Exhibit R-2, RDT&E Budget Item Justification: PB 2012 Army										DATE: February 2011	
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 5: *Development & Demonstration (SDD)*				R-1 ITEM NOMENCLATURE PE 0604741A: *Air Defense Command, Control and Intelligence - Eng Dev*							
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	32.450	34.209	83.010	-	83.010	72.611	23.207	18.246	18.456	Continuing	Continuing
126: *FAAD C2 ED*	3.580	8.262	9.739	-	9.739	3.631	3.438	3.423	3.464	Continuing	Continuing
146: *AIR & MSL DEFENSE PLANNING CONTROL SYS (AMC PCS)*	15.311	19.227	15.532	-	15.532	15.275	15.802	14.823	14.992	Continuing	Continuing
149: *COUNTER-ROCKETS, ARTILLERY & MORTAR (C-RAM) DVPMT*	13.559	6.720	57.739	-	57.739	53.705	3.967	-	-	0.000	135.690

Note

Change Summary Explanations: Funding - FY 2011: Anticipated Congressional increase to support Overseas Contingency Operation efforts for the Counter-Rocket, Artillery and Mortar (C-RAM) system.

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), Fires Brigades and Divisions. AMDPCS systems also provide air defense capabilities to Homeland Defense systems.

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 air picture. AMDWS provides the Battle Command (BC) capabilities embedded within the Warfighter Mission area. AMDWS is also the Net-centric interface to BC for all components of the AMD force. 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 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.

The Forward Area Air Defense Command, Control, and Intelligence (FAAD C2I) System provides continuously tailored situational awareness and situational understanding of the battlespace (including data on threat aircraft, cruise missiles and unmanned aerial vehicles (UAVs) to support the planning and decision process at various levels of command. The mission is to collect, digitally process and disseminate real time target cueing and tracking information, common tactical air picture, and C2I information to all Short Range Air Defense (SHORAD) weapons (Avenger, Bradley Linebacker, Manportable Air Defense System (MANPADS), joint and

Exhibit R-2, RDT&E Budget Item Justification: PB 2012 Army	DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604741A: *Air Defense Command, Control and Intelligence - Eng Dev*

combined arms). Unique FAAD C2 software will provide this mission capability by integrating FAAD C2 engagement operations software with the Joint Digital Radio (JDR), Single Channel Ground and Airborne Radio System (SINCGARS), Enhanced Position Location Reporting System (EPLRS), Global Positioning System (GPS), Airborne Warning and Control System (AWACS), Sentinel and the Army Battle Command System (ABCS) architecture. Provides joint C2 interoperability and horizontal integration with PATRIOT, THAAD, MEADS, JLENS and SHORAD weapon systems by fusing sensor data to create a scalable and filterable single integrated air picture (SIAP) and common operating picture (COP) at Army divisions and below. System software will provide target data and engagement commands/status to the Surface Launched Advanced Medium Range Air-to-Air Missile (SLAMRAAM) air defense system. A small portion of RDTE funding is dedicated to SLAMRAAM C2 threshold requirements. FAAD C2 is the first system to digitize for Army Transformation in the First Digitized Division (FDD), III (Digitized) Corps, the Joint Contingency Force (JCF) and the STRYKER Brigade Combat Teams (SBCTs). The FAAD C2 netted and distributed system architecture has been briefed as the basis for a potential BM/C4I Future Combat System (FCS).

Counter-Rockets, Artillery and Mortar (C-RAM) is a spiral Initiative Non-Developmental program initiated by the Army Chief of Staff in response to Iraqi threat and twice validated theater ONS. The primary mission of the C-RAM program is to develop, procure, field and maintain a system of systems that can detect rocket, artillery or mortar launches; warn the defended area with sufficient time for personnel to take cover; intercept rounds in flight, thus preventing damage to ground forces or facilities; and enhance response to and defeat of enemy forces. C-RAM utilizes a system of systems (SoS) approach, and 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, with a low cost commercial off-the-shelf (COTS) warning system and wireless local area network. The system will be fielded to various fixed or sites, providing them correlated air and ground pictures and linking them to the Army Battle Command System (ABCS) and the Joint Defense Network (JDN), via 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.

B. Program Change Summary ($ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total
Previous President's Budget	28.785	99.409	35.495	-	35.495
Current President's Budget	32.450	34.209	83.010	-	83.010
Total Adjustments	3.665	-65.200	47.515	-	47.515
• Congressional General Reductions		-			
• Congressional Directed Reductions		-			
• Congressional Rescissions	-	-			
• Congressional Adds		-			
• Congressional Directed Transfers		-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Other Adjustments 1	3.665	-65.200	47.515	-	47.515

Exhibit R-2A, RDT&E Project Justification: PB 2012 Army			DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604741A: *Air Defense Command, Control and Intelligence - Eng Dev*	PROJECT 126: *FAAD C2 ED*	

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
126: *FAAD C2 ED*	3.580	8.262	9.739	-	9.739	3.631	3.438	3.423	3.464	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; the common tactical 3-dimentional 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 Battle Command architecture. In addition, FAAD C2 provides interoperability with Joint C2 systems and horizontal integration with PATRIOT, Theater High-Altitude Area Defense (THAAD), Medium Extended Air Defense System (MEADS), 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 MAMD battalions operate the FAAD C2 systems in the National Capital Region and other locations.

Program funding enables fielding of equipment to the current force to support the Army's Program Objective to rapidly respond 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 procure 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 2 to 3 and EPLRS enhancements).

