Selected Acquisition Report (SAR)

RCS: DD-A&T(Q&A)823-205

IAMD

As of December 31, 2011

Defense Acquisition Management
Information Retrieval
(DAMIR)

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Program Information

Designation And Nomenclature (Popular Name)

Integrated Air and Missile Defense (IAMD)

DoD Component

Army

Responsible Office

Responsible Office

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Date Assigned September 26, 2011

The IAMD Project Office Change of Charter was conducted in September 2011. COL Robert Rasch replaced Mr. Robert Thomas as the IAMD Project Manager.

References

SAR Baseline (Development Estimate)

FY2011 President's Budget dated February 1, 2010

Approved APB

Defense Acquisition Executive (DAE) Approved Acquisition Program Baseline (APB) dated June 28, 2010

Mission and Description

The mission of the Army Integrated Air And Missile Defense (IAMD) Project Office is to define, develop, acquire, field and sustain the Army's portion of the Joint IAMD System of Systems capability to be deployed as integrated components in Army, Joint, Interagency, Intergovernmental and Multi-National (JIIM) net-centric architectures. Additionally, the Army IAMD Project Office will develop, acquire, field and sustain the Army IAMD Battle Command System (IBCS) component of the architecture and integrate externally developed sensors and shooters to provide an effective IAMD capability.

The Army IAMD program will allow transformation to a network-centric system of systems capability (also referred to as "Plug and Fight") that integrates all Air and Missile Defense (AMD) sensors, weapons, and mission control. The Army IAMD program will integrate the Patriot, Improved Sentinel, and Joint Land Attack Cruise Missile Defense Elevated Netted Sensor System (JLENS) components to support the engagement of air breathing targets, Cruise Missiles, Unmanned Aerial Vehicles (UAVs), and Tactical Ballistic Missiles (TBMs) threat. Each sensor and weapon platform will have a "Plug and Fight" interface module, which supplies distributed battle management functionality to enable network-centric operations. Additionally, the IBCS functionality will be incorporated into Air Defense Airspace Management (ADAM) Cells, Air Defense Artillery (ADA) Brigade Headquarters, and Army Air and Missile Defense Command (AAMDC) Headquarters.

The common IBCS provides the functional capabilities to control and manage the IAMD sensors and weapons via the Integrated Fire Control (IFC) Network capability for fire control connectivity and enabling distributed operations. Central to the Army IAMD program is the IBCS Development Program consisting of the IBCS Major End Items (MEI); the Engagement Operations Center and Plug and Fight Modules. The development of these MEIs is essential to achieving Army transformation imperatives, connectivity to the Global Interface Grid (GIG) for Joint Operations, obtaining a Joint Single Integrated Air Picture (SIAP), establishing Engage on Network capabilities, enabling Net-Ready operations for Army AMD components, and providing a common IAMD mission command capability. This innovative approach at modernization will reduce manpower requirements, operation and support costs, and enhance training.

Executive Summary

An Army IAMD Acquisition Decision Memorandum (ADM) was signed on February 1, 2012, by the Defense Acquisition Executive (DAE) directing a program restructure and documentation updates. The program restructure will include IAMD capability in the following systems: Terminal High Altitude Area Defense (THAAD), Air Defense Artillery (ADA) Brigade, Army Air and Missile Defense Command (AAMDC), Indirect Fire Protection Capability (IFPC) within IFPC/Avenger Composite Battalions and Air Defense and Airspace Management (ADAM) cells. The restructured program will include two Product Improvements. Product Improvement 1 will include placing Patriot components directly on the Integrated Fire Control Network (IFCN) and employing a common set of command and control (C2) tools across ADA formations with a Initial Operational Capability (IOC) in FY 2019. Product Improvement 2 will integrate THAAD.

The IAMD Project Office (PO) and Northrop Grumman (NG) conducted multiple Warfighter Participation Events at Fort Sill, OK in 2011 in order to assess completeness and quality of the Fire Control Element (FCE) and Combat Identification (CID) decision aids being incorporated into Common Machine Warfighter Interface (CWMI) software version 2.

The IAMD PO hosted the Sentinel A-Kit Design Review (DR) on November 22, 2011 to determine if the detail design of the Sentinel A-Kit satisfies cost, schedule and performance and the acceptability of the detailed design, performance and test characteristics of the design solution and the adequacy of the operation and support documents.

Macrolink conducted a successful Plug and Fight Processing Unit (PFPU) Critical Design Review (CDR) in Anaheim, CA on October 4, 2011. The purpose of the CDR was for Macrolink to get approval from Boeing to begin production of Research, Development, Test and Evaluation (RDT&E) PFPUs.

The IAMD PO, Cooperative Engagement Capability (CEC) PO (Program Executive Office (PEO) Integrated Warfare System (IWS) 6), Common Aviation Command and Control System (CAC2S) Program Office (PEO Land Systems) and Airborne Warning and Control System (AWACS) System Program Offices completed the Joint Track Management Capability (JTMC) proof of concept demonstration on September 27 - 29, 2011. The primary objective to demonstrate the ability to exchange and process associated measurement reports (AMRs) across two dissimilar, bridged, networks was achieved. The JTMC demonstration efforts have proven that it is feasible to modify existing combat system software to aid in the achievement of the Single Integrated Air Picture Key Performance Parameters (KPPs) while establishing the foundation of integrated fire control between the Services' composite tracking/fire control networks.

