

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

June 2001

BUDGET ACTIVITY
5 - ENG MANUFACTURING DEV

PE NUMBER AND TITLE
0604741A - Air Defense C2I Engineering Development

COST (In Thousands)	FY 2000 Actual	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	11753	16310	18233	0	0	0	0	0	0	0
126 FAAD C2 ED	7278	8089	6148	0	0	0	0	0	0	0
146 AIR & MSL DEFENSE PLANNING CONTROL SYS (AMC PCS)	4475	8221	12085	0	0	0	0	0	0	0

A. Mission Description and Budget Item Justification:

PLEASE NOTE: This administration has not addressed FY2003-2007 requirements. All FY 2003-2007 budget estimates included in this book are notional only and subject to change.

The Forward Area Air Defense Command, Control, and Intelligence (FAAD C2I) System is the first C2I System to digitize. FAAD C2I provides critical, automated threat aircraft, cruise missile, and unmanned aerial vehicle (UAV) Battle Management/Command, Control, Communication, and Intelligence (BM/C4I) information 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 C2I software will provide this mission capability by integrating FAAD C2 engagement operations software with the Joint Tactical Information and Data System (JTIDS), Single Channel Ground and Airborne Radio System (SINCGARS), Enhanced Position Location Reporting Systems (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 providing an integrated air picture at Army divisions and below. FAAD C2I 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 Interim Brigade Combat Teams (IBCTs).

The Air and Missile Defense Planning and Control System (AMDPCS) is the backbone of Army Air Defense through the BM/C4I capability it provides to Air Defense Artillery Brigades at corps and echelons above corps (EAC), the Army Air and Missile Defense Commands (AAMDC) headquarters, and joint force command and control elements, such as the Battlefield Coordination Detachment (BCDs). The AMDPCS provides ADA Brigades with a fire control system via the Air Defense System Integrator (ADSI) for monitoring and controlling air battle engagement operations by subordinate battalions. The AMDPCS provides a common air and missile defense staff planning and battlespace situational awareness tool via the Air and Missile Defense Workstation (AMDWS) to achieve the common tactical and operational air picture. The AMDWS, like ADSI, will be fielded to air and missile defense units at all echelons of command, battery through theater. The AMDPCS provides the ABCS architecture, Army AMD Transformation 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. The AMDPCS enables Active, Passive and Attack Operations coordination and a correlated single integrated air picture (SIAP) to Army AMD and Joint Forces. This system supports the Legacy to Objective transition path of the Transformation Campaign Plan (TCP).

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<u>B. Program Change Summary</u>	FY 2000	FY 2001	FY 2002	FY 2003
Previous President's Budget (FY2001 PB)	7943	16462	19152	0
Appropriated Value	7995	16462	0	
Adjustments to Appropriated Value	0	0	0	
a. Congressional General Reductions	0	0	0	
b. SBIR / STTR	-186	0	0	
c. Omnibus or Other Above Threshold Reductions	0	0	0	
d. Below Threshold Reprogramming	3999	0	0	
e. Rescissions	-55	-152	0	
Adjustments to Budget Years Since FY2001 PB	0	0	-919	
Inflation Adjustment for FY 00	-3	0	0	
Current Budget Submit (FY 2002/2003 PB)	11750	16310	18233	0

NOTE: FY 00 \$3.999 increase/reprogramming was for software development for First Digitized Division (FDD)/III (Digitized) Corps and Joint Operations capability with TBMCS/JDP and Air Force and Navy.

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BUDGET ACTIVITY 5 - ENG MANUFACTURING DEV				PE NUMBER AND TITLE 0604741A - Air Defense C2I Engineering Development					PROJECT 126	
COST (In Thousands)	FY 2000 Actual	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
126 FAAD C2 ED	7278	8089	6148	0	0	0	0	0	0	0

A. Mission Description and Budget Item Justification: The Forward Area Air Defense Command, Control, and Intelligence (FAAD C2I) System is the first C2I System to digitize. FAAD C2I provides critical, automated threat aircraft, cruise missile, and unmanned aerial vehicle (UAV) Battle Management/Command, Control, Communication, and Intelligence (BM/C4I) information 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 C2I software will provide this mission capability by integrating FAAD C2 engagement operations software with the Joint Tactical Information and Data System (JTIDS), Single Channel Ground and Airborne Radio System (SINCGARS), Enhanced Position Location Reporting Systems (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 providing an integrated air picture at Army divisions and below. FAAD C2I 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 Interim Brigade Combat Teams (IBCTs).