In support of the Overseas Contingency Operations, FAAD C2 systems are in MAMD units and ADAM Cells deployed to Iraq and Afghanistan. These FAAD systems are critical in providing the local air picture to supported units and higher headquarters. FAAD C2 systems also provide target tracks and weapon controls for the C-RAM capability deployed to Iraq.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total
Title: Support FAAD C2 software development for new Air and Missile Defense Composite Battalions, including unique software enhancements in support of Homeland Defense and security accreditation upgrades.	3.043 0	8.262 0	9.739	-	9.739

Exhibit R-2A, RDT&E Project Justification: PB 2012 Army		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604741A: *Air Defense Command, Control and Intelligence - Eng Dev*	PROJECT 126: *FAAD C2 ED*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total
Articles: ***Description:*** Support FAAD C2 software development for new Air and Missile Defense Composite Battalions, including unique software enhancements in support of Homeland Defense and security accreditation upgrades. Integrate Sentinel radar Enhanced Target, Range and Classification (ETRAC). Continue integration of interfaces for the Joint Tactical Terminal (JTT). Incorporate IFF modes 1,2 and 3 (active decode) capabilities. ***FY 2010 Accomplishments:*** Support FAAD C2 software development for new Air and Missile Defense Composite Battalions, including unique software enhancements in support of Homeland Defense and security accreditation upgrades. Integrate Sentinel radar Enhanced Target, Range and Classification (ETRAC). Continue integration of interfaces for the Joint Tactical Terminal (JTT). Incorporate IFF modes 1,2 and 3 (active decode) capabilities. ***FY 2011 Plans:*** Support FAAD C2 software development for new Air and Missile Defense Composite Battalions, including unique software enhancements in support of Homeland Defense and security accreditation upgrades. Integrate Sentinel radar Enhanced Target, Range and Classification (ETRAC). Continue integration of interfaces for the Joint Tactical Terminal (JTT). Incorporate IFF modes 1,2 and 3 (active decode) capabilities. ***FY 2012 Base Plans:*** Support FAAD C2 software development for new Air and Missile Defense Composite Battalions, including unique software enhancements in support of Homeland Defense and security accreditation upgrades. Integrate Sentinel radar Enhanced Target, Range and Classification (ETRAC). Continue integration of interfaces for the Joint Tactical Terminal (JTT). Incorporate IFF modes 1,2 and 3 (active decode) capabilities.					
Title: Implement software modifications necessary for Internet Protocol version 6 (IPv6). ***Articles:*** ***Description:*** Implement software modifications necessary for Internet Protocol version 6 (IPv6). ***FY 2010 Accomplishments:*** Implement software modifications necessary for Internet Protocol version 6 (IPv6).	0.414 0	-	-	-	-
Title: Small Business Innovative Research/Small Business Technology Transfer Program (SBIR/STTR) (DA directed) ***Articles:***	0.123 0	-	-	-	-

Exhibit R-2A, RDT&E Project Justification: PB 2012 Army		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604741A: *Air Defense Command, Control and Intelligence - Eng Dev*	PROJECT 126: *FAAD C2 ED*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total
Description: Small Business Innovative Research/Small Business Technology Transfer Program (SBIR/STTR) (DA dirtected) ***FY 2010 Accomplishments:*** Small Business Innovative Research/Small Business Technology Transfer Program (SBIR/STTR)					
Accomplishments/Planned Programs Subtotals	3.580	8.262	9.739	-	9.739

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
• AD5050: *FAAD C2*	8.263	42.511	5.007		5.007		4.746	4.720	4.782	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,II, and III 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.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2012 Army		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604741A: *Air Defense Command, Control and Intelligence - Eng Dev*	PROJECT 126: *FAAD C2 ED*

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
TRW, BLK I	Various	Northrop Grumman:Carson, CA	176.461	-		-		-		-	Continuing	Continuing	Continuing
Northrop Grumman/TRW, BLK II	Various	Northrop Grumman:Carson, CA	32.206	-		-		-		-	Continuing	Continuing	Continuing
RW, BLK III	Various	Northrop Grumman:Carson, CA	106.360	-		-		-		-	Continuing	Continuing	Continuing
TRW	Various	Northrop Grumman:Carson, CA	14.191	0.757		0.892		-		0.892	Continuing	Continuing	Continuing
TBD	Various	Northrop Grumman:Carson, CA	8.979	5.002		5.896		-		5.896	Continuing	Continuing	Continuing
Program Management Administration	Various	Various:Various	38.870	0.658		0.775		-		0.775	Continuing	Continuing	Continuing
Sentinel GBS	Various	Various:Various	3.791	-		-		-		-	Continuing	Continuing	Continuing
JTIDS	Various	PEO C3T:Ft. Monmouth, NJ	6.000	-		-		-		-	Continuing	Continuing	Continuing
ABCS SE&I	Various	Various:Various	0.346	-		-		-		-	Continuing	Continuing	Continuing
Software Engineering	Various	Various:Various	21.390	0.572		0.675		-		0.675	Continuing	Continuing	Continuing
C-RAM Sense, Warn & Intercept	Various	Various:Various	83.842	-		-		-		-	Continuing	Continuing	Continuing
		Subtotal	492.436	6.989		8.238		-		8.238			

