Selected Acquisition Report (SAR)

RCS: DD-A&T(Q&A)823-185

AIM-120 Advanced Medium Range Air-to-Air Missile (AMRAAM)

As of FY 2015 President's Budget

Defense Acquisition Management
Information Retrieval
(DAMIR)

Table of Contents

Common Acronyms and Abbreviations

Acq O&M - Acquisition-Related Operations and Maintenance
APB - Acquisition Program Baseline
APPN - Appropriation
APUC - Average Procurement Unit Cost
BA - Budget Authority/Budget Activity
BY - Base Year
DAMIR - Defense Acquisition Management Information Retrieval
Dev Est - Development Estimate
DoD - Department of Defense
DSN - Defense Switched Network
Econ - Economic
Eng - Engineering
Est - Estimating
FMS - Foreign Military Sales
FY - Fiscal Year
IOC - Initial Operational Capability
$K - Thousands of Dollars
LRIP - Low Rate Initial Production
$M - Millions of Dollars
MILCON - Military Construction
N/A - Not Applicable
O&S - Operating and Support
Oth - Other
PAUC - Program Acquisition Unit Cost
PB - President's Budget
PE - Program Element
Proc - Procurement
Prod Est - Production Estimate
QR - Quantity Related
Qty - Quantity
RDT&E - Research, Development, Test, and Evaluation
SAR - Selected Acquisition Report
Sch - Schedule
Spt - Support
TBD - To Be Determined
TY - Then Year
UCR - Unit Cost Reporting

Program Information

Program Name

AIM-120 Advanced Medium Range Air-to-Air Missile (AMRAAM)

DoD Component

Air Force

Joint Participants

Navy

Responsible Office

Responsible Office

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Date Assigned June 17, 2013

References

SAR Baseline (Production Estimate)

Defense Acquisition Executive (DAE) Approved Acquisition Program Baseline (APB) dated January 17, 1992

Approved APB

Air Force Acquisition Executive (AFAE) Approved Acquisition Program Baseline (APB) dated May 19, 2008

Mission and Description

The Advanced Medium Range Air-to-Air Missile (AMRAAM) AIM-120 program provides for the acquisition of the most advanced all-weather, all-environment medium range air-to-air missile system in response to United States Air Force, United States Navy, North Atlantic Treaty Organization, and other allied operational requirements through 2024. The system is an active radar guided intercept missile with inherent Electronic Protection capabilities for air-to-air applications against massed penetration aircraft and is designed to replace the AIM-7 Sparrow. The AIM-120D, planned to be fielded in FY 2014, will have improved accuracy via Global Positioning System aided navigation, improved network compatibility, and enhanced aircrew survivability via a two-way datalink capability.

Executive Summary

AIM-120D Operational Testing (OT) Schedule: OT shots resumed in January 2014. The Air Force OT team executed shots on January 22, 2014 and February 21, 2014 and the Navy OT team executed shots on January 31, 2014 and February 6, 2014. Overall, OT remains behind its original schedule due to a mid-test software update and other, non-performance related issues. Concerns with AIM-120D reliability and data link drove the mid-OT software update which delayed testing until May 2013. Subsequently, live shot testing was delayed due to the deployment of target drones, target drone grounding due to an unrelated accident, sequestration limitations, workforce furloughs, and an issue with the Eglin Test and Training Range. The final shot is expected by the end of the third quarter FY 2014 with an OT report published 90 days thereafter. Impacts of the schedule delay are being captured in an APB update. There are no significant software related issues with the program.

AIM-120D Operational Testing (OT) Performance: On October 1, 2013, the Joint Reliability and Maintainability Evaluation Team met to review reliability data collected so far during OT. With over 2000 captive flying hours collected, the data indicates the Mean Time Between Failure for missile hardware is 339 hours, exceeding the OT requirement of 120 hours. As of March 25, 2014, six (of seven) OT shots have been executed, with the additional shot forecasted to be completed as noted above.

AIM-120C Basic Electronic Protection Improvement Program (EPIP): The AIM-120C7 effort completed development with a successful Functional Configuration Audit (FCA) in April and entered operational testing. One (of two) OT shots have been successfully executed, with the final shot forecasted for March. Fielding is projected for mid-FY 2014. The AIM-120C-3/4/5/6 EPIP team has a final test shot profile to complete its planned IT flight testing. The subsequent FCA is projected for April 2014, with an Operational Test Ready Review and fielding to follow.

AIM-120C7 Advanced Electronic Protection Improvement Program (AEPIP): The AEPIP Critical Design Review for the first of two planned software tapes was successfully conducted in late-October 2013. The schedule for both tapes is being revised as a result of flight test and hardware-in-the-loop upgrade delays that have already impacted the program, plus a re-assessment of flight test execution forecasts. The fielding dates for Tape 1 is fourth quarter FY 2014 and Tape 2 is fourth quarter FY 2017.

AIM-120D System Improvement Program (SIP): SIP Increment 1 (SIP-1) development continued with captive carriage flight test missions to assess performance. SIP-1 software is forecast to begin OT in first quarter FY 2015 with fielding forecast for fourth quarter FY 2015. A contract for the next increment of SIP (SIP-2) was awarded on December 19, 2013. This 15-month, $17.3M effort will conduct the preliminary software design work to implement the initial EPIP capabilities into the AIM-120D.

Processor Replacement Program (PRP): PRP successfully completed the three planned AIM-120C7 live launches in support of the engineering activities to field the new processor chip for the AIM-120C7 missile. The root cause of boot issue that was discovered during acceptance testing has been identified and corrected. Conditional deliveries of PRP configured AIM-120C7 missiles from Lot 25 began in March 2014. Raytheon is continuing development of the final AIM-120D PRP software and is scheduled to deliver the final live fire flight software in July 2014 to support the remaining test activities, including final avionics bench integration testing (F-15/F-16 and F/A-18). The first of three live fire events with the AIM-120D software was completed successfully in January 2014. AIM-120D PRP FCA is currently scheduled for July 2014.

Form, Fit, Function Refresh (F3R): Phase 1 of the guidance section refresh effort addressing hardware obsolescence is complete following a successful government co- chaired Systems Requirements Review (SRR) on October 23/24, 2013. The SRR panel agreed that all requirements were appropriately captured and flowed to lower levels and that all hardware selections resulting from the Phase 1 studies would meet missile performance

specification requirements. Phase 2 of the F3R program is ongoing with contract award occurring with the production Lot 27 contract. Phase 2 will culminate in a Preliminary Design Review in July/August 2014. Phase 3 is planned for award on the Lot 28 Program Support and Annual Sustainment (PSAS) contract in April 2014.

AIM-120D Production: As of March 5, 2014, Raytheon has delivered 834 AIM-120D and 1,016 AIM-120C7 missiles. Nordic Ammunition Group is currently on schedule with production of rocket motors for both C7 and D missiles. Alliant Tech Systems is using Sidewinder propellant to produce Base Line Rocket Motors (BLRM). ATK has successfully conducted Lot Acceptance Tests on early BLRM production lots. Initial deliveries for Navy and FMS customers planned for second quarter FY 2014.

AIM-120 Lot 28 Production Award: The AMRAAM Lot 28-30 contract proposal was submitted on March 13, 2014. Planned contracted award is December 2014 and will include priced options for Lots 29 and 30 in addition to Lot 28. The program office is currently evaluating the Program Support and Annual Sustainment (PSAS) contract proposal that was submitted by Raytheon on 20 January 2014. Projected contract award for PSAS is NLT April 28, 2014. The PSAS contract will include program support and CLS efforts including PM/engineering tasks, test equipment/tooling upgrades, depot repair, and Diminishing Manufacturing Sources mitigation studies to support Critical Design Review.

AIM-120 Sustainment: Joint missile availability as of February 1, 2013 is 90.9% against an APB threshold of 82%.

There are no significant software related issues with this program at this time.

Threshold Breaches

APB Breaches		
Schedule		☑
Performance		☐
Cost	RDT&E	☑
	Procurement	☐
	MILCON	☐
	Acq O&M	☐
O&S Cost		☐
Unit Cost	PAUC	☐
	APUC	☐

Nunn-McCurdy Breaches		
Current UCR Baseline		
	PAUC	None
	APUC	None
Original UCR Baseline		
	PAUC	None
	APUC	None

Explanation of Breach

The Phase 4 (AIM-120D) Functional Configuration Audit schedule breach was previously reported in the June 2013 SAR.

