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**Exhibit R-2, RDT&E Budget Item Justification: PB 2013 Army** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b>				<b>R-1 ITEM NOMENCLATURE</b>							
2040: <i>Research, Development, Test &amp; Evaluation, Army</i> BA 5: <i>Development &amp; Demonstration (SDD)</i>				PE 0604741A: <i>Air Defense Command, Control and Intelligence - Eng Dev</i>							
<b>COST (\$ in Millions)</b>	<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013 Base</b>	<b>FY 2013 OCO</b>	<b>FY 2013 Total</b>	<b>FY 2014</b>	<b>FY 2015</b>	<b>FY 2016</b>	<b>FY 2017</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
Total Program Element	139.662	82.932	73.333	-	73.333	23.008	18.058	18.676	20.049	Continuing	Continuing
126: <i>FAAD C2 ED</i>	7.978	9.730	3.664	-	3.664	3.408	3.388	3.505	3.640	Continuing	Continuing
146: <i>AIR &amp; MSL DEFENSE PLANNING CONTROL SYS (AMC PCS)</i>	18.783	15.518	15.381	-	15.381	15.667	14.670	15.171	16.409	Continuing	Continuing
149: <i>COUNTER-ROCKETS, ARTILLERY &amp; MORTAR (C-RAM) DVPMT</i>	112.901	57.684	54.288	-	54.288	3.933	-	-	-	Continuing	Continuing

**A. Mission Description and Budget Item Justification**

The Forward Area Air Defense Command and Control (FAAD C2) system collects, digitally processes, and disseminates real-time target cuing and tracking information; the common tactical 3-dimensional air picture; and command, control, and intelligence information to all Maneuver Air and Missile Defense (MAMD) weapon systems (Avenger and Man-Portable Air Defense System (MANPADS)), and joint and combined arms systems. The FAAD C2 system provides alerting data to air defense gunners, airspace battle management, and up-linking of mission operations, thereby enhancing force protection against air and missile attack. Situational awareness and targeting data is provided on threat aircraft, cruise missiles, and unmanned aerial systems (UAS). The FAAD C2 system provides this mission capability by integrating dynamic FAAD C2 engagement operations software with the Multifunctional Information Distribution System (MIDS), Joint Tactical Terminal (JTT), Single Channel Ground and Airborne Radio System (SINCGARS), Enhanced Position Location System (EPLRS), Global Positioning System (GPS), Airborne Warning and Control Systems (AWACS), Sentinel radar, and the Mission Command architecture. In addition, FAAD C2 provides interoperability with Joint C2 systems and horizontal integration with PATRIOT, Theater High-Altitude Area Defense (THAAD), and the Joint Land Attack Cruise Missile Defense Elevated Netted Sensor (JLENS) by fusing sensor data to create a scalable and filterable Single Integrated Air Picture (SIAP) and common tactical picture. The system software is a key component of the Air Defense and Airspace Management (ADAM) Cell that is being fielded to Brigade Combat Teams (BCT), Multi-Functional Support Brigades and Divisions/Corps as part of the Army's modularity concept. System software is able to provide target data and engagement commands/status to MAMD Battalions. FAAD C2 is also a principal air defense system within the Homeland Defense Program. Soldiers from activated Army National Guard MAMD battalions operate the FAAD C2 systems in the National Capital Region and other locations.

The Air and Missile Defense Planning and Control System (AMDPCS) is an Army Objective Force System that provides integration of Air and Missile Defense (AMD) operations at all echelons. AMDPCS systems are deployed with Air Defense Artillery (ADA) brigades, Army Air and Missile Defense Commands (AAMDCs), and ADAM Cells at the BCTs, Multi Functional Support Brigades and Divisions/Corps. AMDPCS systems also provide air defense capabilities to Homeland Defense systems. The development of ADAM Cells is essential in fulfilling the Army's Modularity requirement. ADAM Cells provide the Commander at BCTs, Brigades and Divisions with air defense situational awareness and airspace management capabilities. They also provide the interoperability link with Joint, multinational and coalition forces. AMDPCS components are vital in the transformation of ADA units and the activation of the AMD Battalions. AMDPCS has three major components: (1) Air and Missile Defense Workstation (AMDWS) is an automated defense and staff planning tool that displays the common tactical and operational 3-dimensional air picture; (2) Air

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<b>APPROPRIATION/BUDGET ACTIVITY</b> 2040: <i>Research, Development, Test &amp; Evaluation, Army</i> BA 5: <i>Development &amp; Demonstration (SDD)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0604741A: <i>Air Defense Command, Control and Intelligence - Eng Dev</i>
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Defense System Integrator (ADSI) is a communications data link processor and display system that provides near-real time, 3-dimensional, joint airspace situational awareness and fire direction command and control for AMD forces; (3) Army Air Defense shelter configurations use automated data processing equipment, tactical communications, Common Hardware Systems, standard vehicles and tactical power to provide AMD unit commanders and staffs with the capabilities to plan missions, direct forces, and control the airspace.

Counter-Rocket, Artillery, Mortar (C-RAM) is an evolutionary, non-developmental program initiated by the Army Chief of Staff in response to the Indirect Fire (IDF) threat and a validated Operational Needs Statement (ONS). The primary mission of the C-RAM program is to develop, procure, field, and maintain a system-of-systems (SoS) that can detect RAM launches; locally warn the defended area with sufficient time for personnel to take appropriate action; intercept rounds in flight, thus preventing damage to ground forces or facilities; and enhance response to and defeat of enemy forces. The C-RAM capability is comprised of a combination of multi-service fielded and non-developmental item (NDI) sensors, command and control (C2) systems, and a modified U.S. Navy intercept system (Land-based Phalanx Weapon System (LPWS)), with a low cost commercial off-the-shelf (COTS) warning system and wireless local area network. The C-RAM SoS capability is currently deployed at multiple sites in two theaters of operation, providing them correlated air and ground pictures and linking them to the Army Mission Command and the Joint Defense Network with various forms of communications to provide situational awareness and exchange of timely

