



Selected Acquisition Report (SAR)

RCS: DD-A&T(Q&A)823-432



Increment 1 Early Infantry Brigade Combat Team (INCREMENT 1 E-IBCT)

As of FY 2011 President's Budget

Defense Acquisition Management
Information Retrieval
(DAMIR)

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Common Acronyms and Abbreviations for MDAP Programs

Acq O&M - Acquisition-Related Operations and Maintenance
ACAT - Acquisition Category
ADM - Acquisition Decision Memorandum
APB - Acquisition Program Baseline
APPN - Appropriation
APUC - Average Procurement Unit Cost
\$B - Billions of Dollars
BA - Budget Authority/Budget Activity
Blk - Block
BY - Base Year
CAPE - Cost Assessment and Program Evaluation
CARD - Cost Analysis Requirements Description
CDD - Capability Development Document
CLIN - Contract Line Item Number
CPD - Capability Production Document
CY - Calendar Year
DAB - Defense Acquisition Board
DAE - Defense Acquisition Executive
DAMIR - Defense Acquisition Management Information Retrieval
DoD - Department of Defense
DSN - Defense Switched Network
EMD - Engineering and Manufacturing Development
EVM - Earned Value Management
FOC - Full Operational Capability
FMS - Foreign Military Sales
FRP - Full Rate Production
FY - Fiscal Year
FYDP - Future Years Defense Program
ICE - Independent Cost Estimate
IOC - Initial Operational Capability
Inc - Increment
JROC - Joint Requirements Oversight Council
\$K - Thousands of Dollars
KPP - Key Performance Parameter
LRIP - Low Rate Initial Production
\$M - Millions of Dollars
MDA - Milestone Decision Authority
MDAP - Major Defense Acquisition Program
MILCON - Military Construction
N/A - Not Applicable
O&M - Operations and Maintenance
ORD - Operational Requirements Document
OSD - Office of the Secretary of Defense
O&S - Operating and Support
PAUC - Program Acquisition Unit Cost

PB - President's Budget
PE - Program Element
PEO - Program Executive Officer
PM - Program Manager
POE - Program Office Estimate
RDT&E - Research, Development, Test, and Evaluation
SAR - Selected Acquisition Report
SCP - Service Cost Position
TBD - To Be Determined
TY - Then Year
UCR - Unit Cost Reporting
U.S. - United States
USD(AT&L) - Under Secretary of Defense (Acquisition, Technology and Logistics)

Program Information

Program Name

Increment 1 Early-Infantry Brigade Combat Team (Inc 1 E-IBCT)

DoD Component

Army

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Date

Assigned: December 1, 2008

References

SAR Baseline (Production Estimate)

Defense Acquisition Executive (DAE) Approved Acquisition Program Baseline (APB) dated February 22, 2010

Approved APB

DAE Approved Acquisition Program Baseline (APB) dated February 22, 2010

Mission and Description

E-IBCT modernization will provide enhanced warfighter capabilities to the force. E-IBCT capability package provides enhanced situational awareness, force protection, and lethality through the use of unattended and attended sensors and munitions. In addition, the soldier is provided improved communications and data sharing through the Network Integration Kit (NIK).

Network Integration Kit (NIK)

The Inc 1 E-IBCT NIK provides the IBCT with enhanced capabilities in improving situational awareness/situational understanding by providing meaningful information and force protection, while maintaining interoperability with Current Force Battle Command systems. The NIK will include a Battle Command System (BCS)/Integrated Computer System (ICS) and Ground Platform Communication System (GPCS), consisting of mounts, cabling, radios, multi band antennas, range extension relay (RER), filters, etc. The Joint Tactical Radio System Ground Mobile Radio (JTRS - GMR), originally a complementary program to Future Combat Systems (FCS), will be provided as Associated Support Items of Equipment (ASIOE). The NIK will ensure that the Inc 1 E-IBCT systems have the capability to interface with the current force IBCT command and control to include both Blue Force Tracker (BFT) (satellite-based) and Force XXI Battle Command Brigade-and-Below (FBCB2) situational awareness tools.

In Inc 1 E-IBCT, vehicles equipped with NIK have the capability to interface with Unattended Ground Sensors (UGS), Unmanned Aerial System (UAS) Class I Block 0, and Small Unmanned Ground Vehicle (SUGV) Block 1, for the purpose of enhancing the operational environment situation awareness of the commander for these systems. The Inc 1 E-IBCT NIK also provides the capability to control UGS. Class I UAS and SUGV Block 1 will utilize separate control devices. In addition, the Inc 1 E-IBCT NIK preserves the Current Force functionality and interoperability across the voice network. The Inc 1 E-IBCT NIK will be common across vehicle variants with only minor differences associated with mounting and cable adapters and cable lengths.

The operator interface for UGS is through FBCB2 displays within the vehicles equipped with Inc 1 E-IBCT NIK. The interface allows the operator to view the status of the extended sensor network, the UGS, and enables the operator to exercise a defined set of C2 functions. The Inc 1 E-IBCT NIK will run a version of System of System Common Operating Environments (SoSCOE) on the Integrated Computer System (ICS) Type VI, which will provide Level 1 fusion interoperability with FBCB2. Interoperability services facilitate information dissemination in the right format and over the right communications path. Interoperability capabilities include protocol interoperability, data format translation and proxy support to allow automatic seamless information flow with external Current Force systems.

Inc 1 E-IBCT NIK provides interoperability between current Army Battle Command System (ABCS) systems fielded to the IBCT and the other Inc 1 E-IBCT capabilities. This enables the Inc 1 E-IBCT equipped IBCT to leverage the information and data collected by Inc 1 E-IBCT systems within the existing FBCB2 battle command capability in the IBCT. The NIK provides for improved situational awareness to the commander and across the IBCT, enables limited sharing of imagery and operational environment information collected by the Inc 1 E-IBCT Intelligence, Surveillance, and Reconnaissance (ISR) capabilities, and enables the remote monitoring of multiple UGS networks and/or other Inc 1 E-IBCT sensors from a single location. The Inc 1 E-IBCT NIK will be common across IBCT vehicle variants (light and medium wheeled vehicles) with only minor differences associated with mounting hardware.

Non Line of Sight – Launch System (NLOS-LS)

The NLOS-LS is an unmanned launcher system with unattended missiles that provide precision, extended-range, Networked Fires (NF) in support of the modular force. The launch system consists of: 1) Container/Launch Unit (CLU) with a Missile Communications and Computer System (MCCS); 2) 15 individual, containerized Precision Attack Missiles which reside on the CLU; 3) mission manager software functionality to manage and execute multiple, simultaneous fire missions. In the modular force, the mission manager software is resident in the Advanced Field Artillery Tactical Data System (AFATDS).