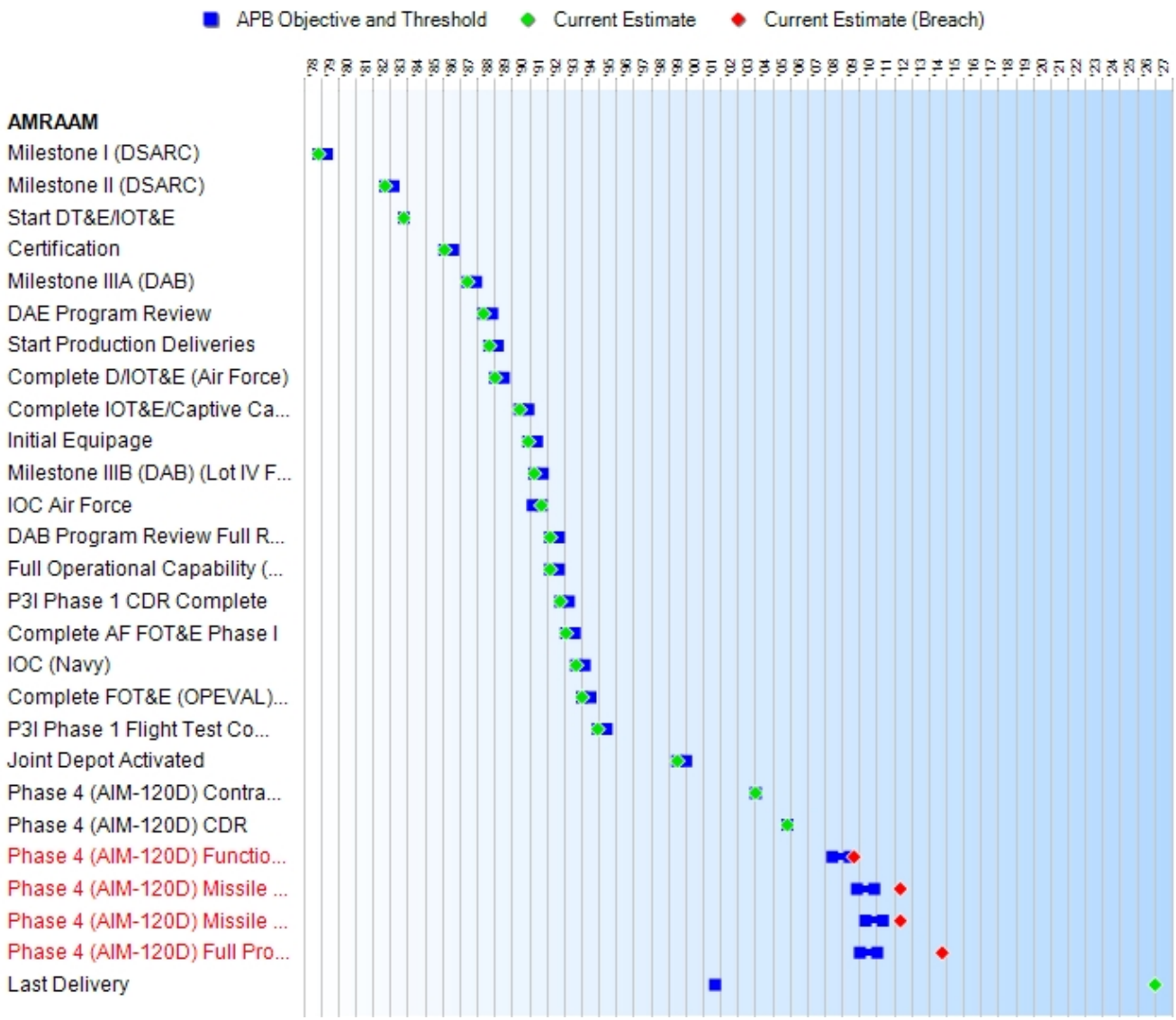
The Phase 4 (AIM-120D) Missile Deliveries to Meet F/A-18 Required Assets Available (RAA) schedule breach was previously reported in the June 2013 SAR.

The Phase 4 (AIM-120D) Full Production Go-ahead schedule breach was previously reported in the June 2013 SAR.

An APB breach on the RDT&E appropriation was caused by Joint AMRAAM RDT&E funding increases throughout the future years defense program.

The program office is staffing an update to the 2008 APB to address these breaches.

Schedule


APB Objective and Threshold
Current Estimate
Current Estimate (Breach)
78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27
AMRAAM
Milestone I (DSARC)
Milestone II (DSARC)
Start DT&E/IOT&E
Certification
Milestone IIIA (DAB)
DAE Program Review
Start Production Deliveries
Complete D/IOT&E (Air Force)
Complete IOT&E/Captive Ca...
Initial Equipage
Milestone IIIB (DAB) (Lot IV F...
IOC Air Force
DAB Program Review Full R...
Full Operational Capability (...
P3I Phase 1 CDR Complete
Complete AF FOT&E Phase I
IOC (Navy)
Complete FOT&E (OPEVAL)...
P3I Phase 1 Flight Test Co...
Joint Depot Activated
Phase 4 (AIM-120D) Contra...
Phase 4 (AIM-120D) CDR
Phase 4 (AIM-120D) Functio...
Phase 4 (AIM-120D) Missile ...
Phase 4 (AIM-120D) Missile ...
Phase 4 (AIM-120D) Full Pro...
Last Delivery

Milestones	SAR Baseline Prod Est	Current APB Production Objective/Threshold		Current Estimate
Milestone I (DSARC)	NOV 1978	NOV 1978	MAY 1979	NOV 1978
Milestone II (DSARC)	SEP 1982	SEP 1982	MAR 1983	SEP 1982
Start DT&E/IOT&E	OCT 1983	N/A	N/A	OCT 1983
Certification	FEB 1986	FEB 1986	AUG 1986	FEB 1986
Milestone IIIA (DAB)	JUN 1987	JUN 1987	DEC 1987	JUN 1987
DAE Program Review	MAY 1988	MAY 1988	NOV 1988	MAY 1988
Start Production Deliveries	SEP 1988	SEP 1988	MAR 1989	SEP 1988
Complete D/IOT&E (Air Force)	JAN 1989	JAN 1989	JUL 1989	JAN 1989
Complete IOT&E/Captive Carry Reliability Program w/Lot 1 Assets (Air Force)	JUN 1990	JUN 1990	DEC 1990	JUN 1990
Initial Equipage	DEC 1990	DEC 1990	JUN 1991	DEC 1990
Milestone IIIB (DAB) (Lot IV Full Go-Ahead Rate Production)	APR 1991	APR 1991	OCT 1991	APR 1991
IOC Air Force	MAR 1991	MAR 1991	SEP 1991	SEP 1991
DAB Program Review Full Rate Production Approval	MAR 1992	MAR 1992	SEP 1992	MAR 1992
Full Operational Capability (FOC) 1st F-16 Unit Fully Operational w/AMRAAMs	MAR 1992	MAR 1992	SEP 1992	MAR 1992
P3I Phase 1 CDR Complete	OCT 1992	OCT 1992	APR 1993	OCT 1992
Complete AF FOT&E Phase I	MAR 1992	FEB 1993	AUG 1993	FEB 1993
IOC (Navy)	SEP 1992	SEP 1993	MAR 1994	SEP 1993
Complete FOT&E (OPEVAL) (Navy)	MAR 1992	JAN 1994	JUL 1994	JAN 1994
P3I Phase 1 Flight Test Completed	DEC 1994	DEC 1994	JUN 1995	DEC 1994
Joint Depot Activated	SEP 1994	JUL 1999	JAN 2000	JUL 1999
Phase 4 (AIM-120D) Contract Award	N/A	JAN 2004	JAN 2004	JAN 2004
Phase 4 (AIM-120D) CDR	N/A	NOV 2005	NOV 2005	NOV 2005
Phase 4 (AIM-120D) Functional Configuration Audit (FCA)	N/A	JUN 2008	JUN 2009	**SEP 2009**[1]
Phase 4 (AIM-120D) Missile Deliveries to Meet F/A-18 RAA	N/A	NOV 2009	NOV 2010	**MAY 2012**[1]
Phase 4 (AIM-120D) Missile Deliveries to Meet F-15C/D RAA	N/A	MAY 2010	MAY 2011	**MAY 2012**[1]
Phase 4 (AIM-120D) Full Production Go-ahead	N/A	JAN 2010	JAN 2011	**OCT 2014**[1] (Ch-1)
Last Delivery	SEP 2001	N/A	N/A	JAN 2027

[1] *APB Breach*

Change Explanations

(Ch-1) The Phase 4 (AIM-120D) Full Production Go-ahead current estimate changed from June 2014 to October 2014 due to delays in the start of OT caused by a mid-OT software release to resolve an underlying software discrepancy.

Memo

The program office is staffing an update to the 2008 APB to address these schedule deviations.

