

UNCLASSIFIED

| ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit) | | | | | | | | DATE February 1999 | | |
|-------------------------------------------------------------------------|---------------|------------------|------------------|------------------------------------------------------------------------------|------------------|------------------|-----------------|-----------------------|------------------|------------|
| BUDGET ACTIVITY 5 - Engineering and Manufacturing Development | | | | PE NUMBER AND TITLE 0604780A Combined Arms Tactical Trainer (CATT) | | | | | | |
| COST (In Thousands) | FY1998 Actual | FY 1999 Estimate | FY 2000 Estimate | FY 2001 Estimate | FY 2002 Estimate | FY 2003 Estimate | FY2004 Estimate | FY2005 Estimate | Cost to Complete | Total Cost |
| Total Program Element (PE) Cost | 14950 | 7472 | 19925 | 18627 | 8958 | 5117 | 5109 | 5102 | 0 | 315650 |
| D571 Close Combat Tactical Trainer | 14950 | 7472 | 13238 | 7786 | 5021 | 5117 | 5109 | 5102 | 0 | 294185 |
| D582 Synthetic Environment Core | 0 | 0 | 6687 | 10841 | 3937 | 0 | 0 | 0 | 0 | 21465 |

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 data bases, 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 CCTT 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. 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 data bases 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.

UNCLASSIFIED

| | |
|---------------------------------------------------------------|------------------------------|
| ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit) | DATE February 1999 |
|---------------------------------------------------------------|------------------------------|

| | |
|--------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| BUDGET ACTIVITY 5 - Engineering and Manufacturing Development | PE NUMBER AND TITLE 0604780A Combined Arms Tactical Trainer (CATT) |
|--------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|

| B. Program Change Summary | <u>FY 1998</u> | <u>FY 1999</u> | <u>FY 2000</u> | <u>FY 2001</u> |
|-----------------------------------------------------|----------------|----------------|----------------|----------------|
| Previous President's Budget (<u>FY 1999</u> PB) | 12880 | 7533 | 11551 | 7836 |
| Appropriated Value | 13323 | 7533 | | |
| Adjustments to Appropriated Value | | | | |
| a. Congressional General Reductions | -443 | -61 | | |
| b. SBIR / STTR | -323 | | | |
| c. Omnibus or Other Above Threshold Reductions | -107 | | | |
| d. Below Threshold Reprogramming | +2500 | | | |
| e. Rescissions | | | | |
| Adjustments to Budget Years Since <u>FY 1999</u> PB | | | +8374 | +10791 |
| Current Budget Submit (<u>FY 2000/2001</u> PB) | 14950 | 7472 | 19925 | 18627 |

Change Summary Explanation: FY 1998 - Funding increase due to below threshold reprogramming (+2500) for deficiencies identified during Initial Operational Test and Evaluation (IOT&E) and for digitization support.

FY 2000 increased to meet additional requirements for Training Support Packages supporting structured training exercises and to develop aviation component of Synthetic Environment Core (+8374), funded within current Army resources.

FY 2001 increased to continue development of aviation component of Synthetic Environment Core (+10791), funded within current Army resources.

UNCLASSIFIED

| | |
|----------------------------------------------------------------|------------------------------|
| ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit) | DATE February 1999 |
|----------------------------------------------------------------|------------------------------|

| | | |
|-------------------------------------------------------------------------|------------------------------------------------------------------------------|------------------------|
| BUDGET ACTIVITY 5 - Engineering and Manufacturing Development | PE NUMBER AND TITLE 0604780A Combined Arms Tactical Trainer (CATT) | PROJECT D571 |
|-------------------------------------------------------------------------|------------------------------------------------------------------------------|------------------------|

| COST (In Thousands) | FY1998 Actual | FY 1999 Estimate | FY 2000 Estimate | FY 2001 Estimate | FY 2002 Estimate | FY 2003 Estimate | FY2004 Estimate | FY2005 Estimate | Cost to Complete | Total Cost |
|------------------------------------|---------------|------------------|------------------|------------------|------------------|------------------|-----------------|-----------------|------------------|------------|
| D571 Close Combat Tactical Trainer | 14950 | 7472 | 13238 | 7786 | 5021 | 5117 | 5109 | 5102 | 0 | 294185 |

A. Mission Description and 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 which, 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 battleforce is experiencing.