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
RTTC	Various	WSMR:New Mexico	2.947	-		-		-		-	Continuing	Continuing	Continuing
ADATD	Various	Ft Bliss, TX:Ft Bliss, TX	12.795	-		-		-		-	Continuing	Continuing	Continuing
AATD	Various	Various:Ft Eustis, VA	0.408	-		-		-		-	Continuing	Continuing	Continuing
ATEC	Various	Various:Alexandria, VA	2.441	0.276		0.325		-		0.325	Continuing	Continuing	Continuing
Yuma Proving Ground	Various	YPG:Yuma, AZ	8.844	0.997		1.176		-		1.176	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2012 Army		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604741A: *Air Defense Command, Control and Intelligence - Eng Dev*	PROJECT 126: *FAAD C2 ED*

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
		Subtotal	27.435	1.273		1.501		-		1.501			

	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	519.871	8.262		9.739		-		9.739			

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2012 Army		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604741A: *Air Defense Command, Control and Intelligence - Eng Dev*	**PROJECT** 126: *FAAD C2 ED*

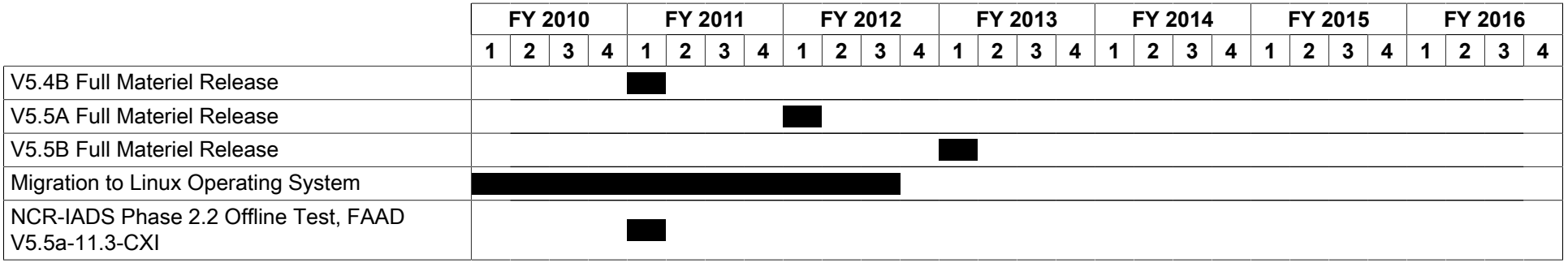

Exhibit R-4A, RDT&E Schedule Details: PB 2012 Army		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604741A: *Air Defense Command, Control and Intelligence - Eng Dev*	**PROJECT** 126: *FAAD C2 ED*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
V5.4B Full Materiel Release	1	2011	1	2011
V5.5A Full Materiel Release	1	2012	1	2012
V5.5B Full Materiel Release	1	2013	1	2013
Migration to Linux Operating System	1	2010	3	2012
NCR-IADS Phase 2.2 Offline Test, FAAD V5.5a-11.3-CXI	1	2011	1	2011

Exhibit R-2A, RDT&E Project Justification: PB 2012 Army			DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604741A: *Air Defense Command, Control and Intelligence - Eng Dev*	PROJECT 146: *AIR & MSL DEFENSE PLANNING CONTROL SYS (AMC PCS)*	

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
146: *AIR & MSL DEFENSE PLANNING CONTROL SYS (AMC PCS)*	15.311	19.227	15.532	-	15.532	15.275	15.802	14.823	14.992	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-dimentional air picture. AMDWS provides the Battle Command (BC) capabilities embedded within the Warfighter Mission area. AMDWS is also the Net-centric interface to BC for all components of the AMD force. 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.

In support of the Overseas Contingency Operations(OCO), AMDWS and ADSIs are vital components of the AMDPCS shelter systems fielded to ADAM Cells that have deployed to Iraq and Afghanistan. In addition, these components have also been integrated into non-ADA higher headquarters such as the Coalition Forces Land Component Command (CFLCC). AMDWS is a critical component in the integration and fielding of a Counter-Rocket, Artillery and Mortar (C-RAM) capability to Operating Bases in Iraq and elsewhere. In support of Homeland Defense missions, the AMDWS has been integrated as the Force Operations component into the Joint Service/Air Force architecture. These AMDPCS systems provide the common tactical air picture, a major component of the Common Operating Picture (COP), and are critical to the development and planning of offensive and defensive operations.

FY12 funds the development, software engineering, testing and certificiation of the AMDWS, ADSI, and sheltered subsystem software as described below.

Exhibit R-2A, RDT&E Project Justification: PB 2012 Army		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604741A: *Air Defense Command, Control and Intelligence - Eng Dev*	PROJECT 146: *AIR & MSL DEFENSE PLANNING CONTROL SYS (AMC PCS)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total
Title: Continue AMDWS development and support of LANDWARNET/Battle Command Framework.	9.765	13.574	10.981	-	10.981
Articles:	0	0			

Description: Continue AMDWS development and support of LANDWARNET/Battle Command Framework. Complete 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. 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 (JTAMD), and support the evolving development of the Force Operations portion of the Integrated Air and Missile Defense (IAMD) System of Systems.

FY 2010 Accomplishments:
Continue AMDWS development and support of LANDWARNET/Battle Command Framework. Complete 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. 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 (JTAMD), and support the evolving development of the Force Operations portion of the Integrated Air and Missile Defense (IAMD) System of Systems.

