Selected Acquisition Report (SAR)

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

Integrated Air and Missile Defense (IAMD)

As of FY 2016 President's Budget

Defense Acquisition Management
Information Retrieval
(DAMIR)

Table of Contents

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

Integrated Air and Missile Defense (IAMD)

DoD Component

Army

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Date Assigned: October 19, 2014

References

SAR Baseline (Development Estimate)

FY 2011 President's Budget dated February 1, 2010

Approved APB

Defense Acquisition Executive (DAE) Approved Acquisition Program Baseline (APB) dated October 8, 2014

Mission and Description

The mission of the Army Integrated Air and Missile Defense (IAMD) Project Office (PO) 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, Inter-Governmental and Multi-National net-centric architectures. Additionally, the IAMD PO will develop, acquire, field and sustain the IAMD Battle Command System (IBCS) component of the architecture and integrate externally developed sensors and shooters to provide an effective IAMD capability.

The 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 IAMD program will integrate the Patriot and Improved Sentinel components to support the engagement of air breathing targets, cruise missiles, unmanned aerial vehicles, and the tactical ballistic missiles 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 Cells, Air Defense Artillery Brigade Headquarters, and Army Air and Missile Defense Command Headquarters.

The common IBCS provides the functional capabilities to control and manage the IAMD sensors and weapons via the Integrated Fire Control Network capability for fire control connectivity and enabling distributed operations. Central to the 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 for Joint operations, obtaining a Joint Single Integrated Air Picture, 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 O&S costs and will enhance training.

Executive Summary

On October 8, 2014, the revised IAMD APB was approved by the DAE. The APB realigns schedule events for Milestone C, Initial Operational Test and Evaluation start and completion, IOC, and FRP.

The IAMD Project Office (PO) and Northrop Grumman Corporation conducted a successful Integrated Baseline Review (IBR) on June 10-11, 2014.

A Raytheon IBR was conducted on August 27, 2014.

On September 23, 2014, the IAMD PO and Northrop Grumman conducted a final review of the 2013 Defense Exportability Features activities with representatives from: Deputy Assistant Secretary of the Army for Defense Exports and Cooperation; USD(AT&L) for International Cooperation and Systems Engineering; Defense Security Cooperation Agency; Defense Technology Security Administration; Anti-Tamper Executive Agent; and Assistant Secretary of Defense for Acquisition, Technology and Logistics. The review focused on the software screening for export, engineering estimates for implementation and an update on program protection activities.

On October 19, 2014, Mr. Michael Chandler assumed position as the IAMD Project Manager.

A Patriot radar, connected to an IAMD Battle Command System (IBCS) Engagement Operations Center (EOC) through the Radar Interface Unit, successfully radiated at White Sands Missile Range on November 6, 2014. This is the first time that the Patriot A-Kit adapted Engagement Control Station operated with the Patriot radar under control of the IAMD EOC. On December 5, 2014, Patriot and Sentinel radar tracks were successfully displayed on an IBCS Common Warfighter Machine Interface (CWMI) display. The IAMD Battle Command System correlated measurements from both sensors, resulting in a composite track. CWMI operators were able to confirm that both sensors were contributing to the composite tracks on the CWMI display. Sentinel tracked for 243 minutes and both Patriot and Sentinel jointly tracked for 94 minutes.

