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

June 2001

BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
3 - ADV TECHNOLOGY DEV	**0603238A - Air Defense/Precision Strike Tech**	**177**

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
177 JT ALS PS DEMO	24911	21112	32267	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.

The goal of this program element is to use and demonstrate maturing technologies to locate, identify, and kill high-value and time-critical targets to work Joint Command, Control, Communications, Computers, Intelligence, Surveillance and Reconnaissance (C4ISR) seams, to assess damage within tactically meaningful timelines, and to evaluate sensor-to-shooter and other capabilities for the Objective Force. This work is closely coordinated with the other Services, OSD and the User community to seek joint solutions, new operational concepts, and joint concept development. The Theater Precision Strike Operations (TPSO) ACTD, initiated in FY 1998, is providing the Commander in Chief, United Nations Command (CINCUNC) (Korea) a significantly enhanced Theater wide capability for the CINC to plan and conduct Counterfire and Precision Strike Engagements through the real-time/near-real-time synchronization of US/Coalition assets through application technologies. Joint Intelligence, Surveillance and Reconnaissance (JISR) ACTD initiated in FY 2000 will implement a tactical networked sensor grid using internet web based technologies to horizontally integrate tactical and operational level ISR information from existing stove-piped legacy service and joint C4ISR systems and nontraditional tactical sensors (such as Firefinder radar and unattended ground sensors). Warfighters will be able to access and geospatially visualize all available ISR information using any workstation equipped with a browser. In FY 2002 the JISR ACTD will integrate additional Joint ISR sensors and sources to include the Global Command and Control System (GCCS), GCCS-Improved Imagery and Intelligence (GCCS-I3), GCCS-Maritime (GCCS-M), Guardrail Common Sensor, Tactical Exploitation System (TES), Tactical Control and Analysis Center (TCAC), and Firefinder radar. Joint Continuous Strike Environment (JCSE) ACTD will provide the CJTF with automated target prioritization, continuous weapons availability monitoring, optimized weapon-target pairing and dynamic airspace deconfliction. The Integration and Evaluation Center (IEC) combines live and simulated entities into a Joint virtual battlefield testbed for designing, conducting, measuring, and assessing, and evaluating system of systems designs, demonstrations, and experiments to identify and quantify system solutions for Joint C4ISR and system solutions. The IEC technology is the base for Simulation Based Acquisition evaluations. FY 2002 will continue the JCSE and TPSO ACTDs participation and support into CINCUNC warfighting exercises, increasing the functionality for the Joint Warfighter Applications into warfighter units as well as finalize and execute transition and sustainment plans thru FY 2002-2003. This project is also developing the Joint Virtual Battlespace (JVB). The JVB project provides robust Simulation Based Acquisition (SBA) tools for system-of-systems analysis environment that facilitates the assessment of the acquisition decisions for the Future Combat System (FCS) and Objective Force (OF) operational concepts in a joint environment. JVB integrates existing models, creating a battlespace which can evaluate the synergy of system-of-systems designs as compared to individual component systems. No other tool is available in the Army to do this operational, constructive analysis. The JVB includes many facets of the battlespace, such as terrain interactions, weather effects, mobility, networked sensors, joint forces, and robotics. The JVB program was started in FY 2001 with funding programmed from PE 0603005A, Project 440 as part of a Congressional increase for FCS. In FY 2002-2003 the funding to continue JVB has is contain in this PE/Project. The increase in total funding in this PE from FY 2001 to FY 2002 is primarily due to the transition of the JVB funding into this PE.

Additionally, the JISR ACTD was not funded from this PE in FY 2001, due to other Army priorities, but is funded in this PE again in FY 2002 and this is also contributing to the FY 2001 to FY 2002 funding increase. The cited work is consistent with the Army Science and Technology Master Plan (ASTMP), the Army Modernization Plan and Project Reliance. The program element contains no known duplication with any effort within the Military Departments. Work in this project is managed by the Director, Joint Precision Strike Demonstration (JPSD) Project Office at Fort Belvoir, VA. JPSD is a member of the Program Executive Office, Intelligence, Electronic Warfare, and Sensors (PEO-IEW&S), Fort Monmouth, NJ. The Prime contractor for the TPSO and JISR ACTDs is Raytheon Company, Bedford, MA. For the JCSE ACTD the prime contractor is General Dynamics - Information Systems, Arlington, VA. This program supports the Objective Science and Technology transition path of the Transformation Campaign Plan (TCP).

