Exhibit R-2, RDT&E Budget Item Justification: PB 2012 Army										DATE: February 2011	
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 4: *Advanced Component Development & Prototypes (ACD&P)*				R-1 ITEM NOMENCLATURE PE 0603327A: *Air and Missile Defense Systems Engineering*							
COST ($ in Millions)	**FY 2010**	**FY 2011**	**FY 2012 Base**	**FY 2012 OCO**	**FY 2012 Total**	**FY 2013**	**FY 2014**	**FY 2015**	**FY 2016**	**Cost To Complete**	**Total Cost**
Total Program Element	165.515	-	-	-	-	-	-	-	-	Continuing	Continuing
S25: *ARMY SIAP OPERATIONAL INTEGRATION*	0.796	-	-	-	-	-	-	-	-	Continuing	Continuing
S34: *AMD SYSTEM OF SYSTEMS ENGINEERING AND INTEGRATION*	164.719	-	-	-	-	-	-	-	-	Continuing	Continuing

Note

On 23 December 2009 the Army Integrated Air & Missile Defense (AIAMD) program was approved for entry into the Engineering and Manufacturing Development phase as ACAT ID program. The approved program baseline represents a substantially lower risk approach from the initial program and resulted in a FY 2016 Initial Operational Capability (IOC). As a result of certification required by section 2366b of title 10, United States Code, the Under Secretary of Defense for Acquisition, Technology and Logistics (USD(AT&L)) waived three certification elements (Affordability, Full Funding, and Preliminary Design Review (PDR) Completion) for the Army IAMD program. Details on these waivers are provided in the Program Element (PE) Note for PE 0605457A.

A. Mission Description and Budget Item Justification

This system is an integral part of the overall Air and Missile Defense (AMD) architecture and will provide for an incrementally fielded Integrated Air and Missile Defense Fire Control System/capability for the Army Air and Missile Defense Battalions. This program element provides funding for the integration of Army Integrated Air and Missile Defense (AIAMD). On 9 February 2006 the Army Systems Acquisition Review Council (ASARC) designated the IAMD program a Pre-Major Defense Acquisition Program (MDAP) and approved the stand-up of the IAMD Project Office (PO). Program Executive Office Missiles and Space (PEO MS) formally stood up the IAMD PO on 9 May 2006. On 23 December 2009 the Army Integrated Air & Missile Defense (AIAMD) program was approved for entry into the Engineering and Manufacturing Development phase as ACAT ID program.

The mission of the AIAMD PO is twofold; 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, and multi-national net-centric architectures; and to develop, acquire, field and sustain the AIAMD common battle command component of the architecture (replacing seven weapon system unique Battle Management Command, Control, Communications, Computers and Intelligence (BMC4I) components in an AMD Battalion) and integrate externally developed sensors and shooters to provide an effective AIAMD capability. The Capability Development Document (CDD) was JROC approved on 17 May 2010 via JROCM 073-10. The AIAMD mission is derived from analysis of the Joint Air and Missile Defense (AMD) imperatives and the four mission sets that Army AMD performs. These mission sets are: Provide Air and Missile Defense, Contribute to AMD Situational Awareness/Situational Understanding, Contribute to Airspace Management, and Integrate/contribute to operational protection. The AIAMD PO is responsible for the development of an AIAMD Architecture comprised of components developed within the Project Office as well as by other PEO MS Project Offices (Phased Array Tracking to Intercept of Target (PATRIOT), Improved Sentinel, and Joint Land Attack Cruise Missile Defense Elevated Netted Sensor Systems (JLENS)), PEO Command, Control and Communications - Tactical (C3T) Project Offices (Air and Missile Defense Command and Control Systems (AMDCCS)), Missile Defense Agency (MDA), and Joint organizations. As part of this responsibility, the AIAMD PO has responsibility for performing the overarching AIAMD System of Systems

Exhibit R-2, RDT&E Budget Item Justification: PB 2012 Army	DATE: February 2011
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Architecture Systems Engineering. While the AIAMD Architecture is complex, it is itself part of a larger Joint System of Systems architecture. The AIAMD program provides the Army's part of this larger Joint IAMD Architecture.