The IAMD PO conducted a Patriot Launcher on the Net (LOTN) and Patriot Radar Interface Unit (RIU) Preliminary Design Update (PDU) on May 11, 2011. The LOTN/RIU briefing provided status and reached a decision to proceed with the LOTN/RIU design update in parallel with the detailed design of the current allocated baseline. The LOTN/RIU findings include the following: 1) there was excellent integration and participation from all stakeholders, 2) the LOTN/RIU analysis and preliminary design tasks planned for the May 2011 PDU were completed, with a small number of exceptions, 3) LOTN/RIU is technically feasible, 4) LOTN/RIU is affordable and executable with acceptable risk to cost, schedule, and performance, 5) barriers, dependencies and remaining actions are actively managed, and 6) the IAMD team has conducted the necessary system engineering analyses to characterize the risk of the LOTN/RIU changes to ongoing detailed design activities. The IAMD Program can proceed with the LOTN/RIU design update in parallel with the detailed design of the current allocated baseline.

A Patriot Launcher on the Net (LOTN) Preliminary Design Assessment (PDA) was conducted on March 29, 2011 to review proposed revisions to the implementation of the IAMD Acquisition Baseline for FY 2016. The proposed revisions include componentization of Patriot launchers directly onto the IFCN and further maturing the componentization of the Patriot radar onto the IFCN. The latter is referred to a Patriot RIU.

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

Threshold Breaches

APB Breaches		
Schedule		☐
Performance		☐
Cost	RDT&E	☑
	Procurement	☐
	MILCON	☐
	Acq O&M	☐
Unit Cost	PAUC	☐
	APUC	☐

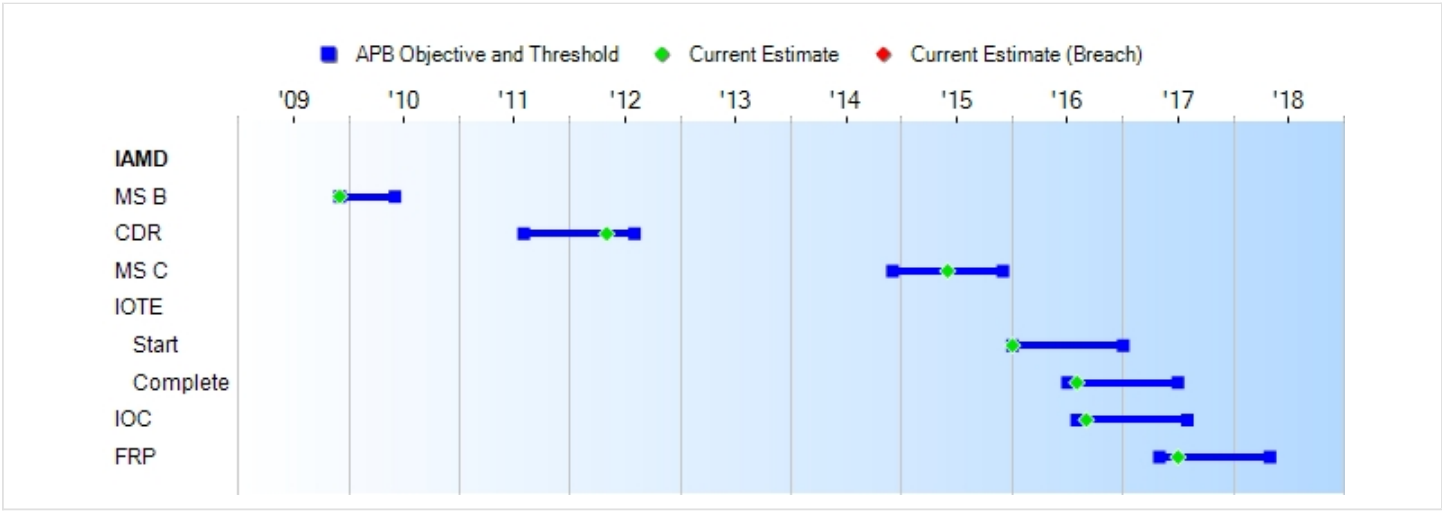
Nunn-McCurdy Breaches		
Current UCR Baseline		
	PAUC	None
	APUC	None
Original UCR Baseline		
	PAUC	None
	APUC	None

Explanation of Breach

This Research, Development, Test and Evaluation (RDT&E) Breach was previously reported in the December 2010 SAR.

The RDT&E breach is a result of additional funds provided in FY 2013-2017 to accommodate incorporating Planned Program Improvements for the Indirect Fire Protection Capability (IFPC), Air Defense and Airspace Management (ADAM) Cell, Air and Missile Defense Command (AAMDC), Air Defense Artillery (ADA) Brigade, and Terminal High Altitude Area Defense (THAAD) on the Integrated Fire Control Network. An IAMD Acquisition Decision Memorandum (ADM) was signed on February 1, 2012, by the Defense Acquisition Executive (DAE) directing a program restructure.

Schedule



Milestones	SAR Baseline Dev Est	Current APB Development Objective/Threshold		Current Estimate	
MS B	DEC 2009	DEC 2009	JUN 2010	DEC 2009	
CDR	AUG 2011	AUG 2011	AUG 2012	MAY 2012	(Ch-1)
MS C	DEC 2014	DEC 2014	DEC 2015	JUN 2015	(Ch-1)
IOTE					
Start	JAN 2016	JAN 2016	JAN 2017	JAN 2016	
Complete	JUL 2016	JUL 2016	JUL 2017	AUG 2016	(Ch-1)
IOC	AUG 2016	AUG 2016	AUG 2017	SEP 2016	(Ch-1)
FRP	MAY 2017	MAY 2017	MAY 2018	JUL 2017	(Ch-1)

Acronyms And Abbreviations

CDR - Critical Design Review
FRP - Full Rate Production
IOC - Initial Operational Capability
IOTE - Initial Operational Test and Evaluation
MS B - Milestone B
MS C - Milestone C

Change Explanations

(Ch-1) The dates for the following efforts have changed due to program restructure.
The CDR date changed from August 2011 to May 2012.
The MS C date has changed from December 2014 to June 2015.
The IOTE Completion date has changed from July 2016 to August 2016.
The IOC date has changed from August 2016 to September 2016.
The FRP date has changed from May 2017 to July 2017.