Acronyms and Abbreviations

AF - Air Force
CDR - Critical Design Review
D/IOT&E - Development / Initial Operational Test & Evaluation
DAB - Defense Acquisition Board
DAE - Defense Acquisition Executive
DSARC - Defense Systems Acquisition Review Council
DT&E - Development Test and Evaluation
FOT&E - Follow-on Test and Evaluation
IOT&E - Initial Operational Test and Evaluation
OPEVAL - Operational Evaluation
OT - Operational Test
P3I - Pre-Planned Product Improvement
RAA - Required Assets Available

Performance

Characteristics	SAR Baseline Prod Est	Current APB Production Objective/Threshold		Demonstrated Performance	Current Estimate	
Weight (lbs)	327	327	350	344	345	
Reliability						
Ready Storage (hrs) (mature msl - 90K operational flight hours)	60000	60000	45000	45000	45000	
Availability (%)	86	86	82	90.2	90	
Captive-Carry (MTBM-Type I) (hrs)	600	600	450	1275	1,200	
On Alert Storage MTBM	30000	30000	22500	N/A	30000	
Aircraft Configure/ Load - 3 Man Load Crew						
Install 4 Rail Launchers (mins)	20	20	25	21	21	
Load 4 Missiles from trailer (mins)	15	15	20	18	18	
Load 4 Missiles from container (mins)	20	20	30	22	22	
Missile checks (mins)	1	1	5	1	1	
All Weather Capability	Day, Night, Rain, Clouds	Day, Night, Rain, Clouds	Day, Night, Rain, Clouds	Day, Night, Rain, Clouds	Day, Night, Rain, Clouds	
Aircraft Compatibility	F-15, F-16, F-14, F/A-18	F-15, F-16, F-14, F/A-18	F-15, F-16, F-14, F/A-18	F-15, F-16, F-14, F/A-18	F-15, F-16, F/A-18, F-22	(Ch-1)
All-Up Round	Control Surfaces field installed	Control Surfaces field installed	Control Surfaces field installed	Control Surfaces field in-stalled	Control Surfaces field installed	
Net Ready	N/A	Satisfies NCOW-RM and GIG Information assurance reqmts	Satisfies 100% of enterprise level or critical information reqmts	Satisfies 100% of enterprise level or critical information reqmts	Satisfies 100% of enterprise level or critical information reqmts	
Shipboard Survivability	N/A	Compatible in aircraft carrier electro-magnetic environment	Compatible in aircraft carrier electro-magnetic environment	Compatible in aircraft carrier electro-magnetic environment	Compatible in aircraft carrier electro-magnetic environment	

Classified Performance information is provided in the classified annex to this submission.

Requirements Source

Joint Service Operational Requirement (JSOR) dated May 22, 1991, Operational Requirements Document (ORD) (Combat Air Forces (CAF) 009-76-I/II/III-A) dated March 10, 1997 (revised January 21, 2004), and Capability Production Document (CPD) Phase 4 (AIM-120D) dated June 16, 2005

Change Explanations

(Ch-1) The Aircraft Compatibility current estimate was updated to properly reflect Aircraft Compatibility within CPD. F-14 was removed and F-22 was added. The reference document for this change is the CPD for AMRAAM dated June 16, 2005.

Memo

Availability should increase when the Rocket Motor (RM) issues are resolved and the United States Navy RMs are replaced with new motors.

Acronyms and Abbreviations

GIG - Global Information Grid
hrs - Hours
K - Thousand
lbs - Pounds
mins - Minutes
msl - Missile
MTBM - Mean Time Between Maintenance
NCOW-RM - Net Centric Operations and Warfare Reference Model
reqmts - Requirements

Track to Budget

RDT&E

Appn		BA	PE		
Navy	1319	07	0207163N		
	Project		**Name**		
	0981		AMRAAM		
Navy	1319	07	0603370N		
	Project		**Name**		
	UNK		Beyond Visual Range, Air-to-Air Missile (BVRAAM), FY 1978-1981.		(Sunk)
Navy	1319	07	0604314N		
	Project		**Name**		
	W0981		(AMRAAM), FY 1982-1992		(Sunk)
Air Force	3600	07	0207163F		
	Project		**Name**		
	673777		AMRAAM		
Air Force	3600	07	0603370F		
	Project		**Name**		
	2437		(AMRAAM), FY 1978-1982		(Sunk)
Air Force	3600	07	0604314F		
	Project		**Name**		
	3096		(AMRAAM), FY 1982-1992		(Sunk)

Procurement

Appn		BA	PE		
Navy	1507	02	0204162N		
	Line Item		**Name**		
	220600		AMRAAM		
Navy	1507	02	0206138M		
	Line Item		**Name**		
	220600		AMRAAM		
Navy	1507	06	0204162N		
	Line Item		**Name**		
	6120		Spares and Repair Parts	(Shared)	
Air Force	3020	04	0207163F		
	Line Item		**Name**		
	000999		Initial Spares / Repair Parts	(Shared)	
	00099A		Initial Spares / Repair Parts		(Sunk)

	00099K		Initial Spares / Repair Parts		(Sunk)
Air Force	3020	01	0207163F		
	Line Item		**Name**		
	00099L		Missile Replacement Equipment - Ballistic	(Shared)	(Sunk)
Air Force	3020	02	0207163F		
	Line Item		**Name**		
	MAMRAO		AMRAAM		

Cost and Funding

Cost Summary

Total Acquisition Cost and Quantity

Appropriation	BY1992 $M			BY1992 $M	TY $M		
	SAR Baseline Prod Est	Current APB Production Objective/Threshold		Current Estimate	SAR Baseline Prod Est	Current APB Production Objective	Current Estimate
RDT&E	1725.7	2481.6	2729.8	**2862.8** [1]	1350.6	2355.4	2952.5
Procurement	10552.5	13231.6	14554.8	13574.7	11761.8	17061.9	17499.8
Flyaway	--	--	--	12710.5	--	--	16333.0
Recurring	--	--	--	10831.4	--	--	14434.1
Non Recurring	--	--	--	1879.1	--	--	1898.9
Support	--	--	--	864.2	--	--	1166.8
Other Support	--	--	--	735.1	--	--	1006.1
Initial Spares	--	--	--	129.1	--	--	160.7
MILCON	0.0	0.0	--	0.0	0.0	0.0	0.0
Acq O&M	0.0	0.0	--	0.0	0.0	0.0	0.0
Total	12278.2	15713.2	N/A	16437.5	13112.4	19417.3	20452.3

[1] ***APB Breach***

An APB breach on the RDT&E appropriation was caused by Joint AMRAAM RDT&E funding increases throughout the Future Years Defense Program (FYDP). The program office is staffing an update to the 2008 APB to address this cost deviation.

Quantity	SAR Baseline Prod Est	Current APB Production	Current Estimate
RDT&E	0	0	0
Procurement	15450	17024	16427
Total	15450	17024	16427

FY 2015 PB documentation included inflation adjustments across the FYDP but corresponding quantity changes based on the Program Office Estimate were not included.

Cost and Funding

Funding Summary

Appropriation and Quantity Summary
FY2015 President's Budget / December 2013 SAR (TY$ M)

Appropriation	Prior	FY2014	FY2015	FY2016	FY2017	FY2018	FY2019	To Complete	Total
RDT&E	2252.4	73.2	92.4	79.0	100.2	108.3	98.6	148.4	2952.5
Procurement	10227.6	406.9	364.7	565.8	616.0	727.8	780.3	3810.7	17499.8
MILCON	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Acq O&M	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PB 2015 Total	12480.0	480.1	457.1	644.8	716.2	836.1	878.9	3959.1	20452.3
PB 2014 Total	12605.0	523.5	571.6	582.8	601.3	634.9	639.0	3974.9	20133.0
Delta	-125.0	-43.4	-114.5	62.0	114.9	201.2	239.9	-15.8	319.3

Quantity	Undistributed	Prior	FY2014	FY2015	FY2016	FY2017	FY2018	FY2019	To Complete	Total
Development	0	0	0	0	0	0	0	0	0	0
Production	0	10996	227	200	380	424	602	662	2936	16427
PB 2015 Total	0	10996	227	200	380	424	602	662	2936	16427
PB 2014 Total	0	10996	253	298	348	368	453	473	3064	16253
Delta	0	0	-26	-98	32	56	149	189	-128	174

Cost and Funding

Annual Funding By Appropriation

Annual Funding TY$
1319 | RDT&E | Research, Development, Test, and Evaluation, Navy

Fiscal Year	Quantity	End Item Recurring Flyaway TY $M	Non End Item Recurring Flyaway TY $M	Non Recurring Flyaway TY $M	Total Flyaway TY $M	Total Support TY $M	Total Program TY $M
1978	--	--	--	--	--	--	6.0
1979	--	--	--	--	--	--	18.3
1980	--	--	--	--	--	--	27.3
1981	--	--	--	--	--	--	24.2
1982	--	--	--	--	--	--	3.3
1983	--	--	--	--	--	--	4.3
1984	--	--	--	--	--	--	7.3
1985	--	--	--	--	--	--	7.8
1986	--	--	--	--	--	--	4.2
1987	--	--	--	--	--	--	5.0
1988	--	--	--	--	--	--	22.3
1989	--	--	--	--	--	--	12.4
1990	--	--	--	--	--	--	6.9
1991	--	--	--	--	--	--	3.5
1992	--	--	--	--	--	--	2.5
1993	--	--	--	--	--	--	3.1
1994	--	--	--	--	--	--	--
1995	--	--	--	--	--	--	7.8
1996	--	--	--	--	--	--	4.3
1997	--	--	--	--	--	--	2.1
1998	--	--	--	--	--	--	5.5
1999	--	--	--	--	--	--	4.5
2000	--	--	--	--	--	--	12.8
2001	--	--	--	--	--	--	11.3
2002	--	--	--	--	--	--	9.7
2003	--	--	--	--	--	--	7.7