<b>B. Program Change Summary (\$ in Millions)</b>	<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013 Base</b>	<b>FY 2013 OCO</b>	<b>FY 2013 Total</b>
Previous President's Budget	34.209	83.010	72.611	-	72.611
Current President's Budget	139.662	82.932	73.333	-	73.333
Total Adjustments	105.453	-0.078	0.722	-	0.722
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Other Adjustments 1	105.453	-0.078	0.722	-	0.722

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**Exhibit R-2A, RDT&E Project Justification:** PB 2013 Army **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 2040: <i>Research, Development, Test &amp; Evaluation, Army</i> BA 5: <i>Development &amp; Demonstration (SDD)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0604741A: <i>Air Defense Command, Control and Intelligence - Eng Dev</i>	<b>PROJECT</b> 126: <i>FAAD C2 ED</i>
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COST (\$ in Millions)	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
126: <i>FAAD C2 ED</i>	7.978	9.730	3.664	-	3.664	3.408	3.388	3.505	3.640	Continuing	Continuing
Quantity of RDT&E Articles											

**A. Mission Description and Budget Item Justification**

The Forward Area Air Defense Command and Control (FAAD C2) system collects, digitally processes, and disseminates real-time target cuing and tracking information. FAAD C2 provides the common tactical 3-dimensional air picture and command, control, and intelligence information to all Maneuver Air and Missile Defense (MAMD) weapon systems (Avenger and Man-Portable Air Defense System (MANPADS)), and joint and combined arms systems. The FAAD C2 system provides alerting data to air defense gunners, airspace battle management, and up-linking of mission operations, thereby enhancing force protection against air and missile attack. Situational awareness and targeting data is provided on threat aircraft, cruise missiles, and unmanned aerial systems (UAS). The FAAD C2 system provides this mission capability by integrating dynamic FAAD C2 engagement operations software with the Multifunctional Information Distribution System (MIDS), Single Channel Ground and Airborne Radio System (SINCGARS), Enhanced Position Location System (EPLRS), Global Positioning System (GPS), Airborne Warning and Control Systems (AWACS), Sentinel radar, and the Mission Command architecture. In addition, FAAD C2 provides interoperability with Joint C2 systems and horizontal integration with PATRIOT, Theater High-Altitude Area Defense (THAAD), and the Joint Land Attack Cruise Missile Defense Elevated Netted Sensor (JLENS) by fusing sensor data to create a scalable and filterable Single Integrated Air Picture (SIAP) and common tactical picture. The system software is a key component of the Air Defense and Airspace Management (ADAM) Cell that is being fielded to Brigade Combat Teams (BCTs), Multi-Functional Support Brigades and Divisions/Corps as part of the Army's modularity concept. System software is able to provide target data and engagement commands/status to MAMD Battalions. FAAD C2 is also a principal air defense system within the Homeland Defense Program. Soldiers from activated ARNG (Army National Guard) MAMD battalions operate the FAAD C2 systems in the National Capital Region and other locations.

Program funding enables rapid response to immediate threats to Soldiers, identifies promising technologies, procures and integrates those capabilities for deployed forces in the same year. As capability gaps are identified by deployed forces, this program provides the ability for the Army to respond with high priority/high leverage technology from industry during the same year, with the highest priority going to candidates that cover a multitude of gap areas. Program funding provides a method to rapidly keep pace with leading edge technologies and maintain interoperability and backwards compatibility caused by improvement to other system components (upgrade from common hardware version 3 to 4 and EPLRS enhancements).

**B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)**

	FY 2011	FY 2012	FY 2013
<b>Title:</b> FAAD C2 Software Development	7.978	9.730	3.664
<b>Articles:</b>	0	0	
<b>Description:</b> Support FAAD C2 software development including unique software enhancements in support of Homeland Defense and security accreditation upgrades. Integrate Improved Sentinel radar. Incorporate IFF modes 1, 2 and 3 (active decode) capabilities.			

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Army	<b>DATE:</b> February 2012
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<b>APPROPRIATION/BUDGET ACTIVITY</b> 2040: <i>Research, Development, Test &amp; Evaluation, Army</i> BA 5: <i>Development &amp; Demonstration (SDD)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0604741A: <i>Air Defense Command, Control and Intelligence - Eng Dev</i>	<b>PROJECT</b> 126: <i>FAAD C2 ED</i>
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<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>	FY 2011	FY 2012	FY 2013
<p><b><i>FY 2011 Accomplishments:</i></b> Supported FAAD C2 software development including unique software enhancements in support of Homeland Defense and security accreditation upgrades. Continued integrations of improved Sentinel radar. Continued incorporation of IFF modes 1, 2 and 3 (active decode) capabilities.</p> <p><b><i>FY 2012 Plans:</i></b> Support FAAD C2 software development including unique software enhancements in support of Homeland Defense, software solutions for Host-Based Software Security (HBSS) and Common Operating Environment (COE) mandates, and security accreditation updates. Integrate Improved Sentinel. Incorporate IFF modes 1, 2 and 3 (active decode) and correlation of IFF self-reporting systems.</p> <p><b><i>FY 2013 Plans:</i></b> Support FAAD C2 software development including unique software enhancements in support of Homeland Defense, software solutions for HBSS and COE mandates, and security accreditation updates. Integrate Improved Sentinel. Incorporate IFF modes 1, 2 and 3 (active decode) and correlation of IFF self-reporting systems.</p>			
<b>Accomplishments/Planned Programs Subtotals</b>	7.978	9.730	3.664

**C. Other Program Funding Summary (\$ in Millions)**

<u>Line Item</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u> <u>Base</u>	<u>FY 2013</u> <u>OCO</u>	<u>FY 2013</u> <u>Total</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• AD5050: <i>FAAD C2</i>	32.328	5.030	5.031		5.031		4.817	4.838	5.035	Continuing	Continuing

**D. Acquisition Strategy**

The FAAD C2 acquisition strategy relies on evolutionary software development to rapidly meet the demands of air defense battle management/command, control, communications, computers, and intelligence (BM/C4I) requirements, and to keep pace with automated information technologies. The concept of evolutionary software development was followed in Blocks I-IV fieldings. FAAD C2 software provides engagement operational capabilities for the Army's Active and Reserve components.