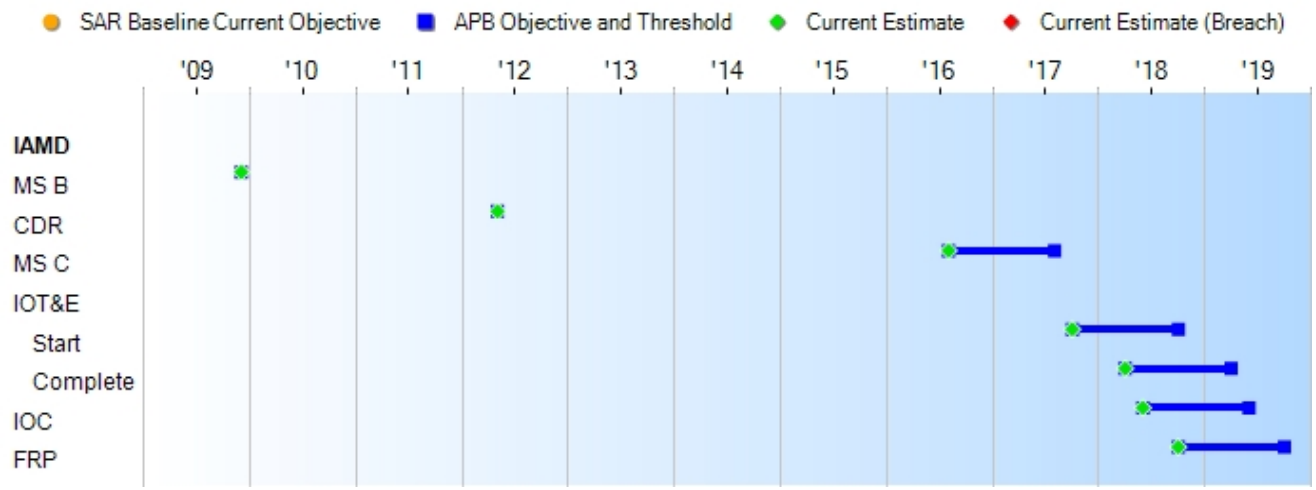
There are no significant software-related issues with this program at this time.

Threshold Breaches

APB Breaches		
Schedule		☐
Performance		☐
Cost	RDT&E	☐
	Procurement	☐
	MILCON	☐
	Acq O&M	☐
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 Development Estimate**	**Current APB Development Objective/Threshold**		**Current Estimate**
MS B	Dec 2009	Dec 2009	Dec 2009	Dec 2009
CDR	Aug 2011	May 2012	May 2012	May 2012
MS C	Dec 2014	Aug 2016	Aug 2017	Aug 2016
IOT&E				
Start	Jan 2016	Oct 2017	Oct 2018	Oct 2017
Complete	Jul 2016	Apr 2018	Apr 2019	Apr 2018
IOC	Aug 2016	Jun 2018	Jun 2019	Jun 2018
FRP	May 2017	Oct 2018	Oct 2019	Oct 2018

Change Explanations

None

Acronyms and Abbreviations

CDR - Critical Design Review
IOT&E - Initial Operational Test and Evaluation
MS - Milestone

Performance

Performance Characteristics				
SAR Baseline Development Estimate	**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 requirements including availability, integrity, authenticat-ion, 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.	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 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, 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.	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, 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.	TBD	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 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.
Integrated Defense Effectiveness				
To support attainment of a command-er'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 engage-ments 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 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.	To support attainment of a commander's defense effectiveness objectives, which would normally range from 0.5 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 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.	To support attainment of a commander's defense effectiveness objectives, which would normally range from 0.5 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 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.	TBD	To support attainment of a commander'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 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 manage-ment, track manage-ment, 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/SLAMRAAM Platoon with the Increment 2 equipped Task Force.	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/SLAMRAAM Platoon with the Increment 2 equipped Task Force.	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/SLAMRAAM Platoon with the Increment 2 equipped Task Force.	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/ SLAMRAAM Platoon with the Increment 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	All Army IAMD SoS common C2 vehicle cabs and manned	The Army IAMD SoS common C2 equipment shall be designed to be	TBD	The Army IAMD SoS common C2 equipment shall be

operated by Soldiers wearing body armor and equipped with appropriate weapons; shall have situational awareness and under-standing 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 decontami-nation 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 system to prevent contaminat-ion during a CBRNE event that is sustainable through decontami-nation.	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 transport or operations shall mitigate the effects of 7.62mm rounds and below.	operated by Soldiers wearing body armor and equipped with appropriate weapons; shall have situational awareness and understanding commensurate 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 decontamination 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 system to prevent contamination during a CBRNE event that is sustainable through decontamination.		designed to be operated by soldiers wearing body armor and equipped with appropriate weapons; shall have situational awareness and understanding commensurate 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 decontamination 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 PM FMTV. Manned rigid wall shelters incorporated into the Army IAMD SoS shall provide an active overpressure system to prevent contamination during a CBRNE event that is sustainable through decontamination.

