler, R., Blankenbeckler, N., Dlubac, M., & Centric, J. (2000, December). *Observations and assessments of Land Warrior Training*. Ft. Benning, GA: Infantry Forces Research Unit, U.S. Army Research Institute.

MOVE	Low Expertise	Medium Expertise	High Expertise
Tasks/Skills Taught	Navigate from One Point on the Ground to Another Point While Dismounted, Task 071-329-01LW		
<p><i>Note:</i> This task focuses only on physically navigating with the LW system. Configuring the LW Navigation Subsystem and Operating the LW Map Functions were viewed as prerequisite LW skills (Individual knows how to calibrate the system, plot way points, select maps, pan/zoom, etc.). Therefore, these skills are not taught under the subject task.</p> <p>Low level training consists of plotting 4 points and completing a land navigation course (<1000 meters) during daylight hours. Medium level of training adds an equivalent night land navigation course. High level of training adds additional points to both the day and night land navigation courses.</p> <p>LW Land Navigation will <u>not</u> replace current map and compass training, but will be additional training. LW navigation capabilities will replace the PLGR instruction in the institutional base.</p>			
Description of Training	<ul style="list-style-type: none"> • Plot points/route. • Navigate to 2 points (start/finish points plus 2 directional changes) during <u>day</u> at <1000 meters. 	<ul style="list-style-type: none"> • Same as Low PLUS • Navigate to 2 points (start/finish points plus 2 directional changes) during <u>night</u> at <1000 meters 	<ul style="list-style-type: none"> • Day: 5 directional changes to <u>day land navigation course</u> (start/finish plus 5 changes at < 1000m,) • Night: 3 directional changes to <u>night land navigation course</u> (start/finish plus 3 directional changes at < 1000m).
Recommended expertise level:			
High – 8 hours of training (day/night) – Operator training			
Common Resources			
# Hours	2 hrs.	4 hrs.	8 hrs.

# Instructors (PI & AI)	See below	See below	See below
# Students	See below	See below	See below
+/- terrain size	Day Land Navigation Course	Day & Night Land Navigation Course	Day & Night Land Navigation Course
# Range Safety Personnel	Per SOP	Per SOP	Per SOP
# Medics	Per SOP	Per SOP	Per SOP
# LW Ensembles	1 per student 1 per instructor	1 per student 1 per instructor	1 per student 1 per instructor
# Night Vision Devices (NVD)	NA	1 per student	1 per student
LW Batteries (Type and # per student)	See Below	See Below	See Below
Battery Chargers	# Depends on Size of Battery Charger - TBD	# Depends on Size of Battery Charger - TBD	# Depends on Size of Battery Charger - TBD
Functional Courses: Stage A			
Functional Course for Operators: Alt 4 - LW to All			
# Hours	2 hrs	4 hrs	8 hrs
# Students	105	105	105
# Instructors (PI & AI)	21	21	21
+/- terrain size	Day Land Navigation Course	Day & Night Land Navigation Course	Day & Night Land Navigation Course
# LW Ensembles	126	126	126
# NVDs	NA	126	126
LW Batteries (Type and # per student)	800	800	800
Functional Course for Leaders: Alt 4 - LW to All	<i>This lesson is part of the Operator Course.</i>		
Functional Course for Operators: Alt 3 - LW to TL			
# Hours	2 hrs.	4 hrs.	8 hrs.
# Students	45	45	45
# Instructors (PI & AI)	9	9	9
+/- terrain size	Day Land Navigation Course	Day & Night Land Navigation Course	Day & Night Land Navigation Course
# LW Ensembles	54	54	54
# NVDs	NA	54	54
LW Batteries (Type and # per student)	180	180	180
Functional Course for Leaders: Alt 3 - LW to TL	<i>This lesson is part of the Operator Course.</i>		

Functional Course for Operators: Alt 2 - LW to SL			
# Hours	2 hrs	4 hrs	8 hrs
# Students	30	30	30
# Instructors (PI & AI)	6	6	6
+/- terrain size	Day Land Navigation Course	Day & Night Land Navigation Course	Day & Night Land Navigation Course
# LW Ensembles	36	36	36
# NVDs	NA	36	36
LW Batteries (Type and # per student)	120	120	120
Functional Course for Leaders: Alt 2 - LW to SL	<i>This lesson is part of the Operator Course.</i>		
Professional Development Courses and IET: Stage B			
BOLC III Infantry Alt 4 - LW to All Alt 3 - LW to TL Alt 2 - LW to SL			
# Hours	LW- 2 hours required Replacement - 2 hrs of PLGR Saves 2 hrs of PLGR No additional hours	LW - 4 hrs required Replacement- 4 hrs of PLGR No additional hours	LW - 8 hrs required Replacement - 4 hrs of PLGR Additional 4 hours
# Students	160	160	160
# Instructors (PI & AI)	30	30	30
+/- terrain size	Day Land Navigation Course	Day & Night Land Navigation Course	Day & Night Land Navigation Course
#LW Ensembles	190	190	190
#NVDs	NA	190	190
LW Batteries (Type and # per student)	320	320	320
ANCOC: Alt 4 - LW to All Alt 3 - LW to TL Alt 2 - LW to SL	<i>No Training Required - Trained as squad member or as team leader in these alternatives.</i>		
BNCOC: Alt 4 - LW to All Alt 3 - LW to TL	<i>No Training Required - Trained as squad member or as team leader in these alternatives.</i>		
BNCOC: Alt 2 - LW to SL			
# Hours	LW- 2 hours required Replacement - 2 hrs of PLGR Saves 8 hrs of PLGR	LW - 4 hrs required Replacement- 4 hrs of PLGR Saves 6 hrs of PLGR	LW - 8 hrs required Replacement - 8 hrs of PLGR Saves 2 hrs of PLGR

	No additional hours	No additional hours	No additional hours
# Students	160	160	160
#Instructors (PI & AI)	26	26	26
+/- terrain size	Day Land Navigation Course	Day & Night Land Navigation Course	Day & Night Land Navigation Course
# LW Ensembles	186	186	186
# NVDs	NA	186	186
LW Batteries (Type and # per student)	320	320	320
Alt 4 – Team leaders Functional Course for Leader Training	<i>No Training Required - Team leaders trained as squad members in OSUT.</i>		
Alt 3 – Team Leaders Functional Course – Operator and Leader Training	<i>Taught in Operator Course only.</i>		
# Hours	2 hrs	4 hrs	8 hrs
# Students	105	105	105
# Instructors (PI & AI)	21	21	21
+/- terrain size	Day Land Navigation Course	Day & Night Land Navigation Course	Day & Night Land Navigation Course
# LW Ensembles	126	126	126
# NVDs	NA	126	126
LW Batteries (Type and # per student)	210	210	210
Infantry OSUT: Alt 4 – LW to All			
# Hours	2 hrs	4 hrs	8 hrs
# Students	200	200	200
# Instructors (PI & AI)	12	12	12
+/- terrain size	Day Land Navigation Course	Day & Night Land Navigation Course	Day & Night Land Navigation Course
# LW Ensembles	212	212	212
# NVDs	NA	212	212
LW Batteries (Type and # per student)	800	800	800

Functional Area: Shoot

Boresight and Zero the Daylight Video Sight (DVS)

Engage targets from a reduced exposure position with the DVS

Operate the Multifunction Laser (MFL)

Boresight and zero the Multifunction Laser (MFL)

Engage targets with weapon using the Multifunction Laser (MFL)

SHOOT

BORESIGHT AND ZERO THE DVS **[Task 071-800-16LW: Boresight the DVS]** **[Task 071-800-19LW: Zero the DVS]**

LW Prerequisites

- 071-800-01LW Assemble the Land Warrior Helmet Subsystem
- 071-800-02LW Assemble the Land Warrior Body Subsystem
- 071-800-03LW Assemble the Land Warrior Weapon Subsystem
- 071-800-04LW Don the Land Warrior System
- 071-800-05LW Power On the Land Warrior System
- 071-800-06LW Log On to the Land Warrior System
- 071-800-07LW Load Mission Data Packages on the Land Warrior System
- 071-800-08LW Configure the Land Warrior System for Operation
- 071-800-10LW Operate the Land Warrior Map Functions
- 071-800-09LW Configure the Land Warrior Navigation Subsystem

Other Prerequisites:

- Qualified on M4 carbine/personal weapon
- Can operate the Thermal Weapon Sight (TWS) and obtain a good sight picture.
- Completed the DVS boresighting section of the IMI

Assumptions:

- Assume if Soldiers have been trained on the TWS and on reduced exposure firing positions with the Daylight Video Sight (DVS), they can transfer these skills to firing the TWS from reduced exposure positions.
- Assume the critical firing skill with the DVS is firing from a reduced exposure position.
- 1 LW system with 2 rechargeable batteries and M4 carbine per Soldier.
- During live-fire, fire every other lane for purposes of safety, if possible.

Data Sources:

- Dyer, J. L., Beal, S., Salvetti, J., Vaughan, A., & D'Errico, J. (2004). *Land Warrior reduced exposure firing trials* (Special Report to PM-LW and TSM-S). Ft. Benning, GA: Infantry Forces Research Unit, U.S. Army Research Institute for the Behavioral and Social Sciences.
- Foster, T. (2004, 14 May). *System training plan (STRAP) for the Ground Soldier system* (Land Warrior Block III, version 5.4). Ft. Benning, GA: Systems Division, G-3, U.S. Army Infantry School.
- Interviews with LW SMEs
- Dyer, J. L., & Wampler, R. L. (2002, June). *Observations of the Land Warrior Tester Trainer Course #1 Conducted Prior to Safety Testing*. Fort Benning, GA: U.S. Army Research Institute for the Behavioral and Social Sciences, Infantry Forces Research Unit.
- Dyer, J. L., & Wampler, R. L. (2002, December). *Observations of the Land Warrior Tester Trainer Course #3 Conducted Prior to Reliability Growth Phase I*. Fort Benning, GA: U.S. Army Research Institute for the Behavioral and Social Sciences, Infantry Forces Research Unit.

SHOOT	Low Expertise	Medium Expertise	High Expertise
Tasks/Skills taught	Boresight and Zero the Daylight Video Sight (DVS) [Task 071-800-16LW – Boresight the Davlight Video Sight, and Task 071-800-19LW – Zero the Daylight Video Sight]		
Description of Training	<ul style="list-style-type: none"> • Instructions on how to access the DVS reticle and adjust windage and elevation. • Boresight the DVS. • Group in 9 rounds • Zero in 9 rounds 	• Same as low expertise	• Same as low expertise
Recommended Expertise Level: Low= Medium = High # training hours varies with the number of Soldiers in the course.			
Common Resources			
Firing Ranges # and type	Zero Range	Zero Range	Zero Range
# Range Safety Personnel	1	1	1
# Medics	1	1	1
# LW systems/student	1 LW system per student	1 LW system per student	1 LW system per student
# LW systems/instructor	1 LW system per instructor	1 LW system per instructor	1 LW system per instructor
Ammunition (5.56)	18 rounds per student	18 rounds per student	18 rounds per student
Sound system	Sound system on the range	Sound system on the range	Sound system on the range
Chalk/white board	1-5	1-5	1-5
Power Supply	On the Range	On the Range	On the Range
Video on reduced exposure firing – classroom – 45 minutes			
Functional Courses: Stage A			
Functional Course for Operators: Alt 4 - LW to All			
# Students	105	105	105
# Instructors (PI and AI)	21	21	21
# Hours	Total hrs = 6.25 45 min video classrm 5.5 hrs on range	Total hrs = 6.25 45 min video classrm 5.5 hrs on range	Total hrs = 6.25 45 min video classrm 5.5 hrs on range
Live ammo 5.56 (rds/student)	18 rounds/student Total = 1890	18 rounds/student Total = 1890	18 rounds/student total = 1890
# M4 carbine	105	105	105
25m zero paper targets	1 per student = 105	1 per student = 105	1 per student = 105
Boresight kit w/ boresight target	1 per 10 students = 11	1 per 10 students = 11	1 per 10 students = 11

