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

February 2003

BUDGET ACTIVITY	PE NUMBER AND TITLE
3 - Advanced technology development	**0603006A - Command, Control, Communications Advanced Technolo**

	COST (In Thousands)	FY 2002 Actual	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate
	Total Program Element (PE) Cost	33272	6814	10379	13073	14539	15106	11297	6559
247	TAC C4 TECHNOLOGY INT	13451	0	0	0	0	0	0	0
257	DIGITAL BATTLEFLD COMM	12142	2722	0	0	0	0	0	0
588	HIGH ALTITUDE AIRSHIP ACTD	0	0	2949	2944	0	0	0	0
592	SPACE APPLICATION TECH	7679	4092	7430	10129	14539	15106	11297	6559

A. Mission Description and Budget Item Justification: This program matures and demonstrates advanced space technology applications for the Army's Objective Force. It provides Space Force Enhancement applications for intelligence, reconnaissance, surveillance, target acquisition, position/navigation, missile warning, and Space Control ground-to-space surveillance, negation and battle management capabilities. Advanced Space Force Enhancement technologies include electro-optical, infrared, multi/hyperspectral, synthetic aperture radar, and advanced data collection, processing and dissemination in real and near real time. The program develops algorithms that optimally process space sensor data in real and near real time for integration into battlefield operating systems; and demonstrates, evaluates, and defines Army technical requirements for space platform/sensor/datalink systems development. This program provides Space Control advanced technology risk reduction capability for ground-to-space surveillance and space object negation (disrupt, degrade, deny, and destroy) system development. Additionally, it matures airship structure, propulsion, flight control, and power generation technologies to carry heavy multi-mission payloads for airship long dwell time at 70,000 feet in High Altitude Airship ACTD. This program supports the Objective Force transition path of the Transformation Campaign Plan. This program is designated as a DoD Space Program. Funding for non-space related efforts, including Command, Control, and Communications (C3), was realigned to PE 0603008A in FY03.
No Defense Emergency Response Funds were provided to the program.

B. Program Change Summary	FY 2002	FY 2003	FY 2004	FY 2005
Previous President's Budget (FY 2003)	33176	4826	5236	5670
Current Budget (FY 2004/2005 PB)	33272	6814	10379	13073
Total Adjustments	96	1988	5143	7403
Congressional program reductions				
Congressional rescissions		-649		
Congressional increases		2800		
Reprogrammings	912	-39		
SBIR/STTR Transfer	-816	-124		
Adjustments to Budget Years			5143	7403

Change Summary Explanation: Funding – FY 2004/2005: Funds increased to support Dis tributed Imaging Radar Technology, Space Control Counter ISR, and High Altitude Airship ACTD efforts.

FY03 Congressional Add:
Networking Environment for C3 Mobile Services, Project 257 ($2800).

Projects with no R-2A:
($2761), Networking Environment for C3 Mobile Services, Project 257. The objective of this one year Congressional Add is to mature network and communications technology options. No additional funding is required to complete this project.

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

February 2003

BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
3 - Advanced technology development	**0603006A - Command, Control, Communications Advanced Technolo**	**588**

COST (In Thousands)		FY 2002 Actual	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate
588	HIGH ALTITUDE AIRSHIP ACTD	0	0	2949	2944	0	0	0	0

A. Mission Description and Budget Item Justification: This project validates and demonstrates the technology, engineering feasibility and potential military utility of a large unmanned, helium filled airship within an Advanced Concept Technology Demonstration (ACTD). This High Altitude Airship (HAA) ACTD will demonstrate capabilities to fly un-tethered at 70,000 feet, carry a heavy multi-mission payload, self deploy from continental United States (CONUS) to worldwide locations, and remain on-station for weeks to months before returning to a fixed launch and recovery area in CONUS for service on the ground. HAA technologies will focus on airframe structures and related components to carry payloads which augment space-based capabilities and missile defense architectures. The airship payload will consist of a communication relay and sensor suite to support the Objective Force. Other agencies providing additional support and funding include Missile Defense Agency, Office of Home Land Security, and Office of the Secretary of Defense. This program supports the Objective Force transition path of the Transformation Campaign Plan.
No Defense Emergency Response Funds were provided to the program.