Requirements Reference

Capability Development Document (CDD) dated May 17, 2010

Change Explanations

None

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 Registry
FMTV - Family of Medium Tactical Vehicles
GIG - Global Information Grid
IA - Information Assurance
ID - Identification
IT - Information Technology
KIP - Key Information Profile
min - minute
mm - millimeter
MOPP - Mission Oriented Protective Posture
NCOW RM - Net-Centric Operations and Warfare Reference Model
SLAMRAAM - Surface-Launched Advanced Medium Range Air-to-Air Missile
SoS - System of Systems
TBM - Tactical Ballistic Missile
TV - Technical View, Standards Profile

Track to Budget

RDT&E

Appn	BA	PE
Army	04	0603327A

Project	Name	
S34	AMD System of Systems Engineering and Integration	(Sunk)

Appn	BA	PE
Army	05	0605457A

Project	Name	
DU4	Advanced Electronic Protection Enhancements	(Sunk)
S40	Army Integrated Air and Missile Defense	

Notes: Army IAMD Project Office Engineering and Manufacturing Development program funding began in FY 2011.

Procurement

Appn	BA	PE
Army	02	0214400A

Line Item	Name
BZ5075	IAMD Battle Command System

Cost and Funding

Cost Summary

Total Acquisition Cost							
Appropriation	BY 2009 $M			BY 2009 $M	TY $M		
	SAR Baseline Development Estimate	Current APB Development Objective/Threshold		Current Estimate	SAR Baseline Development Estimate	Current APB Development Objective	Current Estimate
RDT&E	1540.6	2199.5	2419.5	2341.3	1627.5	2402.6	2591.8
Procurement	3316.0	3174.8	3492.3	3394.0	4164.1	3939.2	4400.1
Flyaway	--	--	--	3239.6	--	--	4199.2
Recurring	--	--	--	3235.6	--	--	4194.6
Non Recurring	--	--	--	4.0	--	--	4.6
Support	--	--	--	154.4	--	--	200.9
Other Support	--	--	--	0.0	--	--	0.0
Initial Spares	--	--	--	154.4	--	--	200.9
MILCON	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
Total	4856.6	5374.3	N/A	5735.3	5791.6	6341.8	6991.9

Current APB Cost Estimate Reference

Cost Assessment and Program Evaluation Independent Cost Estimate (ICE) dated June 07, 2012

Confidence Level

Confidence Level of cost estimate for current APB: 50%

It is difficult to calculate mathematically the precise confidence levels associated with life-cycle cost estimates prepared for Major Defense Acquisition Programs. Based on the rigor in methods used in building estimates, the strong adherence to the collection and use of historical cost information, and the review of applied assumptions, we project that it is about equally likely that the estimate will prove too low or too high for execution of the program described.

Total Quantity			
Quantity	**SAR Baseline Development Estimate**	**Current APB Development**	**Current Estimate**
RDT&E	11	16	16
Procurement	285	431	427
Total	296	447	443

Quantity Notes

The IAMD Unit of Measure - 16 Fully Configured RDT&E units and 427 IAMD Battle Command Systems Procurement Quantities which enable System of Systems operation of Air and Missile Defense Units as defined in the IAMD CDD.

Cost and Funding

Funding Summary

Appropriation Summary									
FY 2016 President's Budget / December 2014 SAR (TY$ M)									
Appropriation	Prior	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	To Complete	Total
RDT&E	1501.7	152.5	214.1	227.1	169.6	153.5	33.4	139.9	2591.8
Procurement	0.0	0.0	20.9	204.5	296.3	375.7	443.6	3059.1	4400.1
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 2016 Total	1501.7	152.5	235.0	431.6	465.9	529.2	477.0	3199.0	6991.9
PB 2015 Total	1513.0	142.6	236.8	435.1	469.7	534.5	481.2	3199.0	7011.9
Delta	-11.3	9.9	-1.8	-3.5	-3.8	-5.3	-4.2	0.0	-20.0