Performance

Characteristics	SAR Baseline Dev Est	Current APB Development Objective/Threshold		Demonstrated Performance	Current Estimate
Net Ready	The Army IAMD SoS 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 the following: • DISR mandated GIG IT standards and profiles identified in the TV-1 •DISR mandated GIG KIPs identified in the KIP declaration table NCOW RM Enterprise Services •Information assurance	The Army IAMD SoS 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 the followingDISR mandated GIG IT standards and profiles identified in the TV-1 DISR mandated GIG KIPs identified in the KIP declaration table NCOW RM Enterprise Services IA requirements including availability, integrity,	The Army IAMD SoS 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 the following: DISR mandated GIG IT standards and profiles identified in the TV-1 DISR mandated GIG KIPs identified in the KIP declaration table NCOW RM Enterprise Services IA requirements including availability,	TBD	The Army IAMD SoS must fully support execution of joint critical operational activities identified in the applic-able joint- and system-integrated architectures, and the system must satisfy the technical requirements for transition to Net-Centric military operations to include the following: DISR mandated GIG IT standards and profiles identified in the TV-1. DISR mandated GIG KIPs identified in the KIP declaration table. NCOW RM Enterprise Services. Information assurance requirements including

	requirements including availability, integrity, authentication, confidentiality, and non-repudiation, and issuance of an ATO by the DAA •Operationally effective information exchanges • Mission critical performance and information assurance attributes, data correctness, data availability, and consistent data processing specified in the applicable joint- and system-integrated architecture views.	authentication, confidentiality, and non-repudiation, and issuance of an ATO by the DAA Operationally effective information exchanges Mission critical performance and IA attributes, data correctness, data availability, and consistent data processing specified in the applicable joint and system integrated architecture views.	integrity, authentication, confidentiality, and non-repudiation, and issuance of an ATO by the DAA Operationally effective information exchanges Mission critical performance and IA attributes, data correctness, data availability, and consistent data processing specified in the applicable joint- and system-integrated architecture views.		availability, integrity, authentica-tion, confidential-ity, and non-repudiation, and issuance of an ATO by the DAA. Operationally effective information exchanges. Mission critical performance and information assurance attributes, data correctness, data availability, and consistent data processing specified in the applicable joint- and system-integrated architecture views.
Integrated Defense Effectiveness	To support attainment of a commander's defense effectiveness objectives, which would normally range from 0.50% to 0.99%, the Army IAMD	To support attainment of a commander's defense effectiveness objectives, which would normally range from 0.5 to 0.99, the Army IAMD SoS	To support attainment of a commander's defense effectiveness objectives, which would normally range from 0.5 to 0.99, the Army IAMD SoS	TBD	To support attainment of a comman-der's defense effectiveness objectives, which would normally range from 0.50% to 0.99%, the Army IAMD

	SoS shall provide flexible interceptor selection and firing doctrine within the Task Force. The Army IAMD SoS-integrated defenses shall enable defeat of non-ballistic and ballistic platforms at times and locations not otherwise available to the commander without an integrated operations capability by exploiting fused organic and non-organic sensor data to execute engagements up to the operationally effective range of selected missile kinematics. The Army IAMD SoS shall be capable of allowing greater defense effectiveness for high-priority assets while increasing	shall provide flexible interceptor selection and firing doctrine within the Task Force. The Army IAMD SoS-integrated defenses shall enable defeat of non-ballistic and ballistic platforms at times and locations not otherwise available to the commander without an integrated operations capability by exploiting fused organic and non-organic sensor data to execute engagements up to the operationally effective range of selected missile kinematics. The Army IAMD SoS shall be capable of allowing greater defense effectiveness for high-priority assets while increasing defense	shall provide flexible interceptor selection and firing doctrine within the Task Force. The Army IAMD SoS-integrated defenses shall enable defeat of non-ballistic and ballistic platforms at times and locations not otherwise available to the commander without an integrated operations capability by exploiting fused organic and non-organic sensor data to execute engagements up to the operationally effective range of selected missile kinematics. The Army IAMD SoS shall be capable of allowing greater defense effectiveness for high-priority assets while increasing defense		SoS shall provide flexible interceptor selection and firing doctrine within the Task Force. The Army IAMD SoS-integrated defenses shall enable defeat of non-ballistic and ballistic platforms at times and locations not otherwise available to the commander without an integrated operations capability by exploiting fused organic and non-organic sensor data to execute engagements up to the operationally effective range of selected missile kinematics. The Army IAMD SoS shall be capable of allowing greater defense effectiveness for high-priority assets while

	defense effectiveness to full 360-degree coverage against attacking non-ballistic threats. The Army IAMD SoS defense effectiveness levels shall not degrade and be equal to or greater than the effectiveness levels of fielded TBM and CM/ABT defense systems.	effectiveness to full 360-degree coverage against attacking non-ballistic threats. The Army IAMD SoS defense effectiveness levels shall not degrade and be equal to or greater than the effectiveness levels of fielded TBM and CM/ABT defense systems.	effectiveness to full 360-degree coverage against attacking non-ballistic threats. The Army IAMD SoS defense effectiveness levels shall not degrade and be equal to or greater than the effectiveness levels of fielded TBM and CM/ABT defense systems.		increasing defense effectiveness to full 360-degree coverage against attacking non-ballistic threats. The Army IAMD SoS defense effectiveness levels shall not degrade and be equal to or greater than the effectiveness levels of fielded TBM and CM/ABT defense systems.
Common Command and Control	The Army IAMD SoS common C2 components (Battalion and below) shall incorporate common functionality that includes: defense planning, defense design, warfighter-machine interface, battle monitor and control, network interface and management, track management, engagement planning,	The Army IAMD SoS common C2 components (Battalion and below) shall incorporate common functionality that includes: defense planning, defense design, warfighter-machine interface, battle monitor and control, network interface and management, track management, engagement planning,	The Army IAMD SoS common C2 components (Battalion and below) shall incorporate common functionality that includes: defense planning, defense design, warfighter-machine interface, battle monitor and control, network interface and management, track management, engagement planning,	TBD	The Army IAMD SoS common C2 components (Battalion and below) shall incorporate common functionality that includes: defense planning, defense design, warfighter-machine interface, battle monitor and control, network interface and management, track management, engagement planning,

