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ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)							DATE February 2000		
BUDGET ACTIVITY 3 - Advanced Technology Development				PE NUMBER AND TITLE 0603238A Air Defense/Precision Strike Technology					
COST (In Thousands)	FY1999 Actual	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	10236	24435	21307	15997	15049	12929	12768	Continuing	Continuing
D177 Joint Air/Land/Sea Precision Strike Demonstration	9803	24435	21307	15997	15049	12929	12768	Continuing	Continuing
D546 Synthetic Aperture Radar Target Recognition and Location System	433	0	0	0	0	0	0	0	12580

A. Mission Description and Budget Item Justification: The objective of this program element is to locate, identify, and kill high-value, time-critical targets and to assess damage within tactically meaningful timelines. This Program Element funds the Joint Precision Strike Demonstration program which integrates advanced technologies in reconnaissance and surveillance; target acquisition; strike planning; weapon delivery; and damage assessment and implements these in a sensor-to-shooter architecture to reduce overall timelines from hours to minutes. This work is closely coordinated with the other Services and the User community to seek joint solutions and incorporate new operational concepts. This program developed the Joint Integration and Evaluation Center (JIEC), which combines live and simulated entities into a virtual battlefield testbed, and continues to evolve the JIEC capabilities for designing, conducting, measuring, and assessing system of systems demonstrations and experiments to identify and quantify system solutions to precision strike and counterfire needs. The JIEC and this methodology enabled the FY95-98 Precision/Rapid Counter-Multiple Rocket Launcher Advanced Concept technology Demonstration (ACTD) to provide the Commander in Chief, United Nations Command (Korea) a significantly improved capability to defeat the North Korean 240mm Multiple Rocket Launcher. Other on-going efforts in this program element are the Theater Precision Strike Operations ACTD, the Joint Continuous Strike Environment ACTD, and the Joint Intelligence, Surveillance and Reconnaissance demonstration. Previous work included the Synthetic Aperture Radar Target Recognition and Location System (STARLOS) real-time Aided Target Recognition (AiTR) technology, which completed in FY 1999. The work in this program element is closely coordinated with the Joint Staff, other Services, the Army's combat development community, TRADOC Battle Labs, and appropriate materiel developers and is consistent with the resource constrained Army Science and Technology Master Plan, the Army Modernization Plan, and the Joint Warfare Science and Technology Plan and supports Army Warfighting Experiments (AWEs).

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B. Program Change Summary	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>
Previous President's Budget (<u>FY 2000/2001</u> PB)	9907	24618	21434
Appropriated Value	9973	24618	
Adjustments to Appropriated Value			
a. Congressional General Reductions	-66		
b. SBIR / STTR	-256		
c. Omnibus or Other Above Threshold Reductions		-99	
d. Below Threshold Reprogramming	623		
e. Rescissions	-38	-84	
Adjustments to Budget Years Since <u>FY 2000/2001</u> PB			-127
Current Budget Submit (<u>FY 2001</u> PB)	10236	24435	21307