The MCCS provides the required communications and control functions for the NLOS-LS. It consists of a battery power supply; a small, ruggedized computer for control of all NLOS-LS functions and technical fire direction; and a wireless communications system that is compatible with current and future tactical radio systems and an antenna. It provides self-location and orientation data for itself and for transfer to the missiles as required. It can provide periodic or on-demand system status and uses standard fire control software for processing fire commands originated by fire support system sources using the AFATDS. Once missiles are launched, they will not require any communications connectivity with the MCCS.

Small Unmanned Ground Vehicle (SUGV)

The SUGV Block 1 is a small, lightweight soldier-portable robot that offers multi-mission flexibility in a single chassis. It delivers cost efficiency and long-term investment protection through the use of future payloads, such as a manipulator arm, chemical and bio-sensors, and mine detectors. The all-weather, all-terrain SUGV Block 1 will go virtually anywhere. Its tracked Quick Flip dual-rotating flippers assist the SUGV to climb up and down stairs, maneuver over rocks and rubble, navigate narrow, twisting passages, and self-right itself. With a base weighting 32.5 lb and an optional 6 lb of payload weight, the SUGV Block 1 fits into a Modular Light-Weight Load-Carrying Equipment (MOLLE) Pack, and can be hand-carried and deployed by a single operator. In its stowed position, the SUGV Block 1 can be quickly loaded into a combat vehicle and transported to the site. Once on the scene, the SUGV BLOCK 1 can be deployed in under two minutes.

The SUGV Block 1 can decrease the threat to the soldier by providing reconnaissance information to perform tasks such as:

Making the first contact with threat forces.

Confirm threat defensive positions and locate possible gaps in the defense to support infiltration.

Reconnoiter infiltration lanes to identify threat positions.

Locate obstacles or barriers along lanes or routes.

Locate Improvised Explosive Devices (IED).

Identify threat forces positioned in the vicinity of reconnaissance objectives.

Unmanned Aerial System Class I Block 0 (CL I UAS)

Current limitations in obtaining relevant real-time situational awareness at the small unit level place that unit's mission and Soldiers at risk. The Class I Block 0 UAS enhances mission effectiveness and force protection by providing the small unit with a backpackable Reconnaissance and Surveillance (R&S) system capable of looking over the next hill and around the next corner providing enhanced situational awareness to the small unit leader. This system creates a paradigm shift in the way tactical R&S is performed. With the CL I Blk 0 UAS, the small unit leader can first develop the situation then gain and maintain contact with the enemy at the time and place of their own choosing. This greatly enhances the precision and speed of small unit operation, reduces the likelihood of fratricide, and significantly reduces overall friendly casualties. The CL I Blk 0 UAS is easily transported by mounted and dismounted forces, is simple and intuitive to use, is capable of operator directed or autonomous flight, and requires minimal operator training.

Some examples of operational capability provided by the CL I Blk 0 UAS are:

Real-time situational awareness from streaming video

Enhanced mission effectiveness and force protection with additional ISR capabilities at the small unit level

Battle Damage Assessment (BDA)

Enhanced battle management capabilities (friendly situation and battlefield visualization)

Contributes to dominant situational awareness allowing the small unit to maneuver, out of enemy contact, to points of positional advantage with speed and precision in order to conduct decisive operations

Enables command and control for tactical decision-making, allowing leaders to isolate the enemy and shape the battlefield to ensure mission success

Provides the small unit commander the ability to “see first” and “act decisively”

Useful in the confined flight environments characteristic of operations in complex terrain, especially those types associated with Military Operations in Urban Terrain (MOUT).

Tactical Unattended Ground Sensors (T-UGS)

The T-UGS system is a scalable, modular, and hand-emplacable sensor suite designed to provide the commander with near real-time Situational Awareness (SA) of vehicular and dismounted threats in a variety of terrain and all-weather conditions - both day and night. A nominal T-UGS field is comprised of a “Gateway” base module and one or more (depending on mission needs) “Intelligence, Surveillance, and Reconnaissance” (ISR) base modules. By use of an integrated acoustic array and a modular seismic “spike” attachment, an ISR node is capable of detecting, tracking, and classifying vehicles as well as detecting personnel that enter the field. Either an ISR or Gateway node’s capability can be further enhanced with the attachment of a Passive Infrared (PIR) sensor for target detection, an EO/IR sensor for day/night imaging of targets, or an RN sensor capable of detecting radiological and nuclear threats. Electro-optics images provided by T-UGS are compressed video clips that enable the soldier to observe target motion and assist in identification, while minimizing the use of power and network bandwidth.

Urban Unattended Ground Sensors (U-UGS)

The U-UGS system enables the warfighter to hand-emplace a series of sensor nodes that allow individual soldiers and/or the commander to monitor a variety of urban spaces including previously cleared or closely clustered buildings, caves, and tunnels. The U-UGS sensor network is comprised of Intrusion Nodes that generate personnel detection alerts and Imager Nodes which acquire images of personnel that enter the sensor’s field of regard. The number and distribution of Intrusion and Imaging Sensors is dictated by - and scalable to - the mission needs as determined by the commander, but can range from a single sensor to as many as 25. Detection alerts and images acquired by the U-UGS sensors are transmitted back to the NIK via the U-UGS Gateway node. Nominally the Gateway is a covert “leave behind” device placed in a strategic location such as a tree, or roof, providing line of sight communication to the network. Alternatively, the U-UGS system can operate in a “dismount” mode by providing detection alerts and image data directly to a local, dismounted soldier through a Local Display and Control Device (LDAC). The LDAC is a PDA-like device that adds warfighter flexibility by providing actionable data directly to the soldier in a real-time environment. The LDAC is utilized to fully initialize the sensor field and acts as a back-up Gateway. U-UGS provides the same secure networking capability of T-UGS through use of the JTRS network for “Gateway to NIK”.

Executive Summary

This is the initial SAR for the Increment 1 Early Infantry Brigade Combat Team (Inc 1 E-IBCT) program. The contents of this SAR reflect the approved Acquisition Program Baseline (APB) for this program, signed on February 22, 2010.

A December 24, 2009 ADM approved Milestone C (MS C) for the Inc 1 E-IBCT program. Specifically, the approved Milestone C includes Low Rate Initial Production (LRIP) for one E-IBCT, long lead procurement of no more than \$70M for the 2nd E-IBCT, and a limit on Non Line of Sight - Launch System (NLOS-LS) procurement to \$35M pending completion of flight testing. Additionally, the Army is directed to work to get all components of the program fielded as soon as possible. The Army has been directed to fund to the Director, Cost Assessment and Program Evaluation (CAPE) cost estimate.

