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
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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 (JIIIM) 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) PFPU's.

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

<table>
<thead>
<tr>
<th>APB Breaches</th>
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</thead>
<tbody>
<tr>
<td>Schedule</td>
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<tr>
<td>Performance</td>
</tr>
<tr>
<td>Cost</td>
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<tr>
<td>RDT&amp;E</td>
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<tr>
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<td>MILCON</td>
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<tr>
<td>Acq O&amp;M</td>
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<td>Unit Cost</td>
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<td>PAUC</td>
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<td>APUC</td>
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<table>
<thead>
<tr>
<th>Nunn-McCurdy Breaches</th>
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</table>

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.

Schedule

<table>
<thead>
<tr>
<th>Milestones</th>
<th>SAR Baseline Dev Est</th>
<th>Current APB Development Objective/Threshold</th>
<th>Current Estimate</th>
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<tbody>
<tr>
<td>MS B</td>
<td>DEC 2009</td>
<td>DEC 2009</td>
<td>JUN 2010</td>
</tr>
<tr>
<td>CDR</td>
<td>AUG 2011</td>
<td>AUG 2011</td>
<td>AUG 2012</td>
</tr>
<tr>
<td>MS C</td>
<td>DEC 2014</td>
<td>DEC 2014</td>
<td>DEC 2015</td>
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<tr>
<td>IOTE</td>
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<td>JUN 2015</td>
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<tr>
<td>Start</td>
<td>JAN 2016</td>
<td>JAN 2016</td>
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<tr>
<td>Complete</td>
<td>JUL 2016</td>
<td>JUL 2016</td>
<td>JUL 2017</td>
</tr>
<tr>
<td>IOC</td>
<td>AUG 2016</td>
<td>AUG 2016</td>
<td>AUG 2017</td>
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<tr>
<td>FRP</td>
<td>MAY 2017</td>
<td>MAY 2017</td>
<td>MAY 2018</td>
</tr>
</tbody>
</table>

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 restructuring.
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

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>SAR Baseline Dev Est</th>
<th>Current APB Development Objective/Threshold</th>
<th>Demonstrated Performance</th>
<th>Current Estimate</th>
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</thead>
<tbody>
<tr>
<td>Net Ready</td>
<td>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.</td>
<td>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.</td>
<td>TBD</td>
<td>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</td>
</tr>
</tbody>
</table>
### Integrated Defense Effectiveness

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>availability, integrity, authenticity, confidentiality, and non-repudiation, and issuance of an ATO by the DAA</td>
<td>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.</td>
</tr>
<tr>
<td>availability, integrity, authenticity, confidentiality, and non-repudiation, and issuance of an ATO by the DAA.</td>
<td>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.</td>
</tr>
</tbody>
</table>

**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 0.50% to 0.99%, the Army IAMD
- TBD

**Summary**

- 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 0.50% to 0.99%, the Army IAMD
- TBD

**December 31, 2011 SAR**

**UNCLASSIFIED**
| 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. | 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. | 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. |
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.

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, TBM

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, TBM

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, TBM

UNCLASSIFIED
<table>
<thead>
<tr>
<th>Material Availability</th>
<th>The Army IAMD SoS C2 shall achieve an Operational Availability (Ao) of at least 95%.</th>
<th>The Army IAMD SoS common C2 shall achieve an Ao 99%.</th>
<th>The Army IAMD SoS common C2 shall achieve an Ao of at least 95%.</th>
<th>TBD</th>
<th>The Army IAMD SoS C2 shall achieve an Ao of at least 95%.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Force Protection and Survivability</td>
<td>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 understanding</td>
<td>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</td>
<td>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 understanding</td>
<td>TBD</td>
<td>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 understanding</td>
</tr>
</tbody>
</table>

UNCLASSIFIED
| 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 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. | 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 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 | 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 decontamination 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 |
### 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

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
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<tbody>
<tr>
<td>ABT</td>
<td>Air Breathing Threat</td>
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<tr>
<td>Ao</td>
<td>Operational Availability</td>
</tr>
<tr>
<td>ATO</td>
<td>Approval to Operate</td>
</tr>
<tr>
<td>BFT</td>
<td>Blue Force Tracking</td>
</tr>
<tr>
<td>C2</td>
<td>Command and Control</td>
</tr>
<tr>
<td>CBRNE</td>
<td>Chemical, Biological, Radiological, Nuclear and High Yield Explosives</td>
</tr>
<tr>
<td>CM</td>
<td>Cruise Missile</td>
</tr>
<tr>
<td>COP</td>
<td>Common Operating Picture</td>
</tr>
<tr>
<td>DAA</td>
<td>Designated Approval Authority</td>
</tr>
<tr>
<td>DISR</td>
<td>DoD Information Technology Standards and Profile Registry</td>
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<tr>
<td>FMTV</td>
<td>Family of Medium Tactical Vehicles</td>
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<tr>
<td>GIG IT</td>
<td>Global Information Grid Information Technology</td>
</tr>
<tr>
<td>IA</td>
<td>Information Assurance</td>
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<tr>
<td>ID</td>
<td>Identification</td>
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<tr>
<td>KIP</td>
<td>Key Information Profile</td>
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<tr>
<td>MOPP 4</td>
<td>Mission Oriented Protective Posture</td>
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<td>NCOW RM</td>
<td>Net-Centric Operations and Warfare Reference Model</td>
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<tr>
<td>PM</td>
<td>Product Manager</td>
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<tr>
<td>SLAMRAAM</td>
<td>Surface-Launched Advanced Medium Range Air-to-Air Missile</td>
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<tr>
<td>SoS</td>
<td>System of Systems</td>
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<td>TBM</td>
<td>Tactical Ballistic Missile</td>
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<td>TV</td>
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### Change Explanations
None
### Track To Budget

