

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2004

## BUDGET ACTIVITY

### 5 - System Development and Demonstration

## PE NUMBER AND TITLE

**0604741A - Air Defense Command, Control and Intel - Eng**

COST (In Thousands)		FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost		26983	28993	27376	29948	21308	21062	20514	Continuing	Continuing
126	FAAD C2 ED	11515	15367	14284	16098	10057	9721	9809	Continuing	Continuing
146	AIR & MSL DEFENSE PLANNING CONTROL SYS (AMC PCS)	15468	13626	13092	13850	11251	11341	10705	Continuing	Continuing

**A. Mission Description and Budget Item Justification:** The Air and Missile Defense Planning and Control System (AMDPCS) is an Army Objective Force System with Homeland Defense capabilities that allows for the integration of Air and Missile Defense (AMD) operations for Air Defense Artillery (ADA) Brigades at Corps and Echelons above Corps (EAC), the Army Air and Missile Defense Command (AAMDC) Headquarters, at Army, Joint, or Coalition level forces.

AMDPCS is the backbone of Army Air Defense, operating through the Battle Management/Command, Control, Communications, Computers, and Intelligence (BM/C4I), and the common tactical and operational air picture, (2) Air Defense System Integrator (ADSI), a communications data link processor and display system, provides real time joint airspace situational awareness and fire direction Command and Control (C2) for AMD, and (3) shelter configurations using computer hardware and tactical communications equipment (e.g., JTIDS 2M Terminals, Commanders Tactical Terminal). The AMDPCS enables Active, Passive and Attack Operations coordination and a correlated single integrated air picture (SIAP) to Army AMD and Joint Forces. The AMDPCS provides the Army Battle Command System (ABCS) architecture and the Army AMD Task Forces (AMDTF) with Joint BM/C4I capability and the Army component of interoperable Joint Theater Air and Missile Defense (JTAMD) BM/C4I.

In addition, the AMDWS supports the Surface Launched Advanced Medium Range Air-to-Air Missile (SLAMRAAM) air defense system by providing an automated defense planning capability for deployed units.

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 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

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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 Ssystem (FCS).

These systems support the Current-to-Future transition path of the Transformation Campaign Plan (TCP).

<u><b>B. Program Change Summary</b></u>	FY 2003	FY 2004	FY 2005
Previous President's Budget (FY 2004)	27262	29297	32415
Current Budget (FY 2005 PB)	26983	28993	27376
Total Adjustments	-279	-304	-5039
Congressional program reductions		-275	
Congressional rescissions			
Congressional increases			
Reprogrammings	-279	-29	
SBIR/STTR Transfer			
Adjustments to Budget Years			-5039

Schedule Detail (R4a Exhibit)		February 2004
BUDGET ACTIVITY <b>5 - System Development and Demonstration</b>	PE NUMBER AND TITLE <b>0604741A - Air Defense Command, Control and Intel - Eng</b>	PROJECT <b>0604741A</b>
<p><b><u>Schedule Detail:</u></b> Not applicable for this item.</p>		

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

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**5 - System Development and Demonstration**

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## PROJECT

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COST (In Thousands)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total Cost
126 FAAD C2 ED	11515	15367	14284	16098	10057	9721	9809	Continuing	Continuing

**A. Mission Description and Budget Item Justification:** 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 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). The FAAD C2 system supports the Current-to-Future transition path of the Transformation Campaign Plan (TCP).