2004	--	--	--	--	--	--	8.7
2005	--	--	--	--	--	--	8.5
2006	--	--	--	--	--	--	3.4
2007	--	--	--	--	--	--	6.1
2008	--	--	--	--	--	--	2.5
2009	--	--	--	--	--	--	6.7
2010	--	--	--	--	--	--	3.6
2011	--	--	--	--	--	--	2.5
2012	--	--	--	--	--	--	2.7
2013	--	--	--	--	--	--	2.7
2014	--	--	--	--	--	--	2.6
2015	--	--	--	--	--	--	10.2
2016	--	--	--	--	--	--	32.5
2017	--	--	--	--	--	--	44.3
2018	--	--	--	--	--	--	46.2
2019	--	--	--	--	--	--	32.3
2020	--	--	--	--	--	--	3.2
2021	--	--	--	--	--	--	3.2
2022	--	--	--	--	--	--	3.6
2023	--	--	--	--	--	--	3.7
2024	--	--	--	--	--	--	3.8
Subtotal	**--**	**--**	**--**	**--**	**--**	**--**	**457.1**

Annual Funding BY$
1319 | RDT&E | Research, Development, Test, and Evaluation, Navy

Fiscal Year	Quantity	End Item Recurring Flyaway BY 1992 $M	Non End Item Recurring Flyaway BY 1992 $M	Non Recurring Flyaway BY 1992 $M	Total Flyaway BY 1992 $M	Total Support BY 1992 $M	Total Program BY 1992 $M
1978	--	--	--	--	--	--	11.7
1979	--	--	--	--	--	--	32.3
1980	--	--	--	--	--	--	43.5
1981	--	--	--	--	--	--	35.4
1982	--	--	--	--	--	--	4.6
1983	--	--	--	--	--	--	5.7
1984	--	--	--	--	--	--	9.4
1985	--	--	--	--	--	--	9.7
1986	--	--	--	--	--	--	5.1
1987	--	--	--	--	--	--	5.9
1988	--	--	--	--	--	--	25.3
1989	--	--	--	--	--	--	13.5
1990	--	--	--	--	--	--	7.2
1991	--	--	--	--	--	--	3.5
1992	--	--	--	--	--	--	2.5
1993	--	--	--	--	--	--	3.0
1994	--	--	--	--	--	--	--
1995	--	--	--	--	--	--	7.2
1996	--	--	--	--	--	--	3.9
1997	--	--	--	--	--	--	1.9
1998	--	--	--	--	--	--	4.9
1999	--	--	--	--	--	--	4.0
2000	--	--	--	--	--	--	11.1
2001	--	--	--	--	--	--	9.7
2002	--	--	--	--	--	--	8.2
2003	--	--	--	--	--	--	6.4
2004	--	--	--	--	--	--	7.1
2005	--	--	--	--	--	--	6.7
2006	--	--	--	--	--	--	2.6

2007	--	--	--	--	--	--	4.6
2008	--	--	--	--	--	--	1.8
2009	--	--	--	--	--	--	4.9
2010	--	--	--	--	--	--	2.6
2011	--	--	--	--	--	--	1.7
2012	--	--	--	--	--	--	1.9
2013	--	--	--	--	--	--	1.8
2014	--	--	--	--	--	--	1.7
2015	--	--	--	--	--	--	6.7
2016	--	--	--	--	--	--	20.8
2017	--	--	--	--	--	--	27.8
2018	--	--	--	--	--	--	28.4
2019	--	--	--	--	--	--	19.5
2020	--	--	--	--	--	--	1.9
2021	--	--	--	--	--	--	1.9
2022	--	--	--	--	--	--	2.0
2023	--	--	--	--	--	--	2.1
2024	--	--	--	--	--	--	2.1
Subtotal	**--**	**--**	**--**	**--**	**--**	**--**	**426.2**

Annual Funding TY$
3600 | RDT&E | Research, Development, Test, and Evaluation, Air Force

Fiscal Year	Quantity	End Item Recurring Flyaway TY $M	Non End Item Recurring Flyaway TY $M	Non Recurring Flyaway TY $M	Total Flyaway TY $M	Total Support TY $M	Total Program TY $M
1977	--	--	--	--	--	--	4.8
1978	--	--	--	--	--	--	6.7
1979	--	--	--	--	--	--	16.1
1980	--	--	--	--	--	--	26.2
1981	--	--	--	--	--	--	22.9
1982	--	--	--	--	--	--	137.9
1983	--	--	--	--	--	--	212.9
1984	--	--	--	--	--	--	197.3
1985	--	--	--	--	--	--	206.6
1986	--	--	--	--	--	--	91.1
1987	--	--	--	--	--	--	37.7
1988	--	--	--	--	--	--	26.7
1989	--	--	--	--	--	--	--
1990	--	--	--	--	--	--	11.9
1991	--	--	--	--	--	--	17.9
1992	--	--	--	--	--	--	30.3
1993	--	--	--	--	--	--	38.9
1994	--	--	--	--	--	--	64.8
1995	--	--	--	--	--	--	63.8
1996	--	--	--	--	--	--	44.2
1997	--	--	--	--	--	--	9.7
1998	--	--	--	--	--	--	39.2
1999	--	--	--	--	--	--	33.5
2000	--	--	--	--	--	--	49.4
2001	--	--	--	--	--	--	50.4
2002	--	--	--	--	--	--	53.5
2003	--	--	--	--	--	--	39.3
2004	--	--	--	--	--	--	31.0
2005	--	--	--	--	--	--	31.9

2006	--	--	--	--	--	--	25.1
2007	--	--	--	--	--	--	33.4
2008	--	--	--	--	--	--	36.4
2009	--	--	--	--	--	--	39.5
2010	--	--	--	--	--	--	49.8
2011	--	--	--	--	--	--	62.0
2012	--	--	--	--	--	--	69.4
2013	--	--	--	--	--	--	68.7
2014	--	--	--	--	--	--	70.6
2015	--	--	--	--	--	--	82.2
2016	--	--	--	--	--	--	46.5
2017	--	--	--	--	--	--	55.9
2018	--	--	--	--	--	--	62.1
2019	--	--	--	--	--	--	66.3
2020	--	--	--	--	--	--	44.9
2021	--	--	--	--	--	--	21.0
2022	--	--	--	--	--	--	21.4
2023	--	--	--	--	--	--	21.8
2024	--	--	--	--	--	--	21.8
Subtotal	**--**	**--**	**--**	**--**	**--**	**--**	**2495.4**

Annual Funding BY$
3600 | RDT&E | Research, Development, Test, and Evaluation, Air Force

Fiscal Year	Quantity	End Item Recurring Flyaway BY 1992 $M	Non End Item Recurring Flyaway BY 1992 $M	Non Recurring Flyaway BY 1992 $M	Total Flyaway BY 1992 $M	Total Support BY 1992 $M	Total Program BY 1992 $M
1977	--	--	--	--	--	--	10.3
1978	--	--	--	--	--	--	13.2
1979	--	--	--	--	--	--	29.5
1980	--	--	--	--	--	--	43.2
1981	--	--	--	--	--	--	34.1
1982	--	--	--	--	--	--	192.0
1983	--	--	--	--	--	--	283.2
1984	--	--	--	--	--	--	252.7
1985	--	--	--	--	--	--	255.9
1986	--	--	--	--	--	--	110.2
1987	--	--	--	--	--	--	43.6
1988	--	--	--	--	--	--	30.1
1989	--	--	--	--	--	--	--
1990	--	--	--	--	--	--	12.4
1991	--	--	--	--	--	--	18.0
1992	--	--	--	--	--	--	29.6
1993	--	--	--	--	--	--	37.2
1994	--	--	--	--	--	--	60.9
1995	--	--	--	--	--	--	58.9
1996	--	--	--	--	--	--	40.1
1997	--	--	--	--	--	--	8.7
1998	--	--	--	--	--	--	34.8
1999	--	--	--	--	--	--	29.5
2000	--	--	--	--	--	--	42.8
2001	--	--	--	--	--	--	43.1
2002	--	--	--	--	--	--	45.2
2003	--	--	--	--	--	--	32.8
2004	--	--	--	--	--	--	25.2
2005	--	--	--	--	--	--	25.3