FAAD C2 is a core component of C-RAM C2. As C-RAM C2 is developed, the interoperability of Air Defense functionality of FAAD C2 must be maintained.

**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.

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**Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Army** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 2040: <i>Research, Development, Test &amp; Evaluation, Army</i> BA 5: <i>Development &amp; Demonstration (SDD)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0604741A: <i>Air Defense Command, Control and Intelligence - Eng Dev</i>	<b>PROJECT</b> 126: <i>FAAD C2 ED</i>
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<b>Management Services (\$ in Millions)</b>				<b>FY 2012</b>		<b>FY 2013 Base</b>		<b>FY 2013 OCO</b>		<b>FY 2013 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Total Prior Years Cost</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
Program Management Administration	Various	Various:Various	39.790	0.774		0.292		-		0.292	Continuing	Continuing	0.000
<b>Subtotal</b>			39.790	0.774		0.292		-		0.292			0.000

**Remarks**  
Not Applicable

<b>Product Development (\$ in Millions)</b>				<b>FY 2012</b>		<b>FY 2013 Base</b>		<b>FY 2013 OCO</b>		<b>FY 2013 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Total Prior Years Cost</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
Software Development and Engineering	Various	Northrop Grumman:Carson, CA	31.226	6.782		2.554		-		2.554	Continuing	Continuing	Continuing
Software Engineering	Various	Various:Various	22.191	0.674		0.254		-		0.254	Continuing	Continuing	Continuing
<b>Subtotal</b>			53.417	7.456		2.808		-		2.808			

<b>Test and Evaluation (\$ in Millions)</b>				<b>FY 2012</b>		<b>FY 2013 Base</b>		<b>FY 2013 OCO</b>		<b>FY 2013 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Total Prior Years Cost</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
Certification/Testing	Various	YPG:Yuma, AZ	10.239	1.175		0.442		-		0.442	Continuing	Continuing	Continuing
Interoperability	Various	CTSF:Ft Hood, TX	2.827	0.325		0.122		-		0.122	Continuing	Continuing	Continuing
<b>Subtotal</b>			13.066	1.500		0.564		-		0.564			

			<b>Total Prior Years Cost</b>	<b>FY 2012</b>		<b>FY 2013 Base</b>		<b>FY 2013 OCO</b>		<b>FY 2013 Total</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
<b>Project Cost Totals</b>			106.273	9.730		3.664		-		3.664			

**Remarks**

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**Exhibit R-4, RDT&E Schedule Profile: PB 2013 Army** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 2040: <i>Research, Development, Test &amp; Evaluation, Army</i> BA 5: <i>Development &amp; Demonstration (SDD)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0604741A: <i>Air Defense Command, Control and Intelligence - Eng Dev</i>	<b>PROJECT</b> 126: <i>FAAD C2 ED</i>
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	FY 2011				FY 2012				FY 2013				FY 2014				FY 2015				FY 2016				FY 2017			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
V5.4B Full Materiel Release (FMR)					■																							
V5.5B Full Materiel Release												■																
V5.5D Full Materiel Release (FMR)																								■				
V5.5A Full Materiel Release								■																				
V5.5C Full Materiel Release (FMR)																■												
Phase 2.2 Offline Test (OT)																												
NCR-IADS FAAD 5.5B & RES DT (Development Test)								■																				
NCR-IADS FAAD 5.5B and RES OT (Online Test and Cutover)												■																
1-188 ADA N. Dakota National Guard - Last Unit Equipped (LUE)																												
Replacement Shelters for 3 Air and Missile Defense Battalions (AMD BNs)																												

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**Exhibit R-4A, RDT&E Schedule Details:** PB 2013 Army **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 2040: <i>Research, Development, Test &amp; Evaluation, Army</i> BA 5: <i>Development &amp; Demonstration (SDD)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0604741A: <i>Air Defense Command, Control and Intelligence - Eng Dev</i>	<b>PROJECT</b> 126: <i>FAAD C2 ED</i>
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Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
V5.4B Full Materiel Release (FMR)	1	2012	1	2012
V5.5B Full Materiel Release	2	2013	2	2013
V5.5D Full Materiel Release (FMR)	4	2016	4	2016
V5.5A Full Materiel Release	3	2012	3	2012
V5.5C Full Materiel Release (FMR)	2	2014	2	2014
Phase 2.2 Offline Test (OT)	2	2011	2	2011
NCR-IADS FAAD 5.5B & RES DT (Development Test)	3	2012	3	2012
NCR-IADS FAAD 5.5B and RES OT (Online Test and Cutover)	1	2013	1	2013
1-188 ADA N. Dakota National Guard - Last Unit Equipped (LUE)	2	2011	2	2011
Replacement Shelters for 3 Air and Missile Defense Battalions (AMD BNs)	3	2012	4	2012

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Army									<b>DATE:</b> February 2012		
<b>APPROPRIATION/BUDGET ACTIVITY</b> 2040: <i>Research, Development, Test &amp; Evaluation, Army</i> BA 5: <i>Development &amp; Demonstration (SDD)</i>				<b>R-1 ITEM NOMENCLATURE</b> PE 0604741A: <i>Air Defense Command, Control and Intelligence - Eng Dev</i>				<b>PROJECT</b> 146: <i>AIR &amp; MSL DEFENSE PLANNING CONTROL SYS (AMC PCS)</i>			
<b>COST (\$ in Millions)</b>	<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013 Base</b>	<b>FY 2013 OCO</b>	<b>FY 2013 Total</b>	<b>FY 2014</b>	<b>FY 2015</b>	<b>FY 2016</b>	<b>FY 2017</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
146: <i>AIR &amp; MSL DEFENSE PLANNING CONTROL SYS (AMC PCS)</i>	18.783	15.518	15.381	-	15.381	15.667	14.670	15.171	16.409	Continuing	Continuing
Quantity of RDT&E Articles											