SHOOT	Low Expertise	Medium Expertise	High Expertise
Tasks/Skills taught	Boresight and Zero the Daylight Video Sight (DVS) [Task 071-800-16LW – Boresight the Davlight Video Sight, and Task 071-800-19LW – Zero the Daylight Video Sight]		
Functional Course for Operators: Alt 3 – LW to TL			
# Students	45	45	45
# Instructors (PI and AI)	9	9	9
# Hours	Total hrs = 4.25 45 min video classrm 3.5 hours on range	Total hrs = 4.25 45 min video classrm 3.5 hours on range	Total hrs = 4.25 45 min video classrm 3.5 hours on range
Total ammunition	810 rds	810 rds	810 rds
# M4 carbine	45	45	45
25m zero paper targets	1 per student = 45	1 per student = 45	1 per student = 45
Boresight kit w/ boresight target	1 per 10 students = 5	1 per 10 students = 5	1 per 10 students = 5
Functional Course for Operators: Alt 2 – LW to SL			
# Students	30	30	30
# Instructors (PI & AI)	6	6	6
# Hours	Total hrs = 3.25 45 min video classrm 2.5 hours on range	Total hrs = 3.25 45 min video classrm 2.5 hours on range	Total hrs = 3.25 45 min video classrm 2.5 hours on range
Total ammunition	540 rds	540 rds	540 rds
# M4 carbine	30	30	30
25m zero paper targets	1 per student = 30	1 per student = 30	1 per student = 30
Boresight kit w/ boresight target	1 per 10 students = 3	1 per 10 students = 3	1 per 10 students = 3
Professional Development Courses and IET: Stage B			
BOLC III Infantry Alt 4 – LW to All Alt 3 – LW to TL Alt 2 – LW to SL			
Integration into Course	All Additional	All Additional	All Additional
# Students	160	160	160
# Instructors (PI & AI)	30	30	30
# Hours	Total hrs = 8.25 45 min video classrm 7.5 hours on range	Total hrs = 8.25 45 min video classrm 7.5 hours on range	Total hrs = 8.25 45 min video classrm 7.5 hours on range
Total ammunition	2880 rds	2880 rds	2880 rds
25m zero paper targets	1 per student = 160	1 per student = 160	1 per student = 160
Boresight kit w/ boresight target	1 per 10 students = 16	1 per 10 students = 16	1 per 10 students = 16

SHOOT	Low Expertise	Medium Expertise	High Expertise
Tasks/Skills taught	Boresight and Zero the Daylight Video Sight (DVS) [Task 071-800-16LW – Boresight the Davlight Video Sight, and Task 071-800-19LW – Zero the Daylight Video Sight]		
ANCOC: Alt 4 – LW to All Alt 3 – LW to TL Alt 2 – LW to SL	<i>Not train this task under any alternative. PSGT already proficient as a private/unit in Alternative 4 or as NCO in Alternatives 2 and 3</i>		
BNCOC: Alt 4 – LW to All Alt 3 – LW to TL	<i>SL already proficient as a private in LW Alternative 4 or as NCO in LW Alternative 3</i>		
BNCOC: Alt 2 – LW to SL			
Integration into Course	All Additional	All Additional	All Additional
# Students	160	160	160
# Instructors (PI & AI)	26	26	26
# Hours	Total hrs = 8.25 45 min video classrm 7.5 hours on range	Total hrs = 8.25 45 min video classrm 7.5 hours on range	Total hrs = 8.25 45 min video classrm 7.5 hours on range
Total ammunition	2880 rds	2880 rds	2880 rds
25m zero paper targets	1 per student = 160	1 per student = 160	1 per student = 160
Boresight kit w/ boresight target	1 per 10 students = 16	1 per 10 students = 16	1 per 10 students = 16
Alt 4 – Team leaders	<i>TL already proficient as a private/unit in Alternative 4.</i>		
Alt 3 – Team leaders			
Functional Course			
# Hours	All additional Total hrs = 8.25 45 min video classrm 7.5 hours on range	All Additional Total hrs = 8.25 45 min video classrm 7.5 hours on range	All Additional Total hrs = 8.25 45 min video classrm 7.5 hours on range
# Students	160	160	160
# Instructors (PI & AI)	32	32	32
Total ammunition	2880 rds	2880 rds	2880 rds
# M4 Carbine	160	160	160
25m zero paper targets	1 / student = 160	1 / student = 160	1 / student = 160
Boresight kit w/ boresight target	1 / 10 students = 16	1 / 10 students = 16	1 / 10 students = 16
Infantry OSUT: Alt 4 – LW to All			
Integration into course	All additional	All additional	All additional
# Hours	Total hrs = 9.25 45 min video classrm 8.5 hrs on range	Total hrs = 9.25 45 min video classrm 8.5 hrs on range	Total hrs = 9.25 45 min video classrm 8.5 hrs on range
# Students	200	200	200
# Instructors (PI & AI)	12	12	12
Total ammunition	3600 rds	3600 rds	3600 rds

SHOOT	Low Expertise	Medium Expertise	High Expertise
Tasks/Skills taught	Boresight and Zero the Daylight Video Sight (DVS) [Task 071-800-16LW – Boresight the Davlight Video Sight, and Task 071-800-19LW – Zero the Daylight Video Sight]		
25m zero paper targets	1 / student = 200	1 / student = 200	1 / student = 200
Boresight kit w/ boresight target	1 / 10 students = 20	1 / 10 students = 20	1 / 10 students = 20

SHOOT

ENGAGE TARGETS FROM A REDUCED EXPOSURE POSITION WITH THE DVS [Task 071-800-22LW, Engage Targets with Weapon using a Daylight Video Sight]

LW Prerequisites

- 071-800-01LW Assemble the Land Warrior Helmet Subsystem
- 071-800-02LW Assemble the Land Warrior Body Subsystem
- 071-800-03LW Assemble the Land Warrior Weapon Subsystem
- 071-800-04LW Don the Land Warrior System
- 071-800-05LW Power On the Land Warrior System
- 071-800-06LW Log On to the Land Warrior System
- 071-800-07LW Load Mission Data Packages on the Land Warrior System
- 071-800-08LW Configure the Land Warrior System for Operation
- 071-800-10LW Operate the Land Warrior Map Functions
- 071-800-09LW Configure the Land Warrior Navigation Subsystem

Other Prerequisites:

- Qualified on M4 carbine/personal weapon
- Can operate the Thermal Weapon Sight (TWS) and obtain a good sight picture.
- Individuals completed the DVS boresighting section of the IMI

Assumptions:

- Assume if Soldiers have been trained on the TWS and on reduced exposure firing positions with the Daylight Video Sight (DVS), they can transfer these skills to firing the TWS from reduced exposure positions.
- Assume the critical firing skill with the DVS is firing from a reduced exposure position.
- 1 LW system with 2 rechargeable batteries and M4 carbine per Soldier.
- During live-fire, fire every other lane for purposes of safety, if possible.

Data Sources:

- Dyer, J. L., Beal, S., Salvetti, J., Vaughan, A., & D'Errico, J. (2004). *Land Warrior reduced exposure firing trials* (Special Report to PM-LW and TSM-S). Ft. Benning, GA: Infantry Forces Research Unit, U.S. Army Research Institute for the Behavioral and Social Sciences.
- Foster, T. (2004, 14 May). *System training plan (STRAP) for the Ground Soldier system* (Land Warrior Block III, version 5.4). Ft. Benning, GA: Systems Division, G-3, U.S. Army Infantry School.
- Interviews with LW SMEs
- Dyer, J. L., & Wampler, R. L. (2002, June). *Observations of the Land Warrior Tester Trainer Course #1 Conducted Prior to Safety Testing*. Fort Benning, GA: U.S. Army Research Institute for the Behavioral and Social Sciences, Infantry Forces Research Unit.
- Dyer, J. L., & Wampler, R. L. (2002, December). *Observations of the Land Warrior Tester Trainer Course #3 Conducted Prior to Reliability Growth Phase I*. Fort Benning, GA: U.S. Army Research Institute for the Behavioral and Social Sciences, Infantry Forces Research Unit.

SHOOT	Low Expertise	Medium Expertise	High Expertise
Tasks/Skills taught	Engage targets from reduced exposure position with the DVS [Task 071-800-22LW, Engage Targets with Weapon using a Daylight Video Sight]		
Description of Training	<ul style="list-style-type: none"> • Instruction on assuming defensive type reduced exposure position • Dry fire target acquisition exercise • Live-fire KD exercise (20 rounds) 	<ul style="list-style-type: none"> • Same as low proficiency <p>PLUS</p> <ul style="list-style-type: none"> • 2 Live-fire pop-up (field fire) exercise (extended and standard exposure times) – 20 targets each 	<ul style="list-style-type: none"> • Same as medium proficiency <p>PLUS</p> <ul style="list-style-type: none"> • Instructions on using sling for assault position • 1 live-fire field fire scenario with 20 targets - Fire with sling
Recommended Expertise Level: High Time varies with number of Soldiers in course			
Common Resources			
Firing Ranges # and type [A LOMAH (location of miss and hit) range, if available, works the best because it has zeroing, KD and FF capabilities plus hit and miss feedback.]	KD Range. Firers in every other lane	Range w/ FF and KD Capability. Firers in every other lane	Range w/ FF and KD Capability. Firers in every other lane
# Range Safety Personnel	1	1	1
# Medics	1	1	1
# LW systems/student	1 LW system per student	1 LW system per student	1 LW system per student
Sound system	Sound system on the range	Sound system on the range	Sound system on the range
Power Supply	On the Range	On the Range	On the Range
Ammunition (5.56)	20 rds/Student for KD	20 rds/student for KD 20 rds/student for FF1 20 rds/student for FF2	20 rds/Student for KD 20 rds/student for FF1 20 rds/student for FF2 20 rds for assault fire
Other	Sandbags and other barricade material (5 sandbags per firing psn)	Sandbags and other barricade material (5 sandbags per firing psn)	Sandbags and other barricade material (5 sandbags per firing psn) plus barricade for assault psn 1 sling per Soldier
Functional Courses: Stage A			

SHOOT	Low Expertise	Medium Expertise	High Expertise
Tasks/Skills taught	Engage targets from reduced exposure position with the DVS [Task 071-800-22LW, Engage Targets with Weapon using a Daylight Video Sight]		
Functional Course: Alt 4 - LW to All			
# Hours	4.5 hrs on range	6.5 hrs on range	9.75 hrs on range
# Students	105	105	105
# Instructors (PI & AI)	21	21	21
# M4 carbine	105	105	105
Total ammunition	2,100 rds	6,300 rds	8,400 rds
Functional Course: Alt 3 - LW to TL			
# Hours	2.75 hrs on range	3.75 hrs on range	5 hrs on range
# Students	45	45	45
# Instructors (PI & AI)	9	9	0
# M4 carbine	45	45	45
Total ammunition	900 rds	2700 rds	3600 rds
Functional Course: Alt 2 - LW to SL			
# Hours	2.5 hrs on range	3 hrs on range	4.75 hrs on range
# Students	30	30	30
# Instructors (PI & AI)	6	6	6
# M4 carbine	30	30	30
Total ammunition	600 rds	1800 rds	2400 rds
Professional Development Courses and IET: Stage B			
BOLC III Infantry Alt 4 - LW to All Alt 3 - LW to TL Alt 2 - LW to SL			
Integration into Course	All Additional	All Additional	All Additional
# Hours	5.75 hrs on range	9 hrs on range	13.75 hrs on range
# Students	160	160	160
# Instructors (PI & AI)	30	30	30
Total ammunition	3200 rds	9,600 rds	12,800 rds
ANCOC: Alt 4 - LW to All Alt 3 - LW to TL Alt 2 - LW to SL	<i>Not train this task under any LW alternative. PLT SGT already proficient as a private/unit in LW Alternative 4 or as NCO in LW Alternatives 2 and 3</i>		
BNCOC: Alt 4 - LW to All Alt 3 - LW to TL	<i>SL already proficient as a private/unit in LW Alternative 4 or as NCO in LW Alternative 3</i>		
BNCOC: Alt 2 - LW to SL			