B. Program Change Summary ($ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total
Previous President's Budget	166.061	-	-	-	-
Current President's Budget	165.515	-	-	-	-
Total Adjustments	-0.546	-	-	-	-
• Congressional General Reductions		-			
• Congressional Directed Reductions		-			
• Congressional Rescissions	-	-			
• Congressional Adds		-			
• Congressional Directed Transfers		-			
• Reprogrammings	-0.546	-			
• SBIR/STTR Transfer	-	-			

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COST ($ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
S25: *ARMY SIAP OPERATIONAL INTEGRATION*	0.796	-	-	-	-	-	-	-	-	Continuing	Continuing
Quantity of RDT&E Articles											

A. Mission Description and Budget Item Justification

This effort is focused on analysis and research of information sharing and critical technologies to satisfy Department of Defense and Department of Homeland Security force protection requirements. Specific tasks will focus on software database search and correlation techniques, information technology assessment of software program capabilities, research of advanced visualization concepts, research assessments of Commercial Off The Shelf (COTS) and evolving technologies, requirements versus capabilities research, and advanced sensor developments to support force protection.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
Title: Congressional Add	0.796	-	-
Articles:	0		
Description: Funding is provided for the following effort			
FY 2010 Accomplishments: Congressional Add for the Center for Defense Systems Research.			
Accomplishments/Planned Programs Subtotals	0.796	-	-

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

N/A

E. Performance Metrics

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

Exhibit R-3, RDT&E Project Cost Analysis: PB 2012 Army			DATE: February 2011
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Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Center for Defense Systems Research	TBD	Various:Various	38.257	-		-		-		-	Continuing	Continuing	Continuing
		Subtotal	38.257	-		-		-		-			

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Government support & support contracts	MIPR	OGAs, Inhouse, Contact spt.:Various	16.226	-		-		-		-	Continuing	Continuing	Continuing
		Subtotal	16.226	-		-		-		-			

	Total Prior Years Cost	FY 2011		FY 2012 Base		FY 2012 OCO		FY 2012 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	54.483	-		-		-		-			

Remarks

Exhibit R-2A, RDT&E Project Justification: PB 2012 Army			DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603327A: *Air and Missile Defense Systems Engineering*	PROJECT S34: *AMD SYSTEM OF SYSTEMS ENGINEERING AND INTEGRATION*	

COST ($ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
S34: *AMD SYSTEM OF SYSTEMS ENGINEERING AND INTEGRATION*	164.719	-	-	-	-	-	-	-	-	Continuing	Continuing
Quantity of RDT&E Articles											

Note

On 23 December 2009 the Army Integrated Air & Missile Defense (AIAMD) program was approved for entry into the Engineering and Manufacturing Development phase as ACAT ID program. The approved program baseline represents a substantially lower risk approach from the initial program and resulted in a FY 2016 Initial Operational Capability (IOC). As a result of certification required by section 2366b of title 10, United States Code, the Under Secretary of Defense for Acquisition, Technology and Logistics (USD(AT&L)) waived three certification elements (Affordability, Full Funding, and Preliminary Design Review (PDR) Completion) for the Army IAMD program. Details on these waivers are provided in the Program Element (PE) Note for PE 0605457A.

A. Mission Description and Budget Item Justification

This system is an integral part of the overall Air and Missile Defense (AMD) architecture and will provide for an incrementally fielded Integrated Air and Missile Defense Fire Control System/capability for the Army Air and Missile Defense Battalions. Funding in this project provides for the overarching Army Integrated Air and Missile Defense (AIAMD) Architecture and Army IAMD Battle Command System (IBCS) components necessary to produce an AIAMD capability. The AIAMD Program represents a shift from a traditional system-centric weapon systems acquisition to a component-based acquisition. This component-based acquisition will provide the most efficient way to acquire and integrate the components of the incremental AIAMD architecture. Unlike traditional acquisition programs that focus primarily on the development of a single system or platform, the AIAMD Program is structured to enable the development of an overarching system-of-systems capability with participating Air and Missile Defense (AMD) components functioning interdependently to provide total operational capabilities not achievable by the individual element systems. The AIAMD Program achieves this objective by establishing the incremental AIAMD architecture and developing the following products: the IBCS, the Integrated Fire Control (IFC) Network, and the Plug & Fight (P&F) Interface kits. The IBCS provides common Army IAMD Battle Command System (IBCS) Engagement Operations Center (EOC) that replaces seven weapon system unique Battle Management Command, Control, Communications, Computers and Intelligence (BMC4I) components in an AMD Battalion. The IFC Network provides fire control connectivity and enabling distributed operations. The P&F Interface kit enables the multiple sensor and weapon components for netted operations. AIAMD has been designated as the Army's Pathfinder for the development of a Joint Track Management Capability (JTMC).