Accomplishments/Planned Program	FY 2002	FY 2003	FY 2004	FY 2005
- In FY04, mature and integrate HAA ACTD airframe, power generation, propulsion flight control, and C2 subcomponent technologies, define payload interfaces, conduct subcomponent ground test, and complete airship flight qualification. In FY05, complete airship and payload integration; demonstrate airship/payload prototype for one month at 70,000 feet.	0	0	2949	2944
Totals	0	0	2949	2944

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

February 2003

BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
3 - Advanced technology development	**0603006A - Command, Control, Communications Advanced Technolo**	**592**

COST (In Thousands)	FY 2002 Actual	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate
592 SPACE APPLICATION TECH	7679	4092	7430	10129	14539	15106	11297	6559

A. Mission Description and Budget Item Justification: This project matures and demonstrates advanced space technology applications for the Army's Objective Force. It provides Space Force Enhancement applications for intelligence, reconnaissance, surveillance, target acquisition, position/navigation, missile warning, and Space Control ground-to-space surveillance, negation and battle management capabilities. Advanced Space Force Enhancement technologies include electro-optical, infrared, multi/hyperspectral, synthetic aperture radar, and advanced data collection, processing and dissemination in real and near real time. The project develops algorithms that optimally process space sensor data in real and near real time for integration into battlefield operating systems; and demonstrates, evaluates, and defines Army technical requirements for space platform/sensor/datalink systems development. This project provides Space Control advanced technology risk reduction capability for ground-to-space surveillance and space object negation (disrupt, degrade, deny and destroy) systems development. This program supports the Objective Force transition path of the Transformation Campaign Plan. This program is designated as a DoD Space Program.
No Defense Emergency Response Funds were provided to the program.

Accomplishments/Planned Program	FY 2002	FY 2003	FY 2004	FY 2005
- In FY02, completed Battlefield Ordnance Awareness technical requirements definition and provide to DoD space based infrared system developers. Performed technical risk reduction for transition to ground platform by updating algorithms and test for small caliber weapons.	3692	0	0	0
- In FY02, demonstrated an integrated Overhead Sensor on a ground tower platform and measured performance against camouflaged, concealed tactical targets. In FY03, complete Long Wave Infrared/Acoustic Optical Tunable Filter performance assessment.	1105	46	0	0
- In FY04, perform initial testing and algorithm assessment of the Distributed Imaging Radar Technology concept using existing synthetic aperture radar. In FY05, verify the algorithms; detect and locate moving targets using distributed radar and space-time coded aperture waveforms; and initiate miniaturization of high fidelity and stabilized radar receiver/exciter hardware for Upper Tier and space platform application.	0	0	3176	4139
- In FY05, assess All Weather Radio Frequency (RF) Launch Detection signatures for rockets, artillery, and mortars. Initiate characterization algorithm development and broadband high/low RF receiver design for real time processor applications.	0	0	0	2946

Accomplishments/Planned Program (continued)	FY 2002	FY 2003	FY 2004	FY 2005
- In FY02, matured formal Sp ace Surveillance software coding of algorithms, user interface design, and demonstrate threat assessment techniques on ground-to-space surveillance radar. In FY03, continue to mature formal Space Surveillance software coding of algorithms, user interface design, and demonstrate threat assessment techniques on ground-to-space surveillance radar. In FY04, complete hardware/software integration, test, and demonstrate near real time threat assessment in a simulated operational environment; and transition technology to ground-to-space surveillance radar.	2882	3172	2500	0
- In FY04, assess Counter ISR technology miniaturization options and develop technical requirements for the optimal demonstration configuration. In FY05, develop miniaturized ISR technology package brass board design with associated automation software.	0	0	1754	3044
- In FY03 initiate airship platform design and define technical requirements for project 588 High Altitude Airship ACTD.	0	874	0	0
Totals	7679	4092	7430	10129