<b>Accomplishments/Planned Program</b>	<b>FY 2003</b>	<b>FY 2004</b>	<b>FY 2005</b>
Continue Block III software engineering and development for FDD DCX2, III (Digitized) Corps, SBCTs and SDD.	7631	8863	8585
Continue ABCS, FBCB2 and Common Hardware/Software (CHS) integration and testing for Active and Reserve Army requirements; continue digitization integration for FDD, III (Digitized) Corps, Second Digitized Division (SDD) and SBCTs in support of Army Transformation and SW security accreditation.	3734	6092	5699
Army Battle Command Systems (ABCS) SE&I	150	0	0
Small Business Innovative Research/Small Business Technology Transfer Program	0	412	0
<b>Totals</b>	<b>11515</b>	<b>15367</b>	<b>14284</b>

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## B. Other Program Funding Summary

	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	To Compl	Total Cost
OPA 2, AD5050 - FAAD C2	24109	25329	12873	11196	15826	12687	14959	Continuing	Continuing
Spares (BS9702) - FAAD C2	562	734	716	877	895	0	0	Continuing	Continuing

**C. Acquisition Strategy:** The acquisition strategy relies heavily 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 is being followed and will be accomplished in Blocks I, II, III and IV. Blocks I and II have been completed. FAAD C2 Block III is currently being developed for both the Army's Active and Reserve components.

ARMY RDT&E COST ANALYSIS(R3)									February 2004			
BUDGET ACTIVITY <b>5 - System Development and Demonstration</b>					PE NUMBER AND TITLE <b>0604741A - Air Defense Command, Control and Intel - Eng</b>					PROJECT <b>126</b>		
I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . TRW, BLK I	C/CPIF	Dominquez Hills, CA	176461	0		0		0		0	176461	0
b . TRW, BLK II	SS/CPIF	Dominquez Hills, CA	32206	0		0		0		0	32206	0
c . TRW, BLK III	SS/CPIF	Dominquez Hills, CA	62230	7993	1Q	10752	1Q	9962	1Q	Continue	90937	0
d . TRW	SS/T&M	Dominquez Hills, CA	6891	310	1Q	316	1Q	321	1Q	Continue	Continue	0
e . Matrix	MIPR	Various	9163	1611	2Q	1643	2Q	1675	2Q	Continue	Continue	0
f . Sentinel GBS	MIPR	Huntsville, AL	3791	0		0		0		0	3791	0
g . JTIDS	MIPR	Ft. Monmouth, NJ	6000	0		0		0		Continue	Continue	0
h . In-house/Govt Spt	Various	Various	13505	566	2Q	731	2Q	745	2Q	Continue	Continue	0
i . ABCS SE&I	MIPR	Ft Monmouth, NJ	196	150	1Q	0		0		0	346	0
j . Software Engineering	Various	Various	11419	645	1-4Q	1735	1-4Q	1294	1-4Q	Continue	Continue	0
Subtotal:			321862	11275		15177		13997		Continue	Continue	0

ARMY RDT&E COST ANALYSIS(R3)									February 2004				
BUDGET ACTIVITY					PE NUMBER AND TITLE					PROJECT			
5 - System Development and Demonstration					0604741A - Air Defense Command, Control and Intel - Eng					126			
II. Support Cost	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract	
			0	0		0		0		0	0	0	
Subtotal:													
III. Test and Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract	
a . ADATD	MIPR	Ft Bliss, TX	10091	25	2Q	50		91		Continue	Continue	0	
b . RTTC	MIPR	WSMR, NM	2355	215	2Q	140		196		Continue	Continue	0	
Subtotal:			12446	240		190		287		Continue	Continue	0	

ARMY RDT&E COST ANALYSIS(R3)									February 2004				
BUDGET ACTIVITY <b>5 - System Development and Demonstration</b>					PE NUMBER AND TITLE <b>0604741A - Air Defense Command, Control and Intel - Eng</b>					PROJECT <b>126</b>			
IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract	
			0	0		0		0		0	0	0	
Subtotal:													
Remarks: Not Applicable													
Project Total Cost:			334308	11515		15367		14284		Continue	Continue	0	



<b>Schedule Profile (R4 Exhibit)</b>	<b>February 2004</b>
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## 5 - System Development and Demonstration