FY 2011 Plans:
Continue AMDWS development and support of LANDWARNET/Battle Command Framework. Complete 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. 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

Exhibit R-2A, RDT&E Project Justification: PB 2012 Army		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604741A: *Air Defense Command, Control and Intelligence - Eng Dev*	PROJECT 146: *AIR & MSL DEFENSE PLANNING CONTROL SYS (AMC PCS)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total
Battle Operations Net-Centric Environment interfaces. Continue supporting the Air Force Joint Tactical Air and Missile Defense (JTAMD), and support the evolving development of the Force Operations portion of the Integrated Air and Missile Defense (IAMD) System of Systems. ***FY 2012 Base Plans:*** 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. Support interconnectivity with PATRIOT PDB-7 production. Continue integration with C2BMC (replacing JDP), and Theatre Battle Management Core Systems (TBMCS). Continuing support of JLENS and JTAMD, as well as the ever evolving development work with Integrated Air Missile Defense. Supporting Tactical Battle 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.					
Title: Continue ADSI software engineering and development in software versions 15, and 15.1 ***Articles:*** ***Description:*** 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, full TADIL-J, Joint Range Extension Application Protocols (JREAP) for link 16 messages, MIDS TADIL-J connectivity, and Windows XP Pro and LINUX Realtime. ***FY 2010 Accomplishments:*** 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, full TADIL-J, Joint Range Extension Application Protocols (JREAP) for link 16 messages, MIDS TADIL-J connectivity, and Windows XP Pro and LINUX Realtime ***FY 2011 Plans:*** 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	1.691 0	1.730 0	1.398	-	1.398

Exhibit R-2A, RDT&E Project Justification: PB 2012 Army		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604741A: *Air Defense Command, Control and Intelligence - Eng Dev*	PROJECT 146: *AIR & MSL DEFENSE PLANNING CONTROL SYS (AMC PCS)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total
and 3-dimensional capability, full TADIL-J, Joint Range Extension Application Protocols (JREAP) for link 16 messages, MIDS TADIL-J connectivity, and Windows XP Pro and LINUX Realtime ***FY 2012 Base Plans:*** 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, full TADIL-J, Joint Range Extension Application Protocols (JREAP) for link 16 messages, MIDS TADIL-J connectivity, and Windows XP Pro and LINUX Realtime					
Title: Continue engineering, development, test and evaluation of the AMDPCS shelter subsystem Objective configurations; continue evaluation and definitization of the AMDPCS tactical communications, data proc ***Articles:*** ***Description:*** 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. ***FY 2010 Accomplishments:*** 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. ***FY 2011 Plans:*** 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. ***FY 2012 Base Plans:*** 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.	2.520 0	2.673 0	2.143	-	2.143
Title: Continue software system certification testing, accreditation, and approval of Authority-to-Operate for the various software systems; continue Army and Joint integration and interoperability assessmen ***Articles:***	1.154 0	1.250 0	1.010	-	1.010

Exhibit R-2A, RDT&E Project Justification: PB 2012 Army		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604741A: *Air Defense Command, Control and Intelligence - Eng Dev*	PROJECT 146: *AIR & MSL DEFENSE PLANNING CONTROL SYS (AMC PCS)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total
Description: Continue software system certification testing, accreditation, and approval of Authority-to-Operate for the various software systems; continue Army and Joint integration and interoperability assessments. ***FY 2010 Accomplishments:*** Continue software system certification testing, accreditation, and approval of Authority-to-Operate for the various software systems; continue Army and Joint integration and interoperability assessments. ***FY 2011 Plans:*** Continue software system certification testing, accreditation, and approval of Authority-to-Operate for the various software systems; continue Army and Joint integration and interoperability assessments. ***FY 2012 Base Plans:*** Continue software system certification testing, accreditation, and approval of Authority-to-Operate for the various software systems; continue Army and Joint integration and interoperability assessments.					
Title: Small Business Innovative Research/Small Business Technology Transfer Programs. (DA directed) ***Articles:*** ***Description:*** Small Business Innovative Research/Small Business Technology Transfer Programs. (DA directed) ***FY 2010 Accomplishments:*** Small Business Innovative Research/Small Business Technology Transfer Programs.	0.181 0	-	-	-	-
Accomplishments/Planned Programs Subtotals	15.311	19.227	15.532	-	15.532

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
• AD5070: *AMDPCS*	62.267	57.038	62.710	28.000	90.710		22.574	29.348	24.427	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.

Exhibit R-2A, RDT&E Project Justification: PB 2012 Army		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604741A: *Air Defense Command, Control and Intelligence - Eng Dev*	PROJECT 146: *AIR & MSL DEFENSE PLANNING CONTROL SYS (AMC PCS)*

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.

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

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
Northrop Grumman/TRW	Various	Huntsville, AL:Huntsville AL	75.056	12.288		9.400		-		9.400	Continuing	Continuing	Continuing
ULTRA Electronics, ADSI	Various	Austin, TX:Austin, TX	6.375	0.281		0.222		-		0.222	Continuing	Continuing	Continuing
Program Management Administration	Various	Various:Various	40.846	4.999		4.893		-		4.893	Continuing	Continuing	Continuing
ABCS SE&I	Various	Ft Monmouth, NJ:Ft Monmouth, NJ	0.619	-		-		-		-	Continuing	Continuing	Continuing
Software Engineering	Various	Various:Various	10.150	1.538		0.932		-		0.932	Continuing	Continuing	Continuing
		Subtotal	133.046	19.106		15.447		-		15.447			