Going forward, there are several areas of risk that have been identified in the program. An interim Defense Acquisition Board (DAB) in process review will be scheduled for April 2010 to address network maturity plans, the progress of reliability growth initiatives, and the results of Non Line of Sight Launch System (NLOS-LS) missile testing.

A second interim DAB in process review/decision meeting will be scheduled in December 2010 to consider readiness for the scheduled Initial Operational Test and Evaluation (IOT&E) and fielding and LRIP for E-IBCTs 2, 3, and the remainder of the E-IBCT program.

The Army Program Executive Office – Integration (PEO-I) will submit monthly reports to the Overarching Integrated Product Team (OIPT) leader beginning in March 2010 through September 2010 that address progress in developing and demonstrating network operational effectiveness and suitability. These reports will also include results of on-going reliability growth programs for the other E-IBCT elements with the goal of achieving program reliability goals.

The May 2010 report will address readiness to enter 35-node System Integration Test (SIT). The July 2010 report will provide Technical Test (TT) results and Reliability, Availability, and Maintainability (RAM) progress after collecting 600 hours of test data.

There are no significant software issues with the program at this time.

Threshold Breaches

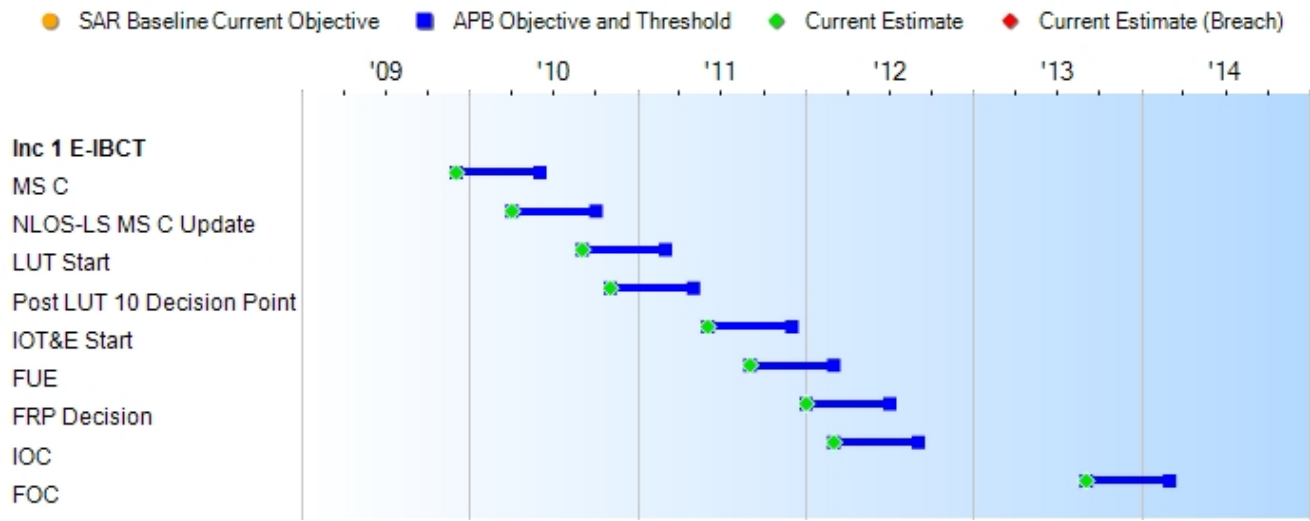
APB Breaches

- Schedule
- Performance
- Cost
 - RDT&E
 - Procurement
 - MILCON
 - Acq O&M
- O&S Cost
- Unit Cost
 - PAUC
 - APUC

Nunn-McCurdy Breaches

- Current UCR Baseline**
 - PAUC None
 - APUC None
- Original UCR Baseline**
 - PAUC None
 - APUC None

Schedule



Schedule Events				
Events	SAR Baseline Production Estimate	Current APB Production Objective/Threshold		Current Estimate
MS C	Dec 2009	Dec 2009	Jun 2010	Dec 2009
NLOS-LS MS C Update	Apr 2010	Apr 2010	Oct 2010	Apr 2010
LUT Start	Sep 2010	Sep 2010	Mar 2011	Sep 2010
Post LUT 10 Decision Point	Nov 2010	Nov 2010	May 2011	Nov 2010
IOT&E Start	Jun 2011	Jun 2011	Dec 2011	Jun 2011
FUE	Sep 2011	Sep 2011	Mar 2012	Sep 2011
FRP Decision	Jan 2012	Jan 2012	Jul 2012	Jan 2012
IOC	Mar 2012	Mar 2012	Sep 2012	Mar 2012
FOC	Sep 2013	Sep 2013	Mar 2014	Sep 2013

Change Explanations

None

Acronyms and Abbreviations

FOC - Full Operational Capability
FRP - Full Rate Production
FUE - First Unit Equipped
IOC - Initial Operational Capability
IOT&E - Initial Operational Test and Evaluation
LUT - Limited User Test
MS C - Milestone C
NLOS-LS - Non-Line of Sight Launch System

Performance

Performance Characteristics				
SAR Baseline Production Estimate	Current APB Production Objective/Threshold	Demonstrated Performance	Current Estimate	
Net Ready*				
The SO systems must fully support execution of all operational activities identified in the applicable joint and system integrated architectures and the system must satisfy the technical requirements for Net-Centric military operations to include 1) DISR mandated GIG IT standards and profiles identified in the TV-1, 2) DISR mandated GIG KIPs identified in the KIP declaration table, 3) NCOW RM Enterprise Services 4) IA requirements including availability, integrity, authentication, confidentiality, and non-repudiation, and issuance of an ATO by the DAA, and 5) Operationally effective information exchanges; and mission critical performance and IA attributes, data correctness, data availability, and consistent data processing specified in the applicable joint and system integrated architecture views.	The SO systems must fully support execution of all operational activities identified in the applicable joint and system integrated architectures and the system must satisfy the technical requirements for Net-Centric military operations to include 1) DISR mandated GIG IT standards and profiles identified in the TV-1, 2) DISR mandated GIG KIPs identified in the KIP declaration table, 3) NCOW RM Enterprise Services 4) IA requirements including availability, integrity, authentication, confidentiality, and non-repudiation, and issuance of an ATO by the DAA, and 5) Operationally effective information exchanges; and mission critical performance and IA attributes, data correctness, data availability, and consistent data processing specified in the applicable joint and system integrated architecture views.	The SO E-IBCT systems must fully support execution of joint critical operational activities identified in the applicable joint and system integrated architectures and the system must satisfy the technical requirements for transition to Net-Centric military operations to include 1) DISR mandated GIG IT standards and profiles identified in the TV-1, 2) DISR mandated GIG KIPs identified in the KIP declaration table, 3) NCOW RM Enterprise Services, 4) IA requirements including availability, integrity, authentication, confidentiality, and non-repudiation, and issuance of an IATO by the DAA, and 5) Operationally effective information exchanges; and mission critical performance and IA attributes, data correctness, data availability, and consistent data processing specified in the applicable joint and system integrated architecture views.	TBD	The SO systems must fully support execution of all operational activities identified in the applicable joint and system integrated architectures and the system must satisfy the technical requirements for Net-Centric military operations to include 1) DISR mandated GIG IT standards and profiles identified in the TV-1, 2) DISR mandated GIG KIPs identified in the KIP declaration table, 3) NCOW RM Enterprise Services 4) IA requirements including availability, integrity, authentication, confidentiality, and non-repudiation, and issuance of an ATO by the DAA, and 5) Operationally effective information exchanges; and mission critical performance and IA attributes, data correctness, data availability, and consistent data processing specified in the applicable joint and system integrated architecture views.
NLOS-LS Lethality*				
The NLOS-LS must be capable of defeating	The NLOS-LS must be capable of defeating	The NLOS-LS must be capable of defeating	TBD	The NLOS-LS must be capable of defeating