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<td>0605457A</td>
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<td>Advanced Electronic Protection Enhancements</td>
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<td>2035</td>
<td>02</td>
<td>5075000BZ</td>
<td>Army</td>
<td>IAMD Battle Command System</td>
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**New requirement in FY 2013 for Advanced Electronic Protection Enhancements.**

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

### Procurement

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Cost and Funding

Cost Summary

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<td>4856.6</td>
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<td>5562.9</td>
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|                          | 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.

<table>
<thead>
<tr>
<th>Quantity</th>
<th>SAR Baseline Dev Est</th>
<th>Current APB Development</th>
<th>Current Estimate</th>
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<td>RDT&amp;E</td>
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<td>431</td>
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<tr>
<td>Total</td>
<td>296</td>
<td>296</td>
<td>465</td>
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</table>

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

<table>
<thead>
<tr>
<th>Appropriation</th>
<th>Prior</th>
<th>FY2012</th>
<th>FY2013</th>
<th>FY2014</th>
<th>FY2015</th>
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Subtotal | 431 | 3254.8

Low Rate Initial Production

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Foreign Military Sales

None

Nuclear Cost

None
## Unit Cost

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Unit Cost History

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#### Current SAR Baseline to Current Estimate (TY $M)

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### Cost Variance Summary

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**CE - Cost Variance**

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Previous Estimate: December 2010
### RDT&E

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### Procurement

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(QR) Quantity Related
Contracts

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<td><strong>Definitization Date</strong></td>
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**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

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<tr>
<td>Award Date</td>
<td>March 25, 2010</td>
</tr>
<tr>
<td>Definitization Date</td>
<td>September 29, 2010</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Initial Contract Price ($M)</th>
<th>Current Contract Price ($M)</th>
<th>Estimated Price At Completion ($M)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Target: 32.8</td>
<td>Ceiling: N/A</td>
<td>Qty: N/A</td>
</tr>
<tr>
<td>Target: 62.1</td>
<td>Ceiling: N/A</td>
<td>Qty: N/A</td>
</tr>
<tr>
<td>Contractor: 55.2</td>
<td>Program Manager: 55.2</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Variance</th>
<th>Cost Variance</th>
<th>Schedule Variance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cumulative Variances To Date (12/1/2011)</td>
<td>+2.1</td>
<td>0.0</td>
</tr>
<tr>
<td>Previous Cumulative Variances</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Net Change</td>
<td>+2.1</td>
<td>+0.0</td>
</tr>
</tbody>
</table>

Cost And Schedule Variance Explanations
The favorable cumulative cost variance is due to delay in Phase 2 proposal development, material purchasing and staffing availability.

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

<table>
<thead>
<tr>
<th>Deliveries To Date</th>
<th>Plan To Date</th>
<th>Actual To Date</th>
<th>Total Quantity</th>
<th>Percent Delivered</th>
</tr>
</thead>
<tbody>
<tr>
<td>Development</td>
<td>0</td>
<td>0</td>
<td>34</td>
<td>0.00%</td>
</tr>
<tr>
<td>Production</td>
<td>0</td>
<td>0</td>
<td>431</td>
<td>0.00%</td>
</tr>
<tr>
<td>Total Program Quantities Delivered</td>
<td>0</td>
<td>0</td>
<td>465</td>
<td>0.00%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Expenditures and Appropriations (TY $M)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Acquisition Cost</td>
</tr>
<tr>
<td>Expenditures To Date</td>
</tr>
<tr>
<td>Percent Expended</td>
</tr>
<tr>
<td>Total Funding Years</td>
</tr>
</tbody>
</table>

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

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 Logistics 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.

<table>
<thead>
<tr>
<th>Cost Element</th>
<th>IAMD Average Annual Cost Per Unit</th>
<th>No Antecedent System - NA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unit-Level Manpower</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Unit Operations</td>
<td>3.9</td>
<td>--</td>
</tr>
<tr>
<td>Maintenance</td>
<td>127.9</td>
<td>--</td>
</tr>
<tr>
<td>Sustaining Support</td>
<td>112.6</td>
<td>--</td>
</tr>
<tr>
<td>Continuing System Improvements</td>
<td>83.3</td>
<td>--</td>
</tr>
<tr>
<td>Indirect Support</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Other</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Total Unitized Cost (Base Year 2009 $)</td>
<td>327.7</td>
<td>--</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Total O&amp;S Costs $M</th>
<th>IAMD</th>
<th>No Antecedent System</th>
</tr>
</thead>
<tbody>
<tr>
<td>Base Year</td>
<td>2824.8</td>
<td>--</td>
</tr>
<tr>
<td>Then Year</td>
<td>4142.4</td>
<td>--</td>
</tr>
</tbody>
</table>

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