

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

February 2002

BUDGET ACTIVITY 5 - Engineering and manufacturing development				PE NUMBER AND TITLE 0604780A - COMBINED ARMS TACTICAL TRAINER (CATT)					
COST (In Thousands)	FY 2001 Actual	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	17784	13531	7579	4775	6413	6404	11869	Continuing	Continuing
571 CLOSE CBT TACT TRAINER	6619	4967	5069	4775	6413	6404	11869	Continuing	Continuing
582 SYNTHETIC ENVIR CORE	11165	8564	2510	0	0	0	0	0	28697

A. Mission Description and Budget Item Justification: The Combined Arms Tactical Trainer (CATT) is a family of combined arms simulation systems designed to support the Army's simulation-based Combined Arms Training Strategy. The initial CATT system is the Close Combat Tactical Trainer (CCTT), which provides the underlying baseline (architecture, terrain databases, After Action Review [AAR], Semi-Automated Forces [SAF], and models/algorithms) for future CATT expansions, pre-planned product improvements and system enhancements. Synthetic Environment Core provides for the expansion of the Synthetic Environment baseline to include enhanced Aviation, Engineer, Fire Support, and Air Defense capabilities needed to support integration of hardware/simulators funded by System Program Managers. The second CATT system is the Aviation Combined Arms Tactical Trainer - Aviation Reconfigurable Manned Simulator (AVCATT-A) that provides the prototype suite of an Army aviation reconfigurable training system for both active and reserve components. CATT enables units, from crew to the battalion task force level, to conduct a wide variety of combat tasks on a realistic, interactive synthetic battlefield. CATT's combination of manned simulators and staff officer workstations enables units to train as a combined arms team in a cost effective manner. CATT reinforces the successes and corrects the shortcomings of the Simulator Network (SIMNET) and Aviation Network (AIRNET) demonstration programs executed by the Defense Advanced Research Projects Agency (DARPA). By practicing skills in CATT, units are able to make more effective use of scarce resources and costly live fire and maneuver exercises as well as train tasks deemed too hazardous to conduct in the field. Fielded in both fixed site and mobile/transportable versions, CATT enables both Active and Reserve component units to prepare for real world contingency missions. By being able to process a wide array of terrain databases and modify the behavior of the computer generated opposing forces, CATT offers a virtually unlimited array of training options to support the Army's many regional contingency missions. The combination of tough field and live fire training and realistic simulation training in CATT is the catalyst to prepare soldiers and their leaders for the uncertainties they will face in an unpredictable world.

This system supports the Objective and Legacy-to-Objective transition paths of the Transformation Campaign Plan (TCP).

FY03 provides an integrated database format for Semi-Automated Forces, implements an improved High Level Architecture (HLA), develops an improved process to convert National Imagery and Mapping Agency (NIMA) data into Synthetic Environment Data Representation Interchange Specification (SEDRIS) format for database creation, and initiates development of Digital AAR and enhancements to the Commander's Integrated Training Tool. These efforts improve readiness by providing more realistic collective training that will prepare the soldiers for the U.S. Army missions.

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

February 2002

BUDGET ACTIVITY
5 - Engineering and manufacturing development

PE NUMBER AND TITLE
0604780A - COMBINED ARMS TACTICAL TRAINER (CATT)

<u>B. Program Change Summary</u>	FY 2001	FY 2002	FY 2003
Previous President's Budget (FY2002 PB)	18328	13645	7597
Appropriated Value	18498	13645	
Adjustments to Appropriated Value	0	0	0
a. Congressional General Reductions	0	-114	0
b. SBIR / STTR	-545	0	0
c. Omnibus or Other Above Threshold Reductions Inflation	0	0	0
d. Below Threshold Reprogramming	0	0	0
e. Rescissions	-169	0	0
Adjustments to Budget Years Since FY2002 PB	0	0	-18
Current Budget Submit (FY 2003 PB)	17784	13531	7579

