ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)

June 2001

BUDGET ACTIVITY
5 - ENG MANUFACTURING DEV

PE NUMBER AND TITLE
0604716A - Terrain Information Engineering Development

COST (In Thousands)		FY 2000 Actual	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost		5308	6027	8840	0	0	0	0	0	0	0
579	FIELD ARMY MAP SYS ED	5308	5544	8840	0	0	0	0	0	0	0
598	HIGH VOLUME MAP PRODUCTION EQUIP (HVMPE)	0	483	0	0	0	0	0	0	0	0

A. Mission Description and Budget Item Justification:

PLEASE NOTE: This administration has not addressed FY2003-2007 requirements. All FY 2003-2007 budget estimates included in this book are notional only and subject to change.

A. Mission Description and Budget Item Justification: The Project Director for Combat Terrain Information Systems (PD CTIS) is responsible for developing, procuring, and fielding of topographic support systems for the Army. CTIS systems provide automated terrain analysis, terrain data management and graphics reproduction in support of Intelligence Preparation of the Battlefield (IPB), Command and Control, Terrain Visualization, weapons and sensor systems, and other topographic information customers. CTIS consists of the Digital Topographic Support System - Light (DTSS-L), DTSS-Heavy (DTSS-H), DTSS-Deployable (DTSS-D), DTSS-Base (DTSS-B) and the High Volume Map Production (HVMP) equipment. A Pre-Planned Product Improvement (P3I) program will be conducted to address technology insertion, technology refreshment of Commercial Off-the-Shelf equipment and modernization initiatives for the Topographic Support System (TSS). Experimentation results from the Div XXI Army Warfighter Experiment (AWE) identified technological enhancements necessary to support the First Digital Division (FDDThe DTSS-H, DTSS-L, DTSS-D, and DTSS-B fall under the Field Army Mapping System - Engineering Development (D579) project. In FY01 the HVMP falls under the D598 project. In FY02 and beyond, HVMP falls under project D579. CTIS systems support the Legacy to Objective transition path of the Transformation Campaign Plan (CTP).

B. Program Change Summary	FY 2000	FY 2001	FY 2002	FY 2003
Previous President's Budget (FY2001 PB)	5308	6082	7138	0
Appropriated Value	5348	6082	0	
Adjustments to Appropriated Value	0	0	0	
a. Congressional General Reductions	0	0	0	
b. SBIR / STTR	0	0	0	
c. Omnibus or Other Above Threshold Reductions	-22	0	0	
d. Below Threshold Reprogramming	0	0	0	
e. Rescissions	-18	-55	0	
Adjustments to Budget Years Since FY2001 PB	0		1702	
Current Budget Submit (FY 2002/2003 PB)	5308	6027	8840	0

FY02/03 - Additional funding supports DTSS Pre-Planned Product Improvement Program

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BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
5 - ENG MANUFACTURING DEV	**0604716A - Terrain Information Engineering Development**	**579**

COST (In Thousands)		FY 2000 Actual	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
579	FIELD ARMY MAP SYS ED	5308	5544	8840	0	0	0	0	0	0	0