**A. Mission Description and Budget Item Justification**

The Air and Missile Defense Planning and Control System (AMDPCS) is an Army Objective Force System that provides integration of Air and Missile Defense (AMD) operations at all echelons. AMDPCS systems are deployed with Air Defense Artillery (ADA) brigades, Army Air and Missile Defense Commands (AAMDCs), and Air Defense and Airspace Management (ADAM) Cells at the Brigade Combat Teams (BCT's), Multi Functional Support Brigades and Divisions/Corps. AMDPCS systems also provide air defense capabilities to Homeland Defense systems. The development of ADAM Cells is essential in fulfilling the Army's Modularity requirement. ADAM Cells provide the Commander at BCTs, Brigades and Divisions with air defense situational awareness and airspace management capabilities. They also provide the interoperability link with Joint, multinational and coalition forces. AMDPCS components are vital in the transformation of ADA units and the activation of the Air & Missile Defense (AMD) Battalions. AMDPCS has three major components: (1) The Air and Missile Defense Workstation (AMDWS) is an automated defense and staff planning tool that displays the common tactical and operational 3-dimensional air picture. AMDWS is the air picture provider for the Army, producing an integrated and correlated air picture at all tactical levels and locations. AMDWS is also an integral component of Integrated Base Defense. AMDWS provides an interoperability link to multinational air defense forces IAW Annex C to a Joint US/NATO Air Defense Agreement; (2) The Air Defense System Integrator (ADSI) is a communications data link processor and display system that provides near-real time, 3-dimensional, joint airspace situational awareness and fire direction command and control for Air and Missile Defense forces; (3) The Army Air Defense shelter configurations use automated data processing equipment, tactical communications, Common Hardware Systems, standard vehicles and tactical power to provide AMD unit commanders and staffs with the capabilities to plan missions, direct forces, and control the airspace.

FY13 funds the development, software engineering, testing and certification of the AMDWS, ADSI, and sheltered subsystem software as described below.

**B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)**

	<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013</b>
<b>Title:</b> AMDWS Software Development	13.261	10.971	10.870
<b>Articles:</b>	0	0	
<b>Description:</b> Continue AMDWS development and support of LANDWARNET/Mission Command Framework. Complete AMDWS software engineering and development consistent with Capability Set requirements, evolving the air and missile defense planning and control requirements to a net-centric environment, and fulfilling the air defense force operations capabilities identified in the AMD TRADOC capabilities requirement list. Complete AMDWS software development and rehost onto emerging light/laptop common hardware systems. Continue integration of the PATRIOT Air Defense system Tactical Planner (PTP) and the Theater Battle Management Core Systems (TBMCS). Initiate development of the other AMD Platforms such as JLENS and Joint Theater Battle Operations Net-Centric Environment interfaces. Continue supporting the Air Force Joint Tactical Air and Missile Defense			



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<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>				<b>FY 2011</b>
(JTAMD), and support the evolving development of the Force Operations portion of the Integrated Air and Missile Defense (IAMD) System of Systems.				<b>FY 2012</b>
<b>FY 2011 Accomplishments:</b> Continued AMDWS development and support of LANDWARNET/Mission Command Framework. Continued AMDWS software engineering and development consistent with Capability Set 13-14 requirements, evolving the air and missile defense planning and control requirements to a net-centric environment, and fulfilling the air defense force operations capabilities identified in the AMD TRADOC capabilities requirement list. Completed AMDWS software development and rehost onto emerging light/laptop common hardware systems. Initiated development of software solutions for Host Based Software Security (HBSS) and Common Operating Environmental (COE) mandates. Continued integration of the PATRIOT Air Defense system PTP and the TBMCS. Initiated development of the other AMD Platforms such as JLENS and Joint Theater Battle Operations Net-Centric Environment interfaces. Continued supporting the Air Force JTAMD, and supported the evolving development of the Force Operations portion of the IAMD System of Systems.				<b>FY 2013</b>
<b>FY 2012 Plans:</b> Complete AMDWS software engineering consistent with Capability Set 13-14 requirements, to include greater net-centricity and AMD TRADOC requirements. Re-hosting of the AMDWS system on a new OS (Microsoft Windows Server) and improvements to the hardware platform graphics. Develop software solutions for HBSS and COE mandates. Support interconnectivity with PATRIOT PDB-7 production. Continue integration with C2BMC (replacing JDP), and TBMCS. Continuing support of JLENS and JTAMD, as well as the ever evolving development work with Integrated Air Missile Defense. Supporting Tactical Mission Command system collapse effort with the design of thick and thin clients for hosting Air Missile Defense planning and Engagement information on the Command Post of the Future (CPOF) client.				
<b>FY 2013 Plans:</b> Complete AMDWS software engineering consistent with Capability Set 15-16 requirements, to include greater net-centricity and AMD TRADOC requirements. Re-hosting of the AMDWS system on a new OS (Microsoft Windows Server) and improvements to the hardware platform graphics. Support interconnectivity with PATRIOT PDB-7 production. Continue integration with C2BMC (replacing JDP), and TBMCS. Continuing support of JLENS and JTAMD, as well as the ever evolving development work with Integrated Air Missile Defense. Supporting Tactical Mission Command system collapse effort with the design of thick and thin clients for hosting Air Missile Defense planning and Engagement information on the CPOF client.				
<b>Title:</b> ADSI Software Engineering and Development				1.690
				0
				1.397
				0
				1.384
<b>Description:</b> Continue ADSI software engineering and development in software versions 15, and 15.1 including testing and certification of capabilities for TAC View Situational Awareness, with air control support, scenario generation and 3-dimensional				