SHOOT	Low Expertise	Medium Expertise	High Expertise
Tasks/Skills taught	Engage targets from reduced exposure position with the DVS [Task 071-800-22LW, Engage Targets with Weapon using a Daylight Video Sight]		
Integration into Course	All Additional	All Additional	All Additional
# Hours	5.75 hrs on range	9 hrs on range	13.75 hrs on range
# Students	160	160	160
# Instructors (PI & AI)	26	26	26
Total ammunition	3200 rds	9,600 rds	12,800 rds
Alt 4 – Team leaders	<i>Not train this task under LW Alternative 4 – TL already proficient as a private/unit in Alternative 4 (assuming Medium Expertise)</i>		
Alt 3 – Team leaders			
Functional Course			
Integration into Course	All Additional	All Additional	All Additional
# Hours	5.75 hrs on range	9 hrs on range	13.75 hrs on range
# Students	160	160	160
# Instructors (PI & AI)	32	32	32
# M4 Carbine	160	160	160
Total ammunition	3200 rds	9,600 rds	12,800 rds
Infantry OSUT:			
Alt 4 – LW to All			
Integration into Course	All Additional	All Additional	All Additional
# Hours	7 hrs on range	11 hrs on range	16.25 hrs on range
# Students	200	200	200
# Instructors (PI & AI)	12	12	12
Total ammunition	4,000 rds	12,000 rds	16,000 rds

SHOOT

OPERATE THE MFL (Leaders only) [Task 071-800-14LW, Operate the MFL]

LW Prerequisites:

- Leaders completed the MFL section of the IMI prior to training.

Other Prerequisites:

- NCOs have prior experience in boresighting, zeroing, and engaging targets with an IR aiming light such as the AN-PAC-4C or the AN/PEQ-2A using night vision goggles (NVGs).

Assumptions:

- Assume NCOs have prior experience in boresighting, zeroing, and engaging targets with an IR aiming light such as the AN-PAC-4C or the AN/PEQ-2A using night vision goggles (NVGs). Assume graduates of BOLC III IN have similar experience.

Data Sources:

- Dyer, J. L., & Wampler, R. L. (2002, December). *Observations of the Land Warrior Tester Trainer Course #3 Conducted Prior to Reliability Growth Phase I*. Fort Benning, GA: U.S. Army Research Institute for the Behavioral and Social Sciences, Infantry Forces Research Unit.
- Wampler, R. L., Beal, S. A., & Dyer, J. L. (2003, April). *Observations of the Land Warrior Tester Training Course #1A conducted during Safety Training*. Fort Benning, GA: U.S. Army Research Institute for the Behavioral and Social Sciences, Infantry Forces Research Unit
- Personal observations of LW v1.0 training on calibration of MFL.
- Interviews with LW subject matter experts

SHOOT	Low Expertise	Medium Expertise	High Expertise
Tasks/Skills taught	Operate the MFL [Task 071-800-14LW]		
Description of Training	<ul style="list-style-type: none"> • Instruction on components and controls • Mount the MFL to weapon • Use WUID to activate MFL functions • Demonstration of calibration techniques • Calibrate MFL to within required degree of accuracy • PE on mounting and operations • PE on calibration 	<ul style="list-style-type: none"> • Same low expertise 	<ul style="list-style-type: none"> • Same as low expertise <li style="text-align: center; padding: 5px 0;">PLUS • Instruction on using MFL to range to targets to generate grid coordinates in tactical messages (CFF and Spot Report) • PE on lasing to targets

SHOOT	Low Expertise	Medium Expertise	High Expertise
Tasks/Skills taught	Operate the MFL [Task 071-800-14LW]		
	(Observations of MFL training have shown that calibrating it to the required degree of accuracy is difficult and is not accomplished on the first attempt. This task difficulty accounts in great part of the training time estimated for this task)		
Recommended Expertise Level: High			
6 hours. [Note. Assume skills under "high" level can be incorporated in the 6-hour block of training, and 6 hours allocated for medium level.]			
Common Resources			
# Hours	6 hrs	6 hrs	8 hrs
# LW systems/student	1 LW system with MFL per student	1 LW system with MFL per student	1 LW system with MFL per student
Classroom with computer projection system	Yes	Yes	Yes
Chalk/white board	Yes	Yes	Yes
Training Area for calibration	Yes	Yes	Yes
Training Area with targets at known distances	NA	NA	Yes
Functional Courses: Stage A			
Functional Course for Leaders: Alt 4 - LW to All			
# Students	45	45	45
# Instructors (PI and AI)	21	21	21
# Hours	6 hrs	6 hrs	8 hrs
# M4 carbine with MFL	45	45	45
Desks/Tables/Chairs	45/1/45	45/1/45	45/1/45
Functional Course for Leaders: Alt 3 - LW to TL			
# Students	45	45	45
# Instructors (PI and AI)	9	9	9
# Hours	6 hrs	6 hrs	8 hrs
# M4 carbine with MFL	45	45	45
Desks/Tables/Chairs	45/1/45	45/1/45	45/1/45

SHOOT	Low Expertise	Medium Expertise	High Expertise
Tasks/Skills taught	Operate the MFL [Task 071-800-14LW]		
Functional Course for Leaders: Alt 2 – LW to SL			
# Students	30	30	30
# Instructors (PI & AI)	6	6	6
# Hours	6 hrs	6 hrs	8 hrs
# M4 carbine w	30	30	30
Desks/Tables/Chairs	30/1/30	30/1/30	30/1/30
Professional Development Courses and IET: Stage B			
BOLC III Infantry Alt 4 – LW to All Alt 3 – LW to TL Alt 2 – LW to SL			
Integration into Course	All Additional	All Additional	All Additional
# Students	160	160	160
# Instructors (PI & AI)	30	30	30
# Hours	6 hrs	6 hrs	8 hrs
# M4 carbine with MFL	160	160	60
Desks/Tables/Chairs	160/1/160	160/1/160	160/1/160
ANCOC: Alt 4 – LW to All Alt 3 – LW to TL Alt 2 – LW to SL	<i>Not train this task under any LW alternative. PSGT already proficient as NCO in Alternatives 2, 3, and 4</i>		
BNCOC: Alt 4 – LW to All Alt 3 – LW to TL	<i>SL already proficient as a Team leader in Functional course for Leaders in Alternatives 3 and 4.</i>		
BNCOC: Alt 2 – LW to SL			
Integration into Course	All Additional	All Additional	All Additional
# Students	160	160	160
# Instructors (PI & AI)	26	26	26
# Hours	6 hrs	6 hrs	8 hrs
M4 carbine with MFL	160	160	60
Desks/Tables/Chairs	160/1/160	160/1/160	160/1/160
Training Area for calibration	Yes	Yes	Yes
Training Area with targets at known distances	NA	NA	Yes
Alt 4 – Team leaders Functional Course for Leader Training			
Integration into Course	All Additional	All Additional	All Additional
# Students	160	160	160

SHOOT	Low Expertise	Medium Expertise	High Expertise
Tasks/Skills taught	Operate the MFL [Task 071-800-14LW]		
# Instructors (PI & AI)	26	26	26
# Hours	6 hrs	6 hrs	8 hrs
M4 carbine with MFL	160	160	60
Desks/Tables/Chairs	160/1/160	160/1/160	160/1/160
Training Area for calibration	Yes	Yes	Yes
Training Area with targets at known distances	NA	NA	Yes
Alt 3 – Team leaders Functional Operator and Leader Course Leader Course only for MFL			
Integration into Course	All Additional	All Additional	All Additional
# Students	160	160	160
# Instructors (PI & AI)	26	26	26
# Hours	6 hrs	6 hrs	8 hrs
M4 carbine with MFL	160	160	60
Desks/Tables/Chairs	160/1/160	160/1/160	160/1/160
Training Area for calibration	Yes	Yes	Yes
Training Area with targets at known distances	NA	NA	Yes
Infantry OSUT: Alt 4 – LW to All	No training for OSUT Soldiers on the MFL; leader task only under the study alternatives.		

SHOOT

BORESIGHT AND ZERO THE MFL ENGAGE TARGETS WITH THE MFL

[Task 071-800-18LW, Boresight the Multifunction Laser]

[Task 071-800-21LW, Zero the Multifunction Laser]

[Task 071-800-24LW, Engage targets with weapon using Multifunction Laser]

(Leaders only)

Additional LW Prerequisite Skills for MFL

- Operate the MFL
- Leaders completed the MFL section of the IMI prior to training.

Additional Assumptions for MFL

- NCOs have had prior experience boresighting, zeroing, and shooting with aiming lights such as the AN/PAQ-4C and AN/PEQ-2A using night vision goggles (NVGs). Therefore, with regard to shooting at night with the MFL's aiming light, NCOs only need instruction on differences in the boresighting procedures and boresight target associated with the MFL, as they have already acquired basic boresighting, zeroing, target acquisition, and firing skills. No Practical Exercises (PEs) or live-fire exercises are necessary.
- Lieutenants who have graduated from BOLC III Infantry will also have had prior experience with boresight procedures and boresight target, aiming lights, NVGs. Therefore, they will only need instruction on the boresighting procedures in the Functional Courses in Stage A. No PEs or live-fire exercises are necessary.
- For the Lieutenants in Stage B who are in the BOLC III Course, the MFL boresighting, zeroing, and engage target (live-fire) tasks will replace the current parallel marksmanship tasks associated with fielded IR aiming lights (e.g., AN/PAC-4C, AN/PEQ-2A). There will be no associated increase in training resources, ammunition, or time.
- Assume prior experience with firing aiming lights is similar to the 40-target scenario specified for aiming lights and NVGs per the marksmanship FM 3-22.9 (FM 23-9).

References:

- Department of the Army. (2003, April). *Rifle marksmanship M16A1, M16A2/3, M16A4 and M4 Carbine* (FM 3-22.9). Washington, DC: Author.