**0604741A - Air Defense Command, Control and Intel  
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**(Blk IV)**

Schedule Detail (R4a Exhibit)						February 2004	
BUDGET ACTIVITY <b>5 - System Development and Demonstration</b>			PE NUMBER AND TITLE <b>0604741A - Air Defense Command, Control and Intel - Eng</b>			PROJECT <b>126</b>	
<u>Schedule Detail</u>	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Preliminary/Critical Design Review/TRR	3Q	3Q		3Q			
System Certification Test/Thread Testing	3Q	4Q		4Q			4Q
First Unit Equipped - V5.2			3Q				
Contract Award, BLK IV				3Q			
Preliminary/Critical Design Review, BLK IV					3Q	4Q	

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2004

## BUDGET ACTIVITY

**5 - System Development and Demonstration**

## PE NUMBER AND TITLE

**0604741A - Air Defense Command, Control and Intel - Eng**

## PROJECT

**146**

COST (In Thousands)		FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total Cost
146	AIR & MSL DEFENSE PLANNING CONTROL SYS (AMC PCS)	15468	13626	13092	13850	11251	11341	10705	Continuing	Continuing

**A. Mission Description and Budget Item Justification:** The Air and Missile Defense Planning and Control System (AMDPCS) is an Army Objective Force System with Homeland Defense capabilities that allows for the integration of Air and Missile Defense (AMD) operations for Air Defense Artillery (ADA) Brigades at corps and Echelons above Corps (EAC), the Army Air and Missile Defense Command (AAMDC) Headquarters, at Army, Joint, or Coalition level forces.

AMDPCS is the backbone of Army Air Defense, operating through the Battle Management/Command, Control, Communications, Computers, and Intelligence (BM/C4I), and is composed of three parts: (1) Air and Missile Defense Workstation (AMDWS), an automated mission (defense and staff) planning and situational awareness tool to achieve the common tactical and operational air picture, (2) Air Defense System Integrator (ADSI), a communications data link processor and display system, provides real time joint airspace situational awareness and fire direction Command and Control (C2) for AMD, and (3) shelter configurations using computer hardware and tactical communications equipment (e.g., JTIDS 2M Terminals, Commanders Tactical Terminal). The AMDPCS enables Active, Passive and Attack Operations coordination and a correlated single integrated air picture (SIAP) to Army AMD and Joint Forces. The AMDPCS provides the Army Battle Command System (ABCS) architecture and the Army AMD Task Forces (AMDTF) with Joint BM/C4I capability and the Army component of interoperable Joint Theater Air and Missile Defense (JTAMD) BM/C4I.

In addition, the AMDWS supports the Surface Launched Advanced Medium Range Air-to-Air Missile (SLAMRAAM) air defense system by providing an automated defense planning capability for deployed units.

This system supports the Current-to-Future transition path of the Transformation Campaign Plan (TCP).

<b>Accomplishments/Planned Program</b>	<b>FY 2003</b>	<b>FY 2004</b>	<b>FY 2005</b>
Continue AMDWS software engineering and development for FDD, III (Digitized) Corps, SDD, AMD family of systems, JTAMD family of systems (FOS), JTAMD FOS integration and development of AMDPCS Brigade Sheltered Subsystems for III Corps.	9016	7780	7348
Continue ADSI software engineering and development for III (Digitized) Corps, SDD, AMD FOS, JTAMD FOS integration	2080	1820	1901
Continue software systems certification testing; continue Army and Joint integration and interoperability assessments	805	980	1077

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)								February 2004				
BUDGET ACTIVITY				PE NUMBER AND TITLE				PROJECT				
5 - System Development and Demonstration				0604741A - Air Defense Command, Control and Intel - Eng				146				
<b>Accomplishments/Planned Program (continued)</b>								FY 2003	FY 2004	FY 2005		
Continue AMDPCS sheltered subsystems configuration engineering, development, test and evaluation; SIAP concept and re-engineering.								3302	2660	2766		
ABCS SE&I								265	0	0		
Small Business Innovative Research/Small Business Technology Transfer Program								0	386	0		
Totals								15468	13626	13092		
<b>B. Other Program Funding Summary</b>				FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	To Compl	Total Cost
OPA, AD 5070 - AMDPCS				12087	8929	6400	3700	7382	10874	8293	Continuing	Continuing
<p><b>C. Acquisition Strategy:</b> 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.</p>												