Quantity Summary										
FY 2016 President's Budget / December 2014 SAR (TY$ M)										
Quantity	Undistributed	Prior	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	To Complete	Total
Development	16	0	0	0	0	0	0	0	0	16
Production	0	0	0	0	18	24	44	47	294	427
PB 2016 Total	16	0	0	0	18	24	44	47	294	443
PB 2015 Total	16	0	0	0	18	24	44	47	294	443
Delta	0	0	0	0	0	0	0	0	0	0

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
2006	--	--	--	--	--	--	23.7
2007	--	--	--	--	--	--	36.3
2008	--	--	--	--	--	--	48.0
2009	--	--	--	--	--	--	114.7
2010	--	--	--	--	--	--	164.7
2011	--	--	--	--	--	--	246.7
2012	--	--	--	--	--	--	262.0
2013	--	--	--	--	--	--	247.4
2014	--	--	--	--	--	--	358.2
2015	--	--	--	--	--	--	152.5
2016	--	--	--	--	--	--	214.1
2017	--	--	--	--	--	--	227.1
2018	--	--	--	--	--	--	169.6
2019	--	--	--	--	--	--	153.5
2020	--	--	--	--	--	--	33.4
2021	--	--	--	--	--	--	20.2
2022	--	--	--	--	--	--	30.5
2023	--	--	--	--	--	--	47.7
2024	--	--	--	--	--	--	41.5
Subtotal	16	--	--	--	--	--	2591.8

Annual Funding 2040 | RDT&E | Research, Development, Test, and Evaluation, Army							
Fiscal Year	Quantity	BY 2009 $M					
		End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program
2006	--	--	--	--	--	--	24.8
2007	--	--	--	--	--	--	37.1
2008	--	--	--	--	--	--	48.1
2009	--	--	--	--	--	--	113.4
2010	--	--	--	--	--	--	160.5
2011	--	--	--	--	--	--	235.7
2012	--	--	--	--	--	--	246.4
2013	--	--	--	--	--	--	228.6
2014	--	--	--	--	--	--	323.6
2015	--	--	--	--	--	--	135.2
2016	--	--	--	--	--	--	187.8
2017	--	--	--	--	--	--	195.4
2018	--	--	--	--	--	--	143.1
2019	--	--	--	--	--	--	127.0
2020	--	--	--	--	--	--	27.1
2021	--	--	--	--	--	--	16.1
2022	--	--	--	--	--	--	23.8
2023	--	--	--	--	--	--	36.5
2024	--	--	--	--	--	--	31.1
Subtotal	16	--	--	--	--	--	2341.3

Annual Funding 2035 | Procurement | Other Procurement, Army							
Fiscal Year	Quantity	TY $M					
		End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program
2016	--	16.3	--	4.6	20.9	--	20.9
2017	18	204.5	--	--	204.5	--	204.5
2018	24	290.4	--	--	290.4	5.9	296.3
2019	44	359.3	--	--	359.3	16.4	375.7
2020	47	419.6	--	--	419.6	24.0	443.6
2021	53	418.4	--	--	418.4	27.7	446.1
2022	49	488.6	--	--	488.6	29.2	517.8
2023	39	476.2	--	--	476.2	30.6	506.8
2024	33	391.0	--	--	391.0	24.8	415.8
2025	36	394.1	--	--	394.1	22.8	416.9
2026	48	279.9	--	--	279.9	9.3	289.2
2027	34	217.0	--	--	217.0	6.2	223.2
2028	2	161.7	--	--	161.7	4.0	165.7
2029	--	77.6	--	--	77.6	--	77.6
Subtotal	427	4194.6	--	4.6	4199.2	200.9	4400.1

