PE NUMBER: 0207163F
PE TITLE: Advanced Medium Range Air-to-Air Missile

Exhibit R-2, RDT&E Budget Item Justification

DATE **February 2004**

BUDGET ACTIVITY
07 Operational System Development

PE NUMBER AND TITLE
0207163F Advanced Medium Range Air-to-Air Missile

Cost ($ in Millions)	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
Total Program Element (PE) Cost	39.334	32.154	33.266	35.155	36.131	36.709	37.276	Continuing	TBD
3777 AMRAAM	39.334	32.154	33.266	35.155	36.131	36.709	37.276	Continuing	TBD

(U) A. Mission Description and Budget Item Justification

The Air Force and Navy developed the baseline Advanced Medium Range Air-to-Air Missile (AMRAAM) as a high performance, all weather missile to counter existing air vehicle threats operating at high or low altitude and having advanced Electronic Protection (EP) capabilities. The AMRAAM Pre-Planned Product Improvement (P3I) program provides for a continuing, Joint Air Force/Navy research and development program which enables AMRAAM to: (1) be compatible with advanced fighters, (2) enhance AMRAAM capability and operational flexibility against 2005 and beyond threats, (3) incorporate high payoff technology developments, and (4) investigate new variants and/or alternate missions which may use many baseline missile attributes. Currently, improvements under the P3I program include enhanced electronic protection (EP) and electronic attack (EA) capabilities; improved weapon effectiveness through improved fuzing, guidance, and increased kinematics. AMRAAM is a joint Air Force/Navy, Acquisition Category (ACAT) IC program with Air Force as lead service.

This program is in budget activity 7 - Operational System Development, providing upgrades to the AIM-120C missile currently in production.

(U) B. Program Change Summary ($ in Millions)

		FY 2003	FY 2004	FY 2005
(U)	Previous President's Budget	35.537	32.429	33.353
(U)	Current PBR/President's Budget	39.334	32.154	33.266
(U)	Total Adjustments	3.797	-0.275	
(U)	Congressional Program Reductions		-0.275	
	Congressional Rescissions			
	Congressional Increases			
	Reprogrammings	3.970		
	SBIR/STTR Transfer	-0.173		
(U)	Significant Program Changes:			

Exhibit R-2a, RDT&E Project Justification

DATE **February 2004**

BUDGET ACTIVITY
07 Operational System Development

PE NUMBER AND TITLE
0207163F Advanced Medium Range Air-to-Air Missile

PROJECT NUMBER AND TITLE
3777 AMRAAM

Cost ($ in Millions)	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
3777 AMRAAM	39.334	32.154	33.266	35.155	36.131	36.709	37.276	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

The Air Force and Navy developed the baseline Advanced Medium Range Air-to-Air Missile (AMRAAM) as a high performance, all weather missile to counter existing air vehicle threats operating at high or low altitude and having advanced Electronic Protection (EP) capabilities. The AMRAAM Pre-Planned Product Improvement (P3I) program provides for a continuing, Joint Air Force/Navy research and development program which enables AMRAAM to: (1) be compatible with advanced fighters, (2) enhance AMRAAM capability and operational flexibility against 2005 and beyond threats, (3) incorporate high payoff technology developments, and (4) investigate new variants and/or alternate missions which may use many baseline missile attributes. Currently, improvements under the P3I program include enhanced electronic protection (EP) and electronic attack (EA) capabilities; improved weapon effectiveness through improved fuzing, guidance, and increased kinematics. AMRAAM is a joint Air Force/Navy, Acquisition Category (ACAT) IC program with Air Force as lead service.

This program is in budget activity 7 - Operational System Development, providing upgrades to the AIM-120C missile currently in production.

(U) B. Accomplishments/Planned Program ($ in Millions)	FY 2003	FY 2004	FY 2005
(U) Complete P3I Phase 3 improved seeker and advanced EP updates: Perform tasks required to complete EMD testing and verification.	36.482	2.382	
(U) Continue to execute Phase 3 Software Upgrade.	2.500	4.500	5.000
(U) Continue mission support: Provide program management to execute Phase 3 program	0.327	1.361	1.397
(U) Continue test and evaluation: Provide Test Wing support to DOT&E testing	0.025	0.880	1.490
(U) Phase 3 Follow-On (which has been renamed Phase 4): Continue effort to complete qualification of the P3I Phase 4 missile design. Contract was awarded on Dec, 03.		23.031	25.379
(U) Total Cost	39.334	32.154	33.266

(U) C. Other Program Funding Summary ($ in Millions)

	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
(U) Missile Procurement, Budget Activity #2, PE 0207163F, P-1 Line Item, AMRAAM	84.924	104.465	107.354	104.858	102.117	103.568	106.178	0.000	6,946.948
(U) Replenishment Spares, BP25 and Missile Replacement Equipment	0.240	0.188	0.269	0.193	0.193	0.195	0.201	0.000	61.436