2006	--	--	--	--	--	--	19.3
2007	--	--	--	--	--	--	25.1
2008	--	--	--	--	--	--	26.8
2009	--	--	--	--	--	--	28.7
2010	--	--	--	--	--	--	35.7
2011	--	--	--	--	--	--	43.6
2012	--	--	--	--	--	--	48.0
2013	--	--	--	--	--	--	46.7
2014	--	--	--	--	--	--	47.2
2015	--	--	--	--	--	--	53.9
2016	--	--	--	--	--	--	29.9
2017	--	--	--	--	--	--	35.3
2018	--	--	--	--	--	--	38.4
2019	--	--	--	--	--	--	40.2
2020	--	--	--	--	--	--	26.7
2021	--	--	--	--	--	--	12.2
2022	--	--	--	--	--	--	12.2
2023	--	--	--	--	--	--	12.2
2024	--	--	--	--	--	--	12.0
Subtotal	**--**	**--**	**--**	**--**	**--**	**--**	**2436.6**

Annual Funding TY$
1507 | Procurement | Weapons Procurement, Navy

Fiscal Year	Quantity	End Item Recurring Flyaway TY $M	Non End Item Recurring Flyaway TY $M	Non Recurring Flyaway TY $M	Total Flyaway TY $M	Total Support TY $M	Total Program TY $M
1989	26	26.0	--	2.7	28.7	2.5	31.2
1990	85	61.5	--	18.7	80.2	4.9	85.1
1991	300	191.5	--	52.9	244.4	17.5	261.9
1992	191	115.3	--	38.0	153.3	41.2	194.5
1993	165	72.5	--	20.3	92.8	12.4	105.2
1994	75	26.7	--	21.5	48.2	8.6	56.8
1995	106	40.5	--	24.6	65.1	9.9	75.0
1996	115	35.2	--	28.5	63.7	10.0	73.7
1997	100	30.4	--	16.3	46.7	6.0	52.7
1998	120	38.1	--	10.1	48.2	6.3	54.5
1999	100	36.5	--	9.0	45.5	5.4	50.9
2000	91	33.5	--	10.0	43.5	2.5	46.0
2001	63	25.3	--	9.1	34.4	3.4	37.8
2002	55	20.4	--	12.9	33.3	3.5	36.8
2003	76	34.4	--	12.5	46.9	3.5	50.4
2004	42	18.5	--	15.0	33.5	3.8	37.3
2005	37	16.4	--	9.4	25.8	3.0	28.8
2006	48	40.4	--	30.2	70.6	3.2	73.8
2007	42	60.4	--	25.0	85.4	3.4	88.8
2008	52	75.8	--	7.5	83.3	2.7	86.0
2009	57	80.3	--	2.4	82.7	2.6	85.3
2010	71	135.3	--	--	135.3	3.3	138.6
2011	101	134.2	--	--	134.2	5.0	139.2
2012	67	93.3	--	--	93.3	5.5	98.8
2013	67	81.1	--	--	81.1	6.4	87.5
2014	44	75.8	--	1.5	77.3	6.5	83.8
2015	--	--	31.5	--	31.5	1.5	33.0
2016	138	191.3	--	--	191.3	4.5	195.8
2017	154	209.0	--	--	209.0	2.8	211.8

2018	233	265.4	--	2.0	267.4	3.2	270.6
2019	274	310.5	--	--	310.5	6.9	317.4
2020	222	266.1	--	--	266.1	7.7	273.8
2021	263	311.4	--	8.0	319.4	8.4	327.8
2022	313	366.8	--	--	366.8	9.3	376.1
2023	315	372.6	--	4.5	377.1	9.9	387.0
2024	253	335.8	--	--	335.8	20.3	356.1
Subtotal	**4461**	**4228.2**	**31.5**	**392.6**	**4652.3**	**257.5**	**4909.8**

Annual Funding BY$
1507 | Procurement | Weapons Procurement, Navy

Fiscal Year	Quantity	End Item Recurring Flyaway BY 1992 $M	Non End Item Recurring Flyaway BY 1992 $M	Non Recurring Flyaway BY 1992 $M	Total Flyaway BY 1992 $M	Total Support BY 1992 $M	Total Program BY 1992 $M
1989	26	27.1	--	2.9	30.0	2.6	32.6
1990	85	62.0	--	18.9	80.9	4.9	85.8
1991	300	188.4	--	52.0	240.4	17.2	257.6
1992	191	110.6	--	36.5	147.1	39.5	186.6
1993	165	68.3	--	19.1	87.4	11.7	99.1
1994	75	24.7	--	19.9	44.6	7.9	52.5
1995	106	36.8	--	22.4	59.2	9.0	68.2
1996	115	31.6	--	25.6	57.2	9.0	66.2
1997	100	27.0	--	14.6	41.6	5.3	46.9
1998	120	33.5	--	8.9	42.4	5.5	47.9
1999	100	31.7	--	7.8	39.5	4.7	44.2
2000	91	28.7	--	8.5	37.2	2.2	39.4
2001	63	21.4	--	7.7	29.1	2.9	32.0
2002	55	17.1	--	10.7	27.8	3.0	30.8
2003	76	28.2	--	10.3	38.5	2.8	41.3
2004	42	14.7	--	12.0	26.7	3.0	29.7
2005	37	12.7	--	7.3	20.0	2.3	22.3
2006	48	30.6	--	22.8	53.4	2.4	55.8
2007	42	44.7	--	18.5	63.2	2.5	65.7
2008	52	55.2	--	5.6	60.8	1.9	62.7
2009	57	57.7	--	1.7	59.4	1.9	61.3
2010	71	95.5	--	--	95.5	2.3	97.8
2011	101	92.9	--	--	92.9	3.5	96.4
2012	67	63.5	--	--	63.5	3.8	67.3
2013	67	54.3	--	--	54.3	4.3	58.6
2014	44	49.9	--	1.0	50.9	4.3	55.2
2015	--	--	20.3	--	20.3	1.0	21.3
2016	138	121.1	--	--	121.1	2.9	124.0
2017	154	129.8	--	--	129.8	1.7	131.5

2018	233	161.6	--	1.1	162.7	2.0	164.7
2019	274	185.3	--	--	185.3	4.1	189.4
2020	222	155.7	--	--	155.7	4.5	160.2
2021	263	178.6	--	4.6	183.2	4.8	188.0
2022	313	206.3	--	--	206.3	5.2	211.5
2023	315	205.4	--	2.5	207.9	5.5	213.4
2024	253	181.5	--	--	181.5	11.0	192.5
Subtotal	**4461**	**2834.1**	**20.3**	**342.9**	**3197.3**	**203.1**	**3400.4**

Annual Funding TY$
3020 | Procurement | Missile Procurement, Air Force

Fiscal Year	Quantity	End Item Recurring Flyaway TY $M	Non End Item Recurring Flyaway TY $M	Non Recurring Flyaway TY $M	Total Flyaway TY $M	Total Support TY $M	Total Program TY $M
1984	--	--	--	29.2	29.2	--	29.2
1985	--	--	--	74.1	74.1	--	74.1
1986	--	--	--	193.8	193.8	4.1	197.9
1987	180	405.2	--	170.4	575.6	20.5	596.1
1988	400	535.5	--	160.6	696.1	15.2	711.3
1989	874	667.3	--	102.6	769.9	16.3	786.2
1990	803	576.3	--	88.4	664.7	17.9	682.6
1991	600	397.5	--	190.2	587.7	24.2	611.9
1992	700	438.5	--	73.2	511.7	18.1	529.8
1993	1000	422.2	--	140.5	562.7	30.6	593.3
1994	983	347.1	--	81.5	428.6	18.4	447.0
1995	412	123.3	--	75.5	198.8	31.7	230.5
1996	291	146.2	--	21.7	167.9	11.9	179.8
1997	133	93.6	--	10.8	104.4	8.2	112.6
1998	173	53.6	--	44.6	98.2	4.8	103.0
1999	180	67.0	--	22.4	89.4	1.0	90.4
2000	163	68.4	--	6.2	74.6	9.2	83.8
2001	170	75.3	--	9.4	84.7	10.6	95.3
2002	190	80.5	--	7.1	87.6	12.6	100.2
2003	124	69.9	--	4.1	74.0	11.0	85.0
2004	159	84.6	--	--	84.6	13.8	98.4
2005	159	87.7	--	--	87.7	19.2	106.9
2006	84	99.9	--	--	99.9	2.2	102.1
2007	59	103.9	--	--	103.9	11.6	115.5
2008	133	167.2	--	--	167.2	27.2	194.4
2009	133	161.3	--	--	161.3	45.8	207.1
2010	170	248.4	--	--	248.4	29.1	277.5
2011	246	311.9	--	--	311.9	28.2	340.1
2012	112	146.7	--	--	146.7	20.9	167.6

2013	113	176.5	--	--	176.5	24.9	201.4
2014	183	294.9	--	--	294.9	28.2	323.1
2015	200	295.3	--	--	295.3	36.4	331.7
2016	242	334.1	--	--	334.1	35.9	370.0
2017	270	367.3	--	--	367.3	36.9	404.2
2018	369	419.3	--	--	419.3	37.9	457.2
2019	388	424.0	--	--	424.0	38.9	462.9
2020	300	359.5	--	--	359.5	39.7	399.2
2021	308	366.7	--	--	366.7	40.4	407.1
2022	317	375.3	--	--	375.3	41.2	416.5
2023	323	386.0	--	--	386.0	41.9	427.9
2024	322	396.5	--	--	396.5	42.7	439.2
Subtotal	**11966**	**10174.4**	**--**	**1506.3**	**11680.7**	**909.3**	**12590.0**