FY 2000 Accomplishments

- 18776 - Participated in four major Commander-in-Chief United Nations Command (CINCUNC) warfighting exercises in the Korean theater to update previous documentation of functional requirements, and to integrate emerging technologies and capabilities for the Warfighter.

  - Planned and executed a demonstration, stimulated by simulations, of a counterfire battle for an unreinforced Korean scenario. Pre-prototype developmental systems in the Deep Operations Coordination Center were operated by United States Forces Korea (USFK) soldiers in a Man-in-the-Loop (MITL) mode for a proof of concept, early user evaluation in a realistic warfighting environment. These pre-prototype systems are compatible with Army Command, Control, Communication, Computers and Intelligence (C4I) acquisition programs. The demonstration included Republic of Korea (ROK) participation in counterfire fire requests and execution.

  - Conducted rapid prototyping operations at the JPSD Integration and Evaluation Center (IEC), in conjunction with the Depth and Simultaneous Attack Battle Lab (D&SABL) as well as Air Force, Navy and Marine Corps activities, to develop pre-prototype systems for the TPSO ACTD. The prototyping is designed to facilitate the coordination, planning and synchronization of joint and combined forces. The major effort is the development of Joint Warfighter Applications (JWA), which were leveraged from development provided during the previous CMRL ACTD. JWA is a software tool set that provides automated deep operations and coordination functions to support automated weapon paring and command and control functions.

  - Expanded, and upgraded the High Level Architecture (HLA) environment and automated Data Collection Architecture for the TPSO ACTD. This was used in FY 2000 and will continue to be used in FY 2001 to stimulate the Man-in-the-Loop (MITL) demonstrations. Provided the data collection capability required to make credible warfighting assessments.

  - Conducted technical reviews to assess the warfighting effectiveness of the emerging technologies integrated into the pre-prototype systems under development.

  - Supported Department of the Army-directed Greybeard North Korea Architecture Study.

- 817 - Validated and coordinated the Joint Continuous Strike Environment (JCSE) requirements in targeting Time Sensitive Surface Targets. Conducted a JCSE baseline demonstration during Fleet Battle Experiment - FOXTROT (FBE-F).

FY 2000 Accomplishments (Continued)

- Tested the JCSE software for Build 2. Completed and began testing software for Build 3. Began requirements for Build 4.
- Coordinated transition of JCSE ACTD product.

• 1500 - Expanded the analytical capability of the JPSD Integration and Evaluation Center (JIEC). Provided additional connectivity to TRADOC Battle Labs and Joint Battle Center (JBC) to expand on current connectivities with Army, Air Force and Navy Battle Labs. Provided enhanced Joint user/developer testbed for rapid prototyping of new systems.

• 3693 - Collected, documented and validated initial functional requirements and operational and systems architectures for Joint Intelligence Surveillance Reconnaissance (JISR) ACTD participants including U.S. Central Command, Third Army, Coalition Joint Task Force - Kuwait, and First Marine Expeditionary Force.

- Established a distributed modeling and simulation environment to support development and assessment.
- Developed and demonstrated an initial prototype capable of providing browser based access to JSTARS Common Ground Station moving target indicator (MTI) data, All Source Analysis System red force situation data, and GCCS-Army blue force situation data.

• 125 - Provided support for Personal Recovery Software for the Personal Recovery Management System (PMRS) ACTD.

Total 24911

FY 2001 Planned Program

• 19795 - TPSO ACTD will participate in CINCUNC warfighting exercises to refine, enhance, and expand the JWA and other functionality provided by pre-prototype systems demonstrated during the FY 2000 Demonstration.

- Plan and execute a simulation/stimulated demonstration which will include aspects of a scenario representative of the transition from an unreinforced Korean Theater to a reinforced Korean Theater. Both ROK and U.S. forces will participate in a Man-In-The-Loop (MITL) fashion both in the GCC DOCC and at the critical external nodes. They will operate the objective, residual capability candidate systems developed during the TPSO ACTD in a realistic warfighting environment.
- Conduct rapid prototyping operations at the JPSD IEC, Fort Belvoir, in conjunction with the Depth and Simultaneous Attack Battle Laboratory (D&SABL), as well as the Air Force, Navy and Marine Corps activities, to refine the functionality and improve the capability of the pre-prototype systems evaluated during the FY 2000 Demonstration.
- Conduct technical reviews to assess the warfighting value added by each pre-prototype, residual system, and candidate system during the demonstration. Determine which candidate systems exhibit sufficient maturity and capability to warrant qualification as an ACTD "Leave Behind".

