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

**February 2002**

| BUDGET ACTIVITY | PE NUMBER AND TITLE |
|---|---|
| **3 - Advanced technology development** | **0603734A - Military Engineering Advanced Technology** |

| COST (In Thousands) | FY 2001 Actual | FY 2002 Estimate | FY 2003 Estimate | FY 2004 Estimate | FY 2005 Estimate | FY 2006 Estimate | FY 2007 Estimate |
|---|---|---|---|---|---|---|---|
| Total Program Element (PE) Cost | 5006 | 4705 | 2921 | 10004 | 8831 | 5556 | 6233 |
| T08 COMBAT ENG SYSTEMS | 5006 | 4705 | 2921 | 10004 | 8831 | 5556 | 6233 |

**A. Mission Description and Budget Item Justification:** The objective of this program element is to mature and demonstrate technologies that provide capabilities required for the engineer and logistician to successfully plan, rehearse and execute missions in support of the Objective Force. Critical deficiencies exist in the Army's ability to rapidly acquire, update, maintain and distribute terrain data in support of both terrain and battlefield visualization; to apply physics-based reasoning to planning and executing mobility, counter-mobility, survivability, and general engineering missions; to conduct logistics-over-the-shore operations in adverse sea states; to establish in-transit visibility of materiel and supplies; and to manage logistics distribution and logistics automation. The demonstration projects in this program element focus on the technologies required to correct these critical deficiencies. Capabilities demonstrated will be applicable to missions at all echelons within the force structure during either combat operations or operations other than war. Demonstrations are integral components of Army Advanced Warfighting Experiments, Advanced Concept Technology Demonstrations, other Advanced Technology Demonstrations, and joint field training exercises. Emphasis is placed on rapid transition of technologies into Command and Control (C2) systems, combat models and simulations or simulators. This provides shared situational awareness, common representation of terrain and consistent predictions or assessments of mobility, counter-mobility, survivability, and logistics missions in the linkage of C2 systems, models, and simulations being developed by the Army to exploit information technologies. 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 duplication with any effort within the Military Departments. Work is performed by the U.S. Army Engineer Research and Development Center. This program supports the Objective Force transition path of the Transformation Campaign Plan (TCP).

| **B. Program Change Summary** | FY 2001 | FY 2002 | FY 2003 |
|---|---|---|---|
| Previous President's Budget (FY2002 PB) | 5160 | 4747 | 2927 |
| Appropriated Value | 5207 | 4747 | 0 |
| Adjustments to Appropriated Value | 0 | 0 | 0 |
| a. Congressional General Reductions | 0 | -42 | 0 |
| b. SBIR / STTR | -154 | 0 | 0 |
| c. Omnibus or Other Above Threshold Reductions | 0 | 0 | 0 |
| d. Below Threshold Reprogramming | 0 | 0 | 0 |
| e. Rescissions | -47 | 0 | 0 |
| Adjustments to Budget Years Since FY2002 PB | 0 | 0 | -6 |
| Current Budget Submit (FY 2003 PB ) | 5006 | 4705 | 2921 |

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

**February 2002**

| BUDGET ACTIVITY | PE NUMBER AND TITLE | PROJECT |
|---|---|---|
| **3 - Advanced technology development** | **0603734A - Military Engineering Advanced Technology** | **T08** |

| COST (In Thousands) | | FY 2001 Actual | FY 2002 Estimate | FY 2003 Estimate | FY 2004 Estimate | FY 2005 Estimate | FY 2006 Estimate | FY 2007 Estimate |
|---|---|---|---|---|---|---|---|---|
| T08 | COMBAT ENG SYSTEMS | 5006 | 4705 | 2921 | 10004 | 8831 | 5556 | 6233 |

**A. Mission Description and Budget Item Justification:** The objective of this project is to mature and demonstrate advanced military engineering technologies that support the Objective Force. Enhanced Coastal Trafficability and Sea State Mitigation demonstrates an improved capability to conduct logistics-over-the-shore (LOTS) operations in support of the Army's force projection goals. The inability to operate in rough seas and over soft beaches currently limits LOTS operations. A Rapidly Installed Breakwater (RIB) mitigates severe seas and mechanical reinforcement stabilizes the beach. This results in a 60% increase in throughput. Joint Rapid Airfield Construction (JRAC) demonstrates the expedient upgrading of existing airfields. Current construction technologies take too long. JRAC's terrain based site selection algorithms, computer assisted construction equipment, and fast curing soil stabilization chemical technologies support Army force projection goals. The time required to double the throughput of a minimal airfield will be reduced from four to two days. 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 duplication with any effort within the Military Departments. Work is performed by the U.S. Army Engineer Research and Development Center. This project supports the Objective Force transition path of the Transformation Campaign Plan (TCP).

**FY 2001 Accomplishments:**

- 3060 - Designed RIB XM 2001 (two segments aligned in a single leg) to include: fabrication of two interchangeable RIB segments and connectors; design, procurement, and testing of mooring system for RIB XM 2001; demonstration of RIB employment alternative(s).
- 395 - Completed final design of RIB Nose Section and initial design of RIB employment/deployment system.
- 251 - Completed final design of the Advanced Technology Demonstration (ATD) RIB to be used in FY 2002.
- 200 - Completed plans for FY 2002 ATD.
- 1100 - Provided plan, acquired materials for FY 2002 ATD sandy beach stabilization demonstration. Constructed demonstration beach road using three technologies that will be used in next year's ATD.

Total 5006

**FY 2002 Planned Program**

| | | |
|---|---|---|
| • | 3689 | - Perform ATD Field Demonstration to include: fabrication of additional interchangeable RIB Segments; deployment of full scale partial length RIB; and employment/recovery of RIB by barge system. |
| • | 396 | - Design, procure, and deploy ATD RIB mooring system. |
| • | 298 | - Demonstrate ATD Beach Stabilization Technology. |
| • | 322 | - Design ATD RIB System and Beach Stabilization methodology. |
| | | - Fabricate additional segments to be used with the engineering development model tested in FY 2001. |

Total 4705

**FY 2003 Planned Program**

| | | |
|---|---|---|
| • | 998 | - Select promising new construction technologies to enhance airfield construction productivity. |
| • | 998 | - Determine stabilizer technologies suitable for rapid stabilization of unsurfaced airfields. |
| • | 925 | - Select geospatial terrain visualization software, remote sensing techniques, and engineering requirements analysis procedures to support performance-based site selection of in-theater airfields. |

Total 2921