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Army		<b>DATE:</b> February 2012		
<b>APPROPRIATION/BUDGET ACTIVITY</b> 2040: <i>Research, Development, Test &amp; Evaluation, Army</i> BA 5: <i>Development &amp; Demonstration (SDD)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0604741A: <i>Air Defense Command, Control and Intelligence - Eng Dev</i>	<b>PROJECT</b> 146: <i>AIR &amp; MSL DEFENSE PLANNING CONTROL SYS (AMC PCS)</i>		
<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>		<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013</b>
<p>capability, Tactical Digital Information Link (TADIL) A/B/C, Joint Range Extension Application Protocols (JREAP), MIDS RF-J, Sat J/A, Windows XP Pro and LINUX Realtime.</p> <p><b>FY 2011 Accomplishments:</b> Continue ADSI software engineering and development in software versions 15, and 15.1 including testing and certification of capabilities for TAC View Situational Awareness, with air control support, scenario generation and 3-dimensional capability, TADIL A/B/C, JREAP, MIDS RF-J, Sat J/A, Windows XP Pro and LINUX Realtime.</p> <p><b>FY 2012 Plans:</b> Continue ADSI software engineering and development in software versions 15, and 15.1 including testing and certification of capabilities for TAC View Situational Awareness, with air control support, scenario generation and 3-dimensional capability, TADIL A/B/C, JREAP, MIDS RF-J, Sat J/A, Windows XP Pro and LINUX Realtime.</p> <p><b>FY 2013 Plans:</b> Continue ADSI software engineering and development in software versions 15, and 15.1 including testing and certification of capabilities for TAC View Situational Awareness, with air control support, scenario generation and 3-dimensional capability, TADIL A/B/C, JREAP, MIDS RF-J, Sat J/A, Windows XP Pro and LINUX Realtime.</p>				
<p><b>Title:</b> Engineering, Development, Test and Evaluation</p> <p align="right"><b>Articles:</b></p> <p><b>Description:</b> Continue engineering, development, test and evaluation of the AMDPCS shelter subsystem Objective configurations; continue evaluation and definitization of the AMDPCS tactical communications, data processing and vehicle/shelter/power generation/environmental system block upgrade program for fielded systems.</p> <p><b>FY 2011 Accomplishments:</b> Continue engineering, development, test and evaluation of the AMDPCS shelter subsystem Objective configurations; continue evaluation and definitization of the AMDPCS tactical communications, data processing and vehicle/shelter/power generation/environmental system block upgrade program for fielded systems.</p> <p><b>FY 2012 Plans:</b> Continue engineering, development, test and evaluation of the AMDPCS shelter subsystem Objective configurations; continue evaluation and definitization of the AMDPCS tactical communications, data processing and vehicle/shelter/power generation/environmental system block upgrade program for fielded systems. Develop system modifications to incorporate new IFF capabilities, and correlating and self-reporting aircraft systems.</p> <p><b>FY 2013 Plans:</b></p>		2.611 0	2.141 0	2.123

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**Exhibit R-2A, RDT&E Project Justification:** PB 2013 Army **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 2040: <i>Research, Development, Test &amp; Evaluation, Army</i> BA 5: <i>Development &amp; Demonstration (SDD)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0604741A: <i>Air Defense Command, Control and Intelligence - Eng Dev</i>	<b>PROJECT</b> 146: <i>AIR &amp; MSL DEFENSE PLANNING CONTROL SYS (AMC PCS)</i>
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<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>	FY 2011	FY 2012	FY 2013
Continue engineering, development, test and evaluation of the AMDPCS shelter subsystem Objective configurations; continue evaluation and definitization of the AMDPCS tactical communications, data processing and vehicle/shelter/power generation/ environmental system block upgrade program for fielded systems. Develop system modifications to incorporate new IFF capabilities, and correlating and self-reporting aircraft systems.			
<p><b>Title:</b> Software System Certification Testing, Accreditation, and Approval of Authority-to-Operate (ATO)</p> <p align="right"><b>Articles:</b></p> <p><b>Description:</b> Continue software system certification testing, accreditation, and approval of ATO for the various software systems; continue Army and Joint integration and interoperability assessments.</p> <p><b>FY 2011 Accomplishments:</b> Continue software system certification testing, accreditation, and approval of ATO for the various software systems; continue Army and Joint integration and interoperability assessments.</p> <p><b>FY 2012 Plans:</b> Continue software system certification testing, accreditation, and approval of ATO for the various software systems; continue Army and Joint integration and interoperability assessments.</p> <p><b>FY 2013 Plans:</b> Continue software system certification testing, accreditation, and approval of ATO for the various software systems; continue Army and Joint integration and interoperability assessments.</p>	1.221 0	1.009 0	1.004
<b>Accomplishments/Planned Programs Subtotals</b>	18.783	15.518	15.381

**C. Other Program Funding Summary (\$ in Millions)**

<u>Line Item</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u> <u>Base</u>	<u>FY 2013</u> <u>OCO</u>	<u>FY 2013</u> <u>Total</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• AD5070: <i>AMDPCS</i>	56.718	90.710	64.144		64.144		29.816	24.799	36.282	Continuing	Continuing

**D. Acquisition Strategy**

The acquisition strategy relies on non-development items (NDI) and evolutionary software development to rapidly meet the demands of air defense battle management command, control, communications, computers, and intelligence (BM/C4I) requirements and to keep pace with automated information technologies. The concept of evolutionary software development will be accomplished in a series of AMDWS and ADSI Block releases and upgrades. AMDPCS is being developed for both the Army's Active and Reserve components.

AMDWS is a prime component of C-RAM. It provides the Forward Operating Base (FOB) commander with clearance of fires display and enemy munitions flight paths.

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Army		<b>DATE:</b> February 2012
<b>APPROPRIATION/BUDGET ACTIVITY</b> 2040: <i>Research, Development, Test &amp; Evaluation, Army</i> BA 5: <i>Development &amp; Demonstration (SDD)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0604741A: <i>Air Defense Command, Control and Intelligence - Eng Dev</i>	<b>PROJECT</b> 146: <i>AIR &amp; MSL DEFENSE PLANNING CONTROL SYS (AMC PCS)</i>

**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.

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**Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Army** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 2040: <i>Research, Development, Test &amp; Evaluation, Army</i> BA 5: <i>Development &amp; Demonstration (SDD)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0604741A: <i>Air Defense Command, Control and Intelligence - Eng Dev</i>	<b>PROJECT</b> 146: <i>AIR &amp; MSL DEFENSE PLANNING CONTROL SYS (AMC PCS)</i>
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<b>Management Services (\$ in Millions)</b>				<b>FY 2012</b>		<b>FY 2013 Base</b>		<b>FY 2013 OCO</b>		<b>FY 2013 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Total Prior Years Cost</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
Program Management Administration	Various	Various:Various	24.876	2.096		2.081		-		2.081	Continuing	Continuing	0.000
<b>Subtotal</b>			24.876	2.096		2.081		-		2.081			0.000