As part of the new DoD 5000.02 initiative for competitive prototyping, the AIAMD program awarded two competitive contracts to teams lead by Northrop Grumman and Raytheon for the development of the Army IAMD Battle Command System (IBCS) in September 2008. During FY 2009, the two competing contractors developed prototypes of their respective designs and conducted an initial Preliminary Design Review (PDR). Competitive proposals were then submitted for the Engineering and Manufacturing Development (EMD) Phase of the program in May 2009. The down select to one contractor occurred after the Milestone B decision in December 2009. The FY 2010 funding represents the first full year of the EMD Phase of the program. During this phase, the IBCS contractor will be furthering their design efforts with respect to the command post, the common side of the Plug and Fight Kit, and the IFC Network. AIAMD funding also incorporates A-Kit contract actions by the

Exhibit R-2A, RDT&E Project Justification: PB 2012 Army		DATE: February 2011
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AIAMD PO for the development of the unique side of the Plug & Fight Kit which enables the weapons and sensors to be placed on the IFC Network for the contributing acquisition programs (Phased Array Tracking to Intercept of Target (PATRIOT), Improved Sentinel, and Joint Land Attack Cruise Missile Defense Elevated Netted Sensor Systems (JLENS)). An IBCS delta Preliminary Design Review (PDR) was conducted 29 July 2010, the contributing programs delta PDRs were conducted 20 October 2010 through 3 November 2010, and the AIAMD Delta PDR meeting was conducted on 16 November 2010.

The Army IAMD Project S34 funding for FY 2011 and beyond was moved to Budget Activity 5 (PE 0605457A, Project Code S40) for the Engineering and Manufacturing Development phase of program.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
Title: Product Development ***Articles:*** ***Description:*** Funding is provided for the following effort ***FY 2010 Accomplishments:*** Product Development for EOC, the common and unique side of the Plug and Fight kits, and the Integrated Fire Control Network. Provides for an IBCS delta PDR, contributing programs delta PDRs and the AIAMD delta PDR.	137.487 0	-	-
Title: Support Cost ***Articles:*** ***Description:*** Funding is provided for the following effort ***FY 2010 Accomplishments:*** AIAMD Support Cost	13.122 0	-	-
Title: Test and Evaluation ***Articles:*** ***Description:*** Funding is provided for the following effort ***FY 2010 Accomplishments:*** Provides for Modeling & Simulation, Joint Interoperability Test Support , Army Evaluation Center/Developmental Test Command/ Operational Test Command support and White Sands Missile Range Test Support	14.110 0	-	-
Accomplishments/Planned Programs Subtotals	164.719	-	-

Exhibit R-2A, RDT&E Project Justification: PB 2012 Army			DATE: February 2011
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C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
• PE 0604869A, Project M06: *PE 0604869A, Project M06, PATRIOT/ MEADS Combined Aggregate Program (CAP)*	570.831	467.139	406.605		406.605					Continuing	Continuing
• PE 0605456A, Project PA3: *PE 0605456A, Project PA3, PAC-3/ MSE Missile*		62.500	88.993		88.993		68.938	63.468	64.215	Continuing	Continuing
• SSN C53101: *SSN C53101, MSE Missile*			74.953		74.953		532.540	487.049	560.099	Continuing	Continuing
• SSN C53201: *SSN C53201, PATRIOT/MEADS GSE*											
• PE 0102419A: *PE 0102419A, Proj E55, JLENS*	317.132	372.493	344.655		344.655		58.124	19.717	19.726	Continuing	Continuing
• SSN BZ0525: *SSN BZ0525, JLENS Production*							501.459	454.966	416.888	Continuing	Continuing
• PE 0604802A, Project S23: *PE 0604802A, Project S23, SLAMRAAM*	56.441									Continuing	Continuing
• PE 0605450A, Project S35: *PE 0605450A, Project S35, SLAMRAAM*		23.700	19.931		19.931					Continuing	Continuing
• SSN C81002: *SSN C81002, SLAMRAAM Launcher*		116.732								Continuing	Continuing
• PE 0605457A, Project S40: *PE 0605457A, Project S40, Army Integrated Air and Missile Defense (AIAMD)*		251.124	270.607		270.607		346.341	298.869	275.651	Continuing	Continuing
• BZ5075: *BZ5075, Army IAMD Battle Command System (IBCS)*							23.587	100.560	256.855	Continuing	Continuing
			2.890		2.890		1.983	1.968	2.937	Continuing	Continuing

Exhibit R-2A, RDT&E Project Justification: PB 2012 Army		DATE: February 2011
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C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
• PE 0604820A, Proj E10: *PE 0604820A, Proj E10, SENTINEL*											

D. Acquisition Strategy

The Army Integrated Air and Missile Defense (AIAMD) Program will employ an evolutionary acquisition strategy consisting of multiple capability increments leading to an Increment 2 capability in FY 2016. The AIAMD Program carried two competitive prototyping developmental contractors through an initial Preliminary Design Review (PDR) with a down select after Milestone B (MS B) in December 2009 to conduct the EMD phase.