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
Certification	Various	JITC:Ft Huachuca, AZ	0.839	0.073		0.054		-		0.054	Continuing	Continuing	Continuing
Interoperability Assessment	Various	CTSF:Ft Hood, TX	1.241	0.048		0.031		-		0.031	Continuing	Continuing	Continuing
		Subtotal	2.080	0.121		0.085		-		0.085			

	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
Project Cost Totals	135.126	19.227		15.532		-		15.532			

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2012 Army		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604741A: *Air Defense Command, Control and Intelligence - Eng Dev*	**PROJECT** 146: *AIR & MSL DEFENSE PLANNING CONTROL SYS (AMC PCS)*

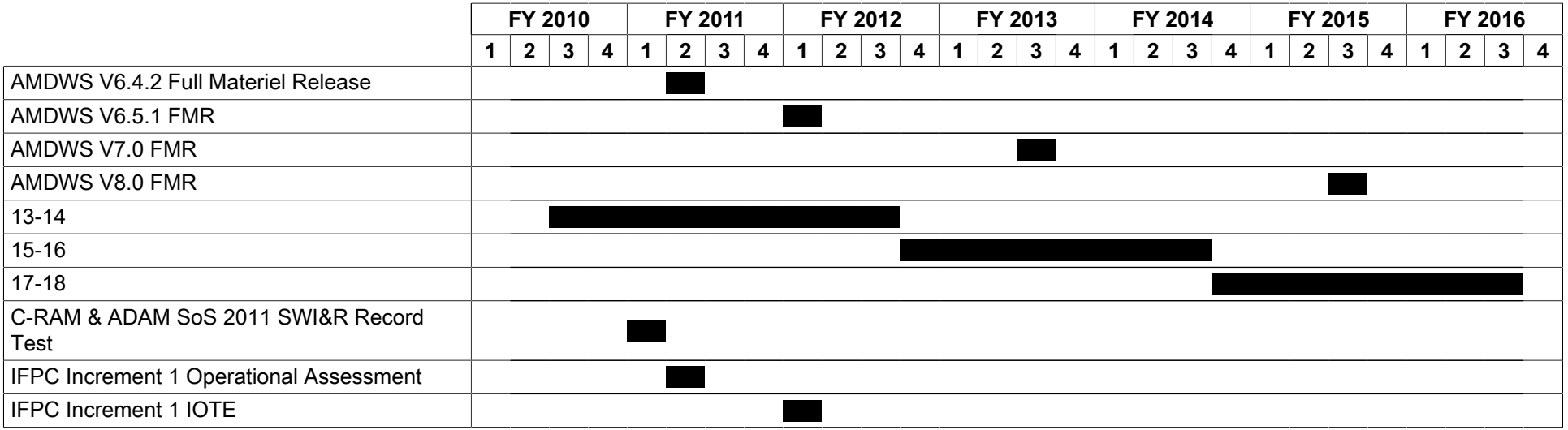

Exhibit R-4A, RDT&E Schedule Details: PB 2012 Army		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604741A: *Air Defense Command, Control and Intelligence - Eng Dev*	**PROJECT** 146: *AIR & MSL DEFENSE PLANNING CONTROL SYS (AMC PCS)*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
AMDWS V6.4.2 Full Materiel Release	2	2011	2	2011
AMDWS V6.5.1 FMR	1	2012	1	2012
AMDWS V7.0 FMR	3	2013	3	2013
AMDWS V8.0 FMR	3	2015	3	2015
13-14	3	2010	3	2012
15-16	4	2012	3	2014
17-18	4	2014	3	2016
C-RAM & ADAM SoS 2011 SWI&R Record Test	1	2011	1	2011
IFPC Increment 1 Operational Assessment	2	2011	2	2011
IFPC Increment 1 IOTE	1	2012	1	2012

Exhibit R-2A, RDT&E Project Justification: PB 2012 Army			DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604741A: *Air Defense Command, Control and Intelligence - Eng Dev*	PROJECT 149: *COUNTER-ROCKETS, ARTILLERY & MORTAR (C-RAM) DVPMT*	

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
149: *COUNTER-ROCKETS, ARTILLERY & MORTAR (C-RAM) DVPMT*	13.559	6.720	57.739	-	57.739	53.705	3.967	-	-	0.000	135.690
Quantity of RDT&E Articles											

A. Mission Description and Budget Item Justification

: Counter-Rocket, Artillery and 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; warn the defended area with sufficient time for personnel to take cover; intercept rounds in flight, thus preventing damage to ground forces or facilities; and enhance response to and defeat of enemy forces. The C-RAM current capability utilizes a SoS approach and 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 local area network. The C-RAM SoS capability is currently fielded at multiple sites in two theaters of operation, providing them correlated air and ground pictures and linking them to the Army Battle Command System (ABCS) and the Joint Defense Network (JDN) 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 fielding 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 fielded forces. The C-RAM SoS approach was initially validated by a Proof of Principle demonstration in December 2004 and has undergone more than 20 Army Test and Evaluation Command (ATEC)-conducted operational assessments to incorporate multiple improvements in response to changes in threat tactics and lessons learned. The C-RAM Program Directorate (PD C-RAM) has fielded the Sense and Warn (S&W) capability to 16 Forward Operating Bases (FOBs) in support of Operation New Dawn (OND) (formerly Operation Iraqi Freedom), with Sense, Warn, and Intercept at three (3) of those FOBs. PD C-RAM is currently employing a phased approach for fielding C-RAM S&W capability to 22 FOBs in support of Operation Enduring Freedom (OEF) - fielding an Initial S&W capability to those FOBs with existing unit radars, followed by fielding the Full S&W capability using the latest TPQ-49 radars with 1361K Waveform Generators as they become available. 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. Additional MNS fieldings are anticipated.

