



## Selected Acquisition Report (SAR)

RCS: DD-A&T(Q&A)823-191



### **MH-60R Multi-Mission Helicopter (MH-60R)**

As of FY 2017 President's Budget

Defense Acquisition Management  
Information Retrieval  
(DAMIR)

## Table of Contents

Common Acronyms and Abbreviations for MDAP Programs .....	3
Program Information .....	5
Responsible Office .....	5
References .....	5
Mission and Description .....	6
Executive Summary .....	7
Threshold Breaches .....	8
Schedule .....	9
Performance .....	11
Track to Budget .....	12
Cost and Funding .....	13
Low Rate Initial Production .....	20
Foreign Military Sales .....	21
Nuclear Costs .....	21
Unit Cost .....	22
Cost Variance .....	25
Contracts .....	28
Deliveries and Expenditures .....	32
Operating and Support Cost .....	33

## Common Acronyms and Abbreviations for MDAP Programs

Acq O&M - Acquisition-Related Operations and Maintenance  
ACAT - Acquisition Category  
ADM - Acquisition Decision Memorandum  
APB - Acquisition Program Baseline  
APPN - Appropriation  
APUC - Average Procurement Unit Cost  
\$B - Billions of Dollars  
BA - Budget Authority/Budget Activity  
Blk - Block  
BY - Base Year  
CAPE - Cost Assessment and Program Evaluation  
CARD - Cost Analysis Requirements Description  
CDD - Capability Development Document  
CLIN - Contract Line Item Number  
CPD - Capability Production Document  
CY - Calendar Year  
DAB - Defense Acquisition Board  
DAE - Defense Acquisition Executive  
DAMIR - Defense Acquisition Management Information Retrieval  
DoD - Department of Defense  
DSN - Defense Switched Network  
EMD - Engineering and Manufacturing Development  
EVM - Earned Value Management  
FOC - Full Operational Capability  
FMS - Foreign Military Sales  
FRP - Full Rate Production  
FY - Fiscal Year  
FYDP - Future Years Defense Program  
ICE - Independent Cost Estimate  
IOC - Initial Operational Capability  
Inc - Increment  
JROC - Joint Requirements Oversight Council  
\$K - Thousands of Dollars  
KPP - Key Performance Parameter  
LRIP - Low Rate Initial Production  
\$M - Millions of Dollars  
MDA - Milestone Decision Authority  
MDAP - Major Defense Acquisition Program  
MILCON - Military Construction  
N/A - Not Applicable  
O&M - Operations and Maintenance  
ORD - Operational Requirements Document  
OSD - Office of the Secretary of Defense  
O&S - Operating and Support  
PAUC - Program Acquisition Unit Cost

PB - President's Budget  
PE - Program Element  
PEO - Program Executive Officer  
PM - Program Manager  
POE - Program Office Estimate  
RDT&E - Research, Development, Test, and Evaluation  
SAR - Selected Acquisition Report  
SCP - Service Cost Position  
TBD - To Be Determined  
TY - Then Year  
UCR - Unit Cost Reporting  
U.S. - United States  
USD(AT&L) - Under Secretary of Defense (Acquisition, Technology and Logistics)

## Program Information

**Program Name**

MH-60R Multi-Mission Helicopter (MH-60R)

**DoD Component**

Navy

## Responsible Office

CAPT Craig Grubb, PMA 299 Multi-Mission Helicopter  
Program Executive Office - Air, Anti-Submarine Warfare,  
Assault & Special Mission  
47123 Buse Rd  
Unit IPT, Suite 156  
Patuxent River, MD 20670-1547

**Phone:** 301-757-5409  
**Fax:** 301-757-5276  
**DSN Phone:** 757-5409  
**DSN Fax:** 757-5276  
**Date Assigned:** December 19, 2014

[craig.d.grubb@navy.mil](mailto:craig.d.grubb@navy.mil)