A. Mission Description and Budget Item Justification: This Project funds development of the DTSS-L (HMMWV), DTSS-H (5-ton), DTSS-D (COTS, Transportable), DTSS-B (COTS, Garrison) and HVMP (FY02/03). The current terrain analysis, topographic and reproduction support provided by Army Engineer Terrain Teams is a slow, labor intensive process that does not meet the needs of the Force XXI battlefield on which the commander must have the ability to rapidly obtain terrain information and topographic products. The DTSS will provide digital maps and updates to commanders and weapons platforms in support of mission planning (e.g., imagery exploitation, Cover and Concealment, other IPB), rehearsal (e.g., 3D fly through, simulations) and execution (e.g., Common Tactical Picture, route planning). The DTSS automates terrain analysis and visualization, data base development/update/management/distribution, 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 5-ton (DTSS-H) and HMMWV (DTSS-L) configurations. Fielding of the DTSS-H was completed in Dec 99. The DTSS-H systems will eventually be replaced by DTSS-Ls as part of a HQDA approved technology refreshment program. The DTSS-L is highly mobile and capable of supporting a full range of military operations, as well as peacetime stability and support operations. Both the DTSS-L and DTSS-H have been Type Classified-Standard. The DTSS-D provides a Commercial Off the Shelf (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 USAEUR initiative to develop the capability to generate terrain information over sparsely mapped areas to support training, mission rehearsal and contingency operations. The DTSS-B is designed to augment NIMA capabilities at the EAC level by providing quick response, special purpose mapping, terrain analysis and data base generation. The DTSS-B currently includes a Top Secret - SCI component that is capable of handling national technical means information in a secure environment. The DTSS-B has been Type Classified-Standard. The HVMP will provide a tactical capability to rapidly reproduce large volumes of topographic materiel. HVMP will be capable of reproducing information from a variety of digital and hardcopy sources via direct digital interfaces. CTIS systems will be deployed from Brigade through EAC. Products developed as part of the CTIS RDT&E program (e.g., improved Army Battle Command Systems (ABCS) interoperability, migration to Joint Technical Architecture - Army (JTA-A) and Defense Information Infrastructure Common Operating Environment (DII COE), improved data base management and distribution, automated feature extraction, improved tactical decision aid functionality, rapid terrain visualization, improved graphics reproduction) will be incorporated into all of the DTSS hardware and software architectures. Additionally, the TSS is outdated and must be modernized to keep pace with Army digitization. The modernization initiatives associated with the TSS include updating the Operations, Distribution and Photomechanical Sections with computer workstations, copiers and printers. The Survey section will be downsized to a HMMWV configuration and the Drafting section will be updated to include digital cartographic equipment.

FY 2000 Accomplishments

- 4858 Continued P3I development for DTSS - map server architecture, Windows NT migration, COTS upgrades, architecture improvements, TSS upgrades
- 150 ABCS Systems Engineering & Integration (SE&I)
- 300 Conducted architecture analysis for FY01 COTS cyclic upgrade of DTSS-B

Total 5308

FY 2001 Planned Program

- 4865 Continue P3I development for DTSS - map server architechure, rapid terrain visualization, automated feature extraction, embedded training, exploitation of new data sources, TSS upgrades
- 179 ABCS Systems Engineering & Integration (SE&I)
- 500 Conduct evaluation of system upgrade alternatives for follow-on DTSS-L production contract

Total 5544

FY 2002 Planned Program

- 7240 Continue P3I development for DTSS - map server/data dissemination improvements, improved data base design (Geodata model), Tactical Decision Aid (TDA) enhancements (integrated weather and mobility), automated feature extraction
- 1600 Continue Engineering and Manufacturing Development (EMD) of HVMP (inititated in FY01 under project D598)(Project D598 was combined with D579 in FY02 and designated D579)

Total 8840

B. Other Program Funding Summary	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	To Compl	Total Cost
OPA - KA2550 - DTSS	24395	20121	20124	0	0	0	0	0	0	0

C. Acquisition Strategy: The Acquisition Strategy for the DTSS - Light EMD phase is 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. Previously existing DTSS units have been upgraded to a 5-ton ISO 20-foot shelter configuration (DTSS-H). Funding to support technology refreshment of the DTSS-H (DTSS-H will be replaced by DTSS-L in FY02/03 timeframe) and DTSS-L has been programmed on a 5-yr. cycle. Acquisition of the DTSS-D and DTSS-B was completed in FY 1995 and FY 1996, respectively. Based upon CINC, TRADOC and PEO C3S 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-yr. technology refreshment program for the DTSS-D and DTSS-B commenced in FY 2000 and FY 2001, respectively. 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 Acquisition Strategy for the HVMP is to utilize 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) will be executed with the current SE&I contractor (Litton/TASC, Inc.). The contracting strategy for the DTSS-Light 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. A competitively awarded, Firm Fixed Price (FFP) contract was awarded to Sechan Electronics, Inc. for the Full Rate Production of the DTSS-Light. Production of the DTSS-H was accomplished through FFP production contracts with Lockheed Martin Corporation and SFA Inc. The contracting strategy for the HVMP is to execute the EMD phase through the current SE&I contractor. A competitively awarded FFP contract is anticipated for the Full Rate Production of the HVMP. The computer workstations for CTIS programs are being procured through the project manager for CHS.

