

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2005

BUDGET ACTIVITY 5 - System Development and Demonstration			PE NUMBER AND TITLE 0604□16A - TERRAIN INFORMATION - ENG DEV					PROJECT 5□□		
COST (In Thousands)	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	Cost to	Total Cost
	Actual	Estimate	Estimate	Estimate	Estimate	Estimate	Estimate	Estimate	Complete	
579 FIELD ARMY MAP SYS ED	6662	3152	0	0	0	0	0	0	0	Continuing

A. Mission Description and Budget Item Justification: This Project funds development of the Digital Topographic Support System (DTSS). All DTSS systems use Commercial Off the Shelf (COTS) software. DTSS variants include the: DTSS-Light (DTSS-L) which is shelter mounted on a HMMWV, DTSS-Deployable (DTSS-D) which is mounted in hand carried transit cases), DTSS-Base (DTSS-B) which is garrison based for data generation, and the High Volume Map Production System (HVMP) which reproduces digital maps. Current force DTSS systems provide the commander the ability to rapidly obtain terrain information and produce digital topographic products. The traditional terrain analysis, topographic and reproduction support provided by Army Engineer Terrain Teams was a slow, labor intensive process that does not meet the needs of the digital battlefield. The DTSS provides digital terrain analysis and map updates to commanders and weapons platforms in support of mission planning (e.g., imagery exploitation, Cover and Concealment, other Intelligence Preparation of the Battlespace), rehearsal (e.g., 3D fly through, simulations) and execution (e.g., Common Operational Picture, route planning). The DTSS automates terrain analysis and visualization, data base (development, updating, management, and dissemination), and graphics reproduction. The Combat Terrain Information Systems (CTIS) Modernization Plan emphasizes the development of a combined, integrated, tactically deployable, fully autonomous terrain analysis and graphics reproduction capability. These capabilities are being provided in HMMWV shelterized (DTSS-L) and transit case (DTSS-D) configurations. The DTSS-L is highly mobile and capable of supporting a full range of military operations, as well as peacetime stability and support operations. The DTSS-L has been Type Classified-Standard. The DTSS-D provides a COTS configuration that is capable of operating all of the terrain analysis software. The DTSS-D consists of transportable workstations and peripherals that can be set up to augment the tactical configurations. The DTSS-D does not include tactically deployable shelters and vehicles or tactical communications. The DTSS-D has been Type Classified-Standard. The DTSS-B was procured in response to a US Army Europe (USAEUR) initiative to develop the capability to generate terrain information over sparsely mapped areas to support contingency, mission rehearsal, and training operations. The DTSS-B is designed to augment the National Geospatial-Intelligence Agency (NGA) capabilities at the Echelon above Corps (EAC) level by providing quick response data generation, special purpose mapping, terrain analysis, and theater geospatial data baseing. The DTSS-B includes a component that is capable of handling National Technical Means information in a secure environment. The DTSS-B has been Type Classified-Standard. The HVMP provides a tactical capability to rapidly reproduce large volumes of topographic materiel from digital sources. HVMPs are capable of reproducing information from a variety of digital and hardcopy sources via direct digital interfaces. CTIS systems are deployed from Brigade through Echelon above Corps, Stryker Brigades and Special Forces Groups. Additionally, an institutional training classroom environment has been developed and integrated into the curriculum at the National Geospatial/Intelligence School (NGS). NGS provides critical MOS (Military Occupation Speciality) specific training on the operation and use of CTIS developed systems. Products developed as part of the CTIS RDT&E program (e.g., improved Battle Command Systems interoperability, migration to Joint Technical Architecture - Army (JTA-A) and Common Operating Environment (COE), improved data base management and distribution, automated feature extraction, improved tactical terrain decision aid functionality, rapid terrain visualization, battlefield terrain reasoning awareness (BTRA), migration to Distributed Common Ground Station - Army (DCGS-A) architecture, and improved graphics reproduction) are being incorporated into all of the DTSS hardware and software architectures.

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Additionally, the Current Force Topographic Support System (TSS) found in Engineer Topographic Companies is outdated and must be modernized to keep pace with Army digitization. The modernization associated with the TSS include replacing the Operations, Distribution and Photomechanical Sections with DTSS-L, DTSS-D, and the HVMP. The Survey section will be downsized to a HMMWV configuration and the Drafting section will be updated to include digital cartographic equipment. This system supports the Current-to-Future Force transition path.

