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

June 2001

BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
5 - ENG MANUFACTURING DEV	**0604801A - Aviation Engineering Development**	**C45**

COST (In Thousands)	FY 2000 Actual	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
C45 AIRCREW INTEGRATED SYS-ED	13811	11993	2263	0	0	0	0	0	0	0

A. Mission Description and Budget Item Justification:

PLEASE NOTE: This administration has not addressed FY2003-2007 requirements. All FY 2003-2007 budget estimates included in this book are notional only and subject to change.

Aircrew Integrated Systems (ACIS) - Engineering Manufacturing Development (EMD) project provides engineering and manufacturing development for improved aviator safety, survivability, and human performance that amplify the warfighting effectiveness of the Army Transformation aircraft including the RAH-66 Comanche, AH-64 Apache/Longbow, CH-47 Improved Cargo Helicopter, and the UH-60 Black Hawk. These programs include those systems and items of 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. The Air Warrior program will provide the aircrew with a systems approach to chemical and biological (CB) protection, noise protection, microclimatic 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 aircrew station interface, safety and survivability in force modernization aircraft. These funds also resource advanced laser protection against emerging new threat systems and product improvement of existing helmets to improve performance and increased commonality. The Air Warrior program is a vital soldier system, is linked to the Land Warrior program through the Soldier Systems Capstone Requirements document and is one of the Army's 7 core programs for the objective force. The Virtual Retinal Display (VRD) effort develops VRD technology for incorporation into helmet-mounted displays of Army aircrews. 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 Legacy to Objective transition path of the Transformation Campaign Plan (TCP).

FY 2000 Accomplishments

- 6569 Continued Air Warrior Engineering Manufacturing Development for basic ensemble and components design
- 6942 Continued Helmet Mounted Display (Virtual Retinal Display) Engineering Manufacturing Development for bi-directional scanning
- 300 Continued Advanced Laser Eye Protection (Joint Service) Engineering Manufacturing Development

Total 13811

FY 2001 Planned Program

- 6861 Continue Air Warrior Engineering Manufacturing Development for the Block I ensemble and components design
- 4803 Continue Helmet Mounted Display (Virtual Retinal Display) Engineering Manufacturing Development to include optical pinch correction for improved image quality
- 329 Small Business Innovative Research and Small Business Technology Transfer

Total 11993

FY 2002 Planned Program

- 2263 Continue Air Warrior Engineering Manufacturing Development for the Block I ensemble and components design

Total 2263

B. Program Change Summary	FY 2000	FY 2001	FY 2002	FY 2003
Previous President's Budget (FY01 PB)	13439	7104	2254	0
Appropriated Value	13312	12104	0	0
Adjustments to Appropriated Value	0	0	0	0
a. Congressional General Reductions	0	0	0	0
b. SBIR / STTR	-328	0	0	0
c. Omnibus or Other Above Threshold Reprogramming	-50	0	0	0
d. Below Threshold Reprogramming	1000	0	0	0
e. Rescissions	-123	-111	0	0
Adjustments to Budget Years Since FY2000/2001 PB	0	0	9	0
Current Budget Submit (FY 2002/2003 PB)	13811	11993	2263	0

Funding FY 2000: $300 thousand increase to the Advanced Laser Eye Protection for Overseas Contingency Operations and $700 thousand increase for below threshold reprogramming for Air Warrior and Helmet Mounted Display Engineering manufacturing development. FY 2001: $5 million Congressional in

crease for Advanced Integrated Helmet System Program.

C. Other Program Funding Summary	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	To Compl	Total Cost
RDTE,A PE 0603801A PROJ DB45 - ACIS AD	2864	3963	2677	0	0	0	0	0	0	0
Aircraft Procurement, Army SSN AZ3110 - ACIS	17167	10294	10253	0	0	0	0	0	0	0

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 I Air Warrior ensemble will be developed for test and evaluation. The Air Warrior aircraft platform specific nonrecurring production engineering will begin during FY 02 in preparation for the Block I ensemble production, aircraft integration, and fielding. Beginning in FY 2003, Engineering Manufacturing Development of preplanned product improvements to the Block I ensemble will integrate joint and new technologies as block improvements to the Air Warrior ensemble. Performance specifications for the joint service advanced laser eye protection program are being developed and will be used for production competition. The Virtual Retinal Display technology is being developed for integration into helmet mounted displays for Army aviators and for the Future Combat System crewmembers.

E. Schedule Profile	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007
Air Warrior System Preliminary Design Review	4Q			0	0	0	0	0
Air Warrior System Critical Design Review		2Q		0	0	0	0	0
Begin Air Warrior System Test		3Q		0	0	0	0	0
Begin Air Warrior System Operational Test			1Q	0	0	0	0	0
Begin Air Warrior nonrecurring production engineering integration into aircraft platforms			2Q	0	0	0	0	0

E. Schedule Profile (continued)	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007
Air Warrior Basic ensemble Milestone III				0	0	0	0	0
Advanced Development of Air Warrior Block improvements			1Q	0	0	0	0	0
Engineering Development of Air Warrior Block improvements				0	0	0	0	0

ARMY RDT&E COST ANALYSIS(R-3)

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I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Air Warrior Development	SS-CPFF	Various	9087	4520	2Q	1367	1Q	0	0	0	0	Continue
b . Helmet Mounted Display	SS-CPFF	Microvision, Seattle, WA	10952	4609	2Q	0		0	0	0	0	0
c . Adv Laser Eye Protection	C-CPFF	Aotec, Southbridge, MA	1310	0		0		0	0	0	0	0
d . Small Business Innovation Research and Small Business Technology Transfer			0	329		0		0	0	0	0	0
Subtotal:			21349	9458		1367		0		0	0	Continue

II. Support Cost	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Matrix Support	MIPR and Project Order	Various Government	1457	825	1-4Q	277	1-4Q	0	0	0	0	Continue
Subtotal:			1457	825		277		0		0	0	Continue

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III. Test and Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Developmental Testing	MIPR	Various Government	230	735	1Q	518	1Q	0	0	0	0	Continue
Subtotal:			230	735		518		0		0	0	Continue

IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . PM Administration	Allotment		564	975	1-4Q	101	1-4Q	0	0	0	0	Continue
Subtotal:			564	975		101		0		0	0	Continue

Project Total Cost:			23600	11993		2263		0		0	0	Continue