Current development efforts include the implementation of improvements and upgrades/tests to fielded C-RAM, including integration/use of tactical radios, integration of Warn into the C2 workstation, mobile Up-Gun LPWS, integration with Unmanned Aerial Systems Universal Ground Station, and dynamic clearance of fires. Transition of the C-RAM program to the follow-on acquisition Program of Record (POR), Indirect Fire Protection Capability (IFPC), is supported by the IFPC Increment 1 Capability Production Document (CPD) approved in August 2010, which requires fielding a Warn capability to the Brigade Combat Teams (BCT).

Exhibit R-2A, RDT&E Project Justification: PB 2012 Army		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604741A: *Air Defense Command, Control and Intelligence - Eng Dev*	PROJECT 149: *COUNTER-ROCKETS, ARTILLERY & MORTAR (C-RAM) DVPMT*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total
Title: Test/demonstration support for new C-RAM capabilities ***Articles:*** ***Description:*** Test/demonstration support for new C-RAM capabilities ***FY 2010 Accomplishments:*** Test/demonstration support for new C-RAM capabilities	1.738 0	-	-	-	-
Title: Develop Threat Evaluation and Weapons Assignment (TEWA) capabilities ***Articles:*** ***Description:*** Develop Threat Evaluation and Weapons Assignment (TEWA) capabilities ***FY 2010 Accomplishments:*** Develop Threat Evaluation and Weapons Assignment (TEWA) capabilities	2.539 0	-	-	-	-
Title: Integrate with Rapid Digital ***Articles:*** ***Description:*** Integrate with Rapid Digital ***FY 2010 Accomplishments:*** Integrate with Rapid Digital	1.912 0	-	-	-	-
Title: Develop Advanced Defense Design System Exerciser ***Articles:*** ***Description:*** Develop Advanced Defense Design System Exerciser ***FY 2010 Accomplishments:*** Develop Advanced Defense Design System Exerciser	1.687 0	-	-	-	-
Title: Support Joint, Interagency and Multi-national (JIM) interoperability (Common Link Integration Processing (CLIP) integration, communications improvement) ***Articles:*** ***Description:*** Support Joint, Interagency and Multi-national (JIM) interoperability (Common Link Integration Processing (CLIP) integration, communications improvement)	1.223 0	-	-	-	-

Exhibit R-2A, RDT&E Project Justification: PB 2012 Army		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604741A: *Air Defense Command, Control and Intelligence - Eng Dev*	PROJECT 149: *COUNTER-ROCKETS, ARTILLERY & MORTAR (C-RAM) DVPMT*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total
FY 2010 Accomplishments: Support Joint, Interagency and Multi-national (JIM) interoperability (Common Link Integration Processing (CLIP) integration, communications improvement)					
Title: Small Business Innovative Research/Small Business Technology Transfer Program (SBIR/STTR) ***Articles:*** ***Description:*** Small Business Innovative Research/Small Business Technology Transfer Program (SBIR/STTR) ***FY 2010 Accomplishments:*** Small Business Innovative Research/Small Business Technology Transfer Program (SBIR/STTR)	0.306 0	-	-	-	-
Title: C-RAM C2 CWMI/ Advanced User Interface ***Articles:*** ***Description:*** C-RAM C2 CWMI/ Advanced User Interface ***FY 2010 Accomplishments:*** C-RAM C2 CWMI/ Advanced User Interface ***FY 2011 Plans:*** C-RAM C2 CWMI/ Advanced User Interface ***FY 2012 Base Plans:*** C-RAM C2 CWMI/ Advanced User Interface	0.409 0	1.336 0	0.510	-	0.510
Title: Field Artillery (FA) Integration and Testing ***Articles:*** ***Description:*** Field Artillery (FA) Integration and Testing ***FY 2010 Accomplishments:*** Field Artillery (FA) Integration and Testing ***FY 2012 Base Plans:*** Field Artillery (FA) Integration and Testing	0.308 0	-	1.019	-	1.019
Title: Air Defense (AD) Integration & Testing ***Articles:***	0.354 0	-	1.170	-	1.170

Exhibit R-2A, RDT&E Project Justification: PB 2012 Army		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604741A: *Air Defense Command, Control and Intelligence - Eng Dev*	PROJECT 149: *COUNTER-ROCKETS, ARTILLERY & MORTAR (C-RAM) DVPMT*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total
Description: Air Defense (AD) Integration & Testing ***FY 2010 Accomplishments:*** Air Defense (AD) Integration & Testing ***FY 2012 Base Plans:*** Air Defense (AD) Integration & Testing					
Title: Mobile Warn Subsystem Improvement (Mesh Network) ***Articles:*** ***Description:*** Mobile Warn Subsystem Improvement (Mesh Network) ***FY 2010 Accomplishments:*** Mobile Warn Subsystem Improvement (Mesh Network) ***FY 2012 Base Plans:*** Mobile Warn Subsystem Improvement (Mesh Network)	0.456 0	-	1.510	-	1.510
Title: LPWS Block 1B Baseline 2 Enhancements ***Articles:*** ***Description:*** LPWS Block 1B Baseline 2 Enhancements ***FY 2010 Accomplishments:*** LPWS Block 1B Baseline 2 Enhancements ***FY 2012 Base Plans:*** LPWS Block 1B Baseline 2 Enhancements	0.265 0	-	0.876	-	0.876
Title: Test Increment I Capability ***Articles:*** ***Description:*** Test Increment I Capability ***FY 2011 Plans:*** Test Increment I Capability	-	5.384 0	-	-	-
Title: C-RAM C2 System Migration via MPU/MCU/3D	1.055	-	3.488	-	3.488