armored and non-armored moving and stationary targets, at ranges up to 40 km and achieving a SMPK, with in-flight target updates. See SO E-IBCT CPD Classified Annex I for SMPK values and conditions.	armored and non-armored moving and stationary targets, at ranges up to 40 km and achieving a SMPK, with in-flight target updates. See SO E-IBCT CPD Classified Annex I for SMPK values and conditions.	armored and non-armored moving and stationary targets, at ranges up to 40 km and achieving a SMPK, without in-flight target updates. See SO E-IBCT CPD Classified Annex I for SMPK values and conditions.		armored and non-armored moving and stationary targets, at ranges up to 40 km and achieving a SMPK, with in-flight target updates. See SO E-IBCT CPD Classified Annex I for SMPK values and conditions.
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T-UGS Classification*

T-UGS must be capable of classifying wheeled and tracked vehicles at 750m and detecting dismounted personnel at 75m under degraded conditions. (refer to SO E-IBCT CPD classified annex I for nominal condition description).	T-UGS must be capable of classifying wheeled and tracked vehicles at 750m and detecting dismounted personnel at 75m under degraded conditions. (refer to SO E-IBCT CPD classified annex I for nominal condition description).	T-UGS must be capable of classifying wheeled and tracked vehicles at 350m and detecting dismounted personnel at 50m (from center point of field), under nominal conditions. (refer to SO E-IBCT CPD classified annex I for nominal condition description).	TBD	T-UGS must be capable of classifying wheeled and tracked vehicles at 750m and detecting dismounted personnel at 75m under degraded conditions. (refer to SO E-IBCT CPD classified annex I for nominal condition description).
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U-UGS Detection*

U-UGS must be capable of detecting a person in motion within 30m of the sensor, and of providing an alert to the operator in less than 1s, when an object enters the sensor area under nominal conditions. (refer to SO E-IBCT CPD classified annex I for nominal condition description).	U-UGS must be capable of detecting a person in motion within 30m of the sensor, and of providing an alert to the operator in less than 1s, when an object enters the sensor area under nominal conditions. (refer to SO E-IBCT CPD classified annex I for nominal condition description).	U-UGS must be capable of detecting a person in motion within 15m of the sensor, and of providing an alert to the operator in less than 2s, when an object enters the sensor area under nominal conditions. (refer to SO E-IBCT CPD classified annex I for nominal condition description).	TBD	U-UGS must be capable of detecting a person in motion within 30m of the sensor, and of providing an alert to the operator in less than 1s, when an object enters the sensor area under nominal conditions. (refer to SO E-IBCT CPD classified annex I for nominal condition description).
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CL I UAS Block 0 Recognition*

The CL I UAS must be capable EO/IR/LD/LRF of providing target location information during day/night and adverse weather from an operating altitude of 1000 ft (305m) AGL throughout a radius 16km area of influence, to locate a man at a slant range of 700m, recognize a man at a slant range of 280m.	The CL I UAS must be capable EO/IR/LD/LRF of providing target location information during day/night and adverse weather from an operating altitude of 1000 ft (305m) AGL throughout a radius 16km area of influence, to locate a man at a slant range of 700m, recognize a man at a slant range of 280m.	CL I Block 0 must be capable of hovering at an altitude of 500 ft (152m) AGL throughout a radius of 4km area of influence. Payload must provide sufficient resolution through EO/IR to enable the operator to detect and recognize a man sized target during day conditions at a slant range of 250m, night	TBD	The CL I UAS must be capable EO/IR/LD/LRF of providing target location information during day/night and adverse weather from an operating altitude of 1000 ft (305m) AGL throughout a radius 16km area of influence, to locate a man at a slant range of 700m, recognize a man at a slant range of 280m.
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Locate, identify, and designate targets at a slant range of 700m.	Locate, identify, and designate targets at a slant range of 700m.	conditions at a slant range of 125m and identify NATO standard APC target throughout the area of operation.		Locate, identify, and designate targets at a slant range of 700m.
SUGV Block 1 Recognition Range*				
The SUGV must possess a modular day/night/low light capability to identify, locate (TLE of 25m), and designate stationary and moving targets at a range of 200m. Recognition of personnel at 200m.	The SUGV must possess a modular day/night/low light capability to identify, locate (TLE of 25m), and designate stationary and moving targets at a range of 200m. Recognition of personnel at 200m.	The SUGV Block 1 sensor in day, night, and low light conditions must provide the operator the ability to recognize a person out to 100m.	TBD	The SUGV must possess a modular day/night/low light capability to identify, locate (TLE of 25m), and designate stationary and moving targets at a range of 200m. Recognition of personnel at 200m.
SO Materiel Availability*				
Each SO E-IBCT system must each achieve an Ao of 95%. Supporting enablers include embedded diagnostic and prognostic systems, and rapid fault isolation, removal and replacement of components, LRUs and LRMs.	Each SO E-IBCT system must each achieve an Ao of 95%. Supporting enablers include embedded diagnostic and prognostic systems, and rapid fault isolation, removal and replacement of components, LRUs and LRMs.	Each SO E-IBCT system must each achieve an Ao of 85%. Supporting enablers include embedded diagnostic and prognostic systems, and rapid fault isolation, removal and replacement of components, LRUs and LRMs.	TBD	Each SO E-IBCT system must each achieve an Ao of 95%. Supporting enablers include embedded diagnostic and prognostic systems, and rapid fault isolation, removal and replacement of components, LRUs and LRMs.