ARMY RDT&E COST ANALYSIS(R3)									February 2004			
BUDGET ACTIVITY <b>5 - System Development and Demonstration</b>					PE NUMBER AND TITLE <b>0604741A - Air Defense Command, Control and Intel - Eng</b>					PROJECT <b>146</b>		
I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . TRW	SS/CPIF	Huntsville, AL	12588	7783	1Q	7186	1Q	7143	1Q	Continue	34700	0
b . APC, ADSI	SS/CPIF	Austin, TX	2870	956	2Q	800	1Q	379	1Q	Continue	5005	0
c . In-house Government Support	Various	Various	3053	2037	2Q	2011	2Q	2019	2Q	Continue	9120	0
d . MATRIX	MIPR	Various	3476	2316	2Q	1986	2Q	2035	1Q	Continue	9813	0
e . ABCS SE&I	MIPR	Ft Monmouth, NJ	354	265	1Q	0		0		0	619	0
f . Software Engineering	Various	Various	0	1877	2-3Q	1444	2-3Q	1253	2-3Q	Continue	4574	0
Subtotal:			22341	15234		13427		12829		Continue	63831	0

ARMY RDT&E COST ANALYSIS(R3)									February 2004				
BUDGET ACTIVITY					PE NUMBER AND TITLE					PROJECT			
5 - System Development and Demonstration					0604741A - Air Defense Command, Control and Intel - Eng					146			
II. Support Cost	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract	
			0	0		0		0		0	0	0	
Subtotal:													
III. Test and Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract	
a . Certification	MIPR	JITC, Ft Huachuca, AZ	293	75	1Q	64	1Q	85	1Q	Continue	Continue	0	
b . Interoperability Assessment	MIPR	Various	324	159	1Q	135	1Q	178	1Q	Continue	Continue	0	
Subtotal:			617	234		199		263		Continue	Continue	0	

<b>ARMY RDT&amp;E COST ANALYSIS(R3)</b>										<b>February 2004</b>			
BUDGET ACTIVITY <b>5 - System Development and Demonstration</b>					PE NUMBER AND TITLE <b>0604741A - Air Defense Command, Control and Intel - Eng</b>					PROJECT <b>146</b>			
IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract	
			0	0		0		0		0	0	0	
Subtotal:													
Remarks: Not Applicable													
Project Total Cost:				22958	15468		13626		13092		Continue	Continue	0