Annual Funding 2035 | Procurement | Other Procurement, Army							
Fiscal Year	Quantity	BY 2009 $M					
		End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program
2016	--	14.2	--	4.0	18.2	--	18.2
2017	18	175.1	--	--	175.1	--	175.1
2018	24	243.8	--	--	243.8	4.9	248.7
2019	44	295.7	--	--	295.7	13.5	309.2
2020	47	338.6	--	--	338.6	19.3	357.9
2021	53	331.0	--	--	331.0	21.9	352.9
2022	49	378.9	--	--	378.9	22.7	401.6
2023	39	362.1	--	--	362.1	23.2	385.3
2024	33	291.5	--	--	291.5	18.4	309.9
2025	36	288.0	--	--	288.0	16.7	304.7
2026	48	200.5	--	--	200.5	6.7	207.2
2027	34	152.4	--	--	152.4	4.4	156.8
2028	2	111.4	--	--	111.4	2.7	114.1
2029	--	52.4	--	--	52.4	--	52.4
Subtotal	427	3235.6	--	4.0	3239.6	154.4	3394.0

Cost Quantity Information 2035 | Procurement | Other Procurement, Army		
Fiscal Year	**Quantity**	**End Item Recurring Flyaway (Aligned With Quantity) BY 2009 $M**
2016	--	--
2017	18	189.3
2018	24	243.8
2019	44	295.7
2020	47	338.6
2021	53	331.0
2022	49	378.9
2023	39	362.1
2024	33	291.5
2025	36	288.0
2026	48	200.5
2027	34	152.4
2028	2	163.8
2029	--	--
Subtotal	427	3235.6

Low Rate Initial Production

Item	Initial LRIP Decision	Current Total LRIP
Approval Date	12/23/2009	12/23/2009
Approved Quantity	27	27
Reference	Milestone B ADM	Milestone B ADM
Start Year	2015	2017
End Year	2016	2018

A schedule breach due to program funding availability in FY 2015 resulted in Milestone C being moved from third quarter FY 2015 to fourth quarter FY 2016. LRIP procurement dates moved from FY 2015-2016 to FY 2017-2018. The APB was updated on October 8, 2014 to reflect the schedule updates.

Foreign Military Sales

Notes

The IAMD program has been an OSD Defense Exportability Features (DEF) pilot program since 2012. The first year of the program consisted of identifying those elements of the program that were not exportable and the potential configurations of the system to allow export. The 2013 effort (initiated in 4th Quarter FY 2013) refined the exportable configurations down to the design component level. In addition, new program protection techniques were explored. The program received additional DEF funding for FY 2015. These funds will be used to refine the program protection techniques and incorporate them into the baseline program design. Interest in the system has been expressed by the Netherlands, Germany, Saudi Arabia and the United Kingdom.