	engagement decision, engagement monitoring, and staff functions. The Army IAMD SoS shall provide backward compatibility to enable integration and common functionality (as defined above) of a current force Patriot Battery/SLA MRAAM Platoon with the Increment 2 equipped Task Force.	engagement decision, engagement monitoring, and staff functions. The Army IAMD SoS shall provide backward compatibility to enable integration and common functionality (as defined above) of a current force Patriot Battery/SLA MRAAM Platoon with the Increment 2 equipped Task Force.	engagement decision, engagement monitoring, and staff functions. The Army IAMD SoS shall provide backward compatibility to enable integration and common functionality (as defined above) of a current force Patriot Battery/SLA MRAAM Platoon with the Increment 2 equipped Task Force.		engagement decision, engagement monitoring, and staff functions. The Army IAMD SoS shall provide backward compatibility to enable integration and common functionality (as defined above) of a current force PATRIOT Battery/ SLAMRAAM Platoon with the Incre- ment 2 equipped Task Force.
Material Availability	The Army IAMD SoS C2 shall achieve an Operational Availability (Ao) of at least 95%.	The Army IAMD SoS common C2 shall achieve an Ao 99%.	The Army IAMD SoS common C2 shall achieve an Ao of at least 95%.	TBD	The Army IAMD SoS C2 shall achieve an Ao of at least 95%.
Force Protection and Survivability	The Army IAMD SoS common C2 equipment shall be designed to be operated by Soldiers wearing body armor and equipped with appropriate weapons; shall have situational awareness and under- standing	All Army IAMD SoS common C2 vehicle cabs and manned shelters shall be capable of adding up- armor protection sufficient to repel enemy small arms as developed by the PM, FMTV. All equipment manned during	The Army IAMD SoS common C2 equipment shall be designed to be operated by Soldiers wearing body armor and equipped with appropriate weapons; shall have situational awareness and under- standing	TBD	The Army IAMD SoS common C2 equipment shall be designed to be operated by Soldiers wearing body armor and equip- ped with appro- priate weapons; shall have situational awareness and under- standing commens-

	commens-urate with the supported force; will report the position and ID of all Army IAMD SoS system into the COP and BFT nets; shall be operable by Soldiers in MOPP 4; and shall survive decontaminat ion procedures in such a manner that it can quickly return (within 30 minutes) to full operational capability. All Army IAMD SoS common C2 vehicle cabs shall be capable of adding up-armor protection sufficient to repel enemy small arms as developed by the PM, FMTV. Manned rigid wall shelters incorporated into the Army IAMD SoS shall provide an active overpressure	transport or operations shall mitigate the effects of 7.62mm rounds and below.	commens-urate with the supported force; will report the position and ID of all Army IAMD SoS system into the COP and BFT nets; shall be operable by Soldiers in MOPP 4; and shall survive decontaminat ion procedures in such a manner that it can quickly return (within 30 min) to full operational capability. All Army IAMD SoS common C2 vehicle cabs shall be capable of adding up-armor protection sufficient to repel enemy small arms as developed by the PM, FMTV. Manned rigid wall shelters incorporated into the Army IAMD SoS shall provide an active overpressure		urate with the supported force; will report the position and ID of all Army IAMD SoS system into the COP and BFT nets; shall be operable by Soldiers in MOPP 4; and shall survive decontamina -tion procedures in such a manner that it can quickly return (within 30 min) to full opera-tional capability. All Army IAMD SoS common C2 vehicle cabs shall be capable of adding up-armor protection sufficient to repel enemy small arms as devel-oped by the PM, FMTV. Manned rigid wall shelters incorporated into the Army IAMD SoS shall provide an active overpressure system to prevent

	system to prevent contaminatio n during a CBRNE event that is sustainable through decontaminat ion.		system to prevent contaminatio n during a CBRNE event that is sustainable through decontaminat ion.		contamina-tion during a CBRNE event that is sustainable through decontami-nation.

Requirements Source:
The Integrated Air and Missile Defense (IAMD) Capability Development Document (CDD) was revalidated by the Joint Requirements Oversight Council Memorandum (JROCM) 073-10 dated May 17, 2010.

Acronyms And Abbreviations

ABT - Air Breathing Threat
Ao - Operational Availability
ATO - Approval to Operate
BFT - Blue Force Tracking
C2 - Command and Control
CBRNE - Chemical, Biological, Radiological, Nuclear and High Yield Explosives
CM - Cruise Missile
COP - Common Operating Picture
DAA - Designated Approval Authority
DISR - DoD Information Technology Standards and Profile Registry
FMTV - Family of Medium Tactical Vehicles
GIG IT - Global Information Grid Information Technology
IA - Information Assurance
ID - Identification
KIP - Key Information Profile
MOPP 4 - Mission Oriented Protective Posture
NCOW RM - Net-Centric Operations and Warfare Reference Model
PM - Product Manager
SLAMRAAM - Surface-Launched Advanced Medium Range Air-to-Air Missile
SoS - System of Systems
TBM - Tactical Ballistic Missile
TV - Technical View, Standards Profile

Change Explanations

None

Memo

Track To Budget

RDT&E				
APPN 2040	BA 04	PE 0603327A	(Army)	
	Project S34	AMD System of Systems Engineering and Integration		(Sunk)
APPN 2040	BA 05	PE 0605457A	(Army)	
	Project DU4	Advanced Electronic Protection Enhancements		
	New requirement in FY 2013 for Advanced Electronic Protection Enhancements.			
	Project S40	Army Integrated Air and Missile Defense		
	IAMD Project Office Engineering and Manufacturing Development program funding began in FY 2011.			