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<i>COST (In Thousands)</i>	FY1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY2004 Estimate	FY2005 Estimate	Cost to Complete	Total Cost	
D177 Joint Air/Land/Sea Precision Strike Demonstration	9803	24435	21307	15997	15049	12929	12768	Continuing	Continuing	
<p><u>Mission Description and Justification:</u> Through a series of building block demonstrations, the Joint Air Land Sea Precision Strike (JT ALS PS) Demonstration Project has identified barriers to an advanced precision strike capability and assessed candidate solutions to these barriers. The FY95-FY96 Precision/Rapid Counter Multiple Rocket Launcher (P/RC-MRL) Advanced Concept Technology Demonstration (ACTD) significantly enhanced the capability to locate, track, and defeat the North Korean 240mm MRL threat. The Commander in Chief, United Nations Command (CINCUNC) requested that the successful methodologies for solving critical precision strike issues be applied at theater level. In response, the concept for a Theater Precision Strike Operations (TPSO) ACTD was approved in FY98. TPSO is designed to provide a significantly enhanced joint and combined capability for the CINC to plan and conduct Theater Counterfire and Precision Strike Engagements through the real time/near real time synchronization of US/Coalition assets. TPSO is providing enhancements to the C2/Strike Planning Process, Shared Situational Awareness, Joint/Combined Interoperability, and the Transition to Reinforcement scenario. JPSD makes use of simulation-based design and the Joint Integration and Evaluation Center (IEC) for Joint Concept Development and System Assessment. This project includes funding to support the Army share of the Joint Continuous Strike Environment (JCSE) ACTD which will provide the Commander Joint Task Force (CJTF) with automated target prioritization, continuous weapons availability monitoring, optimized weapon-target pairing and dynamic airspace deconfliction. The Joint Intelligence, Surveillance and Reconnaissance (JISR) effort will provide near real time Intelligence, Surveillance and Reconnaissance (ISR) data to the Brigade/Early Entry Force Commander. It also will provide the CINC, CJTF and other component commander with the ground tactical picture. Efforts in this project are managed by the Director, Joint Precision Strike Demonstration Project Office, Fort Belvoir, VA, Program Executive Officer, Intelligence, Electronic Warfare, and Sensors (PEO-IEW&S), Fort Monmouth, NJ. The Prime contractor is Raytheon, Bedford, MA.</p> <p><u>FY 1999 Accomplishments:</u></p> <ul style="list-style-type: none"> • 9803 - Participated in Commander-in Chief United Nations Command (CINCUNC) warfighting exercises, Reception Staging Onward Movement & Integration (RSOM&I), Foal Eagle, Summer-Ex and Ulchi Focus Lens (UFL), documenting warfighting functional requirements and integrating emerging technologies/capabilities for the Theater Precision Strike Operations (TPSO) ACTD. <ul style="list-style-type: none"> - Provided CINCUNC with enhanced technical command and control capabilities for conduct of synchronized Joint/Combined deep operations and precision strikes for TPSO. - Executed the rapid prototyping capabilities at the JIEC at Fort Belvoir, the CTSF at Fort Hood, TX and D&SABL at Fort Sill, OK. - Expanded the Joint Precision Strike Demonstration threat database to integrate joint systems into the simulation environment supporting TPSO evaluations. - Refined the JIEC analytical capability to measure performance and effectiveness so those objective conclusions can be made regarding the military utility of the demonstrated technologies and concepts. - Conducted technical reviews and demonstrations to assess the contribution of emerging technologies to TPSO. - Planned the FY99 baseline scenario exercise and assessed the communications infrastructure necessary to conduct the demonstration. 										
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<p>FY 1999 Accomplishments: (continued)</p> <p>- Transitioned to a High Level Architecture (HLA) environment that supports simulating Man in the Loop (MITL) for FY00 demonstration.</p> <p>Total 9803</p> <p>FY 2000 Planned Program:</p> <ul style="list-style-type: none"> • 17776 - Participate in Commander-in- Chief United Nations Command (CINCUNC) warfighting exercises to document functional requirements supporting pre-prototype design and integration objectives for the Theater Precision Strike Operations (TPSO) ACTD. <ul style="list-style-type: none"> - Plan and execute a demonstration, stimulated by simulations, of a counterfire battle for an unreinforced Korean scenario. Pre-prototype developmental systems in the Deep Operations Coordination Center will be 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. The pre-prototype systems will be compatible with Army Command, Control, Communication, Computers and Intelligence (C4I) acquisition programs. The demonstration will include Republic of Korea (ROK) observation in preparation for ROK participation in the planned FY 01 Demonstration for the TPSO ACTD. - Conduct rapid prototyping operations at the Joint Integration & Evaluation Center (JIEC), in conjunction with the Central Technical Support Facility (CSTF), the Depth & Simultaneous Battle Lab (D&SBL), Battle Command Battle Lab, 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. - Expand, upgrade and implement the High Level Architecture (HLA) environment and automated Data Collection Architecture for the TPSO ACTD. This will be used to stimulate the FY00 and FY01 Man-in-the-Loop (MITL) demonstrations. Provide the data collection capability required to make credible warfighting assessments. - Conduct technical reviews for TPSO ACTD, to assess the warfighting effectiveness of the emerging technologies integrated into the pre-prototype systems under development. 817 - Validate and coordinate Joint Continuous Strike Environment (JCSE) requirements in targeting Time Sensitive Surface Targets. Participate in Fleet Battle Experiment. 1500 - Expand the analytical capability of the Joint Integration and Evaluation Center (JIEC). Provide additional connectivity to TRADOC Battle Labs and Joint Battle Center (JBC) to expand on current connectivities with Army, Air Force and Navy Battle Labs. Provide enhanced Joint user/developer testbed for rapid prototyping of new systems. 3693 - Define Joint Intelligence Surveillance Reconnaissance (JISR) technology demonstration program requirements. Define data collection architecture. Design and begin integration of JISR family of models, and JISR testbed as part of the JIEC. 649 - Small Business Innovative Research/Small Business Technology Transfer Programs (SBIR/STTR) <p>Total 24435</p>		
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<p>FY 2001 Planned Program:</p> <ul style="list-style-type: none"> • 21082 - Participate in CINCUNC warfighting exercises to refine the functionality of pre-prototype systems demonstrated during the FY 00 Demonstration. <ul style="list-style-type: none"> - Plan and execute a simulation/stimulated demonstration, employing a scenario representative of the transition from an unreinforced Korean Theater to a reinforced Korean Theater. Both ROK and U.S. forces, including the U.S. Army III Corps, will participate in a 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 JIEC, Fort Belvoir, in conjunction with the CTSF, the 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 00 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". - Develop transition and sustainment plans to support the "Leave Behind" Systems for TPSO during the period of interim capability (FY 02-03). 225 - Evaluate and validate the value added of Joint Continuous Strike Environment (JCSE) system integration. <p>Total 21307</p>		
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BUDGET ACTIVITY 3 - Advanced Technology Development	PE NUMBER AND TITLE 0603238A Air Defense/Precision Strike Technology	PROJECT D546
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<i>COST (In Thousands)</i>	FY1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY2004 Estimate	FY2005 Estimate	Cost to Complete	Total Cost
D546 Synthetic Aperture Radar Target Recognition and Location System	433	0	0	0	0	0	0	0	12580