Requirements Reference

Capability Production Document (CPD) for Future Combat Systems (FCS) Spin Out (SO) Early Infantry Brigade Combat Team (E-IBCT) Increment: 1, dated April 20, 2009.

Change Explanations

None

Notes

* Key Performance Parameter (KPP)

Acronyms and Abbreviations

AGL - Above Ground Level
Ao - Operational Availability
APC - Armored Personnel Carrier
ATO - Approval to Operate
CL I - Class I
CL I UAS - Class I Unmanned Aerial System
CPD - Capabilities Production Document
DAA - Designated Approval Authority
DISR - Department of Defense Information Technology Standards Registry
EO - Electro Optical
ft - feet
GIG - Global Information Grid
IA - Information Assurance
IATO - Interim Approval to Operate
IR - Infrared
IT - Information Technology
KIP - Key Interface Profile
km - kilometer
LD - Laser Designator
LRF - Laser Rangefinder
LRM - Line Replaceable Modules
LRU - Line Replaceable Units
m - meters
NATO - North Atlantic Treaty Organization
NCOW-RM - Net-Centric Operations and Warfare Reference Model
NLOS-LS - Non-Line of Sight - Launch System
s - seconds
SMPK - Single Missile Probability of Kill
SO E-IBCT - Spin Out Early Infantry Brigade Combat Team
SUGV - Small Unmanned Ground Vehicle
TLE - Target Location Error
T-UGS - Tactical Unattended Ground Sensor
TV - Technical View
UAS - Unmanned Aerial System
U-UGS - Urban Unattended Ground Sensor

Track to Budget

RDT&E			
Appn	BA	PE	
Army	2040	05	0604660A
	Project	Name	
	FC1	Manned Ground Vehicles (Shared)	
Army	2040	05	0604661A
	Project	Name	
	FC2	SoS Engineering & Program Management (Shared)	
Army	2040	05	0604662A
	Project	Name	
	FC3	Recon Platforms and Sensors (Shared)	
Army	2040	05	0604663A
	Project	Name	
	FC4	Unmanned Ground Vehicles (Shared)	
Army	2040	05	0604664A
	Project	Name	
	FC5	Unattended Ground Sensors (Shared)	
Army	2040	05	0604665A
	Project	Name	
	FC6	Network Hardware & Software (Shared)	
Army	2040	05	0604666A
	Project	Name	
	FC7	Spin Out Tech/Capability Integration (Shared)	
Army	2040	05	0605625A
	Project	Name	
	FC8	Manned Ground Vehicle (Shared)	
Army	2040	05	0604647A
	Project	Name	
	F58	NLOS Cannon (Shared)	
Army	2040	05	0604646A
	Project	Name	
	F72	NLOS Launch System (Shared)	

Notes

The only projects that have dollars in 2011 are Project FC2 (SoS Engineering & Program Management) and Project F72 (NLOS Launch System)

Procurement

Appn	BA	PE
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Army 2035 01

Line Item	Name
G86100	Procurement of Core W&TCV, Army/1/Tracked Combat Veh.
G86200	Procurement of Spin Out W&TCV, Army/1/Tracked Combat Veh.
G86200	Advanced Procurement of Spin Out W&TCV, Army/1/Tracked Combat Veh.
A00015	BCT Unmanned Aerial Vehicle (UAVS) - Increment 1

Army 2035 02

Line Item	Name
B00001	BCT Unattended Ground Sensor
B00002	BCT Network

Army 2035 03

Line Item	Name
F00001	BCT Unmanned Ground Vehicle
G80001	BCT Training/Logistics/Management

Army 2035 02

Line Item	Name
C64501	BCT Non Line of Sight Launch System - Increment 1

Cost and Funding

Cost Summary

Total Acquisition Cost							
Appropriation	BY 2010 \$M			BY 2010 \$M	TY \$M		
	SAR Baseline Production Estimate	Current APB Production Objective/Threshold		Current Estimate	SAR Baseline Production Estimate	Current APB Production Objective	Current Estimate
RDT&E	583.6	583.6	642.0	579.9	594.0	594.0	588.7
Procurement	2565.9	2565.9	2822.5	2463.1	2690.0	2690.0	2578.0
Flyaway	--	--	--	2022.7	--	--	2109.0
Recurring	--	--	--	1365.8	--	--	1423.9
Non Recurring	--	--	--	656.9	--	--	685.1
Support	--	--	--	440.4	--	--	469.0
Other Support	--	--	--	398.7	--	--	425.7
Initial Spares	--	--	--	41.7	--	--	43.3
MILCON	0.0	0.0	--	0.0	0.0	0.0	0.0
Acq O&M	0.0	0.0	--	0.0	0.0	0.0	0.0
Total	3149.5	3149.5	N/A	3043.0	3284.0	3284.0	3166.7

Cost Notes

1. The above costs include those efforts / items for Inc 1 E-IBCT under the direct purview of Program Executive Office (PEO) Integration. Included are the development and production costs.

- Non-Line of Sight Launch System (NLOS-LS)
 - Precision Attack Missile (PAM)
 - Container Launch Unit (CLU)
 - Control Cell (including High-Mobility Multi-Purpose Wheeled Vehicle (HMMWV))
- Network Integration Kit (NIK)
 - Integrated Computer System (ICS)
 - A-Kit for HMMWV
 - Ground Platform Communications System (GPCS), less Joint Tactical Radio System - Ground Mobile Radio (JTRS GMR)
 - JTRS GMR, only includes the Engineering Development Models (EDMs) for Low Rate Initial Production (LRIP) (E-IBCTs 1-3)
- Tactical Unattended Ground Sensor (T-UGS)
- Urban Unattended Ground Sensor (U-UGS)
- Class I Unmanned Air System (UAS)
- Small Unmanned Ground Vehicle (SUGV)
- IBC T Integration, Systems Engineering, Test, Program Management, Fielding, etc.
- Battle Command Software Development / Maintenance

Efforts / Items not included in the above costs are:

- NIK-equipped HMMWVs
- JTRS GMRs (E-IBCTs 4-9)

2. For Research, Development, Test & Evaluation (RDTE), costs reflect the above efforts / items beginning in

FY2010 and continuing through RDTE completion. Costs incurred for the above prior to FY2010 are not separable from the cancelled Future Combat Systems - Brigade Combat Team (FCS-BCT) program and, therefore, are not included in this SAR. The total RDTE cost is equal to the Cost Analysis and Program Evaluation (CAPE) Estimate, with the following exception: The RDTE cost in FY11 has been increased by \$12M to accommodate the performance of a comparative test during Initial Operational Test and Evaluation (IOT&E). This comparative test is a program requirement over and above that defined by the Cost Analysis Requirements Description (CARD). It is a direct result of specific guidance provided in the 24 December 2009 Acquisition Memorandum (ADM).