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

February 2002

BUDGET ACTIVITY 5 - Engineering and manufacturing development		PE NUMBER AND TITLE 0604780A - COMBINED ARMS TACTICAL TRAINER (CATT)					PROJECT 571			
COST (In Thousands)	FY 2001 Actual	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost	
571 CLOSE CBT TACT TRAINER	6619	4967	5069	4775	6413	6404	11869	Continuing	Continuing	

A. Mission Description and Budget Item Justification: This program provides for Engineering and Manufacturing Development (EMD) and Pre-Planned Product Improvements (P3I) for the Close Combat Tactical Trainer (CCTT), which will enhance readiness of both active and reserve component forces. The program develops a networked system of interactive computer driven simulators, emulators and semi-automated forces that replicate combat vehicles and weapon systems, combat support systems, combat service support systems, and command and control systems to create a fully integrated real-time collective task training environment. This trainer will allow soldiers to practice, repetitively, techniques that, if performed on real equipment, would be too hazardous, time-consuming and expensive. These trainers enhance realism and allow soldiers and units to learn tactical combat lessons on maneuver, command and control, and improved teamwork for increased survivability. The pre-planned product improvements provide CCTT an opportunity to enhance its capabilities as a tactical trainer as well as maintain concurrency with the structural changes that today's battle force is experiencing.

The FY03 funding for Close Combat Tactical Trainer will provide the U.S. Army with an enhancement of the High Level Architecture and the incorporation of a new Synthetic Natural Environment for Semi-Automated Forces.

This system supports the Legacy-to-Objective transition path of the Transformation Campaign Plan (TCP).

FY 2001 Accomplishments:

- 5050 Developed additional Training Support Packages (TSPs), completed High Level Architecture (HLA) compliance efforts, Pre-Planned Product Improvements (P3I) for After Action Reports (AAR), and Dismounted Infantry (DI) components of CCTT, and other user prioritized items. Started development of Bradley Fire Support Team (BFIST), Army Tactical Command and Control System (ATCCS) and Linux conversion.
- 821 Maintained support services to the program office.
- 748 Provided government program management, engineering, technical, contract and continuous operational evaluation support.

Total 6619

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)**February 2002**

BUDGET ACTIVITY

5 - Engineering and manufacturing development

PE NUMBER AND TITLE

**0604780A - COMBINED ARMS TACTICAL
TRAINER (CATT)**

PROJECT

571**FY 2002 Planned Program**

- 3414 Continue development for product improvements for Dismounted Infantry (DI) module, AAR, BFIST, ATCCS, and other prioritized items. Continue conversion to Linux operating system; produce SEDRIS transmittal for CCTT databases.
- 923 Maintain support services to the program office.
- 630 Provide government program management, engineering, technical, contract and continuous operational evaluation support.

Total 4967

FY 2003 Planned Program

- 4469 Integrate new database format for Semi-automated Forces, improve High Level Architecture implementation, develop improved process of getting NIMA data to shorten database schedules.
- 86 Maintain support services to the program office.
- 514 Provide government program management, engineering, technical, contract and continuous operational evaluation support.

Total 5069

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

February 2002

BUDGET ACTIVITY 5 - Engineering and manufacturing development	PE NUMBER AND TITLE 0604780A - COMBINED ARMS TACTICAL TRAINER (CATT)	PROJECT 571
---	---	-----------------------

<u>B. Other Program Funding Summary</u>	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	To Compl	Total Cost
OPA3, Appropriation NA0170 SIMNET/CCTT	41615	36527	52472	44200	62677	82957	64034	Continuing	Continuing
Operation and Maintenance, Appro. 122015 Support of Oper. Testing (CCTT Portion)	21050	26143	32311	38237	39016	39787	40577	Continuing	Continuing

C. Acquisition Strategy: Competitive cost plus award fee contract for EMD phase. Competitive procurement against performance specifications as part of basic contract.