## References

**SAR Baseline (Production Estimate)**

Defense Acquisition Executive (DAE) Approved Acquisition Program Baseline (APB) dated March 22, 2006

**Approved APB**

Navy Acquisition Executive (NAE) Approved Acquisition Program Baseline (APB) dated November 29, 2010

## Mission and Description

The MH-60R Multi-Mission Helicopter (MH-60R) primary mission areas include Anti-Submarine Warfare and Surface Warfare. Secondary mission areas include Search and Rescue, Vertical Replenishment, Naval Surface Fire Support, logistics support, personnel transport, Medical Evacuation, and Very High Frequency/Ultra High Frequency Link Communication Relay. The MH-60R is the central component of the 'Navy Helicopter Master Plan' and the Chief of Naval Operations approved Helicopter Concept of Operations that replaces the aging SH-60B and SH-60F helicopters. The avionics upgrades over the existing SH-60B/F include: a glass cockpit common with the MH-60S; Airborne Low Frequency Sonar (ALFS) as a long-range active dipping sonar; Electronic Support Measures with expanded frequency coverage and location detection; Multi-Mode Radar with long-range search, Automatic Radar Periscope Detection and Discrimination; imaging Inverse Synthetic Aperture Radar; Forward Looking Infra-Red for imaging and laser target designation; Commercial Off-The-Shelf Acoustic Processor for acoustic processing for ALFS and sonobuoys; Integrated Self Defense; Advanced Precision Kill Weapon System; and the Mission Planning System. MH-60R sensors and real-time exchange of tactical data with the host ship will bring a new dimension of battle space control to the Naval Commander.

## Executive Summary

As of December 31, 2015, a total of 229 aircraft have been delivered; 216 domestic and 15 Royal Australian Navy. To date, seventeen MH-60R squadrons have been established. FRP deliveries to the fleet continue on schedule in support of squadron standups. FY 2016 Multi-Year 2 (MY2) contract Common Cockpit & Mission Systems and Multi-Year 8 (MY8) contract Airframe options have been awarded for the delivery of the final 29 of 280 MH-60R aircraft. Nineteen Common Data Link installations on Cruiser destroyer ships have been completed. Installation is complete on USS Curtis Wilbur (DDG-54) but awaiting acceptance which requires a successful live underway event with an MH-60R. Additionally, installations are underway on USS Milius (DDG-69), USS Sterett (DDG-104), USS Dewey (DDG-105) and the USS Cape St. George (CG-71).

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

## Threshold Breaches

### APB Breaches

<b>Schedule</b>		<input type="checkbox"/>
<b>Performance</b>		<input type="checkbox"/>
<b>Cost</b>	RDT&E	<input type="checkbox"/>
	Procurement	<input type="checkbox"/>
	MILCON	<input type="checkbox"/>
	Acq O&M	<input type="checkbox"/>
<b>O&amp;S Cost</b>		<input type="checkbox"/>
<b>Unit Cost</b>	PAUC	<input type="checkbox"/>
	APUC	<input type="checkbox"/>