3. Procurement costs reflect the procurement and fielding of nine (9) E-IBCTs.
 - LRIP is limited to one (1) BCT per Public Law 111-84 (NDAA 2010) Sec 111, until the Under Secretary of Defense (Acquisition, Technology, and Logistics) (USD(ATL)) provides written certification to waive this limitation.

The procurement costs include:

- Attrition for Class I UAS and SUGV
- Post deployment software support through FY2013
- Post fielding support costs

Total Quantity			
Quantity	SAR Baseline Production Estimate	Current APB Production	Current Estimate
RDT&E	0	0	0
Procurement	9	9	9
Total	9	9	9

Quantity Notes

The Unit of Measure for this program is an E-IBCT. One E-IBCT includes 81 Network Integration Kits (NIK), 38 SUGVs (Small Unmanned Ground Vehicle), 29 Urban-Unattended Ground Sensors (U-UGS), 13 Tactical-Unattended Ground Sensors (T-UGS), 23 Class I Unmanned Aerial Vehicles (Class I UAV), and 10 Non Line of Sight Launch System (NLOS-LS) Container Launch Units (CLU).

Cost and Funding

Funding Summary

Appropriation Summary									
FY 2011 President's Budget / December 2009 SAR (TY\$ M)									
Appropriation	Prior	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	To Complete	Total
RDT&E	0.0	473.6	115.1	0.0	0.0	0.0	0.0	0.0	588.7
Procurement	68.7	326.9	682.7	1107.0	255.6	75.9	55.7	5.5	2578.0
MILCON	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Acq O&M	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PB 2011 Total	68.7	800.5	797.8	1107.0	255.6	75.9	55.7	5.5	3166.7
	--	--	--	--	--	--	--	--	--

Quantity Summary										
FY 2011 President's Budget / December 2009 SAR (TY\$ M)										
Quantity	Undistributed	Prior	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	To Complete	Total
Development	0	0	0	0	0	0	0	0	0	0
Production	0	0	1	2	6	0	0	0	0	9
PB 2011 Total	0	0	1	2	6	0	0	0	0	9
	--	--	--	--	--	--	--	--	--	--

Cost and Funding

Annual Funding By Appropriation

Annual Funding							
2040 RDT&E Research, Development, Test, and Evaluation, Army							
Fiscal Year	Quantity	TY \$M					
		End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program
2010	--	--	--	--	--	--	473.6
2011	--	--	--	--	--	--	115.1
Subtotal	--	--	--	--	--	--	588.7

Annual Funding 2040 RDT&E Research, Development, Test, and Evaluation, Army							
Fiscal Year	Quantity	BY 2010 \$M					
		End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program
2010	--	--	--	--	--	--	468.0
2011	--	--	--	--	--	--	111.9
Subtotal	--	--	--	--	--	--	579.9

Annual Funding								
2035 Procurement Other Procurement, Army								
Fiscal Year	Quantity	TY \$M						Total Program
		End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support		
2008	--	0.3	--	1.1	1.4	--	1.4	
2009	--	47.4	--	17.5	64.9	2.4	67.3	
2010	1	197.9	--	102.5	300.4	26.5	326.9	
2011	2	378.6	--	246.4	625.0	57.7	682.7	
2012	6	765.1	--	226.6	991.7	115.3	1107.0	
2013	--	34.6	--	79.9	114.5	141.1	255.6	
2014	--	--	--	6.9	6.9	69.0	75.9	
2015	--	--	--	4.2	4.2	51.5	55.7	
2016	--	--	--	--	--	1.8	1.8	
2017	--	--	--	--	--	1.7	1.7	
2018	--	--	--	--	--	1.2	1.2	
2019	--	--	--	--	--	0.7	0.7	
2020	--	--	--	--	--	0.1	0.1	
Subtotal	9	1423.9	--	685.1	2109.0	469.0	2578.0	

Annual Funding								
2035 Procurement Other Procurement, Army								
Fiscal Year	Quantity	BY 2010 \$M						
		End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program	
2008	--	0.3	--	1.1	1.4	--	1.4	
2009	--	47.2	--	17.4	64.6	2.4	67.0	
2010	1	194.2	--	100.6	294.8	26.1	320.9	
2011	2	365.5	--	237.8	603.3	55.8	659.1	
2012	6	726.3	--	215.2	941.5	109.4	1050.9	
2013	--	32.3	--	74.7	107.0	131.9	238.9	
2014	--	--	--	6.3	6.3	63.5	69.8	
2015	--	--	--	3.8	3.8	46.5	50.3	
2016	--	--	--	--	--	1.6	1.6	
2017	--	--	--	--	--	1.5	1.5	
2018	--	--	--	--	--	1.0	1.0	
2019	--	--	--	--	--	0.6	0.6	
2020	--	--	--	--	--	0.1	0.1	
Subtotal	9	1365.8	--	656.9	2022.7	440.4	2463.1	

In order to present a BCT-level view of costs, all procurement costs for the Increment 1 E-IBCT program have been entered against the OPA Appropriation (2035). However, actual procurement funding comes from OPA (2035), Missiles (2032), and Aircraft (2031) budget lines. PEO I has generated a set of inflation indices that are a weighted average of the indices from the appropriate three appropriations. This allows for an accurate presentation of Then-Year costs at a BCT level, and a summary of Base-Year costs that are based on the appropriate indices.

The FY08 End Item Related Flyaway costs are for the expended advanced procurement related to the former FCS Spin Outs program prior to termination of "FCS Spin Outs".

The FY09 End Item Related Flyaway costs are for the expended advanced procurement related to the Increment 1 E-IBCT systems.

The FY13 End Item Related Flyaway costs are for UAV Class I vehicles, which are being procured to account for expected attrition incurred during training operations.

Cost Quantity Information 2035 Procurement Other Procurement, Army		
Fiscal Year	Quantity	End Item Recurring Flyaway (Aligned With Quantity) BY 2010 \$M
2008	--	--
2009	--	--
2010	1	241.4
2011	2	365.5
2012	6	758.9
2013	--	--
2014	--	--
2015	--	--
2016	--	--
2017	--	--
2018	--	--
2019	--	--
2020	--	--
Subtotal	9	1365.8

Low Rate Initial Production

Item	Initial LRIP Decision	Current Total LRIP
Approval Date	12/22/2009	12/22/2009
Approved Quantity	1	1
Reference	ADM	ADM
Start Year	2010	2010
End Year	2010	2010

ADM dated 12/22/2009 approves Low Rate Initial Production (LRIP) for one Early Infantry Brigade Combat Team (E-IBCT). Due to the total quantity procured being 9 E-IBCTs, the LRIP quantity of 1 is above 10%.