Procurement				
APPN 2035	BA 02	PE 5075000BZ	(Army)	
	ICN BZ5075	IAMD Battle Command System		

Cost and Funding

Cost Summary

Total Acquisition Cost and Quantity

	BY2009 $M			BY2009 $M	TY $M		
Appropriation	SAR Baseline Dev Est	Current APB Development Objective/Threshold		Current Estimate	SAR Baseline Dev Est	Current APB Development Objective	Current Estimate
RDT&E	1540.6	1490.8	1639.9	**2092.5**[1]	1627.5	1573.1	2271.1
Procurement	3316.0	3316.0	3647.6	3470.4	4164.1	4164.1	4423.3
Flyaway	2420.4	--	--	3292.3	3030.6	--	4196.7
Recurring	2370.4	--	--	3254.8	2970.9	--	4153.6
Non Recurring	50.0	--	--	37.5	59.7	--	43.1
Support	895.6	--	--	178.1	1133.5	--	226.6
Other Support	734.4	--	--	0.0	931.5	--	0.0
Initial Spares	161.2	--	--	178.1	202.0	--	226.6
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	4856.6	4806.8	N/A	5562.9	5791.6	5737.2	6694.4

[1] ***APB Breach***

Confidence Level is 50%

The Independent Cost Estimate (ICE) to support the IAMD Milestone B decision, like all life-cycle cost estimates previously performed by the Cost Assessment and Program Evaluation (CAPE), is built upon a product-oriented work breakdown structure, based on historical actual cost information to the maximum extent possible, and, most importantly, based on conservative assumptions that are consistent with actual demonstrated contractor and government performance for a series of acquisition programs in which the Department has been successful.

Quantity	SAR Baseline Dev Est	Current APB Development	Current Estimate
RDT&E	11	11	34
Procurement	285	285	431
Total	296	296	465

The Army IAMD Unit of Measure (UOM) - 34 Fully Configured Research Development Test and Evaluation units and 431 Army IAMD Battle Command Systems (IBCSs) Procurement Quantities which enable System of Systems operation of Army Air and Missile Defense Units as defined in the Army IAMD Capabilities Development Document.

Cost and Funding

Funding Summary

Appropriation and Quantity Summary
FY2013 President's Budget / December 2011 SAR (TY$ M)

Appropriation	Prior	FY2012	FY2013	FY2014	FY2015	FY2016	FY2017	To Complete	Total
RDT&E	634.1	270.2	277.4	349.2	394.3	210.7	135.2	0.0	2271.1
Procurement	0.0	0.0	0.0	25.1	103.5	281.8	426.6	3586.3	4423.3
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 2013 Total	634.1	270.2	277.4	374.3	497.8	492.5	561.8	3586.3	6694.4
PB 2012 Total	638.5	270.6	250.9	369.9	399.5	532.5	272.2	3586.3	6320.4
Delta	-4.4	-0.4	26.5	4.4	98.3	-40.0	289.6	0.0	374.0

Quantity	Undistributed	Prior	FY2012	FY2013	FY2014	FY2015	FY2016	FY2017	To Complete	Total
Development	34	0	0	0	0	0	0	0	0	34
Production	0	0	0	0	0	17	14	62	338	431
PB 2013 Total	34	0	0	0	0	17	14	62	338	465
PB 2012 Total	11	0	0	0	0	13	14	22	236	296
Delta	23	0	0	0	0	4	0	40	102	169

Cost and Funding

Annual Funding By Appropriation

Annual Funding TY$
2040 | RDT&E | Research, Development, Test, and Evaluation, Army

Fiscal Year	Quantity	End Item Recurring Flyaway TY $M	Non End Item Recurring Flyaway TY $M	Non Recurring Flyaway TY $M	Total Flyaway TY $M	Total Support TY $M	Total Program TY $M
2006	--	--	--	--	--	--	23.7
2007	--	--	--	--	--	--	36.3
2008	--	--	--	--	--	--	48.0
2009	--	--	--	--	--	--	114.7
2010	--	--	--	--	--	--	164.7
2011	--	--	--	--	--	--	246.7
2012	--	--	--	--	--	--	270.2
2013	--	--	--	--	--	--	277.4
2014	--	--	--	--	--	--	349.2
2015	--	--	--	--	--	--	394.3
2016	--	--	--	--	--	--	210.7
2017	--	--	--	--	--	--	135.2
Subtotal	**34**	**--**	**--**	**--**	**--**	**--**	**2271.1**

Annual Funding BY$
2040 | RDT&E | Research, Development, Test, and Evaluation, Army

Fiscal Year	Quantity	End Item Recurring Flyaway BY 2009 $M	Non End Item Recurring Flyaway BY 2009 $M	Non Recurring Flyaway BY 2009 $M	Total Flyaway BY 2009 $M	Total Support BY 2009 $M	Total Program BY 2009 $M
2006	--	--	--	--	--	--	24.8
2007	--	--	--	--	--	--	37.1
2008	--	--	--	--	--	--	48.1
2009	--	--	--	--	--	--	113.4
2010	--	--	--	--	--	--	160.4
2011	--	--	--	--	--	--	235.4
2012	--	--	--	--	--	--	253.3
2013	--	--	--	--	--	--	255.1
2014	--	--	--	--	--	--	315.5
2015	--	--	--	--	--	--	349.9
2016	--	--	--	--	--	--	183.7
2017	--	--	--	--	--	--	115.8
Subtotal	**34**	**--**	**--**	**--**	**--**	**--**	**2092.5**