<u>D. Schedule Profile</u>	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007
P3I Software/Hardware Insertions	4Q	4Q	4Q	4Q	4Q		
BFIST DELIVERY		2Q					
LINUX DELIVERY		1Q					
DI DELIVERY		2Q					
AAR DELIVERY		2Q					
SEDRIS DATABASES DELIVERY		4Q					
ATCCS Integration			1Q				

ARMY RDT&E COST ANALYSIS(R-3)

February 2002

BUDGET ACTIVITY
5 - Engineering and manufacturing development

PE NUMBER AND TITLE
0604780A - COMBINED ARMS TACTICAL TRAINER
(CATT)

PROJECT
571

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 . CCTT EMD	C/CPAF/T&M/FFP	Lockheed/Martin Orlando, FL	206891	0		0		0		0	206891	0
b . Pre-Planned Product Improvements (P3I)	C/CPFF	Lockheed/Martin Orlando, FL	21690	5050	1Q	2914	1Q	4469	1Q	Continue	Continue	Continue
c . Database Development	BAA/CPFF	SAIC, Orlando, FL	4415	0		0		0		0	4415	0
d . SEDRIS DATABASES	STOC/CPAF	TBD	0	0		500	2Q	0		0	500	0
Subtotal:			232996	5050		3414		4469		Continue	Continue	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 . Engineering and Technical Support	MIPRs/T&M	Various activities	30318	821	1Q	923	1Q	86	1Q	Continue	Continue	Continue
Subtotal:			30318	821		923		86		Continue	Continue	Continue

ARMY RDT&E COST ANALYSIS(R-3)

February 2002

BUDGET ACTIVITY
5 - Engineering and manufacturing development

PE NUMBER AND TITLE
0604780A - COMBINED ARMS TACTICAL TRAINER
(CATT)

PROJECT
571

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
			0	0		0		0		0	0	0
Subtotal:												

Remarks: Not Applicable

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 . Project Office Support	MIPR	STRICOM/NAWC-TSD, Orlando, FL	12054	748		630		514		Continue	Continue	Continue
Subtotal:			12054	748		630		514		Continue	Continue	Continue

Project Total Cost:			275368	6619		4967		5069		Continue	Continue	Continue
---------------------	--	--	--------	------	--	------	--	------	--	----------	----------	----------

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

February 2002

BUDGET ACTIVITY 5 - Engineering and manufacturing development		PE NUMBER AND TITLE 0604780A - COMBINED ARMS TACTICAL TRAINER (CATT)					PROJECT 582			
COST (In Thousands)	FY 2001 Actual	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost	
582 SYNTHETIC ENVIR CORE	11165	8564	2510	0	0	0	0	0	28697	

A. Mission Description and Budget Item Justification: Synthetic Environment Core (SE Core) provides for the Engineering, Manufacturing, and Development (EMD) enhancements to the Synthetic Environment baseline for virtual training in a Combined Arms Collective environment. The EMD will transform the current heavy force environment to support the transformation to light and medium force for virtual training. The program will provide terrain databases, aviation behaviors, Air Defense capabilities, natural effects (e.g., wind) that enable the Army, specifically the aviation community, to conduct collective training and aviation combined arms training in the virtual environment. SE Core will provide the Semi-Automated Forces (SAF) behaviors to represent the evolving structure, tactics, and procedures of the Army's digitized battlefield. SE Core will provide the additional aviation models to support aviation collective training, and will provide for extended environments to simulate the aviation weapon systems and communication particular to the aviation community. The program will provide for scenario development to support aviation combined arms and collective training and After Action Review (AAR) of an exercise.

FY03 develops Digital AAR and enhances Commander's Integrated Training Tool (CITT) to include AVCATT-A.

This system supports the Objective transition path of the Transformation Campaign Plan (TCP).

FY 2001 Accomplishments:

- 7629 Continued development of aviation semi-automated forces behaviors, an aviation terrain database, interoperability between aviation and ground simulations, and mission planning and controls for the AVCATT-A system. Continued development and refinement of SE Core architecture.
- 2857 Continued development of the After Action Review (AAR) capability, training scenarios, and provide for system High Level Architecture (HLA) compliance.
- 200 Maintained support services to program office.
- 479 Provided Government Program management, engineering, technical, tests, and contract support for the aviation effort and the refinement of the SE Core baseline.