SHOOT	Low Expertise	Medium Expertise	High Expertise
Tasks/Skills taught	Boresight and zero the MFL [Task 071-800-18LW, Boresight the Multifunction Laser, and Task 071-800-21LW, Zero the Multifunction Laser] Engage targets with MFL [Task 071-800-24LW, Engage targets with weapon using Multifunction Laser] --- BOLC III IN only		
Description of Training	<ul style="list-style-type: none"> • Instructions on how to select appropriate laser for boresighting and zeroing 	<ul style="list-style-type: none"> • Same low expertise 	<ul style="list-style-type: none"> • Same as low expertise

SHOOT	Low Expertise	Medium Expertise	High Expertise
Tasks/Skills taught	Boresight and zero the MFL [Task 071-800-18LW, Boresight the Multifunction Laser, and Task 071-800-21LW, Zero the Multifunction Laser] Engage targets with MFL [Task 071-800-24LW, Engage targets with weapon using Multifunction Laser] --- BOLC III IN only		
	<ul style="list-style-type: none"> • Instructions on boresight target and other boresighting procedures. 		
Recommended Expertise Level: Low = Medium = High .25 hours, except where tasks are integrated within BOLC III IN, and no additional hours are required.			
Common Resources			
Boresight Target	1 per 5 students	1 per 5 students	1 per 5 students
# LW Systems/student	1 LW system with MFL per student	1 LW system with MFL per student	1 LW system with MFL per student
Classroom with overhead projection systems and desks/chairs for students	(optional)	(optional)	(optional)
Functional Courses: Stage A			
Functional Course for Leaders: Alt 4 - LW to All	Instructions on MFL boresight target. Assume prior experience with other aiming lights – boresighting, zeroing and engaging targets.		
# Hours	.25 hrs	.25 hrs	.25 hrs
# Students	45	45	45
# Instructors (PI and AI)	21	21	21
# LW systems w/M4 carbine and MFL	45	45	45
# Boresight targets	9	9	9
Functional Course for Leaders: Alt 3 – LW to TL	Instructions on MFL boresight target. Assume prior experience with other aiming lights – boresighting, zeroing and engaging targets		
# Hours	.25 hrs	.25 hrs	.25 hrs
# Students	45	45	45
# Instructors (PI and AI)	9	9	9
# LW systems w/ M4 carbine and MFL	45	45	45
# Boresight targets	9	9	9
Functional Course for Leaders: Alt 2 – LW to SL	Instructions on MFL boresight target. Assume prior experience with other aiming lights – boresighting, zeroing and engaging targets		
# Hours	.25 hrs	.25 hrs	.25 hrs
# Students	30	30	30
# Instructors (PI & AI)	6	6	6
# LW systems w/M4 carbine and MFL	30	30	30

SHOOT	Low Expertise	Medium Expertise	High Expertise
Tasks/Skills taught	Boresight and zero the MFL [Task 071-800-18LW, Boresight the Multifunction Laser, and Task 071-800-21LW, Zero the Multifunction Laser] Engage targets with MFL [Task 071-800-24LW, Engage targets with weapon using Multifunction Laser] --- BOLC III IN only		
# Boresight targets	6	6	6
Professional Development Courses and IET: Stage B			
BOLC III Infantry Alt 4 – LW to All Alt 3 – LW to TL Alt 2 – LW to SL	[Boresighting and zeroing the MFL, plus engaging targets with the MFL will replace current training on other IR aiming lights. No additional hours or resources are required.]		
Integration into Course	Replace current training w/ aiming lights	Replace current training w/ aiming lights	Replace current training w/ aiming lights
# Students	160	160	160
# Instructors (PI & AI)	30	30	30
# Hours	No change	No change	No change
# LW systems w/ M4 carbine and MFL	160	160	60
ANCOC: Alt 4 – LW to All Alt 3 – LW to TL Alt 2 – LW to SL	<i>Not train this task under any LW Alternative. PSGT already proficient as NCO in Alternatives 2, 3, and 4</i>		
BNCOC: Alt 4 – LW to All Alt 3 – LW to TL	<i>SL already proficient as a team leader in Functional course for Leaders in Alternatives 3 and 4.</i>		
BNCOC: Alt 2 – LW to SL	Instructions on MFL boresight target. Assume prior experience with other aiming lights – boresighting, zeroing and engaging targets		
Integration into Course	All Additional	All Additional	All Additional
# Hours	.25 hrs	.25 hrs	.25 hrs
# Students	160	160	160
# Instructors (PI & AI)	26	26	26
# LW systems w/M4 carbine and MFL	160	160	60
# Boresight targets	32	32	32
Alt 4 – Team leaders Functional Course for Leader Training	Instructions on MFL boresight target. Assume prior experience with other aiming lights – boresighting, zeroing and engaging targets		
Integration into Course	All Additional	All Additional	All Additional
# Hours	.25 hrs	.25 hrs	.25 hrs
# Students	160	160	160
# Instructors (PI & AI)	26	26	26
# LW systems w/M4 carbine and MFL	160	160	60
# Boresight targets	32	32	32

SHOOT	Low Expertise	Medium Expertise	High Expertise
Tasks/Skills taught	Boresight and zero the MFL [Task 071-800-18LW, Boresight the Multifunction Laser, and Task 071-800-21LW, Zero the Multifunction Laser] Engage targets with MFL [Task 071-800-24LW, Engage targets with weapon using Multifunction Laser] -- BOLC III IN only		
Alt 3 – Team leaders Functional Operator and Leader Course Leader Course only for MFL	Instructions on MFL boresight target. Assume prior experience with other aiming lights – boresighting, zeroing and engaging targets		
Integration into Course	All Additional	All Additional	All Additional
# Hours	.25 hrs	.25 hrs	.25 hrs
# Students	160	160	160
# Instructors (PI & AI)	26	26	26
# LW systems w/M4 carbine and MFL	160	160	60
# Boresight targets	32	32	32
Infantry OSUT: Alt 4 – LW to All	No training for OSUT Soldiers on the MFL; leader task only under the study alternatives.		

Functional Area: Plan

Prepare/Issue Combat Orders using the Land Warrior System

Prepare Overlays using the Land Warrior System

PLAN

Prepare/Issue Combat Orders Using the Land Warrior System (Leader Task)

[Prepare Combat Orders Using the Land Warrior System, Task 071-326-03LW]

[Issue Combat Orders Using the Land Warrior System, Task 071-326-04LW]

LW Prerequisite Skills

- Completed Orders section of the LW IMI
- 071-800-01LW Assemble the Land Warrior Helmet Subsystem
- 071-800-02LW Assemble the Land Warrior Body Subsystem
- 071-800-03LW Assemble the Land Warrior Weapon Subsystem
- 071-800-04LW Don the Land Warrior System
- 071-800-05LW Power On the Land Warrior System
- 071-800-06LW Log On to the Land Warrior System
- 071-800-07LW Load Mission Data Packages on the Land Warrior System
- 071-800-08LW Configure the Land Warrior System for Operation
- 071-800-10LW Operate the Land Warrior Map Functions
- 071-800-09LW Configure the Land Warrior Navigation Subsystem

Additional Prerequisite Skills:

- Each leader is proficient in the following Common Core Tasks commensurate with his grade: (1) Task # 071-326-5502 Issue a Fragmentary Order and 071-326-5503 Issue a Warning Order (Skill Level 2) IAW Soldier Training Publication (STP) 21-24-SMCT Soldier's Manual Of Common Tasks Skill Levels 2, 3, and 4, DA, dated 31 August 2003.
- PLDC (Primary Leadership Development Course) continues instruction on Task # W222 Combat Orders that provides 4 hours of basic instruction on troop-leading procedures, pre-combat checks, and the three types of combat orders (operation order [OPORD], warning order [WARNO], and fragmentary order [FRAGO]), negating prerequisite training on basic combat order content and format.
- Squad leaders and team leaders may need additional training on preparation of orders prior to training on the LW software interface.

Assumptions:

- Each leader will be equipped with a leader LW ensemble and Handheld Device (HHD).
- Each instructor will be equipped with a leader LW ensemble with HHD, capable of being linked to an overhead projector system.
- Since the proposed software interface for the LW-SI orders tools is unknown, any replacement gain hours for crossover skill training for Force XXI Battle Command Brigade and Below (FBCB2) (BOLC III and BNCOC) is also unknown.

Data Sources:

- USAIC NCO Academy. (2004, March). *Primary Leadership Development Course (PLDC) Student Guide*. Fort Benning, GA: United States Army Infantry Center, Henry Caro NCO Academy, ATZB-NC-NP: Author.

- USAIS. (2003, October). *Program of Instruction (POI) for Infantry Officer Basic Course (IOBC)*. Fort Benning, GA: United States Army Infantry School ATSH-OTT: Author.
- USAIS. (2003, January). *Program of Instruction for 11B30 Basic Noncommissioned Officer Course (BNCOC)*. Fort Benning, GA: United States Army Infantry School, ATSH-OTT: Author.
- USAIS. (2002, January). *Program of Instruction for 11B40 Advanced Noncommissioned Officer Course (ANCOC)*. Fort Benning, GA: United States Army Infantry School, ATSH-OTT: Author.
- DA. (2003, August). *Soldier's Manual Of Common Tasks Skill Levels 2, 3, and 4 (STP 21-24-SMCT)*. Washington, D.C., HQDA.
- Foster, T. (2004, May). *System training plan (STRAP) for the Ground Soldier system (Land Warrior Block III, version 5.4)*. Ft. Benning, GA: Systems Division, G-3, U.S. Army Infantry School.
- Memorandum (2004, January), *Land Warrior-Stryker Interoperable Command-Approved Critical Task List For Infantrymen MOS 11B, Skill Levels 1 Through 4, at the Platoon Level*.
- Interviews with subject matter experts (SMEs) on 23 July 2004.
- Dyer, J. L., & Salter, R. (2001, December). *Working memory and exploration in training knowledge and skills required of digital systems*. (ARI Research Report 1783). Alexandria, VA: U.S. Army Research Institute for the Behavioral and Social Sciences. DTIC No. AD A399507
- Dyer, J. L., Fober, G. W., Wampler, R., Blankenbeckler, N., Dlubac, M., & Centric, J. (2000, December). *Observations and assessments of Land Warrior Training*. Ft. Benning, GA: Infantry Forces Research Unit, U.S. Army Research Institute
- Dyer, J. L., & Wampler, R. L. (2002, December). *Observations of the Land Warrior Tester Trainer Course #3 Conducted Prior to Reliability Growth Phase I*. Fort Benning, GA: U.S. Army Research Institute for the Behavioral and Social Sciences, Infantry Forces Research Unit.

PLAN	Low Expertise	Medium Expertise	High Expertise
Tasks/Skills Taught	Prepare Combat Orders Using the Land Warrior System, Task 071-326-03LW (Leader Task), and Issue Combat Orders Using the Land Warrior System, Task 071-326-04LW (Leader Task)		
<p>Note: For NCOES training, PLDC provides basic training on format and content all 3 types of orders. Common Core training tasks (Skill Level 2) reinforce format and content training on WARNO and FRAGO. FBCB2 training in BOLC and BNCOC provide some crossover skill training in order formats and content for all three types of combat orders. However, the proposed software interface for the LW-SI orders tools is unknown, making it impossible to gage any replacement gain hours for crossover skill training between FBCB2 and LW.</p> <p>There is no institutional training on combat orders in BNCOC or ANCOC other than FBCB2 training (BNCOC) and MCS-L (ANCOC). The software interfaces for both these systems are different, so the crossover skill training is minimal at best.</p> <p>For officer training, BOLC III receives extensive training on format, content, and preparing combat orders in addition to FBCB2 training. As a result, there is a replacement gain in BOLC III at the medium and high levels of expertise.</p>			
Description of Training	<ul style="list-style-type: none"> • Instruction on three types of orders and associated screen displays 	<ul style="list-style-type: none"> • Same as Low <p>PLUS</p>	<ul style="list-style-type: none"> • Same as Medium

PLAN	Low Expertise	Medium Expertise	High Expertise
Tasks/Skills Taught	Prepare Combat Orders Using the Land Warrior System, Task 071-326-03LW (Leader Task), and Issue Combat Orders Using the Land Warrior System, Task 071-326-04LW (Leader Task)		
	<ul style="list-style-type: none"> • Instruction on creating a mission • PE - Modify higher orders and send message w/WARNO, OPOD, and FRAGO. 	<ul style="list-style-type: none"> • Create a mission from scratch • Create combat orders using higher orders as appropriate. • PE - Prepare combat orders 	
Recommended Expertise Level:			
Low = 4 hours [Assume additional training and practice in tactical exercises.]			
Common Resources			
# Hours of Instruction	4 hrs	7 hrs	7 hrs
LW Ensemble	1 per student 1 per instructor	1 per student 1 per instructor	1 per student 1 per instructor
Sound System	1 per training site	1 per training site	1 per training site
Chalk/Whiteboard	1 per training site	1 per training site	1 per training site
# Overhead Projectors w/video projection link to instructor LW ensemble	1 per training site	1 per training site	1 per training site
# Overhead Screens	1 per training site	1 per training site	1 per training site
Power Supply	1 per training site	1 per training site	1 per training site
LW Batteries (Type and # per student)	2 per student	4 per student (2 recharging)	4 per student (2 recharging)
Functional Courses: Stage A			
Functional Course for Operators: Alt 4 - LW to All	<i>No training required – Leader Task</i>		
Functional Course for Leaders: Alt 4 - LW to All			
# Hours	4 hrs	7 hrs	7 hrs
# Students	45	45	45
# Instructors (PI & AI)	9	9	9
# LW Ensembles	54	54	54
Desks/Tables/Chairs	45/1/45	45/1/45	45/1/45
# LW Batteries	108	216	216
Functional Course for Operators: Alt 3 - LW to TL	<i>No training required – Leader Task</i>		
Functional Course for Leaders: Alt 3 - LW to TL			
# Hours	4 hrs	7 hrs	7 hrs
# Students	45	45	45