Nuclear Costs

None

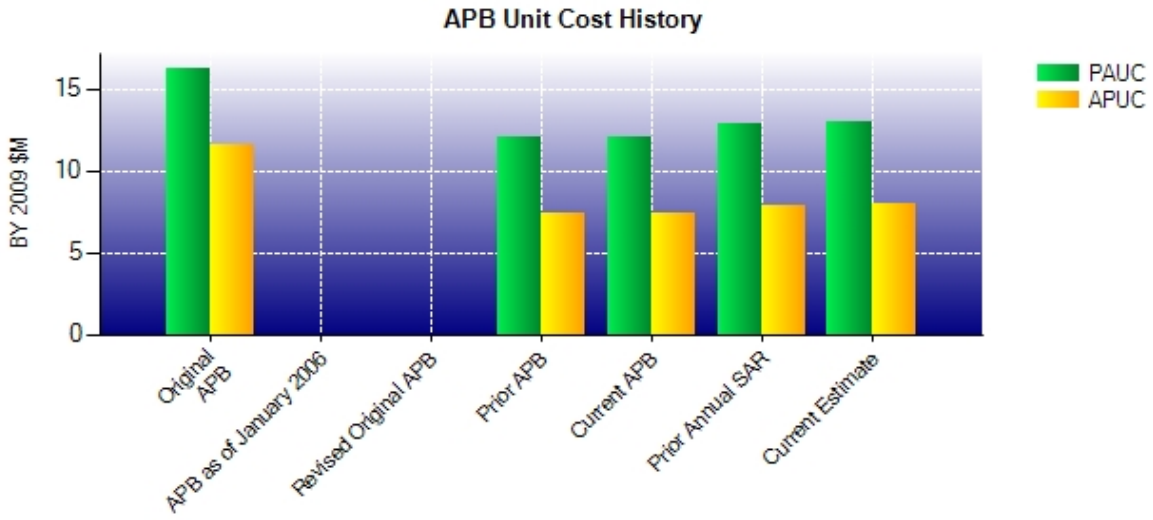
Unit Cost

Unit Cost Report

Item	BY 2009 $M Current UCR Baseline (Oct 2014 APB)	BY 2009 $M Current Estimate (Dec 2014 SAR)	% Change
Program Acquisition Unit Cost			
Cost	5374.3	5735.3	
Quantity	447	443	
Item	12.023	12.947	+7.69
Average Procurement Unit Cost			
Cost	3174.8	3394.0	
Quantity	431	427	
Unit Cost	7.366	7.948	+7.90

Item	BY 2009 $M Original UCR Baseline (Jun 2010 APB)	BY 2009 $M Current Estimate (Dec 2014 SAR)	% Change
Program Acquisition Unit Cost			
Cost	4806.8	5735.3	
Quantity	296	443	
Unit Cost	16.239	12.947	-20.27
Average Procurement Unit Cost			
Cost	3316.0	3394.0	
Quantity	285	427	
Unit Cost	11.635	7.948	-31.69

Unit Cost History



Item	Date	BY 2009 $M		TY $M	
		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	Nov 2012	12.023	7.366	14.187	9.140
Current APB	Oct 2014	12.023	7.366	14.187	9.140
Prior Annual SAR	Dec 2013	12.844	7.865	15.828	10.335
Current Estimate	Dec 2014	12.947	7.948	15.783	10.305

SAR Unit Cost History

Current SAR Baseline to Current Estimate (TY $M)									
Initial PAUC Development Estimate	Changes								PAUC Current Estimate
	Econ	Qty	Sch	Eng	Est	Oth	Spt	Total	
19.566	0.285	-1.980	-0.215	0.385	-0.091	0.000	-2.167	-3.783	15.783

Current SAR Baseline to Current Estimate (TY $M)									
Initial APUC Development Estimate	Changes								APUC Current Estimate
	Econ	Qty	Sch	Eng	Est	Oth	Spt	Total	
14.611	0.267	-0.151	-0.223	0.000	-1.951	0.000	-2.248	-4.306	10.305

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	Dec 2009	N/A	Dec 2009
Milestone C	N/A	Dec 2014	N/A	Aug 2016
IOC	N/A	Aug 2016	N/A	Jun 2018
Total Cost (TY $M)	N/A	5791.6	N/A	6991.9
Total Quantity	N/A	296	N/A	443
PAUC	N/A	19.566	N/A	15.783

Cost Variance

Summary TY $M				
Item	**RDT&E**	**Procurement**	**MILCON**	**Total**
SAR Baseline (Development Estimate)	1627.5	4164.1	--	5791.6
Previous Changes				
Economic	+31.2	+174.1	--	+205.3
Quantity	-10.8	+2009.9	--	+1999.1
Schedule	--	-95.2	--	-95.2
Engineering	+170.6	--	--	+170.6
Estimating	+780.5	-877.3	--	-96.8
Other	--	--	--	--
Support	--	-962.7	--	-962.7
Subtotal	+971.5	+248.8	--	+1220.3
Current Changes				
Economic	-19.1	-59.9	--	-79.0
Quantity	--	--	--	--
Schedule	--	--	--	--
Engineering	--	--	--	--
Estimating	+11.9	+44.4	--	+56.3
Other	--	--	--	--
Support	--	+2.7	--	+2.7
Subtotal	-7.2	-12.8	--	-20.0
Total Changes	+964.3	+236.0	--	+1200.3
CE - Cost Variance	2591.8	4400.1	--	6991.9
CE - Cost & Funding	2591.8	4400.1	--	6991.9

