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

**February 2002**

| BUDGET ACTIVITY | PE NUMBER AND TITLE | PROJECT |
|---|---|---|
| **3 - Advanced technology development** | **0603238A - Global Surveillance/Air Defense/Precision Strike T** | **177** |

| COST (In Thousands) | | FY 2001 Actual | FY 2002 Estimate | FY 2003 Estimate | FY 2004 Estimate | FY 2005 Estimate | FY 2006 Estimate | FY 2007 Estimate |
|---|---|---|---|---|---|---|---|---|
| 177 | JT ALS PS DEMO | 20997 | 31986 | 31291 | 12930 | 12730 | 12920 | 13269 |

**A. Mission Description and Budget Item Justification:** Joint Precision Strike Demonstration's (JPSD) mission is to integrate innovative Operational Concepts and Tactics Techniques and Procedures (TTPs) with emerging technologies to significantly improve OSD/Army's Precision Strike (PS) capabilities. JPSD horizontally integrates state of the art software applications and tools across the Joint Command, Control, Communications, Computers, Intelligence, Surveillance and Reconnaissance (C4ISR) seams to optimize sensor to shooter operations and solve critical joint problems.

The Integration and Evaluation Center (IEC) combines live and simulated entities into a joint virtual battlefield testbed for designing, conducting, assessing, and evaluating systems designs, and experiments to identify and quantify solutions for joint C4ISR and system solutions. The IEC is the foundation for JPSD's Simulation Based Acquisition evaluations and is the basis for developing the Joint Virtual Battlespace (JVB).

Joint Virtual Battlespace facilitates the assessments needed for the smart and timely acquisition decisions on the Future Combat System (FCS) and Objective Force (OF), while assessing the operational impact of concepts in a joint environment. JVB integrates existing models, creating a joint battlespace, which can be used to evaluate and determine 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 and virtual, analysis support. The JVB includes many facets of the battlespace, such as terrain interactions, weather effects, mobility, networked sensors, human workload, joint forces, man-in-the-loop and robotics. This work contains no known duplication with any effort within the Military Departments. The Director, Joint Precision Strike Demonstration (JPSD) Project Office at Fort Belvoir, VA, executes this project for Program Manager FCS.

The Theater Precision Strike Operations (TPSO) Advanced Concept Technology Demonstration (ACTD) by use of state of the art software applications/tools provides the Commander in Chief, United Nations Command (CINCUNC) Korea with a significantly enhanced Theater wide capability to plan and conduct Counterfire, Precision Strike Engagements and Joint Battlespace Management. TPSO has also provided software applications for the CINC and his component commanders to perform a Near-Real-Time Counter Force (CF) Common Relevant Operational Picture (CROP).

The Joint Intelligence, Surveillance and Reconnaissance (JISR) ACTD is implementing 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 for CENTCOM (ARCENT and 1st MEF). JISR also integrates nontraditional tactical sensors (i.e., Firefinder radar and unattended ground sensors) into an ISR picture which allows the Early Entry Force (EEF) Commander and his higher headquarters to access and geospatially visualize all available ISR information using any workstation equipped with a browser.

The Joint Continuous Strike Environment (JCSE) ACTD provides the Combined/Joint Task Force (CJTF) with the capability to execute time critical targeting with four software modules (target prioritization; continuous weapons availability monitoring, optimized weapon-target pairing and dynamic airspace deconfliction).

The Joint Precision Strike Demonstration 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 and JVB is Raytheon Company, Bedford, MA. For the JCSE ACTD the prime contractor is General Dynamics - Information Systems, Arlington, VA. This program supports the Objective Force through the use of new technology insertions and the use of Simulation and Modeling for Acquisition, Requirements and Training (SMART) for the Transformation Campaign Plan (TCP).

**FY 2001 Accomplishments:**

- 20295 TPSO - Participated in CINCUNC and Joint warfighting exercises, including RSO&I, UFL-01, Lucky Sentinel, Victory Focus, Urgent Victory, MEFEX, FBE-I, Unified Endeavor, and Roving Sands to refine TTPs and expand the Joint Warfighting Applications.