### Nunn-McCurdy Breaches

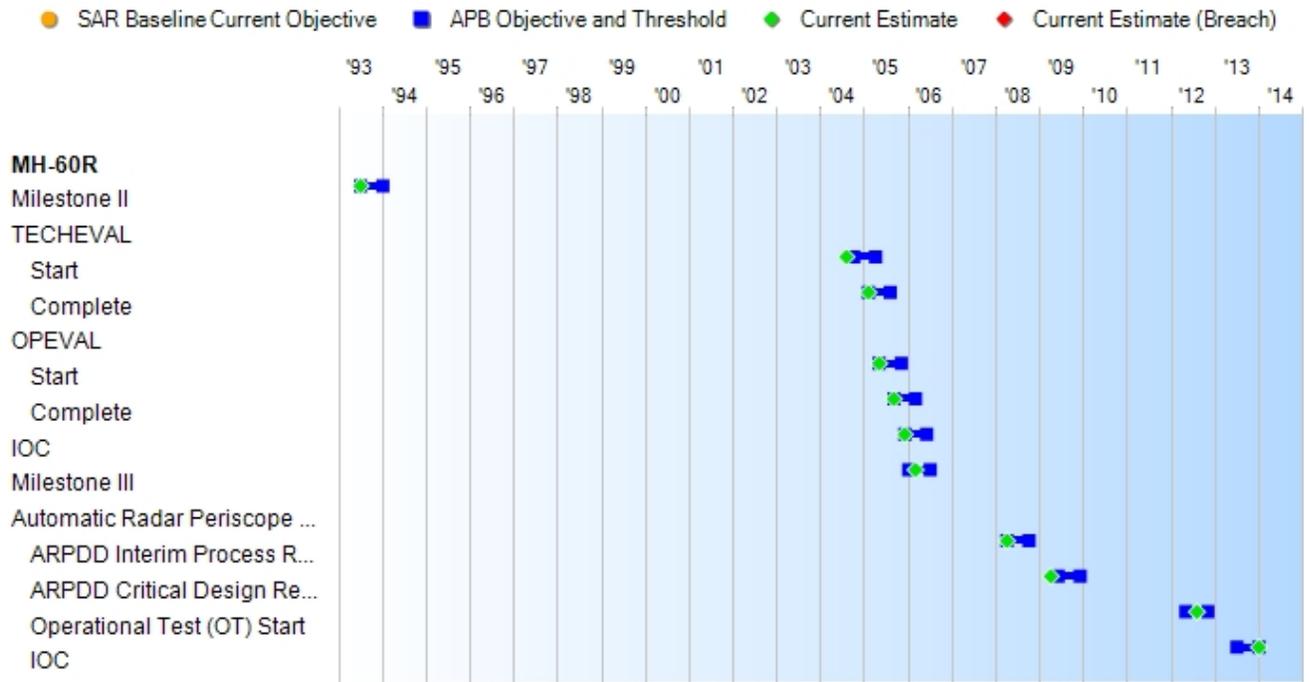
#### Current UCR Baseline

PAUC	None
APUC	None

#### Original UCR Baseline

PAUC	None
APUC	None

# Schedule



Schedule Events				
Events	SAR Baseline Production Estimate	Current APB Production Objective/Threshold		Current Estimate
Milestone II	Jul 1993	Jul 1993	Jan 1994	Jul 1993
TECHEVAL				
Start	Oct 2004	Oct 2004	Apr 2005	Aug 2004
Complete	Feb 2005	Feb 2005	Aug 2005	Feb 2005
OPEVAL				
Start	May 2005	May 2005	Nov 2005	May 2005
Complete	Sep 2005	Sep 2005	Mar 2006	Sep 2005
IOC	Dec 2005	Dec 2005	Jun 2006	Dec 2005
Milestone III	Jan 2006	Jan 2006	Jul 2006	Mar 2006
Automatic Radar Periscope Detection and Discriminator (ARPDD)				
ARPDD Interim Process Review (IPR) (System Design Development (SDD) Award)	N/A	Apr 2008	Oct 2008	Apr 2008
ARPDD Critical Design Review (CDR)	N/A	Jun 2009	Dec 2009	Apr 2009
Operational Test (OT) Start	N/A	May 2012	Nov 2012	Aug 2012
IOC	N/A	Jul 2013	Jan 2014	Jan 2014