**Remarks**  
Not Applicable

<b>Product Development (\$ in Millions)</b>				<b>FY 2012</b>		<b>FY 2013 Base</b>		<b>FY 2013 OCO</b>		<b>FY 2013 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Total Prior Years Cost</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
AMDWS Software Development and Engineering	Various	Northrop Grumman:Huntsville AL	96.247	9.392		9.347		-		9.347	Continuing	Continuing	Continuing
ADSI Software Development and Engineering	Various	Ultra Electronics:Austin, TX	6.868	0.222		0.219		-		0.219	Continuing	Continuing	Continuing
Developmental Engineering	Various	Various:Various	38.328	3.690		3.615		-		3.615	Continuing	Continuing	Continuing
<b>Subtotal</b>			141.443	13.304		13.181		-		13.181			

<b>Test and Evaluation (\$ in Millions)</b>				<b>FY 2012</b>		<b>FY 2013 Base</b>		<b>FY 2013 OCO</b>		<b>FY 2013 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Total Prior Years Cost</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
Certification/Testing	Various	JITC:Ft Huachuca, AZ	0.964	0.071		0.071		-		0.071	Continuing	Continuing	Continuing
Interoperability Assessment	Various	CTSF:Ft Hood, TX	1.318	0.047		0.048		-		0.048	Continuing	Continuing	Continuing
<b>Subtotal</b>			2.282	0.118		0.119		-		0.119			

			<b>Total Prior Years Cost</b>	<b>FY 2012</b>		<b>FY 2013 Base</b>		<b>FY 2013 OCO</b>		<b>FY 2013 Total</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
<b>Project Cost Totals</b>			168.601	15.518		15.381		-		15.381			

**Remarks**

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**Exhibit R-4, RDT&E Schedule Profile: PB 2013 Army** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 2040: <i>Research, Development, Test &amp; Evaluation, Army</i> BA 5: <i>Development &amp; Demonstration (SDD)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0604741A: <i>Air Defense Command, Control and Intelligence - Eng Dev</i>	<b>PROJECT</b> 146: <i>AIR &amp; MSL DEFENSE PLANNING CONTROL SYS (AMC PCS)</i>
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	FY 2011				FY 2012				FY 2013				FY 2014				FY 2015				FY 2016				FY 2017			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
6.4 Full Materiel Release (FMR)				■																								
6.5 FMR							■																					
6.6 FMR												■																
7.0 FMR																								■				
AMDWS Block IV Contract																												
15-16																												
17-18																												
C-RAM & ADAM SoS SWI&R Record Test				■																								
C-RAM Fall Demo								■																				
C-RAM Demo								■																				
Network Integration Exercises (NIE) and other Joint Exercises				■																								
NIE 12.1				■																								
NIE 12.2								■																				

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**Exhibit R-4A, RDT&E Schedule Details:** PB 2013 Army **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 2040: <i>Research, Development, Test &amp; Evaluation, Army</i> BA 5: <i>Development &amp; Demonstration (SDD)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0604741A: <i>Air Defense Command, Control and Intelligence - Eng Dev</i>	<b>PROJECT</b> 146: <i>AIR &amp; MSL DEFENSE PLANNING CONTROL SYS (AMC PCS)</i>
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Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
6.4 Full Materiel Release (FMR)	4	2011	4	2011
6.5 FMR	2	2012	2	2012
6.6 FMR	4	2013	4	2013
7.0 FMR	4	2015	4	2015
AMDWS Block IV Contract	2	2011	2	2016
15-16	1	2013	4	2014
17-18	1	2015	4	2016
C-RAM & ADAM SoS SWI&R Record Test	3	2011	3	2011
C-RAM Fall Demo	1	2012	1	2012
C-RAM Demo	2	2012	2	2012
Network Integration Exercises (NIE) and other Joint Exercises	3	2011	4	2011
NIE 12.1	4	2011	1	2012
NIE 12.2	2	2012	3	2012

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**Exhibit R-2A, RDT&E Project Justification:** PB 2013 Army **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 2040: <i>Research, Development, Test &amp; Evaluation, Army</i> BA 5: <i>Development &amp; Demonstration (SDD)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0604741A: <i>Air Defense Command, Control and Intelligence - Eng Dev</i>	<b>PROJECT</b> 149: <i>COUNTER-ROCKETS, ARTILLERY &amp; MORTAR (C-RAM) DVPMT</i>
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COST (\$ in Millions)	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
149: <i>COUNTER-ROCKETS, ARTILLERY &amp; MORTAR (C-RAM) DVPMT</i>	112.901	57.684	54.288	-	54.288	3.933	-	-	-	Continuing	Continuing
Quantity of RDT&E Articles											

**A. Mission Description and Budget Item Justification**

Counter-Rocket, Artillery, Mortar (C-RAM) is an evolutionary, non-developmental program initiated by the Army Chief of Staff in response to the Indirect Fire (IDF) threat and a validated Operational Needs Statement (ONS). The primary mission of the C-RAM program is to develop, procure, field, and maintain a system-of-systems (SoS) that can detect RAM launches; locally warn the defended area with sufficient time for personnel to take appropriate action; intercept rounds in flight, thus preventing damage to ground forces or facilities; and enhance response to and defeat of enemy forces. The C-RAM capability is comprised of a combination of multi-service fielded and non-developmental item (NDI) sensors, command and control (C2) systems, and a modified U.S. Navy intercept system (Land-based Phalanx Weapon System (LPWS)), with a low cost commercial off-the-shelf (COTS) warning system and wireless local area network. The C-RAM SoS capability is currently deployed at multiple sites in two theaters of operation, providing them correlated air and ground pictures and linking them to the Army Mission Command and the Joint Defense Network with various forms of communications to provide situational awareness and exchange of timely and accurate information to synchronize and optimize automated Shape, Sense, Warn, Intercept, Respond, and Protect decisions.