FY 1998 Accomplishments:

- 14069 Concluded functionality integration and test, conducted and supported IOT&E.
 - 325 Maintained support services to the program office. Prepared for MSIII decision 1st QTR FY99.
 - 556 Provided government program management, engineering, technical and contract support.
- Total 14950

FY 1999 Planned Program:

- 6861 Complete EMD contract, provide structured training (STRUCTT) exercises and interface between Commanders Independent Training Tool (CITT) and Maintenance Control Console (MCC), initiate High Level Architecture (HLA) compliance efforts and other Pre-Planned Product Improvements.
 - 83 Maintain support services to the program office.
 - 330 Provide government program management, engineering, technical, contract and continuous operational evaluation support.
 - 198 Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR) Programs
- Total 7472

UNCLASSIFIED

| | |
|----------------------------------------------------------------|------------------------------|
| ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit) | DATE February 1999 |
|----------------------------------------------------------------|------------------------------|

| | | |
|-------------------------------------------------------------------------|------------------------------------------------------------------------------|------------------------|
| BUDGET ACTIVITY 5 - Engineering and Manufacturing Development | PE NUMBER AND TITLE 0604780A Combined Arms Tactical Trainer (CATT) | PROJECT D571 |
|-------------------------------------------------------------------------|------------------------------------------------------------------------------|------------------------|

FY 2000 Planned Program:

- 12598 Develop Training Support Packages (TSPs) to support structured approach to preparation for training exercises, complete High Level Architecture (HLA) compliance efforts, and begin Pre-Planned Product Improvements (P3I) for After Action Reports (AAR) and Dismounted Infantry (DI) components of CCTT and other user prioritized P3I.
- 80 Maintain support services to the program office.
- 560 Provide government program management, engineering, technical, contract and continuous operational evaluation support.

Total 13238

FY 2001 Planned Program:

- 7066 Develop additional Training Support Packages (TSPs), Complete Pre-Planned Product Improvements for After Action Reports (AAR) and Dismounted Infantry (DI) components of CCTT and other user prioritized items.
- 80 Maintain support services to the program office.
- 640 Provide government program management, engineering, technical, contract and continuous operational evaluation support.

Total 7786

| B. <u>Other Program Funding Summary</u> | <u>FY 1998</u> | <u>FY 1999</u> | <u>FY 2000</u> | <u>FY 2001</u> | <u>FY 2002</u> | <u>FY 2003</u> | <u>FY 2004</u> | <u>FY 2005</u> | To <u>Compl</u> | Total <u>Cost</u> |
|----------------------------------------------------------------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|--------------------|----------------------|
| OPA3, Appropriation NA0170 SIMNET/CCTT | 53003 | 88687 | 75367 | 81505 | 26847 | 7744 | | | 0 | 465442 |
| RDTE, Appropriation 0605712A Support of Operational Testing | 19921 | 20041 | 19799 | 18954 | 18703 | 21010 | 20593 | 21922 | Cont | Cont |
| CCTT Portion of RDTE, 0605712A Above | | | | | | | | | | 6528 |
| Military Construction, A Appropriation 2050 (CCTT Portion) | 14600 | 7600 | 0 | 0 | | | | | 0 | 52100 |
| Operation and Maintenance, A Appropriation 115013 under WCLS MDEP | 174410 | 180380 | 194902 | 214609 | 238806 | 248376 | 266609 | 252566 | Cont'd | Cont'd |
| CCTT Portion of OMA above | 7930 | 11900 | 21670 | 28700 | 34050 | 38850 | 39710 | 40590 | Cont'd | Cont'd |

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

| | |
|----------------------------------------------------------------|------------------------------|
| ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit) | DATE February 1999 |
|----------------------------------------------------------------|------------------------------|

| | | |
|-------------------------------------------------------------------------|------------------------------------------------------------------------------|------------------------|
| BUDGET ACTIVITY 5 - Engineering and Manufacturing Development | PE NUMBER AND TITLE 0604780A Combined Arms Tactical Trainer (CATT) | PROJECT D571 |
|-------------------------------------------------------------------------|------------------------------------------------------------------------------|------------------------|

| D. Schedule Profile | <u>FY 1998</u> | <u>FY 1999</u> | <u>FY 2000</u> | <u>FY 2001</u> | <u>FY 2002</u> | <u>FY 2003</u> | <u>FY 2004</u> | <u>FY 2005</u> | <u>FY 2004</u> | <u>FY 2005</u> |
|-------------------------------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|
| IOT&E Fixed System | 3Q* | | | | | | | | | |
| MSIII Decision | | 1Q* | | | | | | | | |
| Full Rate Production Contract Award | | 2Q | | | | | | | | |
| P3I Software/Hardware Insertions | | 4Q | 4Q | 4Q | 4Q | 4Q | 4Q | | 4Q | 4Q |