  -Planned and executed a simulation/stimulated demonstration, which included aspects of a scenario representative of the transition from an unreinforced Korean Theater to a reinforced Korean Theater. Both ROK and U.S. forces participated in a Man-In-The-Loop (MITL) fashion both in the Ground Component Commander Deep Operations Coordination Center (GCC DOCC) and at the other critical C2 nodes. Operated the objective, residual capability candidate systems developed during the TPSO ACTD in a realistic warfighting environment.

  -Conducted rapid software prototyping operations at the JPSD IEC to support training, upgrades and field support to major field exercises (RSO&I, UFL01, Lucky Sentinel, MEFEX, FBE-I, JEFX).

  -Conducted technical reviews and assessed the warfighting value added for Joint Software Application Tools provided to the theater and determined which software application tools exhibited sufficient maturity and capability to warrant qualification as an ACTD "Leave Behind".

  -Developed and implemented transition and sustainment plans to support the "Leave Behind" Systems for TPSO during the transition period(FY02-03), including a Battlespace Visualization system in the GCC DOCC. Provided hardware system upgrades; training support packages; in-country support technical team and 200+ Joint Warfighting Applications (JWAs) with some hosted on GCCS-K.

- 702 JCSE - Continued to evaluate and validate the value added of JCSE system integration in laboratory tests and with Joint Battle Center evaluations

  -Continued integration of JCSE into the Joint Targeting Toolbox (JTT) with a goal for JCSE to transition to the JTT Program Office.

  -Provided upgrades to the users software builds 4; participated in a number of Joint exercises, including ULCHI FOCUS LENS (UFL) 01.

**FY 2001 Accomplishments: (Continued)**

-Installed JCSE Version 4.x software modules at 7th Air Force for UFL01; on the USS Coronado for Fleet Battle Experiment-JULIET (FBE-I) and in the Combined Air Operations Center-Experimental (CAOC-X) at Langley AFB, VA.

Total 20997

**FY 2002 Planned Program**

- 13291 -TPSO-Participate in CINCUNC warfighting exercises to refine, enhance, and expand the functionality successfully demonstrated during TPSO ACTD's FY01 demonstration.

  -Support the planned major CINCUNC exercises in the Korean Theater, providing refined, expanded, and enhanced JWA functionality to the Combined Forces Command's (CFC) Combined Effects Synchronization Cell (CESC), the 7th AF and 7th Fleet.

  -Support Joint Exercises and related activities, including Millennium Challenge 02 and associated spirals, Navy Fleet Battle Experiment-JULIET, and Air Forces activities Joint Expeditionary Force Experiment (JEFX) and combined Air Operations Center-Experimental (CAOC-X).

  -Conduct rapid software prototyping operations at the JPSD IEC to support training, upgrades and field support to major field exercises (RSO&I, UFL 02; Lucky Sentinel, MC02, MEFEX, FBE-J; JEFX).

  -Continue to transition and sustain the Joint Warfighting Applications (JWA) in CINCUNC warfighter units.

  -Continue to transition and sustain JWA applications in CENTCOM and its component ARFOR (3rd Army)and USAREUR'S (US V Corps) units and XVIII ABC.

  -Prepare for the final transition and sustainment plans to support the TPSO "Leave Behind" Systems during the transition period (FY 02-03), including a Battlespace Visualization system in the CFC CESC; upgrade software applications; provision of training support packages; and in-country support technical team for 200+ JWAs with some hosted on GCCS-K.

- 1672 JISR - Migrate JISR ACTD prototype towards an objective architecture that allows for greater and more rapid enhancements to system functionality and integration of ISR data sources.

  -Refine and enhance JISR interfaces to source systems based upon user defined TTP/CONOPS from the following exercises: Lucky Sentinel 02, MEFEX 02, Ulchi Focus Lens 02.