The deployment of the C-RAM SoS was accomplished through an incremental acquisition process driven by urgent operational needs, theater priorities, and emerging capability requirements to provide a counter-RAM capability to combat forces. The C-RAM SoS approach was initially validated by a Proof of Principle demonstration in December 2004 and has undergone more than 25 Army Test and Evaluation Command (ATEC)-supported operational assessments to incorporate multiple improvements in response to changes in threat tactics and lessons learned. The C-RAM Sense and Warn (S&W) capability is currently deployed to Forward Operating Bases (FOBs) in support of Department of State/Office of Security Cooperation-Iraq (DoS/OSC-I) operations, and PD C-RAM is currently deploying C-RAM S&W capability to FOBs in Afghanistan in support of Operation Enduring Freedom (OEF). In response to a theater requirement tasked to the Rapid Equipping Force (REF), C-RAM installed Mass Notification Systems (MNS) at multiple OEF sites to support base-wide alerts and announcements. Continuing C-RAM SoS improvement efforts, to include C2 software upgrades, as well as deploying enhanced detection/intercept capability against low Quadrant Elevation (QE) rocket and Improvised Rocket Assisted Munitions (IRAM), are required to meet emerging theater requirements. Support of the existing C-RAM SoS capability deployed in theater has been through the Overseas Contingency Operations (OCO) process.

Near-term directed enhancements to the C-RAM SoS capability include use of Army tactical communications rather than commercial systems; integration of Warn functionality into the C2 workstation to reduce complexity and footprint; integration with Unmanned Aerial Systems (UAS) Universal Ground Control Station (UGCS) for enhanced situational awareness, combat identification, and response options; and dynamic clearance of unplanned fires in conjunction with the Advanced Field Artillery Tactical Data System (AFATDS) for rapid and enhanced response. Additionally, the C-RAM Program Directorate has been directed to make enhancements to Intercept (e.g., improved tactical mobility, upgun for increased lethality/range, and/or alternative options to the current LPWS Intercept capability).



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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Army		<b>DATE:</b> February 2012		
<b>APPROPRIATION/BUDGET ACTIVITY</b> 2040: <i>Research, Development, Test &amp; Evaluation, Army</i> BA 5: <i>Development &amp; Demonstration (SDD)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0604741A: <i>Air Defense Command, Control and Intelligence - Eng Dev</i>	<b>PROJECT</b> 149: <i>COUNTER-ROCKETS, ARTILLERY &amp; MORTAR (C-RAM) DVPMT</i>		
<p>Indirect Fire Protection Capability (IFPC) Increment 1, will be the Army's acquisition program to provide the existing C-RAM Warn capability to all Maneuver Brigade Combat Teams (BCT). IFPC INC 1 is a horizontal technology insertion, using current C-RAM Warning equipment, to provide early, localized warning. It will employ the Air Defense Airspace Management (ADAM) Cell already resident in the BCT Headquarters as the C2 element, use the Firefinders and LCMRs already in the Target Acquisition Platoon of the Fires Battalion as the Sense element, and add Warning devices, controller, and dedicated communications devices between the existing radars and the ADAM Cell. The Capability Production Document (CPD) was approved in August 2010; The CPD was approved in August 2010. An operational assessment will be conducted to support a Milestone C decision.</p>				
<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>		<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013</b>
<p><b>Title:</b> C-RAM C2 Software Development and Enhancements</p> <p><b>Description:</b> Software development effort to incorporate emerging requirements as a result of changing threat.</p> <p><b>FY 2011 Accomplishments:</b> C-RAM C2 software development contract efforts.</p> <p><b>FY 2012 Plans:</b> C-RAM C2 software development contract efforts.</p> <p><b>FY 2013 Plans:</b> C-RAM C2 software development contract efforts.</p>		1.097 0	12.839 0	10.619
<p><b>Title:</b> Test RAM Warn Capability</p> <p><b>Description:</b> Funds RAM Warn participation in Developmental/Operational test events.</p> <p><b>FY 2011 Accomplishments:</b> Funds RAM Warn participation in Developmental/Operational test events.</p>		5.384 0	-	-
<p><b>Title:</b> C2 &amp; Warn Improvements - Use of Tactical Radio and Integration of Warn into C2 Workstation</p> <p><b>Description:</b> C2 &amp; Warn Improvements - Use of Tactical Radio and Integration of Warn into C2 Workstation</p> <p><b>FY 2012 Plans:</b> C2 &amp; Warn Improvements - Use of Tactical Radio and Integration of Warn into C2 Workstation</p> <p><b>FY 2013 Plans:</b></p>		-	12.478 0	10.768

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Army		<b>DATE:</b> February 2012		
<b>APPROPRIATION/BUDGET ACTIVITY</b> 2040: <i>Research, Development, Test &amp; Evaluation, Army</i> BA 5: <i>Development &amp; Demonstration (SDD)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0604741A: <i>Air Defense Command, Control and Intelligence - Eng Dev</i>		<b>PROJECT</b> 149: <i>COUNTER-ROCKETS, ARTILLERY &amp; MORTAR (C-RAM) DVPMT</i>	
<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>		<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013</b>
C2 & Warn Improvements - Use of Tactical Radio and Integration of Warn into C2 Workstation				
<b>Title:</b> Interceptor Enhancements  <b>Description:</b> Provide directed enhancements to Intercept capability (e.g., improved tactical mobility, upgun for increased lethality/range, and/or alternative options to the current LPWS capability).  <b>FY 2011 Accomplishments:</b> Provide directed enhancements to Intercept capability (e.g., improved tactical mobility, upgun for increased lethality/range, and/or alternative options to the current LPWS capability).  <b>FY 2012 Plans:</b> Provide directed enhancements to Intercept capability (e.g., improved tactical mobility, upgun for increased lethality/range, and/or alternative options to the current LPWS capability).  <b>FY 2013 Plans:</b> Provide directed enhancements to Intercept capability (e.g., improved tactical mobility, upgun for increased lethality/range, and/or alternative options to the current LPWS capability).		106.420 0	23.454 0	24.925
<b>Title:</b> UAS Universal-Station Integration  <b>Description:</b> UAS Universal-Station Integration  <b>FY 2012 Plans:</b> UAS Universal-Station Integration  <b>FY 2013 Plans:</b> UAS Universal-Station Integration		-	4.691 0	3.988
<b>Title:</b> Dynamic Clearance of Fires  <b>Description:</b> Dynamic Clearance of Fires  <b>FY 2012 Plans:</b> Dynamic Clearance of Fires  <b>FY 2013 Plans:</b>		-	4.222 0	3.988