Summary BY 2009 $M				
Item	**RDT&E**	**Procurement**	**MILCON**	**Total**
SAR Baseline (Development Estimate)	1540.6	3316.0	--	4856.6
Previous Changes				
Economic	--	--	--	--
Quantity	-9.2	+1436.6	--	+1427.4
Schedule	--	+3.0	--	+3.0
Engineering	+148.7	--	--	+148.7
Estimating	+651.3	-654.2	--	-2.9
Other	--	--	--	--
Support	--	-743.1	--	-743.1
Subtotal	+790.8	+42.3	--	+833.1
Current Changes				
Economic	--	--	--	--
Quantity	--	--	--	--
Schedule	--	--	--	--
Engineering	--	--	--	--
Estimating	+9.9	+33.8	--	+43.7
Other	--	--	--	--
Support	--	+1.9	--	+1.9
Subtotal	+9.9	+35.7	--	+45.6
Total Changes	+800.7	+78.0	--	+878.7
CE - Cost Variance	2341.3	3394.0	--	5735.3
CE - Cost & Funding	2341.3	3394.0	--	5735.3

Previous Estimate: December 2013

RDT&E	$M	
Current Change Explanations	Base Year	Then Year
Revised escalation indices. (Economic)	N/A	-19.1
Adjustment for current and prior escalation. (Estimating)	+2.9	+3.2
Revised estimate to reflect prior year actuals. (Estimating)	-10.2	-11.3
Revised estimate for test and integration efforts resulting from test plan changes. (Estimating)	+8.4	+10.1
Revised estimate to reflect Congressional plus up for counter-cyber vulnerabilities. (Estimating)	+8.8	+9.9
RDT&E Subtotal	+9.9	-7.2

Procurement	$M	
Current Change Explanations	Base Year	Then Year
Revised escalation indices. (Economic)	N/A	-59.9
Revised estimate for IAMD Battle Command System components resulting from design maturation. (Estimating)	+33.8	+44.4
Increase in Initial Spares resulting from design maturation. (Support)	+1.9	+2.7
Procurement Subtotal	+35.7	-12.8

Contracts

Contract Identification

Appropriation: RDT&E

Contract Name: IAMD Battle Command System (IBCS) Development Program

Contractor: Northrop Grumman Space & Mission Systems Corporpation

Contractor Location: 213 Wynn Drive
Huntsville, AL 35805

Contract Number: W31P4Q-08-C-0418

Contract Type: Cost Plus Incentive Fee (CPIF)

Award Date: December 30, 2009

Definitization Date: December 30, 2009

Contract Price							
Initial Contract Price ($M)			Current Contract Price ($M)			Estimated Price At Completion ($M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
420.0	N/A	11	778.2	N/A	11	779.3	779.3

Target Price Change Explanation

The difference between the Initial Contract Price Target and the Current Contract Price Target is due to an increase in contract cost since original contract value. Several modifications have been issued to adjust the contract.

Contract Variance		
Item	Cost Variance	Schedule Variance
Cumulative Variances To Date (12/31/2014)	-4.3	-4.5
Previous Cumulative Variances	+1.2	-0.1
Net Change	-5.5	-4.4

Cost and Schedule Variance Explanations

The unfavorable net change in the cost variance is due to spending more than planned on supporting requirements to maintain software milestone dates. In addition Development Test and Evaluation experienced growth in the number of trouble reports and change reports.

The unfavorable net change in the schedule variance is due to delays in V3 Software Development and Developmental Test and Evaluation.

Notes

The Initial Target Price changed from $375.0M to $420.0M due to inadvertently reporting Original Negotiated Cost instead of Initial Target Price.

Contract Identification

Appropriation: RDT&E
Contract Name: A-Kit Development
Contractor: Raytheon Company
Contractor Location: 401 Jan Davis Dr
Huntsville, AL 35806
Contract Number: W31P4Q-12-C-0120
Contract Type: Cost Plus Fixed Fee (CPFF)
Award Date: February 14, 2012
Definitization Date: September 19, 2012

Contract Price							
Initial Contract Price ($M)			Current Contract Price ($M)			Estimated Price At Completion ($M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
126.0	N/A	1	124.4	N/A	1	124.4	124.4

Target Price Change Explanation

The difference between the Initial Contract Price Target and the Current Contract Price Target is due to a decrease in contract cost. A contract modification reduced scope, period of performance and overall contract price.