Foreign Military Sales

None

Nuclear Costs

None

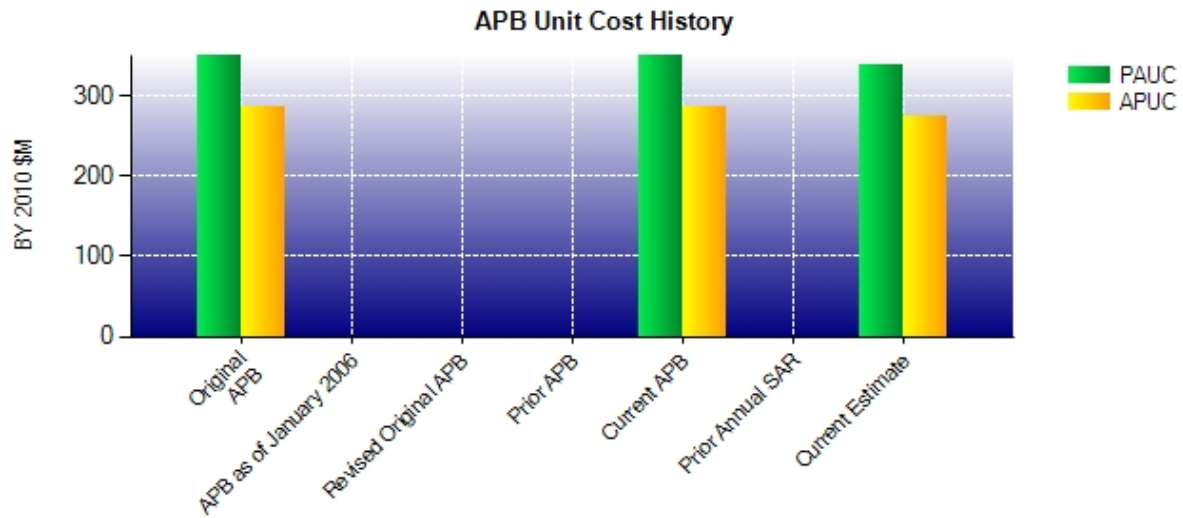
Unit Cost

Unit Cost Report

Item	BY 2010 \$M	BY 2010 \$M	% Change
	Current UCR Baseline (Feb 2010 APB)	Current Estimate (Dec 2009 SAR)	
Program Acquisition Unit Cost			
Cost	3149.5	3043.0	
Quantity	9	9	
Item	349.944	338.111	-3.38
Average Procurement Unit Cost			
Cost	2565.9	2463.1	
Quantity	9	9	
Unit Cost	285.100	273.678	-4.01

Item	BY 2010 \$M	BY 2010 \$M	% Change
	Original UCR Baseline (Feb 2010 APB)	Current Estimate (Dec 2009 SAR)	
Program Acquisition Unit Cost			
Cost	3149.5	3043.0	
Quantity	9	9	
Unit Cost	349.944	338.111	-3.38
Average Procurement Unit Cost			
Cost	2565.9	2463.1	
Quantity	9	9	
Unit Cost	285.100	273.678	-4.01

Unit Cost History



Item	Date	BY 2010 \$M		TY \$M	
		PAUC	APUC	PAUC	APUC
Original APB	Feb 2010	349.944	285.100	364.889	298.889
APB as of January 2006	N/A	N/A	N/A	N/A	N/A
Revised Original APB	N/A	N/A	N/A	N/A	N/A
Prior APB	N/A	N/A	N/A	N/A	N/A
Current APB	Feb 2010	349.944	285.100	364.889	298.889
Prior Annual SAR	N/A	N/A	N/A	N/A	N/A
Current Estimate	Dec 2009	338.111	273.678	351.856	286.444

SAR Unit Cost History

Current SAR Baseline to Current Estimate (TY \$M)									
Initial PAUC Production Estimate	Changes								PAUC Current Estimate
	Econ	Qty	Sch	Eng	Est	Oth	Spt	Total	
364.889	-1.444	0.000	0.000	0.000	-18.067	0.000	6.478	-13.033	351.856

Current SAR Baseline to Current Estimate (TY \$M)									
Initial APUC Production Estimate	Changes								APUC Current Estimate
	Econ	Qty	Sch	Eng	Est	Oth	Spt	Total	
298.889	-1.289	0.000	0.000	0.000	-17.634	0.000	6.478	-12.445	286.444

SAR Baseline History				
Item	SAR Planning Estimate	SAR Development Estimate	SAR Production Estimate	Current Estimate
Milestone A	N/A	N/A	N/A	N/A
Milestone B	N/A	N/A	N/A	N/A
Milestone C	N/A	N/A	Dec 2009	Dec 2009
IOC	N/A	N/A	Mar 2012	Mar 2012
Total Cost (TY \$M)	N/A	N/A	3284.0	3166.7
Total Quantity	N/A	N/A	9	9
PAUC	N/A	N/A	364.889	351.856

Cost Variance

Summary TY \$M				
Item	RDT&E	Procurement	MILCON	Total
SAR Baseline (Production Estimate)	594.0	2690.0	--	3284.0
Previous Changes				
Economic	--	--	--	--
Quantity	--	--	--	--
Schedule	--	--	--	--
Engineering	--	--	--	--
Estimating	--	--	--	--
Other	--	--	--	--
Support	--	--	--	--
Subtotal	--	--	--	--
Current Changes				
Economic	-1.4	-11.6	--	-13.0
Quantity	--	--	--	--
Schedule	--	--	--	--
Engineering	--	--	--	--
Estimating	-3.9	-158.7	--	-162.6
Other	--	--	--	--
Support	--	+58.3	--	+58.3
Subtotal	-5.3	-112.0	--	-117.3
Total Changes	-5.3	-112.0	--	-117.3
Current Estimate	588.7	2578.0	--	3166.7

Summary BY 2010 \$M				
Item	RDT&E	Procurement	MILCON	Total
SAR Baseline (Production Estimate)	583.6	2565.9	--	3149.5
Previous Changes				
Economic	--	--	--	--
Quantity	--	--	--	--
Schedule	--	--	--	--
Engineering	--	--	--	--
Estimating	--	--	--	--
Other	--	--	--	--
Support	--	--	--	--
Subtotal	--	--	--	--
Current Changes				
Economic	--	--	--	--
Quantity	--	--	--	--
Schedule	--	--	--	--
Engineering	--	--	--	--
Estimating	-3.7	-154.7	--	-158.4
Other	--	--	--	--
Support	--	+51.9	--	+51.9
Subtotal	-3.7	-102.8	--	-106.5
Total Changes	-3.7	-102.8	--	-106.5
Current Estimate	579.9	2463.1	--	3043.0

Initial SAR - Above variances (if any) reflect changes since the SAR Baseline/APB.