Exhibit R-2a, RDT&E Project Justification		DATE February 2004
BUDGET ACTIVITY **07 Operational System Development**	PE NUMBER AND TITLE **0207163F Advanced Medium Range Air-to-Air Missile**	PROJECT NUMBER AND TITLE **3777 AMRAAM**

(U) C. Other Program Funding Summary ($ in Millions)

(U)	Initial Spares, BP26	0.089	0.072	0.072	0.072	0.072	0.072	0.074	0.000	62.322
(U)	Seek Eagle	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.607

(U) D. Acquisition Strategy

The AMRAAM Pre-Planned Product Improvement (P3I) program takes advantage of emerging technologies to update and expand the system capabilities to meet new user requirements. The Phase 1 missile allows internal carriage on the F-22 and JSF with clipped wings and fins as well as providing some software enhancements. The Phase 2 AIM-120 C4 missile adds a new warhead which increases lethality and the AIM-120 C5 missile has a +5 inch rocket motor for kinematic improvements. The first Phase 2 AIM-120 C4 missile was delivered in Aug of FY99. The Phase 2 AIM-120 C5 missiles started delivery in Jul of FY00. The Phase 3 missile is the first major upgrade to the seeker hardware and software to meet performance requirements for the FY04 and out time-period. The Phase 3 Cost Plus Award Fee EMD contract was awarded in Oct FY99. This missile will begin deliveries in FY04. Phase 4, awarded Dec 03, is intended to meet the Operational Requirements Document (ORD) requirement to evolve the AMRAAM for improved High-Off-Boresight (HOBS), kinematics, and electronic protection capabilities. The Missile Performance Specification (MPS) and Interface Control Document (ICD) will define the requirement to integrate the Phase 4 AMRAAM onto the F/A-22.

Exhibit R-3, RDT&E Project Cost Analysis

DATE **February 2004**

BUDGET ACTIVITY
07 Operational System Development

PE NUMBER AND TITLE
0207163F Advanced Medium Range Air-to-Air Missile

PROJECT NUMBER AND TITLE
3777 AMRAAM

(U) Cost Categories (Tailor to WBS, or System/Item Requirements) ($ in Millions)	Contract Method & Type	Performing Activity & Location	Total Prior to FY 2003 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
(U) Product Development												
Misc. Contracts	SS/FFP		12.726	1.066		0.600	Mar-04	0.060		5.656	20.108	20.108
F08635-90-C-0201 Hughes	SS/FFP	Hughes	5.200							0.000	5.200	5.200
F08626-91-C-0034 Hughes	SS/CPIF	Hughes	93.506							0.000	93.506	93.506
F08626-93-C-0044 (Phase 2) Hughes	SS/CPAF	Hughes	117.558							0.000	117.558	117.558
Phase 3 Risk Reduction	SS/CPAF	Raytheon Systems	24.484							0.000	24.484	24.484
Phase 3 Improved Fuzing Capability	SS/CPAF	Raytheon	3.937							0.000	3.937	3.937
Phase 3 Improved Seeker and Advanced EP. Raytheon F08626-98-C-0027	SS/CPAF	DCMA Raytheon, Tucson	169.957	35.416	Oct-02	2.382	Dec-03			0.000	207.755	214.137
Phase 3 Software Upgrade	SS/CPAF	DCMA Raytheon, Tucson	0.000	2.500	Jun-03	4.500	May-04	5.000		0.000	12.000	12.000
Phase 4 Contract FA8675-04-C-0001	SS/CPAF	DCMA Raytheon, Tucson	0.000			22.431	Dec-03	25.319	Feb-06	20.188	67.938	62.725
Phase 4 EMD Follow-On Contract	SS/CPAF		0.000							108.553	108.553	108.553
Subtotal Product Development			427.368	38.982		29.913		30.379		134.397	661.039	662.208
Remarks: *Note: Hughes became part of Raytheon Systems effective Dec 97												
(U) Support												
COEA	PO/MIPR		3.358							0.000	3.358	2.358
Contractor Support	REO/PR		18.780			0.741	Sep-03	0.778	Sep-04	2.849	23.148	23.148
JSPO Operations	PR/IMPAC		19.808	0.327		0.620		0.619		2.508	23.882	23.882
Not Applicable											0.000	
Subtotal Support			41.946	0.327		1.361		1.397		5.357	50.388	49.388
Remarks:												
(U) Test & Evaluation												
Government Test	REO/MIPR		34.921	0.025		0.880		1.490		5.517	42.833	42.833
TM/ECM Pods	REO/MIPR		2.818							0.000	2.818	2.818
Subtotal Test & Evaluation			37.739	0.025		0.880		1.490		5.517	45.651	45.651
Remarks:												
(U) Management												

Exhibit R-3, RDT&E Project Cost Analysis

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BUDGET ACTIVITY
07 Operational System Development

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						0.000	
Subtotal Management	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Remarks:							
(U) Total Cost	507.053	39.334	32.154	33.266	145.271	757.078	757.247

Exhibit R-4, RDT&E Schedule Profile		DATE February 2004
BUDGET ACTIVITY **07 Operational System Development**	PE NUMBER AND TITLE **0207163F Advanced Medium Range Air-to-Air Missile**	PROJECT NUMBER AND TITLE **3777 AMRAAM**