* Completed Milestones

UNCLASSIFIED

| ARMY RDT&E COST ANALYSIS (R-3) | | | | | | | | | | DATE February 1999 | | |
|-------------------------------------------------------------------------|------------------------|--------------------------------|----------------|------------------------------------------------------------------------------|--------------------|--------------|--------------------|--------------|--------------------|------------------------|------------|--------------------------|
| BUDGET ACTIVITY 5 - Engineering and Manufacturing Development | | | | PE NUMBER AND TITLE 0604780A Combined Arms Tactical Trainer (CATT) | | | | | | PROJECT D571 | | |
| I. Product Development | Contract Method & Type | Performing Activity & Location | Total PYs Cost | FY 1999 Cost | FY 1999 Award Date | FY 2000 Cost | FY 2000 Award Date | FY 2001 Cost | FY 2001 Award Date | Cost To Complete | Total Cost | Target Value of Contract |
| a. CCTT EMD | C/CPAF & T&M/FFP | Lockheed/Martin Orlando, FL | 203991 | 2900 | Oct 98 | | | | | | 206891 | |
| b. Pre-Planned Product Improvements (P3I) | C/CP | Lockheed/Martin Orlando, FL | | 3961 | Oct 98 | 12598 | Oct 99 | 7066 | Oct 00 | 19109 | 42734 | |
| Subtotal Product Development: | | | 203991 | 6861 | | 12598 | | 7066 | | 19109 | 249625 | |
| II. Support Costs | Contract Method & Type | Performing Activity & Location | Total PYs Cost | FY 1999 Cost | FY 1999 Award Date | FY 2000 Cost | FY 2000 Award Date | FY 2001 Cost | FY 2001 Award Date | Cost To Complete | Total Cost | Target Value of Contract |
| a. Engineering and Technical Support | MIPR | Various activities | 30155 | 281 | | 80 | | 80 | | 350 | 30946 | |
| Subtotal Support Costs: | | | 30155 | 281 | | 80 | | 80 | | 350 | 30946 | |
| III. Test and Evaluation: Not Applicable | | | | | | | | | | | | |
| IV. Management Services | Contract Method & Type | Performing Activity & Location | Total PYs Cost | FY 1999 Cost | FY 1999 Award Date | FY 2000 Cost | FY 2000 Award Date | FY 2001 Cost | FY 2001 Award Date | Cost To Complete | Total Cost | Target Value of Contract |
| a. Project Office Support | MIPR | STRICOM/NAWC-TSD, Orlando, FL | 11194 | 330 | | 560 | | 640 | | 890 | 13614 | |
| Subtotal Management Services: | | | 11194 | 330 | | 560 | | 640 | | 890 | 13614 | |
| Project Total Cost: | | | 245340 | 7472 | | 13238 | | 7786 | | 20349 | 294185 | |

UNCLASSIFIED

| | |
|----------------------------------------------------------------|------------------------------|
| ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit) | DATE February 1999 |
|----------------------------------------------------------------|------------------------------|

| | | |
|-------------------------------------------------------------------------|------------------------------------------------------------------------------|------------------------|
| BUDGET ACTIVITY 5 - Engineering and Manufacturing Development | PE NUMBER AND TITLE 0604780A Combined Arms Tactical Trainer (CATT) | PROJECT D582 |
|-------------------------------------------------------------------------|------------------------------------------------------------------------------|------------------------|

| COST (In Thousands) | FY1998 Actual | FY 1999 Estimate | FY 2000 Estimate | FY 2001 Estimate | FY 2002 Estimate | FY 2003 Estimate | FY2004 Estimate | FY2005 Estimate | Cost to Complete | Total Cost |
|---------------------------------|---------------|------------------|------------------|------------------|------------------|------------------|-----------------|-----------------|------------------|------------|
| D582 Synthetic Environment Core | 0 | 0 | 6687 | 10841 | 3937 | 0 | 0 | 0 | 0 | 21465 |

A. Mission Description and Budget Item Justification Synthetic Environment Core (SE Core) provides for the engineering, manufacturing, and development (EMD) enhancements to the Close Combat Tactical Trainer (CCTT) synthetic environment baseline for use in future CATT expansions. This first initiative will support the development and refinement of the SE Core architecture to include functionality for the Close Combat Tactical Trainer and Aviation Combined Arms Tactical Trainer – Aviation Reconfigurable Manned Simulators (AVCATT-A), which will enhance readiness of the Total Army (Active and Reserve component forces). 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 ranges 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 of an exercise.