### Change Explanations

None

### Acronyms and Abbreviations

OPEVAL - Operational Evaluation  
TECHEVAL - Technical Evaluation

## Performance

Performance Characteristics				
SAR Baseline Production Estimate	Current APB Production Objective/Threshold	Demonstrated Performance	Current Estimate	
<b>Availability (%): Mission Capable</b>				
82	82	70	82.3	73 (Ch-1)
<b>Net Ready: All interfaces, services, policy-enforcement, controls, and data-sharing of the NCOV RM and GIG-KIPs will be satisfied to the requirements of the specific Joint integrated architecture products (including data correctness, data availability, and data processing), and information assurance accreditation specified in the threshold and objective values.</b>				
100% of requirements	100% of requirements	100% of enterprise - level or critical requirements	100% of enterprise - level or critical requirements	100% of enterprise - level or critical requirements
<b>Crew Protection: Crashworthiness, Crew Restraint, and Egress</b>				
Crew Seating 35/25/20G, Passenger 20/20/20	Crew Seating 35/25/20G, Passenger 20/20/20	Crew Seating 20/20/20G, Passenger 14/13/12G	Crew Seating 20/20/20G, Passenger 14/13/12G	Crew Seating 20/20/20G, Passenger 14/13/12G

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

### Requirements Reference

Capability Production Document (CPD) dated November 28, 2005

### Change Explanations

(Ch-1) The decrease in the current estimate for Availability (%): Mission Capable from 78.9 to 73 does not indicate a negative trend. Since the MH-60R is resourced on a Ready For Tasking/Ready Basic Aircraft standard, a metric which changes monthly as units progress through the Fleet Readiness Training Plan, the corresponding Mission Capable rate also changes monthly, but is expected to remain above threshold.

### Acronyms and Abbreviations

G - Gravitational Force  
 GIG - Global Information Grid  
 KIPs - Key Interface Profiles  
 NCOV RM - Net-Centric Operational Warfare Reference Model

### Track to Budget

**RDT&E**

Appn	BA	PE	
Navy	1319	05	0604212N
	<b>Project</b>	<b>Name</b>	
	2412	ASW & Other HELO Development/MH-60R Lamps (Sunk)	
Navy	1319	05	0604216N
	<b>Project</b>	<b>Name</b>	
	1707	MH-60R Development	
	9215	Multi-Mission HELO Upgrade Development/MH-60 PMLCC (Sunk)	

**Notes**

RDT&E funds in Project Element 0604216N Project Unit 1707 in FY 2018 and beyond do not affect MH-60R production and therefore are not related to the acquisition program.

**Procurement**

Appn	BA	PE	
Navy	1506	01	0204243N
	<b>Line Item</b>	<b>Name</b>	
	0182	MH-60R	
	<b>Notes:</b> MH-60R - Funding does not include initial spares		
Navy	1506	06	0204243N
	<b>Line Item</b>	<b>Name</b>	
	0605	Spares and Repair Parts (Sunk)	

## Cost and Funding

### Cost Summary

Total Acquisition Cost							
Appropriation	BY 2006 \$M			BY 2006 \$M	TY \$M		
	SAR Baseline Production Estimate	Current APB Production Objective/Threshold		Current Estimate	SAR Baseline Production Estimate	Current APB Production Objective	Current Estimate
RDT&E	1519.0	1718.9	1890.8	1853.0	1375.7	1570.4	1720.8
Procurement	9108.0	11360.2	12495.9	10384.4	10049.0	12573.5	11487.1
Flyaway	--	--	--	8625.5	--	--	9570.2
Recurring	--	--	--	7454.3	--	--	8292.5
Non Recurring	--	--	--	1171.2	--	--	1277.7
Support	--	--	--	1758.9	--	--	1916.9
Other Support	--	--	--	1474.6	--	--	1617.4
Initial Spares	--	--	--	284.3	--	--	299.5
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	10627.0	13079.1	N/A	12237.4	11424.7	14143.9	13207.9

#### Confidence Level

Confidence Level of cost estimate for current APB: 50%

The current APB cost estimate provided sufficient resources to execute the program under normal conditions, encountering average levels of technical, schedule and programmatic risk and external interference. It was consistent with average resource expenditures on historical efforts of similar size, scope, and complexity and represents a notional 50% confidence level.