Annual Funding TY$
2035 | Procurement | Other Procurement, Army

Fiscal Year	Quantity	End Item Recurring Flyaway TY $M	Non End Item Recurring Flyaway TY $M	Non Recurring Flyaway TY $M	Total Flyaway TY $M	Total Support TY $M	Total Program TY $M
2014	--	15.9	--	9.2	25.1	--	25.1
2015	17	92.1	--	7.8	99.9	3.6	103.5
2016	14	260.5	--	8.6	269.1	12.7	281.8
2017	62	397.4	--	9.1	406.5	20.1	426.6
2018	35	358.1	--	8.4	366.5	20.4	386.9
2019	35	348.5	--	--	348.5	21.2	369.7
2020	35	345.1	--	--	345.1	21.2	366.3
2021	32	310.6	--	--	310.6	20.5	331.1
2022	28	279.3	--	--	279.3	17.7	297.0
2023	28	279.6	--	--	279.6	17.6	297.2
2024	28	280.8	--	--	280.8	17.6	298.4
2025	19	185.2	--	--	185.2	9.3	194.5
2026	19	188.5	--	--	188.5	8.7	197.2
2027	19	192.1	--	--	192.1	8.9	201.0
2028	19	196.0	--	--	196.0	9.0	205.0
2029	20	199.8	--	--	199.8	9.0	208.8
2030	21	203.8	--	--	203.8	9.1	212.9
2031	--	20.3	--	--	20.3	--	20.3
Subtotal	**431**	**4153.6**	**--**	**43.1**	**4196.7**	**226.6**	**4423.3**

Annual Funding BY$
2035 | Procurement | Other Procurement, Army

Fiscal Year	Quantity	End Item Recurring Flyaway BY 2009 $M	Non End Item Recurring Flyaway BY 2009 $M	Non Recurring Flyaway BY 2009 $M	Total Flyaway BY 2009 $M	Total Support BY 2009 $M	Total Program BY 2009 $M
2014	--	14.3	--	8.3	22.6	--	22.6
2015	17	81.4	--	6.9	88.3	3.2	91.5
2016	14	226.2	--	7.5	233.7	11.0	244.7
2017	62	339.0	--	7.8	346.8	17.1	363.9
2018	35	300.1	--	7.0	307.1	17.1	324.2
2019	35	286.9	--	--	286.9	17.4	304.3
2020	35	279.1	--	--	279.1	17.1	296.2
2021	32	246.7	--	--	246.7	16.3	263.0
2022	28	217.9	--	--	217.9	13.9	231.8
2023	28	214.3	--	--	214.3	13.5	227.8
2024	28	211.4	--	--	211.4	13.3	224.7
2025	19	137.0	--	--	137.0	6.9	143.9
2026	19	137.0	--	--	137.0	6.3	143.3
2027	19	137.1	--	--	137.1	6.4	143.5
2028	19	137.4	--	--	137.4	6.3	143.7
2029	20	137.6	--	--	137.6	6.2	143.8
2030	21	137.9	--	--	137.9	6.1	144.0
2031	--	13.5	--	--	13.5	--	13.5
Subtotal	**431**	**3254.8**	**--**	**37.5**	**3292.3**	**178.1**	**3470.4**

Cost Quantity Information
2035 | Procurement | Other Procurement, Army

Fiscal Year	Quantity	End Item Recurring Flyaway (Aligned with Quantity) BY 2009 $M
2014	--	--
2015	17	95.7
2016	14	226.2
2017	62	339.0
2018	35	300.1
2019	35	286.9
2020	35	279.1
2021	32	246.7
2022	28	217.9
2023	28	214.3
2024	28	211.4
2025	19	137.0
2026	19	137.0
2027	19	137.1
2028	19	137.4
2029	20	137.6
2030	21	151.4
2031	--	--
Subtotal	**431**	**3254.8**

Low Rate Initial Production

	Initial LRIP Decision	Current Total LRIP
Approval Date	12/23/2009	2/1/2012
Approved Quantity	27	31
Reference	ADM dated Dec 23, 2009	ADM dated Feb 01, 2012
Start Year	2015	2015
End Year	2017	2017

Foreign Military Sales

None

Nuclear Cost

None

Unit Cost

Unit Cost Report

Unit Cost	BY2009 $M Current UCR Baseline (JUN 2010 APB)	BY2009 $M Current Estimate (DEC 2011 SAR)	BY % Change
Program Acquisition Unit Cost (PAUC)			
Cost	4806.8	5562.9	
Quantity	296	465	
Unit Cost	16.239	11.963	-26.33
Average Procurement Unit Cost (APUC)			
Cost	3316.0	3470.4	
Quantity	285	431	
Unit Cost	11.635	8.052	-30.80