Each AIAMD capability increment follows the AIAMD Capability Development Document (CDD), JROC approved on 17 May 2010 via JROCM 073-10, and is defined as:
- Increment 1 is a User-executed capability increment focused on realignment of current force systems into an AMD Battalion (BN) organizational construct. (not part of the materiel development program)
- Increment 2 provides the first increment of an integrated materiel solution, and is the initial acquisition program to develop the threshold AIAMD capability

The AIAMD incremental development approach provides the opportunity for technology insertions into the program throughout each increment as high-payoff technologies mature and are ready for integration. This enables an orderly and cost-effective migration from the current system-centric architecture to the AIAMD architecture.

Key principles of the AIAMD acquisition approach are the following:
- Migrate from system-based acquisition to component-based acquisition
- Use system-of-systems acquisition approach with collaboration among AIAMD, PEO MS, PEO C3T, and Brigade Combat Team (BCT) Modernization Component Project Offices, Missile Defense Agency (MDA), and other Service Project Offices to network enable weapons and sensor components
- Develop and procure common Army IAMD Battle Command System (IBCS) Engagement Operations Center (EOC) that replaces seven weapon system unique Battle Management Command, Control, Communications, Computers and Intelligence (BMC4I) components
- Establish product lines used to evaluate and select, modify and integrate modular open systems Hardware (HW) and Software (SW) common configuration items
- Conduct architecture-based System Engineering, Integration and Test (SEI&T) activities for an incremental fielded configuration of the AIAMD Integrated Fire Control (IFC) Network-compatible IBCS EOC, weapons and sensor system components

E. Performance Metrics

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

Exhibit R-3, RDT&E Project Cost Analysis: PB 2012 Army			DATE: February 2011
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Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Government System Engineering & Program Management (SEPM)	TBD	Multiple OGAs, Inhouse and Contractor:Huntsville, AL	-	-		-		-		-	Continuing	Continuing	0.000
		Subtotal	-	-		-		-		-			0.000

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Air Space and Missile Defense (ASMD) System of Systems (SOS) Hardware-in-the-Loop Testing	C/CPFF	Multiple OGA's, Inhouse and Contractor:Huntsville, AL and various other locations	9.912	-		-		-		-	Continuing	Continuing	0.000
IAMD System Engineering & Integration	C/CPFF	Contractor:Huntsville, AL	-	-		-		-		-	Continuing	Continuing	0.000
IBCS Concept Development	C/CPFF	Contractor:Huntsville, AL and various other locations	-	-		-		-		-	0.000	0.000	0.000
IBCS Engineering Manufacturing and Development	C/CPIF	Contractor:Huntsville, AL and various other locations	-	-		-		-		-	Continuing	Continuing	0.000
Government Furnished Equipment	MIPR	Multiple:Huntsville, AL	-	-		-		-		-	Continuing	Continuing	0.000
US Army Aviation and Missile Research Development and Engineering Center (AMRDEC)	MIPR	AMRDEC:Huntsville, AL	-	-		-		-		-	Continuing	Continuing	0.000
		Subtotal	9.912	-		-		-		-			0.000

Exhibit R-3, RDT&E Project Cost Analysis: PB 2012 Army		DATE: February 2011
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Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
White Sands Missile Range (WSMR)	MIPR	WSMR:White Sands, NM	-	-		-		-		-	Continuing	Continuing	0.000
Army Evaluation Center/ Developmental Test Command/Operational Test Command	MIPR	Various:Various locations	-	-		-		-		-	Continuing	Continuing	0.000
Modeling & Sim/Joint Interoperability Test Spt	TBD	SED:Huntsville, AL	-	-		-		-		-	Continuing	Continuing	0.000
		Subtotal	-	-		-		-		-			0.000

	Total Prior Years Cost	FY 2011		FY 2012 Base		FY 2012 OCO		FY 2012 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	9.912	-		-		-		-			0.000

Remarks