PLAN	Low Expertise	Medium Expertise	High Expertise
Tasks/Skills Taught	Prepare Combat Orders Using the Land Warrior System, Task 071-326-03LW (Leader Task), and Issue Combat Orders Using the Land Warrior System, Task 071-326-04LW (Leader Task)		
# Instructors (PI & AI)	9	9	9
# LW Ensembles	54	54	54
Desks/Tables/Chairs	45/1/45	45/1/45	45/1/45
# LW Batteries	108	216	216
Functional Course for Operators: Alt 2 - LW to SL	<i>No training required – Leader Task</i>		
Functional Course for Leaders: Alt 2 - LW to SL			
# Hours	4 hrs	7 hrs	7 hrs
# Students	30	30	30
# Instructors (PI & AI)	6	6	6
# LW Ensembles	36	36	36
Desks/Tables/Chairs	30/1/30	30/1/30	30/1/30
# LW Batteries	72	144	144
Professional Development Courses and IET: Stage B			
BOLC III Infantry Alt 4 – LW to All Alt 3 – LW to TL Alt 2 – LW to SL			
# Hours	Total = 4 hrs (all additional)	Total = 7 hrs Additional = 6 hr Replacement = 1 hr	Total = 7 hrs Additional = 6 hr Replacement = 1hr
# Students	160	160	160
# Instructors (PI & AI)	30	30	30
# LW Ensembles	190	190	190
Desks/Tables/Chairs	160/1/160	160/1/160	160/1/160
# LW Batteries	380	760	760
ANCOC: Alt 4 – LW to All Alt 3 – LW to TL Alt 2 – LW to SL	<i>No training required. PSG trained as Squad Leader (Alternative 2 – BNCOC) and as Team Leader (Alternatives 5 and 6 - Functional Course)</i>		
BNCOC: Alt 4 – LW to All Alt 3 – LW to TL	<i>No training required. SL trained in as team leader (Alternatives 5 and 6 - Functional Course)</i>		
BNCOC: Alt 2 – LW to SL			
# Hours	4 hrs	7 hrs	7 hrs
# Students	160	160	160
# Instructors (PI & AI)	26	26	26
#LW Ensembles	186	186	186
Desks/Tables/Chairs	160/1/160	160/1/160	160/1/160

PLAN	Low Expertise	Medium Expertise	High Expertise
Tasks/Skills Taught	Prepare Combat Orders Using the Land Warrior System, Task 071-326-03LW (Leader Task), and Issue Combat Orders Using the Land Warrior System, Task 071-326-04LW (Leader Task)		
# LW Batteries	372	744	744
Alt 4 – Tm Ldrs Functional Course - Leader Training			
# Hours	4 hrs	7 hrs	7 hrs
# Students	160	160	160
# Instructors (PI & AI)	32	32	32
# LW Ensembles	192	192	192
Desks/Tables/Chairs	160/1/160	160/1/160	160/1/160
# LW Batteries	384	768	768
Alt 3 – Tm Ldrs Functional Course – Operator and Leader Training	<i>Leader Course only</i>		
# Hours	4 hrs	7 hrs	7 hrs
# Students	160	160	160
# Instructors (PI & AI)	32	32	32
# LW Ensembles	192	192	192
Desks/Tables/Chairs	160	160	160
# LW Batteries	384	768	768
Infantry OSUT: Alt 4 – LW to All	<i>No training required – Leader Task</i>		

PLAN

PREPARE OVERLAYS USING THE LAND WARRIOR SYSTEM [071-326-05LW]

LW Prerequisite Skills:

- Completed overlay section on LW IMI
- 071-800-01LW Assemble the Land Warrior Helmet Subsystem
- 071-800-02LW Assemble the Land Warrior Body Subsystem
- 071-800-03LW Assemble the Land Warrior Weapon Subsystem
- 071-800-04LW Don the Land Warrior System
- 071-800-05LW Power On the Land Warrior System
- 071-800-06LW Log On to the Land Warrior System
- 071-800-07LW Load Mission Data Packages on the Land Warrior System
- 071-800-08LW Configure the Land Warrior System for Operation
- 071-800-10LW Operate the Land Warrior Map Functions
- 071-800-09LW Configure the Land Warrior Navigation Subsystem
- Use/View Land Warrior Overlays

Additional Prerequisite Skills:

- Each leader must be proficient in the following Common Core Tasks commensurate with his grade:
 - (1) Task # 071-329-1019 Use a Map Overlay (knowledge of basic military symbols) (Skill Level 2);
 - (2) Task # 071-332-5000 Prepare an Operation Overlay (Skill Level 3); and
 - (3) Task # 071-332-5021 Prepare a Situation Map (Skill Level 3)
 - IAW Soldier Training Publication (STP) 21-24-SMCT Soldier's Manual of Common Tasks Skill Levels 2, 3, and 4, DA, dated 31 August 2003.
- Additional training in basic military symbols will be required for squad leaders and team leaders IAW FM 1-2 (101-5-1) Operational Terms and Graphics.

Assumptions:

- Each leader will be equipped with a leader LW ensemble and handheld display (HHD).
- Each instructor will be equipped with a leader LW ensemble and HHD, and be able to link to an overhead projection system.
- ANCO continues to provide 10 hours of instruction on Task # NGEF28 Identify Operational Graphics (Identify Operational Terms, Acronyms, and Abbreviations, Identify Graphic Control Measures, Identify Basic Unit/CSS Symbols, Identify Equipment Symbols, and Construct an Overlay) IAW FM 101-5-1 Operational Terms and Graphics.
- Since the software interface for the LW-SI graphic tools is unknown, any replacement gain hours for crossover skill training for FBCB2 (BOLC III and BNCOC) is also unknown.

Data Sources:

- DA (2003, August) STP 21-24-SMCT *Soldier's Manual Of Common Tasks Skill Levels 2, 3, and 4*. Washington, D.C., HQDA.
- USAIC NCO Academy. (2004, March). *Primary Leadership Development Course (PLDC) Student Guide*. Fort Benning, GA: United States Army Infantry Center, Henry Caro NCO Academy, ATZB-NC-NP: Author.

- USAIS. (2003, October). *Program of Instruction (POI) for Infantry Officer Basic Course (IOBC)*. Fort Benning, GA: United States Army Infantry School ATSH-OTT: Author.
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- Foster, T. (2004, May). *System training plan (STRAP) for the Ground Soldier system (Land Warrior Block III, version 5.4)*. Ft. Benning, GA: Systems Division, G-3, U.S. Army Infantry School.
- Memorandum (2004, January), *Land Warrior-Stryker Interoperable Command-Approved Critical Task List For Infantrymen MOS 11B, Skill Levels 1 Through 4, at the Platoon Level*.
- Interviews with LW subject matter experts (SMEs) on July 23, 2004.
- Dyer, J. L., & Salter, R. (2001, December). *Working memory and exploration in training knowledge and skills required of digital systems*. (ARI Research Report 1783). Alexandria, VA: U.S. Army Research Institute for the Behavioral and Social Sciences. DTIC No. AD A399 507
- Dyer, J. L., Fober, G. W., Wampler, R., Blankenbeckler, N., Dlubac, M., & Centric, J. (2000, December). *Observations and assessments of Land Warrior Training*. Ft. Benning, GA: Infantry Forces Research Unit, U.S. Army Research Institute.
- Dyer, J. L., & Wampler, R. L. (2002, June). *Observations of the Land Warrior Tester Trainer Course #1 Conducted Prior to Safety Testing*. Fort Benning, GA: U.S. Army Research Institute for the Behavioral and Social Sciences, Infantry Forces Research Unit.
- Dyer, J. L., & Wampler, R. L. (2002, December). *Observations of the Land Warrior Tester Trainer Course #3 Conducted Prior to Reliability Growth Phase I*. Fort Benning, GA: U.S. Army Research Institute for the Behavioral and Social Sciences, Infantry Forces Research Unit.

PLAN	Low Expertise	Medium Expertise	High Expertise
Tasks/Skills Taught	Prepare Overlays Using the Land Warrior System Task 071-326-05LW (Leader Task)		
Note: In BNCOC and functional courses, all training is considered <i>new training</i> and does <i>not</i> replace existing training. BOLC III and ANCOC receive training on use of basic military symbols. As a result, there is a slight replacement gain in BOLC III at the medium and high levels of expertise.			
Description of Training	<ul style="list-style-type: none"> • Instruction on symbol menus and location of common tactical symbols • Instruction on types of overlays (7) • Selection of overlays to display on map • Use of drawing tools to place common single and multipoint symbols on overlay • Edit symbols/graphics 	<ul style="list-style-type: none"> • Same as low PLUS <ul style="list-style-type: none"> • Instruction on additional symbols and the symbol menus • PE - Prepare 2 different types of overlays from scratch (using single and multipoint symbols) and send as a message 	<ul style="list-style-type: none"> • Same as medium

PLAN	Low Expertise	Medium Expertise	High Expertise
Tasks/Skills Taught	Prepare Overlays Using the Land Warrior System Task 071-326-05LW (Leader Task)		
	<ul style="list-style-type: none"> PE - modify overlay from higher and send as a message 		
Recommended Expertise Level:			
Low = 4 hours [Assume additional training and practice in tactical exercises.]			
Common Resources			
# Hours of Instruction	4 hrs	7 hrs	7 hrs
LW Ensembles	1 per student 1 per instructor	1 per student 1 per instructor	1 per student 1 per instructor
Sound System	1 per training site	1 per training site	1 per training site
Chalk/Whiteboard	1 per training site	1 per training site	1 per training site
# Overhead Projectors w/video projection link to instructor LW ensemble	1 per training site	1 per training site	1 per training site
# Overhead Screens	1 per training site	1 per training site	1 per training site
Power Supply	1 per training site	1 per training site	1 per training site
Batteries (Type and # per student)	2 per student	4 per student (2 recharging)	4 per student (2 recharging)
Functional Courses: Stage A			
Functional Course for Operators: Alt 4 - LW to All	<i>No training required - Leader Task</i>		
Functional Course for Leaders: Alt 4 - LW to All			
# Hours	4 hrs	7 hrs	7 hrs
# Students	45	45	45
# Instructors (PI & AI)	9	9	9
# LW Ensembles	54	54	54
Desks/Tables/Chairs	45/1/45	45/1/45	45/1/45
# Batteries	108	216	216
Functional Course for Operators: Alt 3 - LW to TL	<i>No training required - Leader Task</i>		
Functional Course for Leaders: Alt 3 - LW to TL			
# Hours	4 hrs	7 hrs	7 hrs
# Students	45	45	45
# Instructors (PI & AI)	9	9	9