Unit Cost	BY2009 $M Original UCR Baseline (JUN 2010 APB)	BY2009 $M Current Estimate (DEC 2011 SAR)	BY % Change
Program Acquisition Unit Cost (PAUC)			
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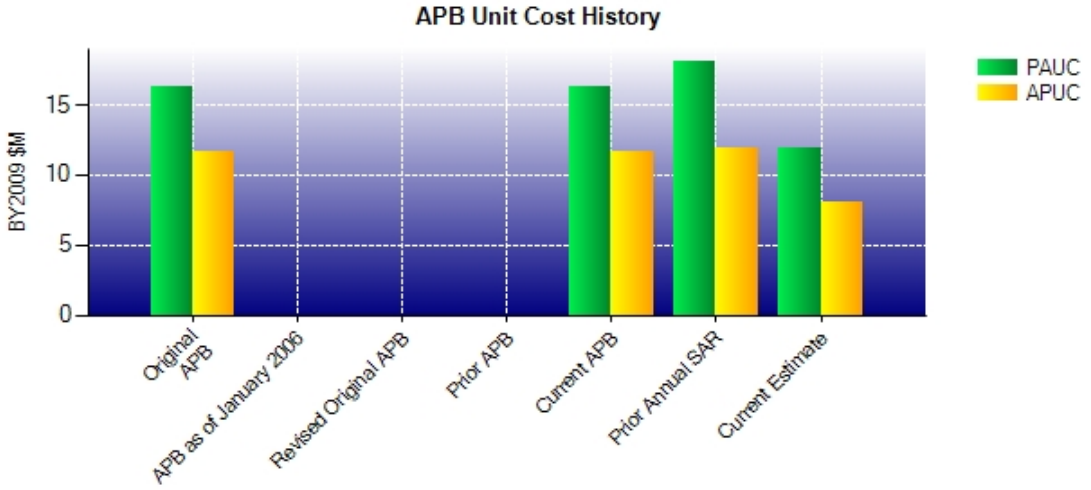
Unit Cost	11.635	8.052	-30.80

Unit Cost History



		BY2009 $M		TY $M	
	Date	PAUC	APUC	PAUC	APUC
Original APB	JUN 2010	16.239	11.635	19.382	14.611
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	JUN 2010	16.239	11.635	19.382	14.611
Prior Annual SAR	DEC 2010	18.040	11.891	21.353	14.875
Current Estimate	DEC 2011	11.963	8.052	14.397	10.263

SAR Unit Cost History

Current SAR Baseline to Current Estimate (TY $M)

Initial PAUC Dev Est	Changes								PAUC Current Est
	Econ	Qty	Sch	Eng	Est	Oth	Spt	Total	
19.566	0.248	-2.662	-0.281	0.367	-0.836	0.000	-2.005	-5.169	14.397

Current SAR Baseline to Current Estimate (TY $M)

Initial APUC Dev Est	Changes								APUC Current Est
	Econ	Qty	Sch	Eng	Est	Oth	Spt	Total	
14.611	0.210	-0.150	-0.303	0.000	-1.942	0.000	-2.163	-4.348	10.263

SAR Baseline History

Item/Event	SAR Planning Estimate (PE)	SAR Development Estimate (DE)	SAR Production Estimate (PdE)	Current Estimate
Milestone A	N/A	N/A	N/A	N/A
Milestone B	N/A	DEC 2009	N/A	DEC 2009
Milestone C	N/A	DEC 2014	N/A	JUN 2015
IOC	N/A	AUG 2016	N/A	SEP 2016
Total Cost (TY $M)	N/A	5791.6	N/A	6694.4
Total Quantity	N/A	296	N/A	465
Prog. Acq. Unit Cost (PAUC)	N/A	19.566	N/A	14.397

Cost Variance

Cost Variance Summary

Summary Then Year $M				
	RDT&E	Proc	MILCON	Total
SAR Baseline (Dev Est)	1627.5	4164.1	--	5791.6
Previous Changes				
Economic	-1.9	-8.1	--	-10.0
Quantity	--	--	--	--
Schedule	--	--	--	--
Engineering	--	--	--	--
Estimating	+455.3	+82.0	--	+537.3
Other	--	--	--	--
Support	--	+1.5	--	+1.5
Subtotal	+453.4	+75.4	--	+528.8
Current Changes				
Economic	+26.8	+98.6	--	+125.4
Quantity	--	+2068.6	--	+2068.6
Schedule	--	-130.8	--	-130.8
Engineering	+170.6	--	--	+170.6
Estimating	-7.2	-918.8	--	-926.0
Other	--	--	--	--
Support	--	-933.8	--	-933.8
Subtotal	+190.2	+183.8	--	+374.0
Total Changes	+643.6	+259.2	--	+902.8
CE - Cost Variance	2271.1	4423.3	--	6694.4
CE - Cost & Funding	2271.1	4423.3	--	6694.4

Summary Base Year 2009 $M				
	RDT&E	Proc	MILCON	Total
SAR Baseline (Dev Est)	1540.6	3316.0	--	4856.6
Previous Changes				
Economic	--	--	--	--
Quantity	--	--	--	--
Schedule	--	--	--	--
Engineering	--	--	--	--
Estimating	+410.1	+71.2	--	+481.3
Other	--	--	--	--
Support	--	+1.8	--	+1.8
Subtotal	+410.1	+73.0	--	+483.1
Current Changes				
Economic	--	--	--	--
Quantity	--	+1478.9	--	+1478.9
Schedule	--	--	--	--
Engineering	+148.7	--	--	+148.7
Estimating	-6.9	-678.2	--	-685.1
Other	--	--	--	--
Support	--	-719.3	--	-719.3
Subtotal	+141.8	+81.4	--	+223.2
Total Changes	+551.9	+154.4	--	+706.3
CE - Cost Variance	2092.5	3470.4	--	5562.9
CE - Cost & Funding	2092.5	3470.4	--	5562.9