Exhibit R-2A, RDT&E Project Justification: PB 2012 Army		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604741A: *Air Defense Command, Control and Intelligence - Eng Dev*	PROJECT 149: *COUNTER-ROCKETS, ARTILLERY & MORTAR (C-RAM) DVPMT*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total
Articles:	0				
Description: C-RAM C2 System Migration via MPU/MCU/3D ***FY 2010 Accomplishments:*** C-RAM C2 System Migration via MPU/MCU/3D ***FY 2012 Base Plans:*** C-RAM C2 System Migration via MPU/MCU/3D					
Title: Digital "Clearance of Fires" for Respond	0.409	-	1.354	-	1.354
Articles:	0				
Description: Digital ***FY 2010 Accomplishments:*** Digital ***FY 2012 Base Plans:*** Digital					
Title: Advanced Sensor Correlation and Architecture	0.629	-	2.079	-	2.079
Articles:	0				
Description: Advanced Sensor Correlation and Architecture ***FY 2010 Accomplishments:*** Advanced Sensor Correlation and Architecture ***FY 2012 Base Plans:*** Advanced Sensor Correlation and Architecture					
Title: Scaleable and Disributed Control Architecture (SSWIR)	0.210	-	0.695	-	0.695
Articles:	0				
Description: Scaleable and Disributed Control Architecture (SSWIR) ***FY 2010 Accomplishments:***					

Exhibit R-2A, RDT&E Project Justification: PB 2012 Army		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604741A: *Air Defense Command, Control and Intelligence - Eng Dev*	PROJECT 149: *COUNTER-ROCKETS, ARTILLERY & MORTAR (C-RAM) DVPMT*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total
Scaleable and Disributed Control Architecture (SSWIR ***FY 2012 Base Plans:*** Scaleable and Disributed Control Architecture (SSWIR)					
Title: Distributed FC TEWA Capabilities (Tactical FC) ***Articles:*** ***Description:*** Distributed FC TEWA Capabilities (Tactical FC) ***FY 2010 Accomplishments:*** Distributed FC TEWA Capabilities (Tactical FC) ***FY 2012 Base Plans:*** Distributed FC TEWA Capabilities (Tactical FC)	0.059 0	-	0.193	-	0.193
Title: C2 & Warn Improvements - Use of Tactical Radio and Integration of Warn into C2 Workstation ***Description:*** C2 & Warn Improvements - Use of Tactical Radio and Integration of Warn into C2 Workstation ***FY 2012 Base Plans:*** C2 & Warn Improvements - Use of Tactical Radio and Integration of Warn into C2 Workstation	-	-	12.478	-	12.478
Title: Mounted Up-Gun LPWS onto HEMTT ***Description:*** Mounted Up-Gun LPWS onto HEMTT ***FY 2012 Base Plans:*** Mounted Up-Gun LPWS onto HEMTT	-	-	23.454	-	23.454
Title: UAS Universal-Station Integration ***Description:*** UAS Universal-Station Integration ***FY 2012 Base Plans:*** UAS Universal-Station Integration	-	-	4.691	-	4.691
Title: Dynamic Clearance of Fires ***Description:*** Dynamic Clearance of Fires	-	-	4.222	-	4.222

Exhibit R-2A, RDT&E Project Justification: PB 2012 Army		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604741A: *Air Defense Command, Control and Intelligence - Eng Dev*	PROJECT 149: *COUNTER-ROCKETS, ARTILLERY & MORTAR (C-RAM) DVPMT*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total
FY 2012 Base Plans: Dynamic Clearance of Fires					
Accomplishments/Planned Programs Subtotals	13.559	6.720	57.739	-	57.739

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
• BZ0526: *COUNTER-ROCKETS, ARTILLERY& MORTAR (C-RAM)*	274.400	293.488	15.774		15.774		67.363	93.348	87.958	Continuing	Continuing

D. Acquisition Strategy

The C-RAM/IFPC program is following an evolutionary acquisition strategy for rapid fielding of mature technology to the user. The approach will deliver capabilities in increments, recognizing up front the need for future improvements. The objective of the strategy is to balance needs and available capability with resources and put a robust capability to engage rockets, artillery, and mortars into the hands of the user quickly. Success depends on continuous user feedback, consistent definition of capability needs, maturation of technology, and allocation of required resources. The Program Director will collaborate and coordinate with the user, Combat Developer, tester, logistician, PEO C3T, and HQDA. The program will follow the incremental development process, where each increment is a militarily useful and supportable operational capability. The CPD for Increment 1 (Warn capability for BCTs) was approved in August 2010, and supports establishment of IFPC as a Program of Record (POR) and the Milestone C decision following completion of an operational assessment. A Capability Development Document (CDD) will be developed for IFPC Increment 2 (enhanced Interceptor and improvements to other IFPC functions as required), based on the results of the Analysis of Alternatives (AoA) and subsequent Milestone A decision.