Annual Funding BY$
3020 | Procurement | Missile Procurement, Air Force

Fiscal Year	Quantity	End Item Recurring Flyaway BY 1992 $M	Non End Item Recurring Flyaway BY 1992 $M	Non Recurring Flyaway BY 1992 $M	Total Flyaway BY 1992 $M	Total Support BY 1992 $M	Total Program BY 1992 $M
1984	--	--	--	36.0	36.0	--	36.0
1985	--	--	--	88.9	88.9	--	88.9
1986	--	--	--	222.1	222.1	4.7	226.8
1987	180	445.0	--	187.1	632.1	22.6	654.7
1988	400	567.6	--	170.2	737.8	16.1	753.9
1989	874	677.3	--	104.0	781.3	16.6	797.9
1990	803	574.4	--	88.1	662.5	17.8	680.3
1991	600	384.9	--	184.2	569.1	23.4	592.5
1992	700	419.5	--	70.0	489.5	17.3	506.8
1993	1000	395.9	--	131.8	527.7	28.7	556.4
1994	983	319.1	--	75.0	394.1	16.9	411.0
1995	412	112.3	--	68.7	181.0	28.9	209.9
1996	291	131.4	--	19.5	150.9	10.7	161.6
1997	133	83.0	--	9.5	92.5	7.3	99.8
1998	173	47.1	--	39.1	86.2	4.2	90.4
1999	180	58.1	--	19.4	77.5	0.9	78.4
2000	163	58.6	--	5.3	63.9	8.0	71.9
2001	170	63.9	--	8.0	71.9	8.9	80.8
2002	190	67.2	--	5.9	73.1	10.5	83.6
2003	124	57.6	--	3.4	61.0	9.1	70.1
2004	159	68.3	--	--	68.3	11.1	79.4
2005	159	68.8	--	--	68.8	15.1	83.9
2006	84	76.2	--	--	76.2	1.7	77.9
2007	59	77.3	--	--	77.3	8.6	85.9
2008	133	122.2	--	--	122.2	19.8	142.0
2009	133	116.2	--	--	116.2	33.0	149.2
2010	170	176.4	--	--	176.4	20.7	197.1
2011	246	216.9	--	--	216.9	19.7	236.6
2012	112	100.3	--	--	100.3	14.2	114.5

2013	113	117.4	--	--	117.4	16.6	134.0
2014	183	192.7	--	--	192.7	18.4	211.1
2015	200	189.3	--	--	189.3	23.4	212.7
2016	242	210.0	--	--	210.0	22.6	232.6
2017	270	226.4	--	--	226.4	22.7	249.1
2018	369	253.4	--	--	253.4	22.9	276.3
2019	388	251.2	--	--	251.2	23.0	274.2
2020	300	208.8	--	--	208.8	23.1	231.9
2021	308	208.8	--	--	208.8	23.0	231.8
2022	317	209.5	--	--	209.5	23.0	232.5
2023	323	211.3	--	--	211.3	22.9	234.2
2024	322	212.7	--	--	212.7	23.0	235.7
Subtotal	**11966**	**7977.0**	**--**	**1536.2**	**9513.2**	**661.1**	**10174.3**

Low Rate Initial Production

	Initial LRIP Decision	Current Total LRIP
Approval Date	6/4/1987	5/23/1991
Approved Quantity	810	4159
Reference	Milestone IIIA ADM	Milestone IIIB ADM
Start Year	1987	1987
End Year	1989	1992

The Current Total LRIP Quantity is more than 10% of the total production quantity due to the LRIP extension to include 6 lots, FY 1987 through FY 1992. The follow-on DAB Program Review, held on April 23, 1992, approved Full Rate Production for Lot VII (FY 1993) procurement. The original LRIP decision during the Milestone IIIA review by the Defense Acquisition Board (DAB) in June 1987 to procure 810 LRIP missiles which covered 2 lots. On May 23, 1991, the DAB for Milestone IIIB approved a procurement quantity of 4,159 missiles.

Foreign Military Sales

Classified FMS information is provided in the classified annex to this submission.

Nuclear Costs

None

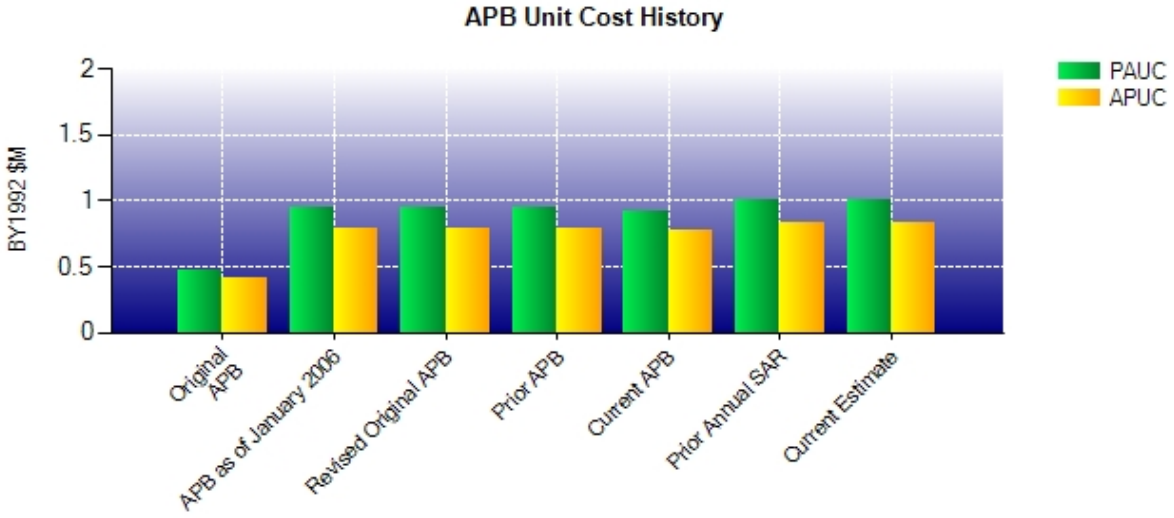
Unit Cost

Unit Cost Report

Unit Cost	BY1992 $M Current UCR Baseline (MAY 2008 APB)	BY1992 $M Current Estimate (DEC 2013 SAR)	BY % Change
Program Acquisition Unit Cost (PAUC)			
Cost	15713.2	16437.5	
Quantity	17024	16427	
Unit Cost	0.923	1.001	+8.45
Average Procurement Unit Cost (APUC)			
Cost	13231.6	13574.7	
Quantity	17024	16427	
Unit Cost	0.777	0.826	+6.31

Unit Cost	BY1992 $M Revised Original UCR Baseline (SEP 1996 APB)	BY1992 $M Current Estimate (DEC 2013 SAR)	BY % Change
Program Acquisition Unit Cost (PAUC)			
Cost	12302.9	16437.5	
Quantity	13038	16427	
Unit Cost	0.944	1.001	+6.04
Average Procurement Unit Cost (APUC)			
Cost	10205.7	13574.7	
Quantity	13038	16427	
Unit Cost	0.783	0.826	+5.49

Unit Cost History



		BY1992 $M		TY $M	
	Date	PAUC	APUC	PAUC	APUC
Original APB	DEC 1988	0.471	0.409	0.460	0.413
APB as of January 2006	SEP 1996	0.944	0.783	1.022	0.883
Revised Original APB	SEP 1996	0.944	0.783	1.022	0.883
Prior APB	SEP 1996	0.944	0.783	1.022	0.883
Current APB	MAY 2008	0.923	0.777	1.141	1.002
Prior Annual SAR	DEC 2012	0.998	0.831	1.239	1.071
Current Estimate	DEC 2013	1.001	0.826	1.245	1.065

SAR Unit Cost History

Current SAR Baseline to Current Estimate (TY $M)

Initial PAUC Prod Est	Changes								PAUC Current Est
	Econ	Qty	Sch	Eng	Est	Oth	Spt	Total	
0.849	-0.010	0.001	0.166	0.070	0.132	0.000	0.037	0.396	1.245

Current SAR Baseline to Current Estimate (TY $M)

Initial APUC Prod Est	Changes								APUC Current Est
	Econ	Qty	Sch	Eng	Est	Oth	Spt	Total	
0.761	-0.008	0.007	0.164	0.031	0.073	0.000	0.037	0.304	1.065

SAR Baseline History

Item/Event	SAR Planning Estimate (PE)	SAR Development Estimate (DE)	SAR Production Estimate (PdE)	Current Estimate
Milestone I	N/A	NOV 1978	NOV 1978	NOV 1978
Milestone II	N/A	NOV 1982	SEP 1982	SEP 1982
Milestone III	N/A	DEC 1984	APR 1991	APR 1991
IOC	N/A	SEP 1986	SEP 1992	SEP 1993
Total Cost (TY $M)	N/A	11591.6	13112.4	20452.3
Total Quantity	N/A	24335	15450	16427
Prog. Acq. Unit Cost (PAUC)	N/A	0.476	0.849	1.245