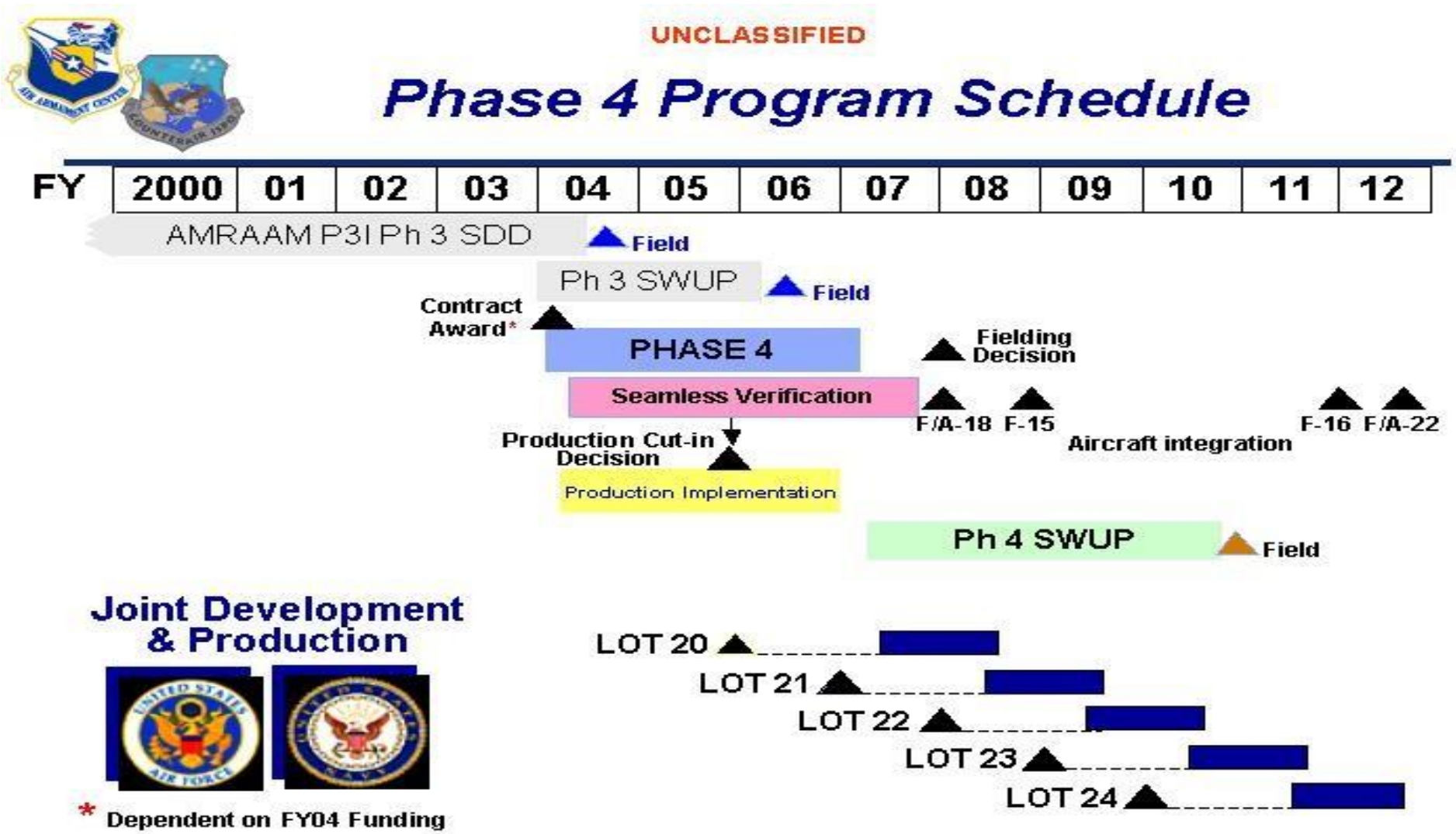

Exhibit R-4a, RDT&E Schedule Detail

DATE
February 2004

BUDGET ACTIVITY
07 Operational System Development

PE NUMBER AND TITLE
0207163F Advanced Medium Range Air-to-Air Missile

PROJECT NUMBER AND TITLE
3777 AMRAAM

(U)	**Schedule Profile**	FY 2003	FY 2004	FY 2005
(U)	P3I Phase 3 Seeker Critical Design Review (CDR)	4Q		
(U)	P3I Phase 3 ACE Flights Complete		1Q	
(U)	P3I Phase 3 Test Readiness Review (TRR)	1Q		
(U)	P3I Phase 3 Functional Configuration Audit (FCA)	4Q		
(U)	P3I Phase 3 Program Complete		1Q	
(U)	P3I Phase 3 Software Upgrade Award	2Q		
(U)	P3I Phase 4 Contract Award		1Q	
(U)	POD 1st Delivery			1Q
(U)	Development Test			2Q