FY 1998 Accomplishments: Project not funded in FY 1998

FY 1999 Planned Program: Project not funded in FY 1999

FY 2000 Planned Program:

- 5119 Develop 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. Development and refinement of SE Core architecture.
 - 1009 Develop an After Action Review capability, training scenarios, and provide for system High Level Architecture (HLA) compliance. Acquire development hardware to support software development
 - 200 Maintain support services to program office.
 - 359 Provide government program management, engineering, technical and contract support for the aviation effort and the refinement of the SE Core baseline.
- Total 6687

| | |
|----------------------------------------------------------------|------------------------------|
| ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit) | DATE February 1999 |
|----------------------------------------------------------------|------------------------------|

| | | |
|--------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------|
| BUDGET ACTIVITY 5 - Engineering and Manufacturing Development | PE NUMBER AND TITLE 0604780A Combined Arms Tactical Trainer (CATT) | PROJECT D582 |
|--------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------|

- FY 2001 Planned Program:**
- 7291 Continue 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. Development and refinement of SE Core architecture.
 - 2900 Continue development of the After Action Review capability, training scenarios, and provide for system High Level Architecture (HLA) compliance.
 - 200 Maintain support services to program office.
 - 450 Provide Government Program management, engineering, technical, and contract support for the aviation effort and the refinement of the SE Core baseline.
- Total 10841

B. Other Program Funding Summary: Not Applicable

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

| D. <u>Schedule Profile</u> | <u>FY 1998</u> | <u>FY 1999</u> | <u>FY 2000</u> | <u>FY 2001</u> | <u>FY 2002</u> | <u>FY 2004</u> | <u>FY 2005</u> | <u>FY 2004</u> | <u>FY 2005</u> |
|-----------------------------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|
| MS II Decision | | 3Q | | | | | | | |
| Contract Option Award | | | 1Q | | | | | | |
| Integration Testing | | | | | 4Q | | | | |

UNCLASSIFIED

| ARMY RDT&E COST ANALYSIS (R-3) | | | | | | | | | | DATE February 1999 | | |
|-------------------------------------------------------------------------|------------------------|--------------------------------|----------------|--------------|------------------------------------------------------------------------------|--------------|--------------------|--------------|--------------------|------------------------------|------------|--------------------------|
| BUDGET ACTIVITY 5 - Engineering and Manufacturing Development | | | | | PE NUMBER AND TITLE 0604780A Combined Arms Tactical Trainer (CATT) | | | | | PROJECT D582 | | |
| I. Product Development | Contract Method & Type | Performing Activity & Location | Total PYs Cost | FY 1999 Cost | FY 1999 Award Date | FY 2000 Cost | FY 2000 Award Date | FY 2001 Cost | FY 2001 Award Date | Cost To Complete | Total Cost | Target Value of Contract |
| a. AVCATT-A | C/CPFF | TBD | | | | 6128 | Nov 99 | 10191 | Nov 00 | 3537 | 19856 | |
| Subtotal Product Development | | | | | | 6128 | | 10191 | | 3537 | 19856 | |
| II. Support Costs | Contract Method & Type | Performing Activity & Location | Total PYs Cost | FY 1999 Cost | FY 1999 Award Date | FY 2000 Cost | FY 2000 Award Date | FY 2001 Cost | FY 2001 Award Date | Cost To Complete | Total Cost | Target Value of Contract |
| a. Engineering Services & Technical Support | C/CFFP | SHERIKON, Orlando, FL | | | | 200 | Nov 99 | 200 | Nov 00 | | 400 | |
| Subtotal Support Costs: | | | | | | 200 | | 200 | | | 400 | |
| Remark: Each award is a Delivery Order against CFFP. | | | | | | | | | | | | |
| III. Test and Evaluation: Not Applicable. | | | | | | | | | | | | |
| IV. Management Services | Contract Method & Type | Performing Activity & Location | Total PYs Cost | FY 1999 Cost | FY 1999 Award Date | FY 2000 Cost | FY 2000 Award Date | FY 2001 Cost | FY 2001 Award Date | Cost To Complete | Total Cost | Target Value of Contract |
| a. Project Office Support | MIPR | STRICOM/NAWC-TSD, Orlando, FL | | | | 359 | Nov 99 | 450 | Nov 00 | 400 | 1209 | |
| Subtotal Management Services: | | | | | | 359 | | 450 | | 400 | 1209 | |
| Project Total Cost: | | | | | | 6687 | | 10841 | | 3937 | 21465 | |
| Project D582 | | | | | | | | | | | | |

THIS PAGE INTENTIONALLY LEFT BLANK