  -Select, integrate and conduct end-to-end demonstration of non-traditional sensor feed(s) - 1 Army, 1 USMC.

  -Support JISR participation in additional user stakeholders designated exercises and other complementary demonstration venues.

  -Integrate field deployed JISR prototypes into garrison operations.

  -Plan and execute formal assessments by Joint Inter-operability Test Center (JITC) and Joint C4ISR Battle Center (JBC) - with a to-be- determined warfighters assessment by CENTCOM (ARCENT and 1stMEF).

**FY 2002 Planned Program (Continued)**

-Identify and coordinate for Army brigade participation in late FY 02/03.

- 725 JCSE - Continue to upgrade, integrate and transition Joint Continuous Strike Environment (JCSE) software applications into the JTT program of record.

-Demonstrate in Fleet Battle Experiment-JULIET(FBE-J) and UFL 02.

- 16298 JVB - 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.

-Provide data on Network Centric Warfare and FCS survivability to Army analysts and the acquisition community.

Total 31986

**FY 2003 Planned Program**

- 19056 TPSO - Participate in CINCUNC warfighting exercises to refine, enhance, and expand the functionality demonstrated during FY01 Demonstrations, and enhanced during FY02.

-Support planned major CINCUNC exercises in the Korean Theater, providing refined, expanded, and enhanced Joint Warfighter Applications support to the CFC CESC, 7th AF and 7th Fleet.

-Conduct rapid prototyping operations at the JPSD IEC to support training, upgrades and field support to major field exercises (RO&I, UFL 02, Lucky Sentinel, MC02, MEFEX, FBE-J, JEFX).

-Upgrade Joint Warfighting Applications in CENTCOM ARFOR (3rd Army) and USAREUR (US V Corps)units.

-Upgrade Joint Warfighter Applications into CINCUNC combat forces.

-Execute transition and sustainment plans to support the TPSO "Leave Behind" Systems during the final year of transition (FY03).

- 5049 JISR - Continue to evolve the objective architecture that allows for greater and more rapid enhancements to systems functionality and integration of ISR sources.

**FY 2003 Planned Program (Continued)**

-Refine and enhance JISR interfaces to source systems based upon user defined TTP/CONOPS from the following exercises: Lucky Sentinel 03, MEFEX 03, and Ulchi Focus Lens 03.

-Continue to upgrade JISR objective prototype into CENTCOM (ARCENT and 1st MEF).

-Continue to plan and execute formal assessments by JITC and JBC with warfighters and other assessments by CENTCOM (ARCENT and 1stMEF).

-Identify initial leave behind capability.

- 7186 JVB - Incorporate advance behaviors into the JVB framework. Incorporate new vehicle models into JVB. Conduct experiments with new user defined operational concepts technology trades.

  -Integrate contractor virtual and hardware prototypes into the JVB framework. Conduct experiments and operational analysis data of contractor final concepts in support of FCS milestone B decision.

Total 31291

| **B. Program Change Summary** | FY 2001 | FY 2002 | FY 2003 |
|---|---|---|---|
| Previous President's Budget (FY 2002 PB) | 21112 | 32267 | 22203 |
| Appropriated Value | 21307 | 32267 | 0 |
| Adjustments to Appropriated Value | 0 | 0 | 0 |
| a. Congressional General Reductions | 0 | -281 | 0 |
| b. SBIR / STTR | 0 | 0 | 0 |
| c. Omnibus or Other Above Threshold Reductions | 0 | 0 | 0 |
| d. Below Threshold Reprogramming | 0 | 0 | 0 |
| e. Rescissions | -310 | 0 | 0 |
| Adjustments to Budget Years Since FY2002 PB | 0 | 0 | 9088 |
| Current Budget Submit (FY 2003 PB) | 20997 | 31986 | 31291 |

Change Summary Explanation: Funding - FY 2003: $9088K increase to TPSO ACTD to execute transition and sustainment plans to support the TPSO "leave behind" systems during the final year of transition (FY03).