Total Quantity			
Quantity	SAR Baseline Production Estimate	Current APB Production	Current Estimate
RDT&E		2	2
Procurement		252	298
Total		254	300

## Cost and Funding

### Funding Summary

Appropriation Summary									
FY 2017 President's Budget / December 2015 SAR (TY\$ M)									
Appropriation	Prior	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	To Complete	Total
RDT&E	1696.6	18.9	5.3	0.0	0.0	0.0	0.0	0.0	1720.8
Procurement	10483.5	942.4	61.2	0.0	0.0	0.0	0.0	0.0	11487.1
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 2017 Total	12180.1	961.3	66.5	0.0	0.0	0.0	0.0	0.0	13207.9
PB 2016 Total	12217.7	991.5	75.3	5.7	2.6	2.7	0.0	0.0	13295.5
Delta	-37.6	-30.2	-8.8	-5.7	-2.6	-2.7	0.0	0.0	-87.6

#### Funding Notes

Prior Year Procurement amount differs from FY 2017 PB Submission due to \$40 Million FY 2014 rescission reflected in the FY 2016 Appropriations Bill. The \$40 Million has been removed from the SAR submittal. In the PB 2017 submittal the rescission was noted but the funding was not removed.

Quantity Summary										
FY 2017 President's Budget / December 2015 SAR (TY\$ M)										
Quantity	Undistributed	Prior	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	To Complete	Total
Development	2	0	0	0	0	0	0	0	0	2
Production	0	249	29	0	0	0	0	0	0	278
PB 2017 Total	2	249	29	0	0	0	0	0	0	280
PB 2016 Total	2	249	29	0	0	0	0	0	0	280
Delta	0	0	0	0	0	0	0	0	0	0

## Cost and Funding

### Annual Funding By Appropriation

Annual Funding							
1319   RDT&E   Research, Development, Test, and Evaluation, Navy							
Fiscal Year	Quantity	TY \$M					
		End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program
1990	--	--	--	--	--	--	10.2
1991	--	--	--	--	--	--	28.5
1992	--	--	--	--	--	--	53.0
1993	--	--	--	--	--	--	72.7
1994	--	--	--	--	--	--	70.7
1995	--	--	--	--	--	--	70.0
1996	--	--	--	--	--	--	65.1
1997	--	--	--	--	--	--	55.2
1998	--	--	--	--	--	--	85.3
1999	--	--	--	--	--	--	209.0
2000	--	--	--	--	--	--	110.1
2001	--	--	--	--	--	--	77.8
2002	--	--	--	--	--	--	133.7
2003	--	--	--	--	--	--	89.6
2004	--	--	--	--	--	--	81.9
2005	--	--	--	--	--	--	78.8
2006	--	--	--	--	--	--	57.8
2007	--	--	--	--	--	--	28.7
2008	--	--	--	--	--	--	74.1
2009	--	--	--	--	--	--	67.3
2010	--	--	--	--	--	--	69.4
2011	--	--	--	--	--	--	53.7
2012	--	--	--	--	--	--	16.4
2013	--	--	--	--	--	--	6.0
2014	--	--	--	--	--	--	20.4
2015	--	--	--	--	--	--	11.2
2016	--	--	--	--	--	--	18.9
2017	--	--	--	--	--	--	5.3
Subtotal	2	--	--	--	--	--	1720.8