Cost Variance

Summary Then Year $M				
	RDT&E	Proc	MILCON	Total
SAR Baseline (Prod Est)	1350.6	11761.8	--	13112.4
Previous Changes				
Economic	-33.1	-76.8	--	-109.9
Quantity	--	+729.2	--	+729.2
Schedule	+27.5	+2614.4	--	+2641.9
Engineering	+643.8	+500.8	--	+1144.6
Estimating	+706.5	+1118.0	--	+1824.5
Other	--	--	--	--
Support	--	+632.4	--	+632.4
Subtotal	+1344.7	+5518.0	--	+6862.7
Current Changes				
Economic	-4.3	-51.2	--	-55.5
Quantity	--	+119.5	--	+119.5
Schedule	-1.0	+84.7	--	+83.7
Engineering	--	+6.9	--	+6.9
Estimating	+262.5	+83.1	--	+345.6
Other	--	--	--	--
Support	--	-23.0	--	-23.0
Subtotal	+257.2	+220.0	--	+477.2
Total Changes	+1601.9	+5738.0	--	+7339.9
CE - Cost Variance	2952.5	17499.8	--	20452.3
CE - Cost & Funding	2952.5	17499.8	--	20452.3

Summary Base Year 1992 $M				
	RDT&E	Proc	MILCON	Total
SAR Baseline (Prod Est)	1725.7	10552.5	--	12278.2
Previous Changes				
Economic	--	--	--	--
Quantity	--	+491.5	--	+491.5
Schedule	+14.3	+1140.7	--	+1155.0
Engineering	+510.9	+371.1	--	+882.0
Estimating	+450.7	+491.0	--	+941.7
Other	--	--	--	--
Support	--	+363.4	--	+363.4
Subtotal	+975.9	+2857.7	--	+3833.6
Current Changes				
Economic	--	--	--	--
Quantity	--	+64.1	--	+64.1
Schedule	-0.7	+58.7	--	+58.0
Engineering	--	+3.7	--	+3.7
Estimating	+161.9	+51.4	--	+213.3
Other	--	--	--	--
Support	--	-13.4	--	-13.4
Subtotal	+161.2	+164.5	--	+325.7
Total Changes	+1137.1	+3022.2	--	+4159.3
CE - Cost Variance	2862.8	13574.7	--	16437.5
CE - Cost & Funding	2862.8	13574.7	--	16437.5

Previous Estimate: June 2013

RDT&E	$M	
Current Change Explanations	**Base Year**	**Then Year**
Revised escalation indices. (Economic)	N/A	-4.3
Adjustment for current and prior escalation. (Estimating)	+1.2	+1.7
Revised estimate to reflect the application of new outyear escalation indices (Navy). (Estimating)	+0.2	+0.4
Revised estimate to reflect the application of new outyear escalation indices (Air Force). (Estimating)	+1.4	+2.2
Revised estimates due to sequestration reduction in FY 2014 which impacted program development schedule (Air Force). (Estimating)	-9.0	-13.6
Increase to System Improvement Program (SIP) (Air Force). (Estimating)	+57.5	+94.3
Increase to SIP (Navy). (Estimating)	+94.0	+150.7
Increase to Electronic Protection Improvement Program (Air Force). (Estimating)	+2.5	+4.0
Increase for aircraft integration (Air Force). (Estimating)	+14.1	+22.8
Congressional reduction for FY 2015 (Air Force). (Schedule)	-0.7	-1.0
RDT&E Subtotal	+161.2	+257.2

Procurement	$M	
Current Change Explanations	**Base Year**	**Then Year**
Revised escalation indices. (Economic)	N/A	-51.2
Acceleration of procurement buy within Future Years Defense Program (FYDP) profile due to funding increases within FY 2015 PB (Navy). (Schedule)	0.0	-8.1
Acceleration of procurement buy within FYDP profile due to funding increases within FY 2015 PB (Air Force). (Schedule)	0.0	-18.2
Additional Schedule variance resulting from realignment of missile buy profile from FY 2014 through FY 2024 (Air Force). (Schedule)	+17.6	+33.4
Additional Schedule variance resulting from realignment of missile buy profile from FY 2014 through FY 2024 (Navy). (Schedule)	+21.8	+41.6
Total Quantity variance resulting from an increase of 174 missiles from 11,792 to 11,966 (Air Force). (Subtotal)	+95.4	+177.8
Quantity variance resulting from an increase of 174 missiles from 11,792 to 11,966 (Air Force). (Quantity)	(+64.1)	(+119.5)
Allocation to Schedule resulting from Quantity change. (Schedule) (QR)	(+19.3)	(+36.0)
Allocation to Engineering resulting from Quantity change. (Engineering) (QR)	(+3.7)	(+6.9)
Allocation to Estimating resulting from Quantity change. (Estimating) (QR)	(+8.3)	(+15.4)
Adjustment for current and prior escalation. (Estimating)	+6.7	+10.3
Decrease in Production test and technical support requirements (Air Force). (Estimating)	-1.7	-3.4
Increase in Diminishing Manufacturing Sources (DMS) costs due to updated estimate and realization of actual costs (Air Force). (Estimating)	+1.8	+4.1
Increase in DMS costs due to updated estimate and realization of actual costs (Navy). (Estimating)	+3.6	+5.7

FY 2013 PB funding returned to program from Air Force withhold (Air Force). (Estimating)	+18.1	+27.0
Revised estimate to reflect the application of new outyear excalation indices (Air Force). (Estimating)	+14.6	+24.0
Adjustment for current and prior escalation. (Support)	+1.1	+1.2
Decrease in Other Support due to reduction of training equipment requirements (Navy). (Support)	-8.4	-13.8
Decrease in Initial Spares due to reduction of spares requirement (Navy). (Support)	-4.3	-7.2
Decrease in Other Support due to reduction of training equipment requirements (Air Force). (Support)	-17.3	-29.5
Increase in Initial Spares due to below threshold reprogramming of funds (Air Force). (Support)	+15.5	+26.3
Procurement Subtotal	+164.5	+220.0

(QR) Quantity Related

Contracts

Appropriation: Procurement	
Contract Name	**Raytheon Lot 23**
Contractor	Raytheon Company
Contractor Location	Tucson, AZ 85706
Contract Number, Type	FA8675-09-C-0052, FFP
Award Date	April 28, 2009
Definitization Date	April 28, 2009

Initial Contract Price ($M)			Current Contract Price ($M)			Estimated Price at Completion ($M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
521.2	N/A	685	717.8	N/A	689	717.8	717.8

Target Price Change Explanation

The difference between the Initial Contract Price Target and the Current Contract Price Target is due to the addition of Navy F-18 missiles, Government Furnished Equipment requirements, and Telemetry units in July 2009; the addition of FMS Rocket Motors in September 2009; the procurement of the AIM-120D AMRAAM Captive Equipment Pod and the FMS Offset Administration in December 2009. In Calendar Year (CY) 2010, added Processor Replacement Program (PRP) FMS overarching software; 4 months of System Engineering Program Management to cover the delay in awarding Lot 24; PRP Phase 3; and a Radome Phase 2 AMRAAM Pyroceram Restart. In CY 2011, added an effort to modify FMS software tapes to be compliant with PRP configured FMS AIM-120C7 missiles. In October 2012, Gulf Range Drone Control System Phase II Study was added. On December 11, 2012, the Government and Raytheon Missiles System, Tucson, signed a contract modification restructuring the AIM-120C7, AIM-120D, and Baseline Rocket Motor schedules for Lots 22-25. The new delivery schedule has AIM-120D production catching up to the original schedule in mid 2014. Missile deliveries for Lot 23 were completed in September 2013.

Cost and Schedule Variance Explanations

Cost and Schedule Variance reporting is not required on this FFP contract.

Contract Comments

This contract is more than 90% complete; therefore, this is the final report for this contract.

Appropriation: Procurement

Contract Name	**Raytheon Lot 24**
Contractor	Raytheon Company
Contractor Location	Tucson, AZ 85706
Contract Number, Type	FA8675-10-C-0014, FFP
Award Date	August 05, 2010
Definitization Date	August 05, 2010

Initial Contract Price ($M)			Current Contract Price ($M)			Estimated Price at Completion ($M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
492.4	N/A	505	562.6	N/A	523	562.6	562.6

Target Price Change Explanation

The difference between the Initial Contract Price Target and the Current Contract Price Target is due to the addition of AIM-120D missiles for United States, a guidance section test asset, and additional telemetry devices. Also, testing, studies and plans for all Advance Telemetry are in the initial phase. In May 2012, the Central Processor Unit Circuit Card Assembly was added. On December 11, 2012, the Government and Raytheon Missiles System, Tucson, signed a contract modification restructuring the AIM-120C7, AIM-120D, and Baseline Rocket Motor schedules for Lots 22-25. The new delivery schedule has AIM-120D production catching up to the original schedule in mid 2014.