FY 2000 Accomplishments

- 4151 Continued Block III software engineering and development for FDD, JCF, ABCS Integration/Interoperability (e.g. FBCB2).
- 3027 Completed common hardware and software (CHS) integration with all Active Army Divisions; conducted digitization integration with FDD, JCF in conjunction with ABCS, FBCB2 and CHS.
- 100 Conducted System Certification Testing for FDD and JCF

Total 7278

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PE NUMBER AND TITLE

**0604741A - Air Defense C2I Engineering
Development**

PROJECT

126**FY 2001 Planned Program**

- 5000 Continue Block III software engineering and development for Second Digital Division (SDD), IBCTs, III Corps, FBCB2 co-host, CHS re-host.
 - 2560 Continue ABCS FBCB2 and CHS integration and testing for Active and Reserve Army requirements; conduct digitization integration with FDD for DCX1, III (Digitized) Corps, IBCTs in conjunction with Army Transformation.
 - 100 Complete Critical Design Review for Block III, III (Digitized) Corps and SDD.
 - 220 ABCS SE&I
 - 209 SBIR/STTR
- Total 8089

FY 2002 Planned Program

- 4381 Continue Block III software engineering and development for FDD DCX2, III (Digitized) Corps, IBCTs and SDD.
 - 1767 Continue ABCS, FBCB2 and CHS integration and testing for Active and Reserve Army requirements; continue digitization integration for FDD, III (Digitized) Corps, SDD and IBCTs in support of Army Transformation.
- Total 6148

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BUDGET ACTIVITY 5 - ENG MANUFACTURING DEV	PE NUMBER AND TITLE 0604741A - Air Defense C2I Engineering Development	PROJECT 126
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<u>B. Other Program Funding Summary</u>	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	To Compl	Total Cost
RDTE, 64820.DE10 - Sentinel GBS	5060	13306	5162	0	0	0	0	0	0	0
OPA 2, WK5053 - Sentinel GBS	48298	25944	1887	0	0	0	0	0	0	0
OPA 2, WK5057 - Sentinel MODS	0	0	30885	0	0	0	0	0	0	0
OPA 2, AD5050 - FAAD C2	10548	32066	8900	0	0	0	0	0	0	0
OPA 2, AD5090 - Mods FAAD C2	7770	0	0	0	0	0	0	0	0	0
OPA 2, AD5070 - Air and Missile Defense	2926	4779	10299	0	0	0	0	0	0	0
Spares (BS9702) - FAAD C2	343	581	466	0	0	0	0	0	0	0
Spares (BS9732) - Sentinel GBS	3841	1904	2061	0	0	0	0	0	0	0

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.

<u>D. Schedule Profile</u>	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007
Preliminary/Critical Design Review		3Q		0	0	0	0	0
System Certification Test	4Q	3Q		0	0	0	0	0
First Unit Equipped - Objective System				0	0	0	0	0
Contract Award, BLK IV				0	0	0	0	0

ARMY RDT&E COST ANALYSIS(R-3)

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I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 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	0	0	0
b . TRW, BLK II	SS/CPIF	Dominquez Hills, CA	32206	0		0		0	0	0	0	0
c . TRW, BLK III	SS/CPIF	Dominquez Hills, CA	52751	4791	1Q	4381	1Q	0	0	0	0	0
d . TRW	SS/T&M	Dominquez Hills, CA	6317	320	1Q	290	1Q	0	0	0	0	0
e . Matrix (RDEC)	MIPR	Huntsville, AL	6288	1315	2Q	690	2Q	0	0	0	0	0
f . Sentinel GBS	MIPR	Huntsville, AL	3791	0		0		0	0	0	0	0
g . CECOM	MIPR	Ft. Monmouth, NJ	1200	0		0		0	0	0	0	0
h . JTIDS	MIPR	Ft. Monmouth, NJ	6000	0		0		0	0	0	0	0
i . In-house/Govt Spt	Various	Various	12181	994	2Q	507	2Q	0	0	0	0	0
j . Inflation Withhold			26	0		0		0	0	0	0	0
k . ABCS SE&I			0	220	1Q	0		0	0	0	0	0
Subtotal:			297221	7640		5868		0		0	0	0

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June 2001

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II. Support Cost	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . SETA	Various	Huntsville, AL	11029	0		0		0	0	0	0	0
b . SBIR/STTR			0	209	1Q	0		0	0	0	0	0
Subtotal:			11029	209		0		0		0	0	0

III. Test and Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . ADATD, Ft. Bliss/ATEC	MIPR		10016	25	1Q	85	2Q	0	0	0	0	0
b . RTTC/WSMR			2000	215	2Q	195	2Q	0	0	0	0	0
Subtotal:			12016	240		280		0		0	0	0

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PE NUMBER AND TITLE

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IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Subtotal:			0	0		0		0		0	0	0

Remarks: Not Applicable

Project Total Cost:			320266	8089		6148		0		0	0	0
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BUDGET ACTIVITY 5 - ENG MANUFACTURING DEV				PE NUMBER AND TITLE 0604741A - Air Defense C2I Engineering Development					PROJECT 146	
COST (In Thousands)	FY 2000 Actual	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
146 AIR & MSL DEFENSE PLANNING CONTROL SYS (AMC PCS)	4475	8221	12085	0	0	0	0	0	0	0