Annual Funding 1319   RDT&E   Research, Development, Test, and Evaluation, Navy							
Fiscal Year	Quantity	BY 2006 \$M					
		End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program
1990	--	--	--	--	--	--	13.7
1991	--	--	--	--	--	--	36.8
1992	--	--	--	--	--	--	66.6
1993	--	--	--	--	--	--	89.2
1994	--	--	--	--	--	--	85.2
1995	--	--	--	--	--	--	82.7
1996	--	--	--	--	--	--	75.7
1997	--	--	--	--	--	--	63.4
1998	--	--	--	--	--	--	97.1
1999	--	--	--	--	--	--	235.3
2000	--	--	--	--	--	--	122.1
2001	--	--	--	--	--	--	85.1
2002	--	--	--	--	--	--	144.9
2003	--	--	--	--	--	--	95.7
2004	--	--	--	--	--	--	85.1
2005	--	--	--	--	--	--	79.8
2006	--	--	--	--	--	--	56.7
2007	--	--	--	--	--	--	27.5
2008	--	--	--	--	--	--	69.7
2009	--	--	--	--	--	--	62.5
2010	--	--	--	--	--	--	63.5
2011	--	--	--	--	--	--	48.0
2012	--	--	--	--	--	--	14.4
2013	--	--	--	--	--	--	5.2
2014	--	--	--	--	--	--	17.5
2015	--	--	--	--	--	--	9.5
2016	--	--	--	--	--	--	15.8
2017	--	--	--	--	--	--	4.3
Subtotal	2	--	--	--	--	--	1853.0

Annual Funding 1506   Procurement   Aircraft Procurement, Navy								
Fiscal Year	Quantity	TY \$M						
		End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program	
2000	5	175.9	--	25.8	201.7	35.3	237.0	
2001	--	--	--	44.7	44.7	7.3	52.0	
2002	--	--	--	11.2	11.2	3.8	15.0	
2003	--	32.5	--	36.5	69.0	52.4	121.4	
2004	4	168.4	--	68.4	236.8	108.7	345.5	
2005	6	204.0	--	71.4	275.4	155.4	430.8	
2006	12	394.8	--	58.2	453.0	204.0	657.0	
2007	25	714.6	--	71.9	786.5	131.3	917.8	
2008	28	868.8	--	95.2	964.0	115.6	1079.6	
2009	30	924.7	--	121.7	1046.4	146.4	1192.8	
2010	24	668.9	--	95.5	764.4	186.8	951.2	
2011	24	734.0	--	110.4	844.4	220.4	1064.8	
2012	24	730.5	--	138.1	868.6	83.8	952.4	
2013	19	609.6	--	70.6	680.2	62.4	742.6	
2014	19	614.5	--	62.5	677.0	63.0	740.0	
2015	29	785.9	--	22.2	808.1	175.5	983.6	
2016	29	665.4	--	173.4	838.8	103.6	942.4	
2017	--	--	--	--	--	61.2	61.2	
Subtotal	278	8292.5	--	1277.7	9570.2	1916.9	11487.1	

Annual Funding 1506   Procurement   Aircraft Procurement, Navy							
Fiscal Year	Quantity	BY 2006 \$M					
		End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program
2000	5	192.9	--	28.3	221.2	38.7	259.9
2001	--	--	--	48.4	48.4	7.9	56.3
2002	--	--	--	12.0	12.0	4.1	16.1
2003	--	34.1	--	38.3	72.4	55.0	127.4
2004	4	172.1	--	69.9	242.0	111.2	353.2
2005	6	202.8	--	71.0	273.8	154.5	428.3
2006	12	381.9	--	56.3	438.2	197.3	635.5
2007	25	675.5	--	68.0	743.5	124.1	867.6
2008	28	809.1	--	88.7	897.8	107.7	1005.5
2009	30	849.4	--	111.8	961.2	134.4	1095.6
2010	24	601.8	--	85.9	687.7	168.1	855.8
2011	24	647.6	--	97.4	745.0	194.4	939.4
2012	24	635.4	--	120.1	755.5	72.9	828.4
2013	19	524.6	--	60.7	585.3	53.7	639.0
2014	19	522.0	--	53.1	575.1	53.5	628.6
2015	29	657.7	--	18.6	676.3	146.8	823.1
2016	29	547.4	--	142.7	690.1	85.2	775.3
2017	--	--	--	--	--	49.4	49.4
Subtotal	278	7454.3	--	1171.2	8625.5	1758.9	10384.4