SAR Baseline Reference: Defense Acquisition Executive (DAE) Approved Acquisition Program Baseline (APB) dated February 22, 2010

RDT&E	\$M	
Current Change Explanations	Base Year	Then Year
Revised escalation indices. (Economic)	N/A	-1.4
Adjustment for current and prior escalation. (Estimating)	+1.1	+1.1
The Acquisition Program Baseline (APB) was approved after the FY11 President's Budget (FY11 PB) was submitted. Even though the Army was directed to fund to the CAPE estimate, the timing was such that this direction is reflected in the APB but not the FY11 PB. This variance will be addressed as part of the FY12-17 Program Objective Memorandum (POM) process. (Estimating)	-4.8	-5.0
RDT&E Subtotal	-3.7	-5.3

Procurement	\$M	
Current Change Explanations	Base Year	Then Year
Revised escalation indices. (Economic)	N/A	-11.6
Adjustment for current and prior escalation. (Estimating)	+1.2	+1.2
The Acquisition Program Baseline (APB) was approved after the FY11 President's Budget (FY11 PB) was submitted. Even though the Army was directed to fund to the CAPE estimate, the timing was such that this direction is reflected in the APB but not the FY11 PB. This variance will be addressed as part of the FY12-17 Program Objective Memorandum (POM) process. (Estimating)	-155.9	-159.9
Adjustment for current and prior escalation. (Support)	+0.1	+0.1
Increase in Other Support. (Support)	+54.9	+61.5
Decrease in Initial Spares. (Support)	-3.1	-3.3
Procurement Subtotal	-102.8	-112.0

Contracts

Contract Identification

Appropriation: RDT&E
Contract Name: NLOS-LS SDD
Contractor: NetFires, LLC
Contractor Location: Grand Prairie, TX 75051
Contract Number: W31P4Q-04-C-0059
Contract Type: Cost Plus Incentive Fee (CPIF)
Award Date: March 19, 2004
Definitization Date: August 20, 2004

Contract Price							
Initial Contract Price (\$M)			Current Contract Price (\$M)			Estimated Price At Completion (\$M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
0.0	N/A	N/A	0.0	N/A	N/A	0.0	0.0

Contract Variance		
Item	Cost Variance	Schedule Variance
Cumulative Variances To Date (12/31/2009)	0.0	0.0
Previous Cumulative Variances	--	--
Net Change	+0.0	+0.0

Cost and Schedule Variance Explanations

General Contract Variance Explanation

It is expected that following the re-structuring of this contract, there will be accurate Earned Value data to report against beginning in 3rd quarter FY10.

Notes

There is an effort currently underway to re-baseline this contract and specifically identify effort related to Increment 1 and Increment 2. Once that is accomplished, we will have accurate baseline contract prices to track and report against.

Contract Identification

Appropriation: RDT&E
Contract Name: FCS SDD
Contractor: The Boeing Company
Contractor Location: Hazelwood, MO 63042
Contract Number: W56HZV-05-C-0724
Contract Type: Cost Plus Incentive Fee (CPIF)
Award Date: May 30, 2003
Definitization Date: March 02, 2005

Contract Price							
Initial Contract Price (\$M)			Current Contract Price (\$M)			Estimated Price At Completion (\$M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
0.0	N/A	N/A	0.0	N/A	N/A	0.0	0.0

Contract Variance		
Item	Cost Variance	Schedule Variance
Cumulative Variances To Date (12/31/2009)	0.0	0.0
Previous Cumulative Variances	--	--
Net Change	+0.0	+0.0

Cost and Schedule Variance Explanations

General Contract Variance Explanation

It is expected that following the re-structuring of this contract, there will be accurate Earned Value data to report against beginning in 3rd quarter FY10.

Notes

There is an effort currently underway to re-baseline this contract and specifically identify effort related to Increment 1 and Increment 2. Once that is accomplished, we will have accurate baseline contract prices to track and report against.

Deliveries and Expenditures

Deliveries				
Delivered to Date	Planned to Date	Actual to Date	Total Quantity	Percent Delivered
Development	0	0	0	--
Production	0	0	9	0.00%
Total Program Quantity Delivered	0	0	9	0.00%

Expended and Appropriated (TY \$M)			
Total Acquisition Cost	3166.7	Years Appropriated	3
Expended to Date	954.0	Percent Years Appropriated	23.08%
Percent Expended	30.13%	Appropriated to Date	869.2
Total Funding Years	13	Percent Appropriated	27.45%

Operating and Support Cost

Assumptions and Ground Rules

O&S costs presented in this SAR reflect the Cost Analysis and Program Evaluation (CAPE) estimate and the approved Acquisition Program Baseline (APB).

O&S costs reflect a limited life span for Early - Infantry Brigade Combat Teams (E-IBCTs). The Unmanned Aerial System (UAS) and the Small Unmanned Ground Vehicle (SUGV) are each assumed to have a service life of approximately 5 years. At the end of their service life, they will be replaced with the newer versions of these platforms (that are available beginning in FY2013). At the same time the UAS and the SUGV are replaced, the other platforms will be re-capped. The result of this replacement/recapping strategy is the conversion of the E-IBCTs to a follow-on configuration, with the costs for this follow-on configuration being associated with a future acquisition program/Acquisition Program Baseline (APB). Based on this approach, the average operating life of each Increment 1 E-IBCT is approximately 5 years.

O&S costs also include the additional military personnel required per Increment 1 E-IBCT as a result of fielding the above hardware (1 officer + 21 enlisted additional military personnel per Increment 1 E-IBCT).

Cost Estimate Reference:

None

Sustainment Strategy:

None

Antecedent Information:

None

Unitized O&S Costs BY2010 \$K		
Cost Element	Inc 1 E-IBCT \$K	No Antecedent (Antecedent)
Mission Pay & Allowance	2426.700	--
Unit Level Consumption	4708.900	--
Intermediate Maintenance	--	--
Depot Maintenance	622.200	--
Contractor Support	2680.000	--
Sustaining Support	1095.600	--
Indirect	66.700	--
Other	3333.300	--
Total	14933.400	--

Unitized Cost Comments:

None

Item	Total O&S Cost \$M			
	Inc 1 E-IBCT			No Antecedent (Antecedent)
	Current Production APB Objective/Threshold		Current Estimate	
Base Year	672.0	739.2	672.0	N/A
Then Year	719.0	N/A	719.0	N/A

Total O&S Cost Comment

Disposal Estimate Details

Date of Estimate:

Source of Estimate:

Disposal/Demilitarization Total Cost (BY 2010 \$M):