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

February 2003

BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
5 - System Development and Demonstration	**0604801A - Aviation - Eng Dev**	**C45**

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	Cost to Complete	Total Cost
C45 AIRCREW INTEGRATED SYS-ED	5365	3481	2379	2390	2305	2302	2534	2631	Continuing	Continuing

A. Mission Description and Budget Item Justification: Air Warrior System Development and Demonstration project provides improved aviator safety, survivability, and human performance that amplify the warfighting effectiveness and facilitates full-spectrum dominance of the Army Transformation aircraft including the RAH-66 Comanche, AH-64 Apache/Longbow, CH-47 Improved Cargo Helicopter, and the UH/HH-60A/L/M Black Hawk. These programs include soldier systems and equipment which are unique and necessary for the sustainment, survivability, and performance of Army aircrews and troops on the future integrated battlefield and related training missions and counter the use of asymmetrical strategies that could prevent or disrupt aviation operations. The Air Warrior program will provide the aircrew with a systems approach to chemical and biological (CB) protection, noise protection, microclimate conditioning, crash and post-crash survivability, concealment and environmental protection, ballistic protection, night vision capability, heads-up display, directed energy eye protection and flame/heat protection. Specifically, Air Warrior will enable the Army Aviation Warfighter to exceed the approved Operational Requirements Document mission length of 5.3 hours, as opposed to the 1.6 hours of mission capability (that exists today) with aviators in full chemical/biological protective gear. Preplanned block improvements integrating new technologies into the Air Warrior ensemble will continue to enhance and maximize aircrew mission performance, aircrew comfort, aircrew and airc rew station interface, safety and survivability in force modernization aircraft. These funds also resource improved laser protection against emerging new threat systems and product improvement of existing helmets to improve performance and increased commonality. The Retinal Scanning Display (RSD) effort develops RSD technology for incorporation into helmet-mounted displays of Army aircrews. The Cockpit Air Bag System (CABS) is a supplemental restraint system that reduces aviator deaths and injuries caused by body and head flailing against cockpit structures to improve crash survivability and reduce potential injuries and fatalities. The CABS includes integration into the aircraft platform of common components, including Air Bag modules and the crash sensor and system packaging. Maximum advantage will be taken of simulation to reduce program technical risk through early user evaluation and to reduce program design and test cost and schedules. This project does not duplicate any aircraft platform program efforts. Both joint and service independent efforts continue to be pursued under the scope of this project. This system supports the Objective transition path of the Transformation Campaign Plan (TCP).

Accomplishments/Planned Program	FY 2002	FY 2003	FY 2004	FY 2005
Continued Air Warrior System Development and Demonstration for the Block 1 ensemble and components design.	3596	0	0	0
Developed the Electronic Crash Sensor Unit location on the CH-47 Cargo for Cockpit Air Bag System integration with the CH-47 Cargo aircraft platform.	1769	0	0	0
Complete Air Warrior Block 1 ensemble System Development and Demonstration and begin the integration of preplanned Air Warrior Block 2 improvements.	0	3052	0	0

Accomplishments/Planned Program (continued)	FY 2002	FY 2003	FY 2004	FY 2005
Continue the integration of preplanned Air Warrior Block 2 improvements.	0	0	2379	2390
Evaluate integrated technologies for the development of high level ballistic protection for aviators.	0	429	0	0
Totals	5365	3481	2379	2390

B. Program Change Summary	FY 2002	FY 2003	FY 2004	FY 2005
Previous President's Budget (FY 2003)	4032	3150	2433	2437
Current Budget (FY 2004/2005 PB)	5365	3481	2379	2390
Total Adjustments	1333	331	-54	-47
Congressional program reductions				
Congressional rescissions	-25	-51		
Congressional increases		500		
Reprogrammings	1465	-20		
SBIR/STTR Transfer	-107	-98		
Adjustments to Budget Years			-54	-47

FY 2002: The $1.465 million reprogramming was to support Air Warrior engineering development.
FY 2003: $0.500 million congressional increase for high level ballistic protection development.