D. Schedule Profile	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007
Award DTSS-L Production Contract/Options	1Q	2Q	2Q	0	0	0	0	0
DTSS-L Production	1-4Q	1-4Q	1-4Q	0	0	0	0	0
Complete Fielding of DTSS-H	1Q			0	0	0	0	0
Field DTSS Build 6.2 Software	4Q			0	0	0	0	0
Continue DTSS P3I Program	1-4Q	1-4Q	1-4Q	0	0	0	0	0
DTSS-L FUE	3Q			0	0	0	0	0
Field DTSS-L	3Q	1-4Q	1-4Q	0	0	0	0	0
Technology Refreshment and Fielding of DTSS-D	3-4Q	1-3Q		0	0	0	0	0

D. Schedule Profile (continued)	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007
Field DTSS Build 7.0 Software		3Q		0	0	0	0	0
DTSS-L IOC		3Q		0	0	0	0	0
Technology Refreshment and Fielding of DTSS-B		3-4Q	1Q	0	0	0	0	0
Continue EMD for HVMP (initiated in FY01)			1-3Q	0	0	0	0	0
Milestone III for HVMP				0	0	0	0	0
Production of HVMP				0	0	0	0	0
Field DTSS Build 8.0 Software			2Q	0	0	0	0	0
Field DTSS Build X.X Software				0	0	0	0	0
Technology Refreshment of DTSS-L				0	0	0	0	0
Conduct Technology Refreshment of Institutional Training Classroom				0	0	0	0	0
Technology Refreshment and Fielding of DTSS-D				0	0	0	0	0
Technology Refreshment and Fielding of DTSS-B				0	0	0	0	0

ARMY RDT&E COST ANALYSIS(R-3)

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I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Primary Hardware Development	C/CPFF C/CPFF	Loral Corp, OH Lockheed Martin, PA	23280	0		0		0	0	0	0	0
b . Primary Hardware Development	C/CPFF	TASC, Reston, VA	850	535	1Q	1910	1Q	0	0	0	0	Continue
c . ABCS SE&I	TBD	PEO C3S, Ft. Monmouth, NJ	150	179	1Q	0		0	0	0	0	0
Subtotal:			24280	714		1910		0		0	0	Continue

II. Support Cost	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Software Development	C/CPFF	Loral Corp, OH Lockheed Martin, PA	34919	0		0		0	0	0	0	0
b . Software Development	C/CPFF	TASC, Reston, VA	5005	3602	1Q	5345	1Q	0	0	0	0	Continue
Subtotal:			39924	3602		5345		0		0	0	Continue

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III. Test and Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Acceptance Testing	MIPR	TECOM	705	0		50	2Q	0	0	0	0	Continue
Subtotal:			705	0		50		0		0	0	Continue

IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Contractor Eng Support	MIPR	MITRE, McLean, VA	4817	200	1Q	200	1Q	0	0	0	0	Continue
b . Government Eng Support	MIPR	CECOM, et.al.	16068	200	1Q	460	1Q	0	0	0	0	Continue
c . Program Mgmt Support*	Requisition	Various	2530	150	1Q	175	1Q	0	0	0	0	Continue
d . Program Mgmt Personnel	MIPR	TEC, Ft. Belvoir, VA	10402	678	1Q	700	1Q	0	0	0	0	Continue
Subtotal:			33817	1228		1535		0		0	0	Continue

Remarks: *This category primarily covers Office Automation

Project Total Cost:			98726	5544		8840		0		0	0	Continue