Contract Variance		
Item	Cost Variance	Schedule Variance
Cumulative Variances To Date (12/31/2014)	-1.0	-0.1
Previous Cumulative Variances	-3.3	-1.0
Net Change	+2.3	+0.9

Cost and Schedule Variance Explanations

The favorable net change in the cost variance is due to the remaining software build being less complex than R2.1 software build.

The favorable net change in the schedule variance is due to the remaining software build being less complex than R2.1 software build.

Notes

This contract is more than 90% complete; therefore, this is the final report for this contract.

Deliveries and Expenditures

Deliveries				
Delivered to Date	**Planned to Date**	**Actual to Date**	**Total Quantity**	**Percent Delivered**
Development	2	2	16	12.50%
Production	0	0	427	0.00%
Total Program Quantity Delivered	2	2	443	0.45%

Expended and Appropriated (TY $M)			
Total Acquisition Cost	6991.9	Years Appropriated	10
Expended to Date	1443.7	Percent Years Appropriated	41.67%
Percent Expended	20.65%	Appropriated to Date	1654.2
Total Funding Years	24	Percent Appropriated	23.66%

The above data is current as of January 31, 2015.

Operating and Support Cost

Cost Estimate Details

Date of Estimate: February 20, 2014
Source of Estimate: POE
Quantity to Sustain: 427
Unit of Measure: Engagement Operations Center (EOC)
Service Life per Unit: 20.00 Years
Fiscal Years in Service: FY 2018 - FY 2048

The difference in the acquisition quantity of 443 and the sustainment quantity of 427 is due to 16 RDT&E prototypes that are not to be sustained.

An IAMD EOC provides common mission command through an IAMD Battle Command System with full Engagement Operations/Force Operations capability.

Sustainment Strategy

The IAMD Program will be supported by a combination of Army organic and contractor-provided resources through a Performance Based Logistics (PBL) Product Support Strategy (PSS). Under PBL sustainment constructs, the IAMD Project Office will utilize performance based sustainment methods and performance metrics which may include a Product Support Integrator (PSI) overseeing the performance of its various Product Support Providers (PSP) from both the commercial and organic industrial support base. The decision for PSI/PSP designation will be the culmination of a formal (Type II) Business Case Analysis. The IAMD PBL PSS provides a Human Systems Integration/Manpower and Personnel Integration approach that will provide the human interface, tools, and resources needed to sustain the IAMD equipment throughout its life cycle.

Antecedent Information

No Antecedent

Annual O&S Costs BY2009 $K		
Cost Element	**IAMD Average Annual Cost Per Engagement Operations Center (EOC)**	**No Antecedent System (Antecedent)**
Unit-Level Manpower	0.000	--
Unit Operations	0.800	--
Maintenance	124.500	--
Sustaining Support	91.400	--
Continuing System Improvements	62.400	--
Indirect Support	0.000	--
Other	0.000	--
Total	279.100	--

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Item	Total O&S Cost $M			
	IAMD			No Antecedent System (Antecedent)
	Current Development APB Objective/Threshold		Current Estimate	
Base Year	2235.9	2459.5	2383.5	N/A
Then Year	3333.3	N/A	3565.2	N/A

Equation to Translate Annual Cost to Total Cost

Average annual cost per unit is based on 427 units times 20-years of O&S. (Total Cost = Average Annual Cost per unit ($279.1) * number of units (427) * life per unit (20-years) = $2,383.5M (BY$ 2009)

O&S Cost Variance		
Category	**BY 2009 $M**	**Change Explanations**
Prior SAR Total O&S Estimates - Dec 2013 SAR	2383.5	
Programmatic/Planning Factors	0.0	
Cost Estimating Methodology	0.0	
Cost Data Update	0.0	
Labor Rate	0.0	
Energy Rate	0.0	
Technical Input	0.0	
Other	0.0	
Total Changes	0.0	
Current Estimate	2383.5	

Disposal Estimate Details

Date of Estimate: February 20, 2014

Source of Estimate: POE

Disposal/Demilitarization Total Cost (BY 2009 $M): Total costs for disposal of all Engagement Operations Center (EOC) are 22.3