C. Other Program Funding Summary	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	To Compl	Total Cost
RDTE, A PE 0603801A PROJ DB45 - ACIS AD	6597	4276	2873	2862	3437	3436	3516	3612	Continue	Continue
Aircraft Procurement, Army SSN AZ3110 - ACIS	15092	14956	28894	28719	29573	34177	41354	38105	Continue	Continue

D. Acquisition Strategy: An Air Warrior Program Definition and Risk Reduction (PDRR) development contract was awarded in FY 1997 to perform a functional requirements analysis and consider user requirements and available technologies to optimize recommended alternatives within the constraints of cost as an independent variable. The Air Warrior basic ensemble program was approved to proceed into an engineering manufacturing development system life cycle phase in 1st Quarter, FY 1999. Currently, a combined government and contractor team is developing Air Warrior improvements and integrating those components into a Block I Air Warrior ensemble that will be integrated with the Objective Force aircraft. Prototypes that represent the Block 1 Air Warrior ensemble have been developed and successfully tested in developmental and operational testing. This testing was completed ahead of schedule. The Air Warrior aircraft platform specific, nonrecurring production engineering began during FY 2002 in preparation for the Block 1 ensemble production, aircraft integration, and fielding. Beginning in FY 2003, system development and demonstration of preplanned product improvements to the Block 1 ensemble will integrate joint and new technologies as block improvements to the Air Warrior ensemble. The Cockpit Air Bag System (CABS) is being integrated into the CH-47 aircraft platform by the original development contractor for the CABS.

ARMY RDT&E COST ANALYSIS(R-3)

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I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Air Warrior Development	CPFF & C/FP	Various	15928	2418	2Q	2048	1Q	1879	1Q	Continue	Continue	Continue
b . Helmet Mounted Display	SS-CPFF	Microvision, Seattle, WA & Various	15552	0		0		0		0	15552	15552
c . Cockpit Air Bag System integration into CH-47 Cargo Helicopter	CPFF	Simula Inc., Phoenix, AZ	1769	0		0		0		0	1769	1769
d . Evaluate integrated technologies for high level ballistic protection for aviators	MIPR	U.S. Army Soldier Systems Center, Natick, MA	0	429	2Q	0		0		0	429	429
Subtotal:			33249	2847		2048		1879		Continue	Continue	Continue

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II. Support Cost	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Matrix Support	MIPR and Project Order	Various Government	2186	250	1-4Q	29	1-4Q	52	1-4Q	Continue	Continue	Continue
Subtotal:			2186	250		29		52		Continue	Continue	Continue

III. Test and Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Developmental Testing	MIPR	Various Government	1483	202	2Q	98	2Q	247	2Q	Continue	Continue	Continue
Subtotal:			1483	202		98		247		Continue	Continue	Continue

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IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . PM Administration	Allotment	Various Government	1435	182	1-4Q	204	1-4Q	212	1-4Q	Continue	Continue	Continue
Subtotal:			1435	182		204		212		Continue	Continue	Continue
Project Total Cost:			38353	3481		2379		2390		Continue	Continue	Continue

Schedule Profile Detail (R-4a Exhibit)

February 2003

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Schedule Detail	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Began Air Warrior Block 1 nonrecurring production engineering integration into aircraft platforms.	2Q							
Completed Air Warrior System Block 1 Developmental and Operational Tests.		1Q						
Air Warrior Basic Block 1 ensemble Full Rate Production Decision.		2Q						
Advanced Component Development of Air Warrior Block 2 & 3 improvements.	1-4Q	1-4Q	1-4Q	1-4Q	1-4Q	1-4Q	1-4Q	1-4Q
System Development and Demonstration of Air Warrior Block 2 & 3 improvements.	1-4Q	1-4Q	1-4Q	1-4Q	1-4Q	1-4Q	1-4Q	1-4Q
Air Warrior Block 1 FUE.			2Q					