Cost and Schedule Variance Explanations

Cost and Schedule Variance reporting is not required on this FFP contract.

Appropriation: Procurement

Contract Name	**Raytheon Lot 25**
Contractor	Raytheon Company
Contractor Location	1151 East Hermans Road Tucson, AZ 85706
Contract Number, Type	FA8675-11-C-0030, FFP
Award Date	August 31, 2011
Definitization Date	August 31, 2011

Initial Contract Price ($M)			Current Contract Price ($M)			Estimated Price at Completion ($M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
569.0	N/A	469	664.0	N/A	550	664.0	664.0

Target Price Change Explanation

The difference between the Initial Contract Price Target and the Current Contract Price Target is due to additional telemetry devices and the addition of AIM-120C7 missiles for FMS. In May 2012, an administrative offset for AIM-120C7 FMS was added. Also, in November 2012, additional surface launch fires were added. On December 11, 2012, the Government and Raytheon Missiles System, Tucson, signed a contract modification restructuring the AIM-120C7, AIM-120D, and Baseline Rocket Motor schedules for Lots 22-25. The new delivery schedule has AIM-120D production catching up to the original schedule in mid 2014.

Cost and Schedule Variance Explanations

Cost and Schedule Variance reporting is not required on this FFP contract.

Appropriation: Procurement

Contract Name	**Raytheon Lot 26**
Contractor	Raytheon Company
Contractor Location	1151 East Hermans Road Tuscon, AZ 85706
Contract Number, Type	FA8675-12-C-0011, FFP
Award Date	March 30, 2012
Definitization Date	March 30, 2012

Initial Contract Price ($M)			Current Contract Price ($M)			Estimated Price at Completion ($M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
497.1	N/A	404	525.3	N/A	404	525.3	525.3

Target Price Change Explanation

The difference between the Initial Contract Price Target and the Current Contract Price Target is due to addition of a Lean Cost Reduction Initiative, Life-of-Type buys for the Shortened Control Actuation System and a Final Assembly Test Station in Calendar Year 2012. AIM-120D production should complete in mid-FY 2015.

Cost and Schedule Variance Explanations

Cost and Schedule Variance reporting is not required on this FFP contract.

Appropriation: Procurement

Contract Name	**Raytheon Lot 27**
Contractor	Raytheon Company
Contractor Location	1151 East Hermans Road Tucson, AZ 85706
Contract Number, Type	FA8675-13-C-0003, FFP
Award Date	June 17, 2013
Definitization Date	June 17, 2013

Initial Contract Price ($M)			Current Contract Price ($M)			Estimated Price at Completion ($M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
534.7	N/A	464	552.6	N/A	464	552.6	552.6

Target Price Change Explanation

The difference between the Initial Contract Price Target and the Current Contract Price Target is due to addition of a Lean Cost Reduction Initiative, Life-of-Type buys for the Shortened Control Actuation System and a Final Assembly Test Station in Calendar Year 2013.

Cost and Schedule Variance Explanations

Cost and Schedule Variance reporting is not required on this FFP contract.

Deliveries and Expenditures

Delivered to Date	Plan to Date	Actual to Date	Total Quantity	Percent Delivered
Development	0	0	0	--
Production	10300	10288	16427	62.63%
Total Program Quantity Delivered	10300	10288	16427	62.63%

Expended and Appropriated (TY $M)			
Total Acquisition Cost	20452.3	Years Appropriated	38
Expended to Date	11820.2	Percent Years Appropriated	79.17%
Percent Expended	57.79%	Appropriated to Date	12960.1
Total Funding Years	48	Percent Appropriated	63.37%

The above data is current as of 2/11/2014.

Operating and Support Cost

AMRAAM

Assumptions and Ground Rules

Cost Estimate Reference:
The program calculates O&S cost on a yearly basis for the respective categories requested in the SAR. These categories are then annualized by dividing their totals by the total number of years of sustainment, 40. The total O&S BY costs are calculated by multiplying the average annual cost by the total number of sustainment years. Rounding error, if present, exists, due to varying decimal points used in each of these calculations.

The O&S Cost includes:
1) Contractor Logistics Support (CLS) labor and material. CLS covers the repair cost after the warranty period has expired.
2) Maintenance: includes inspections, periodic tests, and 30-day function check.
3) Second Destination Transportation.
4) Material management / item entry.
5) Container maintenance.
6) Sustaining engineering support.
7) Travel test costs at Weapons System Evaluation Program.
8) Miscellaneous personnel support costs.

O&S Cost does not include warranty costs; however, the number of years for warranty is used to adjust detected failures by lot. The warranty costs are included in the production costs.

The O&S cost estimate was updated January 2014. The Production Air Force and Navy quantities were updated to be consistent with the FY 2015 PB.

AIM-7 is AMRAAM's antecedent system; however, O&S costs for this system are not available.

Sustainment Strategy:
The AMRAAM All-Up-Round (AUR) maintenance concept calls for aircraft loading/unloading, removal/replacement of wings and fins and missile Built-In-Test (BIT). A missile failing BIT will be sent to the Intermediate-Level Shop for test verification on the Missile Bit Test Set (Air Force only), Common Field-Level Memory Reprogramming Equipment, or Common Munitions BIT Reprogramming Equipment Plus. Failed missiles will be returned to the contractor AMRAAM depot for repair.

The O&S costs are the direct costs for the tactical missile and the Captive Carry Missile (CCM) associated with operating, supporting, and maintaining the AMRAAM missile over a 30-year deployment phase starting in FY 1991 for the Air Force and FY 1992 for the Navy. The Air Force estimate covers base operations including CCM, AUR fault verification, operational firings, depot repairs (seven year Interim Contractor Support (ICS)), supply/item management, transportation, replenishment spares, and field software updates. The Navy estimate includes AMRAAM fleet operations and support, depot rework (five years ICS), technical support (fleet support, engineering services, quality surveillance, program management), supply support, replenishment spares, and contractor augmented support.

As of the FY 2015 PB, the total number of AMRAAMs to be procured totals 16,427.

Antecedent Information:
The AMRAAM replaced the AIM-7 and was integrated and maintained using existing support resources with no additional manpower requirements. The AIM-7 is more predecessor than true antecedent. The AIM-7 is the last semi-active air-to-air missile while the AIM-120 provides the first fully active and autonomous launch and leave medium range capability. The AIM-7 cost data was obtained from VAMOSC (FY 1990 - FY 2013) and is historical in nature. Its accuracy and completeness cannot be verified by the AMRAAM program office.

Unitized O&S Costs BY1992 $M		
Cost Element	**AMRAAM Average Annual Cost For All Missiles**	**AIM-7 (Antecedent) Average Annual Cost For All Missiles**
Unit-Level Manpower	0.300	0.000
Unit Operations	0.900	0.627
Maintenance	6.000	4.290
Sustaining Support	13.600	4.615
Continuing System Improvements	1.400	1.192
Indirect Support	0.100	0.000
Other	0.000	0.000
Total	22.300	10.724

Unitized Cost Comments:
Average annual costs for the individual elements are calculated by dividing the total individual elements by the number of estimated years of support. In the case of AMRAAM, the number of years estimated equates to 40. The AIM-7 data is incomplete, therefore the total program costs cannot be calculated.

	Total O&S Cost $M			
	Current Production APB Objective/Threshold		Current Estimate	
	AMRAAM		AMRAAM	AIM-7 (Antecedent)
Base Year	N/A	N/A	892.5	N/A
Then Year	N/A	N/A	1370.0	N/A

Total O&S Costs Comments:
O&S cost is not included in AMRAAM's APB.

The O&S costs are the direct costs for the tactical missile and the CCM associated with operating, supporting, and maintaining the AMRAAM missile over a 30-year deployment phase starting in FY 1991 for the Air Force and FY 1992 for the Navy.

The O&S Cost of $1,370M (TY$M), $892.5M (BY 1992$M) is for 40 years (through 2030 for the AMRAAM service life).

O&S Cost Variance		
Category	**Base Year 1992 $M**	**Change Explanation**
Prior SAR Total O&S Estimate June 2013	893.3	

Cost Estimating Methodology	0.0	
Cost Data Update	0.0	
Labor Rate	0.0	
Energy Rate	0.0	
Technical Input	0.0	
Programmatic/Planning Factors	- 0.8	Updated to reflect FY 2015 PB quantity profile.
Other	0.0	
Total Changes	-0.8	
Current Estimate	892.5	

Disposal Costs:

Disposal costs are not included in the O&S estimate.

Letterkenny Munitions Center is utilized to demilitarize AMRAAM. The decision to demilitarize individual missiles or entire lots in lieu of refurbishment or retrofit will be made by Air Combat Command (ACC) for the Air Force and Navy Resource Sponsor for the Navy. Total estimated cost for demilitarization is $23.1M (TY$M), $10.8M (BY 1992 $M).