Previous Estimate: December 2010

RDT&E	$M	
Current Change Explanations	**Base Year**	**Then Year**
Revised escalation indices. (Economic)	N/A	+26.8
Adjustment for current and prior escalation. (Estimating)	-6.9	-7.2
Increased estimate of development and testing cost for placing the Indirect Fire Protection Capability (IFPC), Air Defense and Airspace Management (ADAM) Cell, Air and Missile Defense Command (AAMDC), Air Defense Artillery (ADA) Brigade, and Theater High Altitude Area Defense (THAAD) on the Integrated Fire Control Network. (Engineering)	+134.7	+155.4
New requirement in FY 2013 for Advanced Electronic Protection Enhancements. (Engineering)	+14.0	+15.2
RDT&E Subtotal	+141.8	+190.2

Procurement	$M	
Current Change Explanations	**Base Year**	**Then Year**
Revised escalation indices. (Economic)	N/A	+98.6
Quantity variance resulting from an increase of 146 Engagement Operation Centers from 285 to 431. (Quantity)	+1478.9	+2068.6
Acceleration of procurement buy profile. (Schedule)	0.0	-130.8
Revised estimate of the hardware costs associated with Engagement Operation Centers (EOC). (Estimating)	-678.2	-918.8
Decrease in Other Support to accurately realign Flyaway and Support Costs. (Support)	-736.0	-953.8
Increase in Initial Spares due to increased procurement quantities. (Support) (QR)	+16.7	+20.0
Procurement Subtotal	+81.4	+183.8

(QR) Quantity Related

Contracts

Appropriation: RDT&E

Contract Name	**IAMD Battle Command System (IBCS) Development Program**
Contractor	Northrop Grumman Space & Mission Systems Corp.
Contractor Location	Huntsville, AL 35805
Contract Number, Type	W31P4Q-08-C-0418, CPIF
Award Date	December 30, 2009
Definitization Date	December 30, 2009

Initial Contract Price ($M)			Current Contract Price ($M)			Estimated Price At Completion ($M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
375.0	N/A	11	555.5	N/A	11	538.9	538.7

Variance	Cost Variance	Schedule Variance
Cumulative Variances To Date (12/1/2011)	-0.8	-0.6
Previous Cumulative Variances	-3.4	-7.5
Net Change	+2.6	+6.9

Cost And Schedule Variance Explanations

The favorable net change in the cost variance is due to contract rebaseline in July 2011.

The favorable net change in the schedule variance is due to contract rebaseline in July 2011.

Contract Comments

The difference between the initial contract price target and the current contract price target is due to a contract modification updating the IAMD System Specification.

The definitization date was updated to reflect actual date.

Appropriation: RDT&E

Contract Name	**Air and Missile Defense (AMD) Capability Phase 1**
Contractor	Raytheon Integrated Defense Systems
Contractor Location	401 Jan Davis Drive Huntsville, AL 35806
Contract Number, Type	W31P4Q-01-C-0167, CPFF
Award Date	March 25, 2010
Definitization Date	September 29, 2010

Initial Contract Price ($M)			Current Contract Price ($M)			Estimated Price At Completion ($M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
32.8	N/A	N/A	62.1	N/A	N/A	55.2	55.2

Variance	Cost Variance	Schedule Variance
Cumulative Variances To Date (12/1/2011)	+2.1	0.0
Previous Cumulative Variances	--	--
Net Change	+2.1	+0.0

Cost And Schedule Variance Explanations

The favorable cumulative cost variance is due to delay in Phase 2 proposal development, material purchasing and staffing availablity.

Contract Comments

The difference between the initial contract price target and the current contract price target is due to the extension of the Period of Performance leading up to the Phase 2 contract award.

This is the first time this contract is being reported.

Deliveries and Expenditures

Deliveries To Date	Plan To Date	Actual To Date	Total Quantity	Percent Delivered
Development	0	0	34	0.00%
Production	0	0	431	0.00%
Total Program Quantities Delivered	0	0	465	0.00%

Expenditures and Appropriations (TY $M)			
Total Acquisition Cost	6694.4	Years Appropriated	7
Expenditures To Date	634.1	Percent Years Appropriated	26.92%
Percent Expended	9.47%	Appropriated to Date	904.3
Total Funding Years	26	Percent Appropriated	13.51%

Of the $634.1 expenditures to date, $222.7M represents the costs associated with developing Army IAMD Increment 2 technologies and processes that allowed the program to proceed into the Engineering Manufacturing and Development phase of the program. The remaining expenditures are actual program costs expended since Milestone B.

Delivery and Expenditure data is as of December 31, 2011.

Operating and Support Cost

Assumptions And Ground Rules
Estimate is based on approved Army IAMD Cost Analysis Requirements Description, Version 3.5.2, September 6, 2011.

There are 431 procurement units.

Military Personnel costs for the Composite Battalion will be contained in the Army IAMD Program Office Estimate.

The life of the equipment is 20 years.

Overhaul will occur seven years after fielding.

Technology refresh will occur every five years.

Fielding of IAMD Battle Command System (IBCS) and associated equipment will not increase the manpower in the Composite Battalions.

Contractor Field Service Representatives (CFSR) will be required during Interim Contractor Logisitics Support which will be two years after Initial Operational Capability (IOC).

Demilitarization and Disposal costs are included.

O&S costs are based on the Program Office Estimate (POE) in support of the Independent Cost Estimate (ICE) / Army Cost Position (ACP) development.

There is no antecedent system.

Costs BY2009 $K		
Cost Element	**IAMD Average Annual Cost Per Unit**	**No Antecedent System NA**
Unit-Level Manpower	--	--
Unit Operations	3.9	--
Maintenance	127.9	--
Sustaining Support	112.6	--
Continuing System Improvements	83.3	--
Indirect Support	--	--
Other	--	--
Total Unitized Cost (Base Year 2009 $)	327.7	--

Total O&S Costs $M	IAMD	No Antecedent System
Base Year	2824.8	--
Then Year	4142.4	--

Lifecycle demilitarization and disposal costs are $14.3M BY2009 and are included in the above estimate.