PLAN	Low Expertise	Medium Expertise	High Expertise
Tasks/Skills Taught	Prepare Overlays Using the Land Warrior System Task 071-326-05LW (Leader Task)		
# LW Ensembles	54	54	54
Desks/Tables/Chairs	45/1/45	45/1/45	45/1/45
# Batteries	108	216	216
Functional Course for Operators: Alt 2 - LW to SL	<i>No training required – Leader Task</i>		
Functional Course for Leaders: Alt 2 - LW to SL			
# Hours	4 hrs	7 hrs	7 hrs
# Students	30	30	30
# Instructors (PI & AI)	6	6	6
# LW Ensembles	36	36	36
Desks/Tables/Chairs	30/1/30	30/1/30	30/1/30
# Batteries	72	144	144
Professional Development Courses and IET: Stage B			
BOLC III Infantry Alt 4 – LW to All Alt 3 – LW to TL Alt 2 – LW to SL			
# Hours	Total = 4 hrs (All additional)	Total = 7 hrs Additional = 6 hrs Replacement = 1 hr	Total = 7 hrs Additional = 6 hrs Replacement = 1 hr
# Students	160	160	160
# Instructors (PI & AI)	30	30	30
# LW Ensembles	160	160	160
Desks/Tables/Chairs	160/1/160	160/1/160	160/1/160
# Batteries	380	760	760
ANCOC: Alt 4 – LW to All Alt 3 – LW to TL Alt 2 – LW to SL	<i>No training required. PSG trained as Squad Leader (Alternative 2 – BNCOC) and as Team Leader (Alternatives 3 and 46 - Functional Course)</i>		
BNCOC: Alt 4 – LW to All Alt 3 – LW to TL	<i>No training required. SL trained as Team Leader (Alternatives 3 and 4 - Functional Course)</i>		
BNCOC: Alt 2 – LW to AL			
# Hours	4 hrs	7 hrs	7 hrs
# Students	160	160	160
# Instructors (PI & AI)	26	26	26
# LW Ensembles	186	186	186
Desks/Tables/Chairs	160/1/160	160/1/160	160/1/160
# Batteries	372	744	744

PLAN	Low Expertise	Medium Expertise	High Expertise
Tasks/Skills Taught	Prepare Overlays Using the Land Warrior System Task 071-326-05LW (Leader Task)		
Alt 4 – Tm Ldrs Functional Course for Leader Training			
# Hours	4 hrs	7 hrs	7 hrs
# Students	160	160	160
# Instructors (PI & AI)	32	32	32
# LW Ensembles	192	192	192
Desks/Tables/Chairs	160/1/160	160/1/160	160/1/160
# Batteries	384	768	768
Alt 3 – Tm Ldrs Functional Courses – Operator and Leader Training	<i>Leader Course only</i>		
# Hours	4 hrs	7 hrs	7 hrs
# Students	160	160	160
# Instructors (PI & AI)	32	32	32
# LW Ensembles	192	192	192
Desks/Tables/Chairs	160/1/160	160/1/160	160/1/160
# Batteries	384	768	768
Infantry OSUT: Alt 4 – LW to All	<i>No training required – Leader Task</i>		

FUNCTIONAL AREA: TACTICAL EMPLOYMENT

PRACTICAL EXERCISE ON TACTICAL EMPLOYMENT OF LW CAPABILITIES

(Leader Task)
(No task number)

LW Prerequisite Skills

- 071-800-01LW Assemble the Land Warrior Helmet Subsystem
- 071-800-02LW Assemble the Land Warrior Body Subsystem
- 071-800-03LW Assemble the Land Warrior Weapon Subsystem
- 071-800-04LW Don the Land Warrior System
- 071-800-05LW Power On the Land Warrior System
- 071-800-06LW Log On to the Land Warrior System
- 071-800-07LW Load Mission Data Packages on the Land Warrior System
- 071-800-08LW Configure the Land Warrior System for Operation
- 071-800-09LW Configure the Land Warrior Navigation Subsystem
- 071-800-10LW Operate the Land Warrior Map Functions
- 071-800-11LW Perform Digital Messaging Functions
- 071-800-12LW Perform Digital Imaging Functions
- 071-800-13LW Perform Voice Communications using the LW System
- 071-800-14LW Operate the Multifunction Laser
- 071-800-15LW Zeroize the Land Warrior System
- 071-800-16LW Boresight the Daylight Video Sight
- 071-800-17LW Boresight the Thermal Weapon Sight (TWS)
- 071-800-18LW Boresight the Multifunction Laser
- 071-800-19LW Zero the Daylight Video Sight
- 071-800-20LW Zero the Thermal Weapon Sight
- 071-800-21LW Zero the Multifunction Laser
- 071-800-22LW Engage Targets with Weapon Using a Daylight Video Sight
- 071-800-23LW Engage Targets with Weapon Using a TWS
- 071-800-24LW Engage Targets with Weapon Using a Multifunction Laser
- 071-800-26LW Operate the Stryker Vehicle Integration Kit
- 071-329-01LW Navigate from One Point on Ground to Another Point While Dismounted Using the LW System

Additional Prerequisite Skills:

- Each leader is proficient in the Common Core Tasks commensurate with his grade IAW Soldier Training Publication (STP) 21-24-SMCT Soldier's Manual Of Common Tasks Skill Levels 2, 3, and 4, DA, dated 31 August 2003.
- PLDC and BNCOC POIs include USAIS Commander's 2004 guidance to include Establish a Roadblock/Checkpoint, React to Improvised Explosive Device (IED), and Conduct Convoy OPS.
- BOLC, OSUT, BNCOC, and ANCOB continue to instruct a combination of classroom and field training on current doctrinal instruction on the following tasks and integrated performance measures: (a) until the force is >50% fielded and, (b) incorporates LW capabilities associated with each task into training with the initial implementation of LW fielding:

POI Scrub of Comparable (Non-LW) Tasks Taught at the Institution Base

LW Task Number	Task	Applicable POIs ¹				
		IO	O	P	B	A
071-326-01LW ^a	Move as a Member of a Fire Team	X	X	X	X	X
071-326-02LW	Control Movement of a Fire Team	X			X	X
071-326-06LW	Conduct Movement Techniques by a Squad	X	X	X	X	X
071-326-07LW	Conduct the Maneuver of a Squad	X	X	X	X	X
071-326-08LW	Conduct Movement Techniques by a Platoon	X				X
071-326-01LW	Conduct the Maneuver of a Platoon	X				X
071-800-27LW ^a	Adjust Indirect Fire Using the Land Warrior System	X			X	X
301-348-01LW ^a	Report Information of Potential Intelligence Value	X	X			X
071-410-01LW	Conduct Occupation of an Overwatch Position	X				X
071-410-02LW	Control Organic Fires	X			X	X
071-410-03LW	Conduct a Leader's Reconnaissance	X			X	X
071-430-01LW	Consolidate a Unit Following Enemy Contact	X			X	X
071-430-02LW	Reorganize a Unit Following Enemy Contact	X			X	X
071-430-03LW	Conduct a Defense by a Squad	X	X			X
071-440-01LW	Conduct a Squad Attack on a Building During an Urban Operation	X			X	X
071-440-02LW	Conduct a Squad Defense During an Urban Operation	X				X
071-450-01LW	Conduct a Passage of Lines	X				X
071-450-02LW	Conduct a Point Ambush	X			X	X
071-326-09LW	Coordinate with an Adjacent Platoon	X				X
071-420-02LW	Conduct a Movement to Contact by a Platoon	X				X
071-420-03LW	Conduct an Attack by a Platoon	X	X	X		X
071-430-04LW	Conduct a Defense by a Platoon	X	X	X		X
071-440-03LW	Conduct a Defense by a Platoon During an Urban Operation	X	X		X	X
071-440-04LW	Conduct an Attack by a Platoon During an Urban Operation	X	X		X	X
071-450-03LW	Conduct a Raid	X			X	X
071-450-04LW	Conduct an Area Ambush by a Platoon	X			X	X
071-720-01LW	Conduct a Zone Reconnaissance by a Platoon	X			X	X
101-521-01LW	Request Supplies and Logistical Services	X			X	X
191-377-01LW	Establish a Roadblock/Checkpoint				X ²	

1. Abbreviations: IO – Infantry Officer Basic Officer (BOLC II/III POIs unavailable) O – OSUT

P – PLDC B – BNCOC A – ANCOG

2. To be added to POI based on CDR, USAIS 2004 guidance.

^a Skill Level I Tasks

Assumptions:

- The LW training (listed in chart above) is necessary to reinforce leader training in integrated LW-related capabilities and procedures applied to current doctrinal training and to confirm the leader's ability to correctly employ the LW system.
- The training will be a combination of classroom, field, and at the high level, range-specific live fire training.
- Live fire training will include a dry walk-through, tactical employment with blanks, followed by live fire training.
- The three Skill Level 1 tasks are prerequisite leader skills and should be incorporated into the maneuver and live fire training.

- Non-live fire training will incorporate a combination of classroom and a field training tactical exercise without troops (TEWT).
- Each leader will be equipped with an individual LW ensemble and HHD.
- Each instructor will be equipped with an individual LW ensemble capable of being linked to an overhead projector system.
- The training base will incorporate LW capabilities associated with each LW task along with the initial implementation of LW fielding.
- Once the force is >50% fielded, this class will no longer be required except for the Team Leader functional Course (Alts 3 and 4).
- An opposing force (OPFOR) is needed to trigger fire team, squad, and platoon reaction to contact during maneuver training practical exercise (PE) and field training.
- An artillery-capable live fire range and supporting artillery unit are available to conduct LW Task 071-800-27LW Adjust Indirect Fire Using the Land Warrior System (high expertise level)
- A live fire training area is available to conduct LW Task 071-410-02LW Control Organic Fires (high expertise level).
- A maneuver training area is available to support maneuver training demonstrating LW capabilities and procedures.
- All maneuver training is by echelons (individual/fire team, squad, and platoon).
- Not all tasks require separate training periods. Several tasks are inclusive to larger tasks and missions. For example, Control Organic Fires (071-410-02LW), Coordinate with Adjacent Platoon (071-326-09LW), Conduct a Defense by a Squad (071-430-03LW) would be taught within the context of Conduct a Defense by a Platoon (071-430-04LW). The LW urban operations and several offensive task classes would be similarly structured.
- Because the students are broken down into squads/platoon for LW-specific training, no Weapons squad will be organized. As a result, no M240B Machineguns or Javelins will be carried.