Cost Quantity Information		
1506   Procurement   Aircraft Procurement, Navy		
Fiscal Year	Quantity	End Item Recurring Flyaway (Aligned With Quantity) BY 2006 \$M
2000	5	192.9
2001	--	--
2002	--	--
2003	--	--
2004	4	169.2
2005	6	170.6
2006	12	326.7
2007	25	686.6
2008	28	781.6
2009	30	857.9
2010	24	627.9
2011	24	624.6
2012	24	614.2
2013	19	538.0
2014	19	478.3
2015	29	739.8
2016	29	646.0
2017	--	--
Subtotal	278	7454.3

## Low Rate Initial Production

Item	Initial LRIP Decision	Current Total LRIP
<b>Approval Date</b>	5/10/1999	4/5/2005
<b>Approved Quantity</b>	21	15
<b>Reference</b>	Navy Program Decision Meeting ADM	Navy Program Review ADM
<b>Start Year</b>	2002	2002
<b>End Year</b>	2007	2007

In May 1999 the Assistant Secretary of the Navy (Research, Development and Acquisition) approved a total LRIP quantity of 21. In April 2005, the LRIP quantity was further reduced from 21 to 15 due to revised acquisition strategy.

## Foreign Military Sales

Country	Date of Sale	Quantity	Total Cost \$M	Description
Saudi Arabia	7/20/2015	10	1079.0	Total cost based on Letter of Offer and Acceptance signed July 20, 2015. FMS Case SR-P-SBU includes initial sustainment (spares, support equipment, pubs, training, tech support) and Tactical Operational Flight Trainer.
Denmark	12/6/2012	0	308.7	Total Cost based on Letter of Offer and Acceptance signed December 6, 2012 for Sustainment Support to include Aircraft Spares, Support Equipment, Repair of Repairables, Publications, Technical Data, Technical Support and Training. FMS Case DE-P-GBP.
Denmark	12/6/2012	9	640.0	Total Cost based on Letter of Offer and Acceptance signed December 6, 2012. FMS Case DE-P-SAE includes initial sustainment (spares, support equipment, pubs, training, tech support) and Mission Operational Flight Trainer.
Australia	6/6/2011	0	755.0	Total Cost based on Letter of Offer and Acceptance signed June 6, 2011 for ten years Through Life Support, Spares, Support Equipment, Publications, Technical Support and Training. FMS Cases AT-P-GTC and AT-P-GXO.
Australia	6/6/2011	24	2052.7	Total Cost based on Letter of Offer and Acceptance signed June 6, 2011. FMS Case AT-P-SCF includes initial sustainment (spares, support equipment, pubs, training, tech support) and Tactical Operational Flight Trainer.