FY 2001 Planned Program (Continued)

- Develop transition and sustainment plans to support the "Leave Behind" Systems for TPSO during the period of interim capability (FY 2002-2003), including a Battlespace Visualization system in the GCC DOCC; hardware system upgrades; provision of training support packages; and in-country support technical team and more than 200 JWA's, with some hosted on GCCS-K.

• 702 - Continue to evaluate and validate the value added of Joint Continuous Strike Environment (JCSE) system integration in laboratory tests and with Joint Battle Center evaluations.

- Perform EUCOM Military assessment of JCSE ACTD.

- Complete software Build 4 and continue participation in Joint exercises, including ULCHI FOCUS LENS (UFL) 2001.

- JCSE will install Version 3.x software modules at 7th Air Force and in the USFK DOCC in Korea for UFL01; on the USS Coronado for Fleet Battle Experiment-India (FBE-I) and in the Combined Air Operations-Experimental (CAOC-X) at Langley AFB, VA.

• 615 - Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR) Programs.

Total 21112

FY 2002 Planned Program

• 13492 - TPSO ACTD will participate in CINCUNC warfighting exercises to refine, enhance, and expand the functionality provided by pre-prototype systems demonstrated during the FY 2001 Demonstration.

- Support the four currently planned major CINCUNC exercises in the Korean theater, providing refined, expanded, and enhanced Joint Warfighter Application (JWA) functionality to the GCC DOCC and associated activities.

-Conduct rapid prototyping operations at the JPSD IEC, Fort Belvoir, in conjunction with the D&SABL and Air Force, Navy and Marine Corps activities to refine the JWA functionality and improve the capability of the systems provided during the previous years of the ACTD.

- Transition and sustain Joint Warfighter Applications into CINCUNC warfighter units.

- Transition and sustain JWA into CENTCOM ARFOR (3rd Army) and in USAREUR (US V Corps) units.

- Finalize and execute transition and sustainment plans to support the "Leave Behind" Systems for TPSO during the period of interim capability (FY 2002-2003), including a Battlespace Visualization system in the GCC DOCC; hardware system upgrades; provision of training support packages; and in-country support technical team and more than 200 JWA's, with some hosted on GCCS-K.

• 1772 - JISR ACTD will integrate additional Joint ISR sensors and sources to include the Global Command and Control System (GCCS), GCCS-Improved Imagery and Intelligence (GCCS-I3), GCCS-Maritime (GCCS-M), Guardrail Common Sensor, Tactical Exploitation System (TES), Tactical Control and Analysis Center (TCAC), and Firefinder radar.

- Assess JISR system performance during the ARCENT LUCKY SENTINAL and Marine Expeditionary Force exercises and other tactical venues.

FY 2002 Planned Program (Continued)

- 725 - Continue to evaluate and validate the value added of Joint Continuous Strike Environment (JCSE) system integration.
  - Implement transition plan and have JCSE DII-COE compliant.
  - Demonstrate in Fleet Battle Experiment-JULIET (FBE-J) and Millennium Challenge 2002.
- 16278 - Integrate dynamic environment, NBC component simulations and conops/tactics into the JVB framework.
  - Integrate Joint Force on Force models with component simulations in the JVB framework.
  - Incorporate initial FCS contractor concepts/models in JVB.
  - Conduct virtual force on force experiments and provide data and results to the analysis community to support initial operational evaluations.
  - Integrate model federation from the Research, Development and Engineering Center community.
  - Incorporate additional models from the Department of Energy and other government agencies.
  - Evaluate FCS/Objective Force design concepts in urban environments.

Total 32267

B. Program Change Summary	FY 2000	FY 2001	FY 2002	FY 2003
President's Previous Budget (FY 2001 PB)	24435	21307	15997	0
Appropriated Value	24618	21307	0	0
Adjustments to Appropriated Value	0	0	0	0
a. Congressional General Reductions	0	0	0	0
b. SBIR / STTR	-649	0	0	0
c. Omnibus or Other Above Threshold Reductions	-99	0	0	0
d. Below Threshold Reprogramming	1125	0	0	0
e. Rescissions	-84	-195	0	0
Adjustments to Budget Years Since FY2001 PB	0	0	16270	0
Current Budget Submit (FY 2002/2003 PB)	24911	21112	32267	0

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Change Summary Explanation: Funding - FY 2002-2003: Funding increase to continue JVB FCS modeling and simulation, which started in FY 2001 with funding provided from the Congressional increase for FCS in PE/project 0603005A/440.