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

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
Program Management Administration	Various	Various:Variuos	2.873	1.346		1.386		-		1.386	Continuing	Continuing	Continuing
		Subtotal	2.873	1.346		1.386		-		1.386			

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
Northrop Grumman	Various	Carson, CA:Carson, CA	16.141	-		28.632		-		28.632	Continuing	Continuing	Continuing
Raytheon	Various	TBD:TBD	-	-		24.330		-		24.330	Continuing	Continuing	0.000
		Subtotal	16.141	-		52.962		-		52.962			

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
OGA	Various	TBD:TBD	-	5.374		3.391		-		3.391	Continuing	Continuing	Continuing
		Subtotal	-	5.374		3.391		-		3.391			

	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
Project Cost Totals	19.014	6.720		57.739		-		57.739			

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2012 Army		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604741A: *Air Defense Command, Control and Intelligence - Eng Dev*	**PROJECT** 149: *COUNTER-ROCKETS, ARTILLERY & MORTAR (C-RAM) DVPMT*

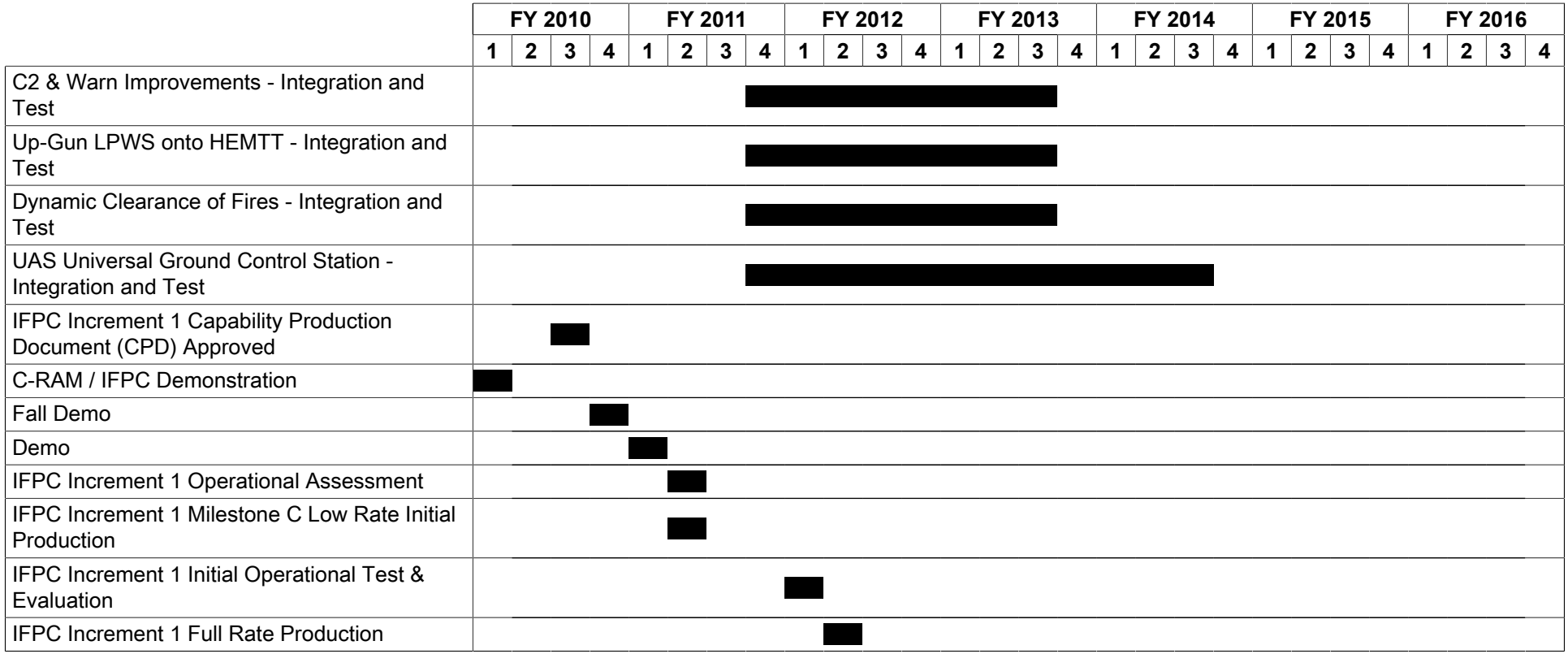

Exhibit R-4A, RDT&E Schedule Details: PB 2012 Army		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604741A: *Air Defense Command, Control and Intelligence - Eng Dev*	**PROJECT** 149: *COUNTER-ROCKETS, ARTILLERY & MORTAR (C-RAM) DVPMT*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
C2 & Warn Improvements - Integration and Test	4	2011	3	2013
Up-Gun LPWS onto HEMTT - Integration and Test	4	2011	3	2013
Dynamic Clearance of Fires - Integration and Test	4	2011	3	2013
UAS Universal Ground Control Station - Integration and Test	4	2011	3	2014
IFPC Increment 1 Capability Production Document (CPD) Approved	3	2010	3	2010
C-RAM / IFPC Demonstration	1	2010	1	2010
Fall Demo	4	2010	4	2010
Demo	1	2011	1	2011
IFPC Increment 1 Operational Assessment	2	2011	2	2011
IFPC Increment 1 Milestone C Low Rate Initial Production	2	2011	2	2011
IFPC Increment 1 Initial Operational Test & Evaluation	1	2012	1	2012
IFPC Increment 1 Full Rate Production	2	2012	2	2012