Data Sources:

- DA. (2003, August). *Soldier's Manual Of Common Tasks Skill Level 1 (STP 21-1-SMCT)*. Washington, D.C., HQDA.
- DA. (2003, August). *Soldier's Manual Of Common Tasks Skill Levels 2, 3, and 4 (STP 21-24-SMCT)*. Washington, D.C., HQDA.
- Foster, T. (2004, May). *System training plan (STRAP) for the Ground Soldier system (Land Warrior Block III, version 5.4)*. Ft. Benning, GA: Systems Division, G-3, U.S. Army Infantry School.
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- Interviews with subject matter experts (SMEs) on 8 July 04.
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- Dyer, J. L., Fober, G. W., Wampler, R., Blankenbeckler, N., Dlubac, M., & Centric, J. (2000, December). *Observations and assessments of Land Warrior Training*. Ft. Benning, GA: Infantry Forces Research Unit, U.S. Army Research Institute

TACTICAL EMPLOYMENT	Low Expertise	Medium Expertise	High Expertise
Tasks/Skills Taught	No Task Number: Practical Exercise of Tactical Employment on LW Capabilities (Leader Task)		
<p>Note: This training is designed to reinforce leader training in LW-related capabilities and procedures and confirm the leader's ability to correctly employ the LW system. The training will be a combination of classroom, field, and at the high level, range-specific live fire training. Live fire training will include a dry walk-through, tactical employment with blanks, followed by live fire training. Non-live fire training will incorporate a combination of classroom and a tactical exercise without troops (TEWT) in a field environment.</p> <p><u>Low level</u> training is envisioned as classroom instruction covering the LW-unique performance tasks in the areas of pre-combat checks & inspections, movement, communications, and actions on contact and a TEWT on missions, tasks, and LW-unique functions movement, communications, and actions on contact.</p> <p><u>Medium level</u> training includes low expertise tasks plus plan on the move, prepare (on the move), and consolidation/reorganization tasks.</p> <p><u>High level</u> training includes medium expertise tasks plus live fire training on 071-800-27LW Adjust Indirect Fire Using LW System and live fire training of tasks for a consolidated defense. Once LW is integrated into the training base (>50% fielded), only the Team Leader functional Course includes this training per se, and is considered additional hours.</p> <p>For BOLC, OSUT, BNCOC, and ANCOG there are no additional hours since the training is directly integrated into the existing POIs. For OSUT, the tactical employment exercise is envisioned to focus on movement and communication.</p>			
Description of Training	<ul style="list-style-type: none"> • Classroom training and TEWT in field environment on the following categories: <ul style="list-style-type: none"> - Pre-combat checks & inspections - Movement - Communications - Actions on contact 	<ul style="list-style-type: none"> • Same as Low PLUS the following categories: <ul style="list-style-type: none"> - Plan on the move - Prepare (on the move) - Consolidation/reorganization 	<ul style="list-style-type: none"> • Same as Medium PLUS: <ul style="list-style-type: none"> • Live fire training on 071-800-27LW Adjust Indirect Fire Using LW System • Live fire TNG on consolidated defense TNG:
<p>Recommended Expertise Level: High – 24 hours only for Leader Functional Courses (Stages A and B) Tactical exercises with LW integrated in BOLC, ANCOG, and BNCOC (Stage B) Not in Operator Functional Course, but move/shoot exercises with LW integrated in OSUT.</p>			
Common Resources			
# Hours of Instruction	8 hrs	16 hrs	24 hrs
LW Ensembles	1 per student 1 per instructor	1 per student 1 per instructor	1 per student 1 per instructor
Sound System	1 per training site	1 per training site	1 per training site
Chalk/Whiteboard	1 per training site	1 per training site	1 per training site

TACTICAL EMPLOYMENT	Low Expertise	Medium Expertise	High Expertise
Tasks/Skills Taught	No Task Number: Practical Exercise of Tactical Employment on LW Capabilities (Leader Task)		
# Overhead Projectors w/video projection link to instructor LW ensemble	1 per training site	1 per training site	1 per training site
# Overhead Screens	1 per training site	1 per training site	1 per training site
Power Supply	1 per training site	1 per training site	1 per training site
# OPFOR	NA	8-10 personnel for maneuver training (2 ea SQD & 8 for PLT)	8-10 personnel for maneuver training (2 ea SQD & 8 for PLT)
MOUT Facility	NA	1	1
Live Fire Range with 105/155mm range fan	NA	NA	1
Live Fire Maneuver TNG Area	NA	NA	1
Maneuver TNG Area	1	1	1
# Medics	Per SOP	Per SOP	Per SOP
# M4 Carbine	1 per student	1 per student	1 per student
# M16A4 Rifle	NA	1 per OPFOR	1 per OPFOR
# M203 GREN LCHR	2 per Squad	2 per Squad	2 per Squad
# M249 SAW	2 per Squad	2 per Squad	2 per Squad
# Boresight Kit w/Boresight Target	NA	1 per 10 students	1 per 10 students
MILES Ensembles	1 per student	1 per student	1 per student
A059 CTG 5.56mm Ball	NA	NA	40 per student
A062 CTG 5.56mm Ball Linked	NA	NA	200
A063 CTG 5.56mm TR	NA	NA	20 per student
A064 CTG 5.56mm Ball	NA	NA	4,000
A075 CTG 5.56mm Blank, Linked	NA	NA	4,000
A080 CTG 5.56mm Blank,	NA	NA	60 per student
A111 CTG 7.62mm Blank, Linked	NA	NA	2,000
B519 CTG 40mm Practice Grenade	NA	NA	6 per M203
B535 CTG 40mm WT Star Parachute	NA	NA	2 per M203
B546 CTG 40mm HEDP	NA	NA	3
G878 Fuze, Hand Grenade, Practice	NA	NA	20
G940 Hand Grenade, M18 Green SMK	NA	NA	10

TACTICAL EMPLOYMENT	Low Expertise	Medium Expertise	High Expertise
Tasks/Skills Taught	No Task Number: Practical Exercise of Tactical Employment on LW Capabilities (Leader Task)		
G945 Hand Grenade, M18 Yellow SMK	NA	NA	10
G950 Hand Grenade, M18 Red SMK	NA	NA	3
G955 Hand grenade, M18 Violet SMK	NA	NA	10
G982 Grenade, SMK	NA	NA	4
K143 Mine, APERS, M18 Claymore	NA	NA	2
K866 Smoke Pot, HC	NA	NA	2
L306 Signal ILLUM, Cluster	NA	NA	2
L307 Signal ILLUM, GRD, WT Star Cluster	NA	NA	10
L311 Signal, ILLUM, GRD Parachute, Red	NA	NA	3
L312 Signal, ILLUM, GRD Parachute, WT Star	NA	NA	10
L314 Signal, ILLUM, GRD Cluster, GRN Star	NA	NA	10
L495 Flare, Surface, Trip	NA	NA	20
L594 Simulator, Projectile GRD Burst	NA	NA	50
L601 Simulator, Hand Grenade	NA	NA	10
G811 M69 grenade Body	NA	NA	20
LW Batteries (Type and # per student)	2 per student	4 per student (2 recharging)	4 per student (2 recharging)
Functional Courses: Stage A			
Functional Course for Operators: Alt 4 - LW to All	<i>No training required - Leader Task.</i>		
Functional Course for Leaders: Alt 4 - LW to All			
# Hours	8 hrs	16 hrs	24 hrs
# Students	45	45	45
# Instructors (PI & AI)	9	9	9
# LW Ensembles	54	54	54
Desks/Tables/Chairs	45/1/45	45/1/45	45/1/45
OPFOR	NA	10	10

TACTICAL EMPLOYMENT	Low Expertise	Medium Expertise	High Expertise
Tasks/Skills Taught	No Task Number: Practical Exercise of Tactical Employment on LW Capabilities (Leader Task)		
M16A4 Rifles	NA	10	10
# M4 Carbines	29	29	29
# M203 GREN LCHR	8	8	8
# M249 SAW	8	8	8
# LW Batteries	216	216	216
Functional Course for Operators: Alt 3 - LW to TL	<u>No training required – Leader Task</u>		
Functional Course for Leaders: Alt 3 - LW to TL			
# Hours	8 hrs	16 hrs	24 hrs
# Students	45	45	45
# Instructors (PI & AI)	9	9	9
# LW Ensembles	54	54	54
Desks/Tables/Chairs	45/1/45	45/1/45	45/1/45
# OPFOR	NA	10	10
# M16A4 Rifles	NA	10	10
# M4 Carbines	29	29	29
# M203 GREN LCHR	8	8	8
# M249 SAW	8	8	8
# LW Batteries	108	216	216
Functional Course for Operators: Alt 2 - LW to SL	<u>No training required – Leader Task</u>		
Functional Course for Leaders: Alt 2 - LW to SL			
# Hours	8 hrs	16 hrs	24 hrs
# Students	30	30	30
# Instructors (PI & AI)	6	6	6
# LW Ensembles	36	36	36
Desks/Tables/Chairs	30/1/30	30/1/30	30/1/30
# OPFOR	NA	8	8
# M16A4 Rifles	NA	8	8
# M4 Carbines	18	18	18
# M203 GREN LCHR	6	6	6
# M249 SAW	6	6	6
# LW Batteries	72	144	144
Professional Development Courses and IET: Stage B			
BOLC III Infantry Alt 4 – LW to All Alt 3 – LW to TL Alt 2 – LW to SL	<i>No additional training time required – Tasks integrated into BOLC classroom and field training</i>		

TACTICAL EMPLOYMENT	Low Expertise	Medium Expertise	High Expertise
Tasks/Skills Taught	No Task Number: Practical Exercise of Tactical Employment on LW Capabilities (Leader Task)		
ANCOC: Alt 4 – LW to All Alt 3 – LW to TL Alt 2 – LW to SL	<i>No additional training time required – Tasks integrated into ANCOC classroom and field training</i>		
BNCOC: Alt 4 – LW to All Alt 3 – LW to TL	<i>No additional training time required – Tasks integrated into BNCOC classroom and field training</i>		
BNCOC: Alt 2 – LW to SL	<i>No additional training time required – Tasks integrated into BNCOC classroom and field training</i>		
Alt 4 – Tm Ldrs Functional Course for Leader Training			
# Hours	8 hrs	16 hrs	24 hrs
# Students	160	160	160
# Instructors (PI & AI)	32	32	32
# LW Ensembles	192	192	192
Desks/Tables/Chairs	30/1/30	30/1/30	30/1/30
# OPFOR	NA	0/6/34 (OFF/NCO/EM)	0/6/34 (OFF/NCO/EM)
# M16A4 Rifles	NA	40	40
# M4 Carbines	92	92	92
# M203 GREN LCHR	34	34	34
# M249 SAW	34	34	34
# LW Batteries	384	768	768
Alt 3 – Tm Ldrs Functional Course – Leader Training			
# Hours	8 hrs	16 hrs	24 hrs
# Students	160	160	160
# Instructors (PI & AI)	32	32	32
# LW Ensembles	192	192	192
Desks/Tables/Chairs	30/1/30	30/1/30	30/1/30
# OPFOR	NA	0/6/34 (OFF/NCO/EM)	0/6/34 (OFF/NCO/EM)
# M16A4 Rifles	NA	40	40
# M4 Carbines	92	92	92
# M203 GREN LCHR	34	34	34
# M249 SAW	34	34	34
# LW Batteries	384	768	768
Alt 3 – Tm Ldrs Functional Course – Operator Training	<i>No training required. Leader Task.</i>		
Infantry OSUT: Alt 4 – LW to All	<i>Communication and movement tasks integrated into OSUT</i>	<i>Communication and movement tasks integrated into OSUT</i>	<i>Communication and movement tasks integrated into OSUT</i>

TACTICAL EMPLOYMENT	Low Expertise	Medium Expertise	High Expertise
Tasks/Skills Taught	No Task Number: Practical Exercise of Tactical Employment on LW Capabilities (Leader Task)		
# LW Ensembles	212	212	212

Appendix D

Incorporation of LW Training in USAIS Courses

This appendix shows the relationship between LW tasks and the USAIS course that are impacted by introduction of the LW system. Specifically, the tables show where replacement training occurs and where the LW system can be integrated into current blocks of instruction. Training on LW tasks that does not relate directly to current blocks of instruction is **not** cited in the table (e.g., assemble and don the LW system, configure the LW system).