Total 11165

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

February 2002

BUDGET ACTIVITY

5 - Engineering and manufacturing development

PE NUMBER AND TITLE

**0604780A - COMBINED ARMS TACTICAL
TRAINER (CATT)**

PROJECT

582

FY 2002 Planned Program

- 7505 Complete development of aviation Semi-Automated Forces (SAF) behaviors, aviation terrain database, interoperability between aviation and ground simulations, and mission planning and controls for the AVCATT-A system. This will include SAF, Battlemaster Control Console and visual model upgrades for the Comanche Tactics, Techniques and Procedures (TTP) development and Longbow reconfigurable configuration. Complete the aviation refinements of SE Core architecture.
- 759 Provide government program management, engineering, technical, contract, and test support for SE Core refinements.
- 300 Maintain support services and government agency support to program office.

Total 8564

FY 2003 Planned Program

- 2260 Begin development of Digital AAR and enhance Commander's Integrated Training Tool (CITT) to include AVCATT-A.
- 250 Provide government program management, engineering, technical and contract support.

Total 2510

B. Other Program Funding Summary: Not applicable for this item.

C. Acquisition Strategy: Engineering Manufacturing & Development (EMD) competitive contract against performance specification.

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

February 2002

BUDGET ACTIVITY
5 - Engineering and manufacturing development

PE NUMBER AND TITLE
**0604780A - COMBINED ARMS TACTICAL
 TRAINER (CATT)**

PROJECT
582

<u>D. Schedule Profile</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
Software Builds 1 & 2	3Q						
Software Build 3(A & B)		1Q					
Software Build 3(C)		2Q					
Software Build 4		2Q					
Initial Operational Test & Evaluation (IOTE)		3Q					
Longbow Software Build and Follow-On Test			3Q				
Comanche TTP Software Build and Development Test			4Q				

FY01 Milestone Complete
 Software Build 3(A&B) Complete

ARMY RDT&E COST ANALYSIS(R-3)

February 2002

BUDGET ACTIVITY
5 - Engineering and manufacturing development

PE NUMBER AND TITLE
0604780A - COMBINED ARMS TACTICAL TRAINER
(CATT)

PROJECT
582

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 . SE Core	C/CPAF/FPI F/FFP	L-3Com (Raytheon Systems Co.) Arlington, TX	5896	10486	1Q	7505	1Q	2260	1Q	0	26147	0
Subtotal:			5896	10486		7505		2260		0	26147	0

Remarks: Raytheon Systems Co. has sold this part of their company to L-3Com.

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 . Engineering Services & Technical Support	C/FFP/T&M	Madison Research Orlando, FL	180	200	1Q	180	2Q	0		0	560	0
b . Engineering Services & Technical Support	C/FFP/T&M	AST, Inc., Orlando, FL	0	0		120	2Q	0		0	120	0
Subtotal:			180	200		300		0		0	680	0

ARMY RDT&E COST ANALYSIS(R-3)

February 2002

BUDGET ACTIVITY
5 - Engineering and manufacturing development

PE NUMBER AND TITLE
0604780A - COMBINED ARMS TACTICAL TRAINER
(CATT)

PROJECT
582

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 . IOT&E	MIPR	Operational Test Command, Ft. Hood, TX	0	43	4Q	140	2Q	0		0	183	0
Subtotal:			0	43		140		0		0	183	0

Remarks: Not Applicable

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 . Project Office Support	MIPR	STRICOM/NAWC-TSD/HRED, Orlando, FL	382	436		619		250		0	1687	0
Subtotal:			382	436		619		250		0	1687	0

Project Total Cost:			6458	11165		8564		2510		0	28697	0
---------------------	--	--	------	-------	--	------	--	------	--	---	-------	---