A. Mission Description and Budget Item Justification: The Air and Missile Defense Planning and Control System (AMDPCS) is the backbone of Army Air Defense through the BM/C4I capability it provides to Air Defense Artillery Brigades at corps and echelons above corps (EAC), the Army Air and Missile Defense Commands (AAMDC) headquarters, and joint force command and control elements, such as the Battlefield Coordination Detachment (BCDs). The AMDPCS provides ADA Brigades with a fire control system via the Air Defense System Integrator (ADSI) for monitoring and controlling air battle engagement operations by subordinate battalions. The AMDPCS provides a common air and missile defense staff planning and battlespace situational awareness tool via the Air and Missile Defense Workstation (AMDWS) to achieve the common tactical and operational air picture. The AMDWS, like ADSI, will be fielded to air and missile defense units at all echelons of command, battery through theater. The AMDPCS provides the ABCS architecture, Army AMD Transformation 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. The AMDPCS enables Active, Passive and Attack Operations coordination and a correlated single integrated air picture (SIAP) to Army AMD and Joint Forces.

FY 2000 Accomplishments

- 370 Continued software engineering and development for PATRIOT, THAAD and the AMD family of systems.
- 106 Conducted Preliminary Design Review/System Certification Testing
- 3999 Software Development for FDD/III (Digitized) Corps and Joint Operations capability with Theater Battle Management Core System/Joint Defense Planner (TBMCS/JDP) and Airforce and Navy

Total 4475

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5 - ENG MANUFACTURING DEV

PE NUMBER AND TITLE

**0604741A - Air Defense C2I Engineering
Development**

PROJECT

146**FY 2001 Planned Program**

- 4075 Continue AMDWS software engineering and development for FDD, III (Digitized) Corps, ABCS, AMD family of systems (PATRIOT, THAAD, MEADS, JLENS, Joint Services)
- 2408 Continue AMDWS and ADSI Software Certification Testing; Continue Army and Joint Integration and Interoperability Assessments
- 1273 Conduct AMDPCS sheltered subsystems configuration engineering and development
- 220 ABCS SE&I
- 245 SBIR/STTR

Total 8221

FY 2002 Planned Program

- 5457 Continue AMDWS software engineering and development for FDD, III (Digitized) Corps, SDD, AMD family of systems, JTAMD family of systems (FOS), JTAMD FOS integration
- 2300 Conduct ADSI software engineering and development for III (Digitized) Corps, AMD (FOS), JTAMD FOS integration
- 772 Continue software systems certification testing; continue Army and Joint integration and interoperability assessments
- 3556 Continue AMDPCS sheltered subsystems configuration engineering and development, SIAP concept analysis; SIAP concept and analysis

Total 12085

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<u>B. Other Program Funding Summary</u>	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	To Compl	Total Cost
OPA, AD 5070 - AMDPCS	2926	4779	10299	0	0	0	0	0	0	0

C. 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.

<u>D. Schedule Profile</u>	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007
Systems Certification Testing - AMDWS/ADSI/AMDPCS	4Q	3Q	4Q	0	0	0	0	0
AMDWS Software Release	2Q	3Q	3Q	0	0	0	0	0
AMDWS Software Certification	4Q	2-4Q	3-4Q	0	0	0	0	0
ADSI Software Release	3Q		3Q	0	0	0	0	0
ADSI Software Certification		1-3Q		0	0	0	0	0
AMDPCS System-First Unit Equipped (ADA Brigade)				0	0	0	0	0
AMDPCS System -First Unit Equipped (AAMDC)				0	0	0	0	0

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I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . AMDWS	SS/CPIF	Huntsville, AL	3289	4075	1Q	5547	1Q	0	0	0	0	0
b . APC, ADSI	SS/CPIF		0	500	2Q	2300	1Q	0	0	0	0	0
c . In-House/Govt Support	VARIOUS		487	1302	2Q	1302	2Q	0	0	0	0	0
d . Inflation Withhold			0	0		0		0	0	0	0	0
e . MATRIX (RDEC) MIPR			606	1449	2Q	1512	2Q	0	0	0	0	0
f . CECOM MIPR			0	196	1Q	384	1Q	0	0	0	0	0
g . ABCS SE&I			0	220	1Q	0		0	0	0	0	0
Subtotal:			4382	7742		11045		0		0	0	0

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II. Support Cost	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . SBIR/STTR			0	245	1Q	0		0	0	0	0	0
Subtotal:			0	245		0		0		0	0	0

III. Test and Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Certification	MIPR	JITC, Ft Huachuca/ADATD	93	75	2Q	825	1Q	0	0	0	0	0
b . Interoperability Assessment	MIPR	CTSF, Ft Hood/RTTC/WSMR	0	159	2Q	215	1Q	0	0	0	0	0
Subtotal:			93	234		1040		0		0	0	0

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IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Subtotal:			0	0		0		0		0	0	0

Remarks: Not Applicable

Project Total Cost:			4475	8221		12085		0		0	0	0
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