# Schedule Profile (R4 Exhibit)

February 2004

## BUDGET ACTIVITY

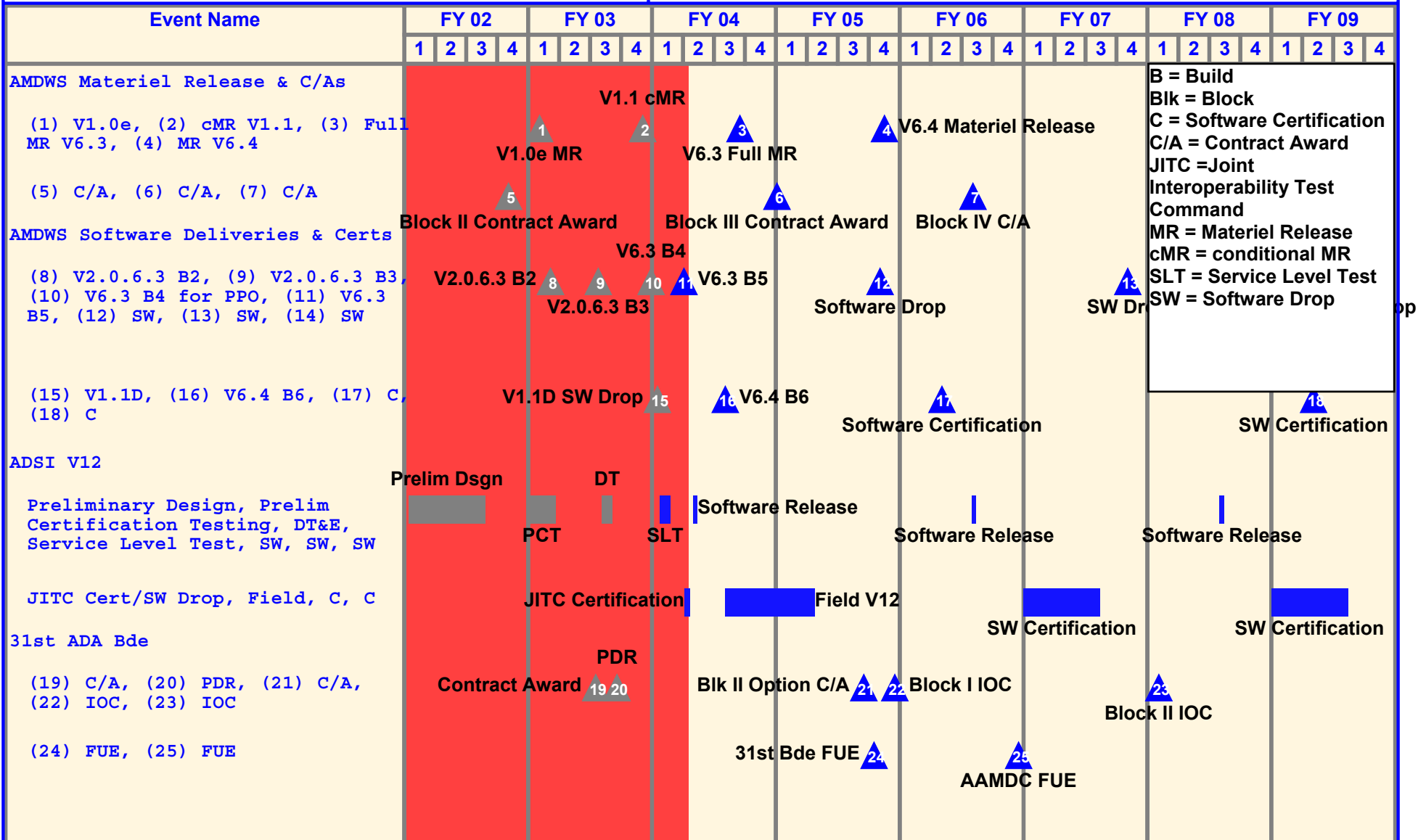
5 - System Development and Demonstration

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Schedule Detail (R4a Exhibit)						February 2004	
BUDGET ACTIVITY <b>5 - System Development and Demonstration</b>			PE NUMBER AND TITLE <b>0604741A - Air Defense Command, Control and Intel - Eng</b>			PROJECT <b>146</b>	
<u>Schedule Detail</u>	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Systems Certification Testing - AMDWS/ADSI/AMDPCS	4Q	4Q			4Q		4Q
AMDWS Software Release, 1.1D (Oct 03), B.4 (Oct 03), B.5 (Jan 04), B.6 (May 04)		1-3Q	4Q		4Q		4Q
AMDWS Software Certification	3-4Q			2-4Q			2-4Q
ADSI Software Release (V.12)		3Q		3Q		3Q	
ADSI Software Certification		2Q	1-3Q	3Q	1-3Q		1-3Q
AMDPCS System-First Unit Equipped (ADA Brigade)			4Q				
AMDPCS System -First Unit Equipped (AAMDC)				4Q			