Mission Description and Justification: This project demonstrated the feasibility of locating and identifying high value targets from an Army designated aerial platform. The focus of the program was on Aided Target Recognition (AiTR) of short-range ballistic missiles, surface-to-air missile launchers, rocket launchers and other designated military targets of interest. The targets were located with airborne sensors and identified with a real-time AiTR system. In FY 97, the Synthetic Aperture Radar Target Recognition and Location System (STARLOS) AiTR effort for the Joint Precision Strike Demonstration (JPSD) Precision/Rapid Counter Multiple Rocker Launcher (MRL) Advanced Concept Technology Demonstration (ACTD) was completed. This AiTR capability was integrated in a ground control station and successfully demonstrated against the North Korean 240mm MRL threat. The STARLOS program was then actively involved in the adaptation of its technology into the next generation sensors being procured for the Tactical Unmanned Aerial Vehicle (TUAV) program. The program direction was to utilize STARLOS technology to provide AiTR aids and processing capabilities that would enhance the Human Machine Interface and would alleviate the analytic requirements of the TUAV operator. This program has been managed by Program Executive Officer-Intelligence, Electronic Warfare & Sensors, PM Tactical Endurance Synthetic Aperture Radar, with matrix support from Army Research Laboratory, Adelphi, MD and Night Vision and Electronic Sensors Directorate, Communications and Electronics Command (CECOM) Research & Development Engineering Center (RDEC), Fort Monmouth, NJ.

FY 1999 Accomplishments:

- 433 - Completed investigation on the utilization of a Common Aided Target Recognition (AiTR) capability and technical reviews with the Training & Doctrine Command Systems Manager Unmanned Aerial Vehicle (TSM UAV) and Battle Command Battle Lab (Fort Huachuca) on the incorporation of an AiTR solution for the Multi-Mission Common Modular Unmanned Aerial Vehicle (UAV) Sensors.
- Total 433

FY 2000 Planned Program: Project not funded in FY 2000

FY 2001 Planned Program: Project not funded in FY 2001