Table D-1

Infantry Officer Basic Course (IOBC) Program of Instruction (POI)

Infantry Officer Basic Course (IOBC) Program of Instruction (POI)		
Academic Hours: 1036.5		
Total Hours: 1258.0		
Subject	Hours	LW Integration and Replacement Training
Administrative Time: Army Physical Fitness Test, Book Issue/Turn-in, CIF/Unit Equipment Issue/Turn-in, Equipment Maintenance, Graduation, Immunization, In/Out Unit Processing, Movement of Personal Property, Separation Physical and Immunization, Receptions, Remedial Swimming, Spouse Program, and Effects of Tobacco Use	132.0	
Army Family Team Building	1.0	
Bayonet Assault Course	8.0	
Briefings	5.0	
Combat Water Survival Test	4.5	
Commander's Hotwash/Orientation/In/Out Briefs	8.5	
Combined Arms Tactics: Army Operations (OPS), Air Defense Artillery, Aviation Brigade, Close Combat Tactical Trainer (CCTT), Contemporary Operational Environment (COE), Combat Service Support (CSS), Defensive Tactics, Electronic Warfare, Engineers, Fire Support, Global Threats, Individual Movement Techniques (IMT), Intro to Combat OPS, Offensive Tactics, Organization, Training, Tactical Air Support, Total Force Integration, and Urban OPS	552.5	Integrate LW
Communications: Equipment (8.0), SINCGARS (2.0),	10.0	LW communication training is additional
Dining In	5.0	

Infantry Officer Basic Course (IOBC) Program of Instruction (POI)		
Dismounted Battlespace Battle Lab	4.0	
Equal Opportunity and Sexual Harassment (EOSH)	2.0	
Examinations	53.5	Integrate LW evaluations
Field Hygiene	1.0	
Foot Marches (3)	9.0	
Formal Reception	4.0	
Force XXI Battle Command, Brigade-and-Below (FBCB2) (16 or 40 hrs integrated training)	40.0	
Hand-to-Hand Combat	15.0	
Janus	4.0	Integrate LW
Land Navigation Training including: Training/Re-training, Applied Map Reading, Terrain Association and Orienteering, and Precision Lightweight Global Positioning System (PLGR)	98.0	Replace PLGR training with LW, but additional LW training time also required
Law of Land Warfare	1.0	
Leadership Reaction Course	3.0	
Marksmanship Training	64.0	Additional LW training for reduced exposure firing multifunction laser (MFL) calibration. Replace current aiming light boresighting and firing with MFL
Military Leadership	31.0	
Military Communications (oral/written)	7.0	
Military History	6.0	
Military Justice	2.0	
Nuclear, Biological, and Chemical (NBC)	2.5	
Obstacle/Confidence Course	3.0	
Officer Evaluation Report (OER) Brief	1.0	
Physical Readiness Training	92.0	
Platoon Trainer Counseling	40.0	
Senior Leadership Sponsorship Program	1.5	
Standards of Conduct	1.0	
Weapons Training: Antitank Weapons (12.0), M203 (6.0), M249 Squad Automatic Weapon (SAW) and M60 GM Machinegun, and M240B GP Machinegun (32.0)	50.0	
Total Training Time	1258.0	

Table D-2

Advanced Noncommissioned Officers Course (ANCOC) Program of Instruction (POI)

Advanced Noncommissioned Officers Course (ANCOC) Program of Instruction (POI)		
Academic Hours: 315.5 Total Hours: 342.5		
Subject	Hours	LW Integration and Replacement Training
Administrative Time including: In-Processing, Out-Processing, and Graduation Ceremony	27.0	
Army Doctrine: Air Assault Operations (OPS), Tactical Doctrine and OPS, Fire Support Planning, Forward Observer Procedures and Adjust Indirect Fire, Global Threat Lessons Learned, Health Service Support, Logistics, Maintenance, Mobility/Counter mobility and Survivability, Patrolling, Threat Armor, and Urban Operations	76.0	Integrate LW
Computer Literacy	4.0	
Examinations	22.0	Integrate LW evaluations
Introduction to Military History	2.0	
Land Navigation including: Applied Map Reading and Land Navigation Course	8.0	Integrate LW
Maneuver Control System-Light (MCS-L) (*includes 16 hrs integrated training)	40.0	
Military Communications (oral/written):	10.0	Integrate LW
Operational Graphics	10.0	Integrate LW
Planning Offensive and Defensive Operations	14.5	Integrate LW
Tactical Training including: Night Fighter Training, Platoon Tactical OPS, Situational Training Exercise (STX), Tactics, and Tactical Exercise Without Troops (TEWT)	145.0	Integrate LW
Training Management: Develop Platoon Training Plan (4.0), and Risk Management (2.0)	6.0	Integrate LW
Weapons Training: Javelin	3.0	
Total Training Time	342.5	

Table D-3

Basic Noncommissioned Officer Course (BNCOC) Program of Instruction (POI)

Basic Noncommissioned Officer Course (BNCOC) Program of Instruction (POI)		
Academic Hours: 277		
Total Hours: 303		
Subject	Hours	LW Integration and Replacement Training
Administrative Time including: In/Out Unit Processing and Graduation	26.0	
Marksmanship Training: Advanced Infantry Marksmanship Strategies and Standards (AIMSS)	42.0	Additional LW training for reduced exposure firing, and instruction on boresight target for multifunction laser (MFL)
Army Doctrine: Combat Operations including Call for Fire (CFF), Squad Battle Drills	112.0	Integrate LW
Force XXI Battle Command Brigade and Below (FBCB ²) (+20 hrs integrated training)	16.0	
Computer Overview	4.0	
Demolitions	8.0	
Examinations: Diagnostic (4.0) and End of Course (4.0)	8.0	Integrate LW evaluations
Communications: Field Expedient Communications (4.0) and Precision Lightweight Global Positioning System (PLGR) (includes navigate w/PLGR) (9.0)	14.0	Integrate LW
First Aid	8.0	
Land Navigation training including: Map Reading Practical Exercise (PE) (3.0), Land Navigation Exam (compass-day & night) (7.0)	10.0	Replace current training on PLGR with LW training
*Squad Virtual/Constructive Simulations including: Close EST 2000, Combat Tactical Trainer (CCTT), Guardfist II, S-CATT and Janus/OneSAF	28.0	Integrate LW
Weapons Training: Employ M240B and M249 (4.0), and Javelin (24.0)	28.0	
Total Training Time	303.0	

Table D-4

Infantry One Station Unit Training (OSUT) Program of Instruction (POI)

One Station Unit Training (OSUT) Program of Instruction (POI)		
<u>Academic Hours: 959.3</u>		
<u>Total Hours: 973.3</u>		
Subject	Hours	LW Integration and Replacement Training
Administrative Time	14.0	
Antiarmor Techniques	4.0	
Appropriate Behavior	3.5	
Army Family Team Building	1.2	
Army Values	22.0	
Basic Military Communications	3.0	Replace SINCGARS training with LW voice communications training
Confidence Building (Obstacle Course and Tower)	23.0	
Drill and Ceremonies	20.2	
Environmental Awareness	1.0	
Equal Opportunity and Sexual Harassment (EOHS) Policies and Programs	4.0	
Field Training Exercise (FTX) (7-days)	153.5	Integrate LW
First Aid (8 training periods)	11.5	
Foot Marches (6 separate foot marches)	20.7	
Guard Duty	3.0	
Hand-to-Hand Combat (15 periods)	22.9	
Individual Tactical Training (ITT)	46.1	Integrate LW
Inspections	18.6	
Introduction to the Bradley Fighting Vehicle (BFV)	4.2	
Landmine Warfare	9.2	
Land Navigation (3 periods – basic map reading and 2 land navigation courses)	11.5	Additional LW training
Law of Land Warfare	1.0	
Maintain Spiritual, Emotional, and Mental Fitness	1.0	
Managing Personal Finances	2.0	
Marksmanship Training: Basic Rifle Marksmanship (BRM) (74.1) and Advanced Infantry Marksmanship (33.0), and Battle March and Shoot (4.5)	111.6	Additional LW training for reduced exposure firing
Military Courtesies and Customs	3.0	
Military Justice/Standards of Conduct	3.5	
Movement Under Fire With Multiple Integrated Laser Engagement System (MILES) (5 periods)	42.0	
Nuclear, Biological, and Chemical (NBC) Defense (3 periods)	17.6	

One Station Unit Training (OSUT) Program of Instruction (POI)		
Personal Affairs	2.0	
Training Examinations (4 examinations)	32.0	Integrate LW evaluations
Physical Readiness Training	75.0	
Preventive Medicine	3.5	
Rifle Bayonet/Pugil Fighting (5 periods)	13.0	
Serve as a Member of a Team (5 periods)	12.0	Integrate LW
Squad Tactical Training	23.8	Integrate LW
Threats in Today's Operational Environment	1.0	
Urban Operations	18.0	Integrate LW
Administrative/Support Time	181.0	
Weapons Training: M203 (9.0), M249 Squad Automatic Weapon (SAW) (8.0), M240B GP Machinegun (8.0), Hand Grenades (8.0); Foreign Weapons (8.0), and Machinegun Employment (M60, M249, and M240B) (0.9)	41.9	
Total Training Time	973.3	

Appendix E

Acronyms and Formula for Phase A2

AI	Assistant instructor
Alt	Alternative
ANCOC	Advanced Noncommissioned Officer Course
AoA	Analysis of alternatives
ARI	Army Research Institute
ATRRS	Army Training Requirements and Resources System
Bde	Brigade
BNCOC	Basic Noncommissioned Officer Course
BOIP	Basis of issue plan
BOLC	Basic Officer Leadership Course
C2	Command and control
CDA	Commander's Digital Assistant
CD-ROM	Compact disc – read only memory
DVS	Daylight Video Sight
EEA	Essential elements of analysis
EPLRS	Enhanced Position Location System
FBCB2	Force XXI Battle Command Brigade and Below
GFE	Government furnished equipment
GPS	Global positioning system
ICCC	Infantry Captain's Career Course
IMI	Interactive multimedia instruction
IN	Infantry
IOBC	Infantry Officer Basic Course
IR	Infrared
JCF AWE	Joint Contingency Force Advanced Warfighting Experiment
JROC	Joint Requirements Oversight Review
JVMF	Joint variable message format
LW	Land Warrior
MANPRINT	Manpower and Personnel Integration
MBITR	Multi-band Inter/Intra Team Radio
MCS-L	Maneuver Control System-Light

MFL	Multi-function laser
MILES	Multiple Integrated Laser Engagement System
MOLLE	Modular Lightweight Load Carrying Equipment
MOPP	Military Oriented Protective Posture
MTOE	Modified table of organization and equipment
NET	New Equipment Training
NETT	New Equipment Training Team
OICW	Objective Individual Combat Weapon
OPFOR	Opposing force
OPORD	Operations order
OSUT	One Station Unit Training
PI	Principal instructor
PLGR	Precision Lightweight GPS Receiver
POI	Program of instruction
PM	Product Manager
RFI	Rapid Fielding Initiative
RTO	Radio telephone operator
SBCT	Stryker Brigade Combat Team
SINCGARS	Single Channel Ground and Airborne Radio System
SL	Squad leader or Skill level
SME	Subject matter expert
STRAP	System Training Plan
TADSS	Training aids, devices, simulations and simulations
TIA	Training Impact Analysis
TL	Team leader
TRAC-WSMR	TRADOC Analysis Center-White Sands Missile Range
TWS	Thermal Weapon Sight
USAIS	United States Army Infantry School
VIK	Vehicle Integration Kit

Formula for # LW systems in 15 Brigades (Phase A2 of the analysis)

$$\{[(48 \text{ Bde}\# \cdot 5 - 6 \text{ SBCT}\#)/2] + 6 \text{ SBCT}\# \}$$

Quantity of LW systems for 15 Brigades, Phase A2; 15 Brigades is halfway point between the quantities for 24 Brigades and 6 SBCT, corresponding to an additional 9 Brigades.

Known numbers were total # of LW systems (48 Bde#) and # of systems for 6 SBCT

Explanation of Formula

$48 \text{ Bde}\# \cdot 5 = \#$ systems for 24 Brigades

$(48 \text{ Bde}\# \cdot 5 - 6 \text{ SBCT}\#)$ = Difference in # systems between 24 Brigades and 6SBCT

$(48 \text{ Bde}\# \cdot 5 - 6 \text{ SBCT}\#)/2$ = Half the difference in # systems between 24 Brigades and 6SBCT; number of systems that must be added to the 6SBCT quantity to get halfway between 6 SBCT and 24 Brigades, i.e., 15 brigades.

$\{[(48 \text{ Bde}\# \cdot 5 - 6 \text{ SBCT}\#)/2] + 6 \text{ SBCT}\# \}$ = 6SBCT quantities plus additional systems to field the 9 additional Brigades, which results in a total of 15 Brigades with LW systems.