ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2005

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

COST (In Thousands)		FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate
Total Program Element (PE) Cost		12863	25657	7301	7562	6796	7585	5674	6691
T08	COMBAT ENG SYSTEMS	3299	3703	7301	7562	6796	7585	5674	6691
T13	STATIONARY POWER & ENERGY TECH DEMONSTRATIONS (CA)	9564	15723	0	0	0	0	0	0
T15	MILITARY ENGINEERING TECHNOLOGY DEMONSTRATION (CA)	0	6231	0	0	0	0	0	0

A. Mission Description and Budget Item Justification: The objective of this program element is to mature and demonstrate advanced military engineering and battlespace environment technologies that support the Future Force, and where feasible, exploit opportunities to enhance Current Force capabilities. Technologies demonstrated within this program element are transitioned from PE 0602784A (Military Engineering Technology). Military engineering technologies demonstrated include Joint Rapid Airfield Construction (JRAC) technologies that support the expedient upgrading of existing airfields and rapid construction of new contingency airfields. Battlespace environment technologies demonstrated include Battlespace Terrain Reasoning and Awareness (BTRA) and Joint-Geospatial Enterprise Service (J-GES) technologies. BTRA will enable the warfighter to understand the impact of the terrain and weather effects during planning and execution of military operations. The J-GES prototype program will enable technology development that supports network centric delivery and update of geospatial data and services to all echelons for battle command planning and mission rehearsal. The cited work is consistent with Strategic Planning Guidance, the Army Science and Technology Master Plan (ASTMP), the Army Modernization Plan, and the Defense Technology Area Plan (DTAP). The U.S. Army Engineer Research and Development Center, headquartered at Vicksburg, Mississippi, executes the project work.

B. Program Change Summary	FY 2005	FY 2006	FY 2007
Previous President's Budget (FY 2005)	3865	5358	6006
Current Budget (FY 2006/2007 PB)	25657	7301	7562
Total Adjustments	21792	1943	1556
Net of Program/Database Changes			
Congressional Program Reductions	-372		
Congressional Rescissions			
Congressional Increases	22900		
Reprogrammings			
SBIR/STTR Transfer	-736		
Adjustments to Budget Years		1943	1556

Change Summary Explanation:
FY06 - Increase funding ($1943K) supports the Joint - Geospatial Enterprise Service (J-GES) to enable timely delivery of critical terrain and weather effects information and knowledge to C2 Services on FCS weapons platforms, soldier systems and UE and higher echelons.
FY07 - Increase funding ($1556K) supports the Joint - Geospatial Enterprise Service (J-GES) to enable timely delivery of critical terrain and weather effects information and knowledge to C2 Services on FCS weapons platforms, soldier systems and UE and higher echelons.

Ten FY05 Congressional adds totaling $22900 were added to this PE.

FY05 Congressional adds with no R-2A:
1 Megawatt Molten Carbonate Fuel Cell Demonstrator, Project T13 ($1439)
Advanced Mobile Microgrid, Project T13 ($2973)
Battlefield Production of Hydrogen for Fuel Cell Vehicles, Project T13 ($959)
Defense Applications for Thermo-Electric Power Generation Devices, Project T13 ($1918)
Defense Applications of Stationary Carbonate Fuel Cells, Project T13 ($1918)
Integration of Commercial GIS Capabilities into Army C4ISR (TEC), Project T15

($2877)
Mobile Transformers and Mobile Substations Demonstration Project, Project T15 ($959)
Ramgen/Fuel Cell Hybrid System, Project T13 ($4124)
Solid Oxide Fuel Cell (SOFC) Development for Defense Applications, Project T13 ($3356)
US Army Advanced Structures and Composites in Construction Research, Project T15 ($2397)

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2005

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

COST (In Thousands)		FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate
T08	COMBAT ENG SYSTEMS	3299	3703	7301	7562	6796	7585	5674	6691

A. Mission Description and Budget Item Justification: The objective of this project is to mature and demonstrate advanced military engineering and battlespace environment technologies that support the Future Force and, where feasible, exploit opportunities to enhance Current Force capabilities. Technologies demonstrated within this project are transitioned from program element 0602784A (Military Engineering Technology), Projects 855, T40 and T42. Joint Rapid Airfield Construction (JRAC) technologies will support the expedient upgrading of existing airfields and rapid construction of new contingency airfields. Battlespace Terrain Reasoning and Awareness (BTRA) technologies will enable the warfighter to understand the impact of the terrain and weather effects during planning and execution of military operations. The Joint-Geospatial Enterprise Service (J-GES) prototype program will enable technology development that supports network centric delivery and update of geospatial data and services to all echelons for battle command planning and mission rehearsal. The cited work is consistent with Strategic Planning Guidance, the Army Science and Technology Master Plan (ASTMP), the Army Modernization Plan, and the Defense Technology Area Plan (DTAP). The U.S. Army Engineer Research and Development Center, headquartered at Vicksburg, Mississippi, executes the project work.

Accomplishments/Planned Program	FY 2004	FY 2005	FY 2006	FY 2007
Joint Rapid Airfield Construction – In FY04, demonstrated site selection, enhanced construction, and rapid stabilization technologies for C-130 contingency airfield operations. In FY05, integrate performance models into the site selection process and select lightweight matting systems and all-weather soil stabilizers. In FY06, will select maintenance and repair techniques for contingency airfields. In FY07, will demonstrate all JRAC technologies for C-17 contingency airfield operations.	3299	3703	3895	1962
Joint-Geospatial Enterprise Service - In FY06, will utilize a network-centric architecture to demonstrate basic geospatial information services from multiple locations. In FY07, will expand J-GES capabilities and demonstrate and test these geospatial services across a broader, more complex network to Army programs and other Services/DOD activities; will test and evaluate geospatial data/information flow across multiple echelons to support battle command planning and mission rehearsal.	0	0	2020	2748

Accomplishments/Planned Program (continued)	FY 2004	FY 2005	FY 2006	FY 2007
Battlespace Terrain Reasoning and Awareness Demonstrations - In FY06, will establish four experimental BTRA platforms at Ft. Huachuca, Ft. Leavenworth, Ft. Benning, and Joint Forces Command, and conduct initial demonstration of tactical bandwidth compatible situation and threat assessment tools within battlefield functional area processes and battlefield operating systems architectures. In FY07, will demonstrate, test and evaluate spatial analysis and predictive analysis tools in warfighter experiments within battle command and intelligence, surveillance and reconnaissance user tools.	0	0	1386	2852
Totals	3299	3703	7301	7562