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Army	<b>DATE:</b> February 2012
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<b>APPROPRIATION/BUDGET ACTIVITY</b> 2040: <i>Research, Development, Test &amp; Evaluation, Army</i> BA 5: <i>Development &amp; Demonstration (SDD)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0604741A: <i>Air Defense Command, Control and Intelligence - Eng Dev</i>	<b>PROJECT</b> 149: <i>COUNTER-ROCKETS, ARTILLERY &amp; MORTAR (C-RAM) DVPMT</i>
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<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>	FY 2011	FY 2012	FY 2013
Dynamic Clearance of Fires			
<b>Accomplishments/Planned Programs Subtotals</b>	112.901	57.684	54.288

**C. Other Program Funding Summary (\$ in Millions)**

Line Item	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
• BZ0526: <i>COUNTER-ROCKETS, ARTILLERY&amp; MORTAR (C-RAM)</i>	268.267	15.774								0.000	284.041
• H30503: <i>IFPC INCREMENT 1 - WARN</i>			29.881		29.881		41.552	43.655	29.451	0.000	178.468

**D. Acquisition Strategy**

The C-RAM program is following an evolutionary acquisition strategy for rapid fielding of mature technology to the user. The objective of the strategy is to balance needs, available technology, and resources to quickly provide a robust capability to engage rockets, artillery, and mortars. The Capability Production Document (CPD) for the Land-based Phalanx Weapon System (LPWS) is currently in world-wide staffing. Upon approval of the CPD, LPWS will transition to a Program of Record (POR) for sustainment and fielding to army units, pending force structure approval.

In parallel, Intercept enhancement alternatives are being evaluated to upgrade the current LPWS capability to provide improved tactical mobility and increased range/ lethality against indirect fire threats. The enhanced Intercept capability will be supported as part of the LPWS POR above or established as a separate POR as appropriate.

Indirect Fire Protection Capability (IFPC) Increment 1 will provide an early, localized warning capability to the maneuver BCTs. The CPD was approved in August 2010 and the Acquisition Decision Memorandum (ADM) establishing IFPC INC 1 as a POR was approved in January 2012. The program office will continue procurement of currently fielded IFPC INC 1 systems and transition all systems to the POR.

**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.

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**Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Army** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 2040: <i>Research, Development, Test &amp; Evaluation, Army</i> BA 5: <i>Development &amp; Demonstration (SDD)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0604741A: <i>Air Defense Command, Control and Intelligence - Eng Dev</i>	<b>PROJECT</b> 149: <i>COUNTER-ROCKETS, ARTILLERY &amp; MORTAR (C-RAM) DVPMT</i>
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<b>Management Services (\$ in Millions)</b>				<b>FY 2012</b>		<b>FY 2013 Base</b>		<b>FY 2013 OCO</b>		<b>FY 2013 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Total Prior Years Cost</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
Program Management Administration	Various	Various:Various	18.059	1.386		1.427		-		1.427	Continuing	Continuing	Continuing
<b>Subtotal</b>			18.059	1.386		1.427		-		1.427			

<b>Product Development (\$ in Millions)</b>				<b>FY 2012</b>		<b>FY 2013 Base</b>		<b>FY 2013 OCO</b>		<b>FY 2013 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Total Prior Years Cost</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
Northrop Grumman	SS/CPIF	C-RAM C2 Software Development and Enhancements:Carson, CA	34.570	28.577		21.650		-		21.650	Continuing	Continuing	Continuing
Contractor TBD	C/Various	Improved Interceptor:TBD	77.675	24.330		23.743		-		23.743	0.000	125.748	0.000
<b>Subtotal</b>			112.245	52.907		45.393		-		45.393			

<b>Test and Evaluation (\$ in Millions)</b>				<b>FY 2012</b>		<b>FY 2013 Base</b>		<b>FY 2013 OCO</b>		<b>FY 2013 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Total Prior Years Cost</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
OGA	Various	TBD:TBD	15.170	3.391		7.468		-		7.468	Continuing	Continuing	Continuing
<b>Subtotal</b>			15.170	3.391		7.468		-		7.468			

			<b>Total Prior Years Cost</b>	<b>FY 2012</b>		<b>FY 2013 Base</b>		<b>FY 2013 OCO</b>		<b>FY 2013 Total</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
<b>Project Cost Totals</b>			145.474	57.684		54.288		-		54.288			

**Remarks**



**UNCLASSIFIED**

**Exhibit R-4A, RDT&E Schedule Details:** PB 2013 Army **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 2040: <i>Research, Development, Test &amp; Evaluation, Army</i> BA 5: <i>Development &amp; Demonstration (SDD)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0604741A: <i>Air Defense Command, Control and Intelligence - Eng Dev</i>	<b>PROJECT</b> 149: <i>COUNTER-ROCKETS, ARTILLERY &amp; MORTAR (C-RAM) DVPMT</i>
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Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
C2 & Warn Improvements	1	2012	4	2015
Interceptor Enhancements	1	2012	4	2016
Dynamic Clearance of Fires	1	2012	4	2014
UAS Universal Ground Control Station	1	2012	4	2016
Demonstrations	2	2011	3	2011
Developmental Testing (DT)	3	2011	3	2011
NIE Demonstrations	3	2011	4	2011
DT	1	2012	1	2012
Operational Testing (OT)	3	2012	3	2012
RAM Warn Operational Assessment (OA)	1	2013	1	2013
RAM Warn Milestone C	4	2012	4	2012
RAM Warn Production and Fielding	4	2012	3	2017