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Exhibit R-2A, RD&E Project Justification: PB 2012 Army

DATE: February 2011

APPROPRIATION/BUDGET ACTIVITY		R-1 ITEM NOMENCLATURE					PROJECT				
2040: Research, Development, Test & Evaluation, Army BA 5: Development & Demonstration (SDD)		PE 0604601A: Infantry Support Weapons					S61: ACIS ENGINEERING DEVELOPMENT				
COST (\$ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
S61: ACIS ENGINEERING DEVELOPMENT	12.181	10.295	18.946	-	18.946	17.186	19.253	22.280	12.760	Continuing	Continuing
Quantity of RD&E Articles											

A. Mission Description and Budget Item Justification

This project conducts Engineering and Manufacturing Development for Army aircrew safety, survivability, and human performance. These funds complete the Engineering and Manufacturing Development of the Air Warrior Encrypted Aircraft Wireless Intercom System and initiates Air Soldier System (Air SS) development and integration. The Air SS addresses Air Warrior capability gaps identified during combat operations in Iraq and Afghanistan including the effects of weight and bulk, lack of situational awareness, and lack of functionally integrated aircrew member life support equipment. Currently Army aircrews must trade off Air Warrior life support capabilities to ensure compatibility with the confined space of rotary wing crew stations. The Air SS will address these and other gaps defined in the Air SS Increment I CDD using a Soldier as a System approach to provide improved situational awareness; provide terrain, weather, threat, and obstacle avoidance information that can prevent aircraft mishaps and fatalities; resolve the lack of a common aircrew helmet with modern Head-Up display technologies; increase the Soldier's ability to operate safely in degraded visual environments and extreme environmental conditions; and deliver the capability to perform missions in excess of 5.3 (up to current goal of 11.0) hours in hot/humid environments under Chemical/Biological threat conditions. The first delivery of Air SS capability is identified as sub-increment 1a and will provide optimized survival equipment and integrated lightweight body armor directly contributing reduced bulk and increased mobility and crew member performance; a replacement flight helmet that transitions to a Modular Aircrew Common Helmet with Improved crash energy attenuation; Increased laser eye protection to align with current laser threats; and a Wearable Environmental Control System with integrated portable power that increases crew member mobility and reduces airframe space, weight and power requirements. The second delivery of capability is sub-increment 1b, which builds upon the initial sub-increment and further reduces bulk through a layered clothing ensemble with active thermal regulation, chemical/biological protection, and waste collection fully integrated into the duty uniform; an integrated Soldier-worn electronics suite that combines the functionality of bulky and separate situational/spatial awareness and life support systems and their separate batteries. These funds also initiate development and integration efforts for the eventual delivery of sub-increment 1c, the final and full Air SS capability delivery that completely replaces the legacy Air Warrior system. This is the full integration of Air Soldier capabilities necessary to meet the Air SS KPP threshold requirement for a 25% weight and bulk reduction over the legacy Air Warrior Aviation Life Support Equipment system. Sub-increment 1c provides improved safety and soldier survivability, increased situational awareness, and reduced pilot/crew member workload through an integrated protective ensemble that optimizes the Air SS capabilities delivered under sub-increments 1a and 1b. This final delivery of capability also enhances the previous Air SS integrated electronics suite by adding a wireless aircraft and survival and evasion communications capability; a Modular Aircrew Common Helmet and Display System with fully integrated chem/bio eye and respiratory protection; a digital day/night Heads Up Display common to all aircraft platforms; and optimized laser eye protection. This program does not duplicate any aircraft platform program efforts.

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

Title: Aircrew Integrated Systems (ACIS) Engineering Development	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total
	Articles:	12,181	10,295	18,946	-

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R-1 ITEM NOMENCLATURE
 PE 0604601A: Infantry Support Weapons

PROJECT
 S61: ACIS ENGINEERING DEVELOPMENT

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

Description: Continued integration of preplanned Air Warrior Increment III (including AWIS encryption certification and EDM Software development) and Air Soldier System improvements development.

FY 2010 Accomplishments:

Continued integration of preplanned Air Warrior Increment III (including AWIS encryption certification and EDM Software development).

FY 2011 Plans:

Transitions Air Soldier System sub-Increment 1a advanced development improvements into engineering manufacturing development to develop improved helmet protection, improved fixed laser eye protection, and wearable cooling and integrated wearable power supply system, and other sub-Increment 1a capabilities.

FY 2012 Base Plans:

Continues development and qualification of Air Soldier System sub-Increment 1a. Improves helmet protection, improves fixed laser eye protection, and develops wearable cooling and integrated wearable power supply system. Begins three-dimensional audio, head tracking, soldier display, aircraft mounted mission display, soldier computer module development, integrated layered clothing system, and aircraft integration development.

Accomplishments/Planned Programs Subtotals

	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total
	12.181	10.295	18.946	-	18.946

C. Other Program Funding Summary (\$ in Millions)

Line Item	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Complete	Total Cost	Cost To
• ACIS Advanced Development: RDTE, A PE 0603827A, PROJ S51	2.136	0.141	0.134		0.134		0.146	0.153	0.155	Continuing	Continuing	
- Adv Dev												
• ACIS Procurement: Aircraft Procurement, Army SSN AZ3110 - ACIS	66.053	52.423	82.883		82.883		47.670	102.011	116.056	Continuing	Continuing	

D. Acquisition Strategy

Engineering and Manufacturing Development efforts for Aircrew Integrated Systems program include completion of the Air Warrior Aircraft Wireless Intercom System (AWIS) and continuation of the Air Soldier System. The AWIS is a hands-free telecommunication device using radio signals for aircrew communication. Through a series of developmental program increments, the Air Soldier System program integrates capabilities including optimized survival equipment, Wearable Environmental

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S61: ACIS ENGINEERING DEVELOPMENT

Control System with integrated wearable power, integrated Soldier-worn electronics suite, wireless aircraft and survival and evasion communications capability, a fully compliant Modular Integrated Helmet and Display System (MIHDS), Chemical, Biological (CB) eye and respiratory protection, digital day/night Heads Up Display common to all Army aircraft platforms and optimized laser eye protection, waste disposal system and reduced weight and bulk. The MIHDS will provide a day (as well as night) heads up display, external audio, don in flight CB protection and improved laser eye protection. Development efforts are awarded through competitive cost plus fixed fee contracts or by Military Interdepartmental Purchase Requests (MIPRs) to other government agencies.

E. Performance Metrics

Performance metrics used in the preparation of this justification material may be found in the FY 2010 Army Performance Budget Justification Book, dated May 2010.

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