<u>Accomplishments/Planned Program</u>	FY 2004	FY 2005	FY 2006	FY 2007
Continue P3I development for DTSS - Enhanced 3-D terrain visualization, semi-automated feature extraction, data conflation, Hydrology, Battlefield Terrain Reasoning and Assessment (BTRA) enhancements, Urban(MOUT) TDAs and improved data base design (seamless enterprise database)	6662	0	0	0
Continue P3I development for DTSS - Initiate transition of functionality to DCGS-A, continue investigation of COTS upgrades, continue improvement of coalition/joint interoperability.	0	3152	0	0
Totals	6662	3152	0	0

<u>B. Program Change Summary</u>	FY 2005	FY 2006	FY 2007
Previous President's Budget (FY 2005)	3199	4348	4000
Current Budget (FY 2006/2007 PB)	3152	0	0
Total Adjustments	-47	-4348	-4000
Net of Program/Database Changes			
Congressional Program Reductions	-47		
Congressional Rescissions			
Congressional Increases			
Reprogrammings			
SBIR/STTR Transfer			
Adjustments to Budget Years		-4348	-4000

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FY05: (-)\$2766K, Funds realigned to higher priority requirements.
 FY06: (-)\$4348K, Funds realigned to higher priority requirements.
 FY07: (-)\$4000K, Funds realigned to higher priority requirements.

C. Other Program Funding Summary	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	To Compl	Total Cost
OPA - KA2550 - Digital Topographic Support System (DTSS)	12907	8955	2888	11590	14568	3081	9766	9364	Continue	Continue

D. Acquisition Strategy: The Acquisition Strategy for the Digital Topographic Support System-Light (DTSS-L) Engineering Manufacturing and Development (EMD) phase was to utilize Army standard equipment and the Common Hardware/Software (CHS) computer workstations in conjunction with non-development item (NDI) components to develop an integrated baseline hardware configuration. The previous Combat Terrain Information Systems (CTIS) System Engineering and Integration (SE&I) contractor (Lockheed Martin Corp) executed the EMD phase, performing system integration, and provided units for formal test and evaluation. Milestone III for the DTSS-L was successfully completed in Jan 98. Production of the DTSS-L commenced in February 1999. Funding to support technology refreshment of the DTSS-Heavy (DTSS-H), DTSS-L, and DTSS-Deployable (DTSS-D) was programmed on a 5-yr. cycle. DTSS-L replaced the DTSS-H in FY02/03. Acquisition of the DTSS-D and DTSS-B was completed in FY 1995 and FY 1996, respectively. Based upon Combatant Commanders, TRADOC (Training and Doctrine Command) and PEO C3S (Program Executive Officer Command, Control, Communications, and Computers) User Evaluation approvals, the DTSS-D was Type Classified -Standard and added to the gaining unit's Table of Organization and Equipment. Funding to support a 5-year technology refreshment program for the DTSS-D commenced in FY 2000 and for the DTSS-B commenced in FY 2002. The DTSS-B has also been Type Classified-Standard. The acquisition of the DTSS-D and DTSS-B relied upon existing contracts and commercial-off-the-shelf to the fullest extent possible. The Project Office will continue with this strategy for all technology refreshment programs. The HVMP Acquisition Strategy utilizes COTS and NDI components integrated with Army standard hardware (e.g., trucks, shelters, power equipment) to develop an integrated baseline. The pre-planned product improvement program (P3I) is being executed by the current SE&I contractor (Northrup Grumman, Inc.). The contracting strategy for the DTSS-L program was to execute the EMD phase through the previous SE&I contractor, Lockheed Martin Corporation. A Competitive Cost Plus Fixed Fee (CPFF) contract was awarded for both the previous and existing CTIS SE&I contracts.

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A competitively awarded, Firm Fixed Price (FFP) contract was awarded to Sechan Electronics, Inc. for the Full Rate Production of the DTSS-Light. The HVMP contracting strategy is to execute the System Design and Demonstration (SDD) phase through the current SE&I contractor. A competitively awarded FFP contract was awarded to Sechan Electronics for the Full Rate Production of the HVMP. The computer workstations for CTIS programs were being procured, where appropriate, through the project manager for CHS.