### Notes

## Nuclear Costs

None

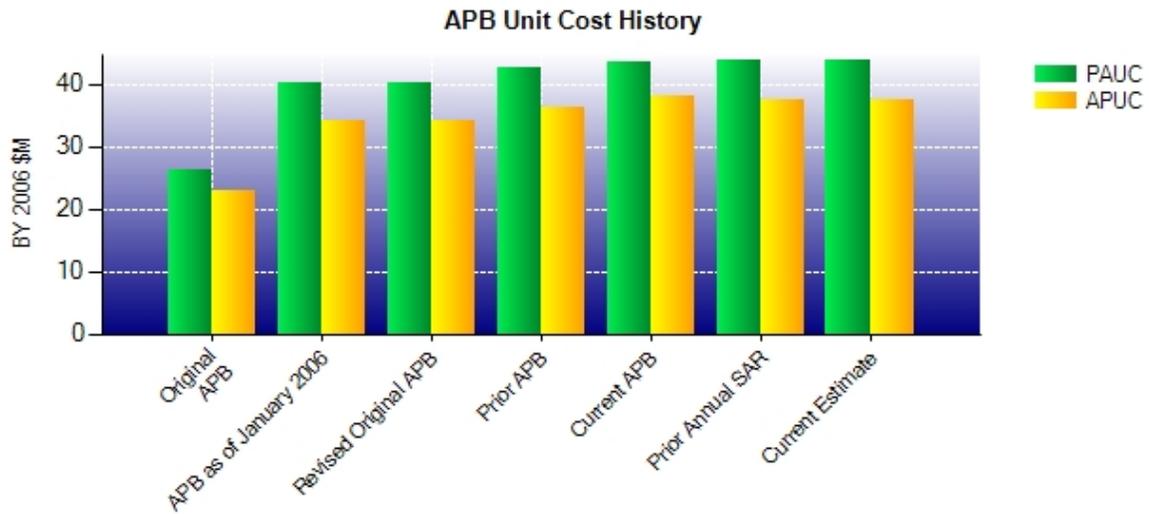
## Unit Cost

### Unit Cost Report

Item	BY 2006 \$M	BY 2006 \$M	% Change
	Current UCR Baseline (Nov 2010 APB)	Current Estimate (Dec 2015 SAR)	
<b>Program Acquisition Unit Cost</b>			
Cost	13079.1	12237.4	
Quantity	300	280	
Unit Cost	43.597	43.705	+0.25
<b>Average Procurement Unit Cost</b>			
Cost	11360.2	10384.4	
Quantity	298	278	
Unit Cost	38.121	37.354	-2.01

Item	BY 2006 \$M	BY 2006 \$M	% Change
	Revised Original UCR Baseline (May 2004 APB)	Current Estimate (Dec 2015 SAR)	
<b>Program Acquisition Unit Cost</b>			
Cost	9894.9	12237.4	
Quantity	243	280	
Unit Cost	40.720	43.705	+7.33
<b>Average Procurement Unit Cost</b>			
Cost	8361.1	10384.4	
Quantity	241	278	
Unit Cost	34.693	37.354	+7.67

**Unit Cost History**



Item	Date	BY 2006 \$M		TY \$M	
		PAUC	APUC	PAUC	APUC
Original APB	Jun 1995	26.155	22.846	29.981	27.062
APB as of January 2006	May 2004	40.208	34.255	41.427	36.090
Revised Original APB	May 2004	40.208	34.255	41.427	36.090
Prior APB	Sep 2008	42.626	36.143	45.746	39.877
Current APB	Nov 2010	43.597	38.121	47.146	42.193
Prior Annual SAR	Dec 2014	43.894	37.503	47.484	41.583
Current Estimate	Dec 2015	43.705	37.354	47.171	41.321

**SAR Unit Cost History**

Initial SAR Baseline to Current SAR Baseline (TY \$M)									
Initial PAUC Development Estimate	Changes								PAUC Production Estimate
	Econ	Qty	Sch	Eng	Est	Oth	Spt	Total	
44.979	-1.370	-18.295	0.747	3.963	11.669	0.000	3.286	0.000	44.979

Current SAR Baseline to Current Estimate (TY \$M)									
PAUC Production Estimate	Changes								PAUC Current Estimate
	Econ	Qty	Sch	Eng	Est	Oth	Spt	Total	
44.979	-0.282	-0.852	0.465	1.405	1.248	0.000	0.208	2.192	47.171

Initial SAR Baseline to Current SAR Baseline (TY \$M)									
Initial APUC Development Estimate	Changes								APUC Production Estimate
	Econ	Qty	Sch	Eng	Est	Oth	Spt	Total	
39.877	-1.249	-15.767	0.753	3.098	10.132	0.000	3.033	0.000	39.877

Current SAR Baseline to Current Estimate (TY \$M)									
APUC Production Estimate	Changes								APUC Current Estimate
	Econ	Qty	Sch	Eng	Est	Oth	Spt	Total	
39.877	-0.249	-0.381	0.468	0.449	0.947	0.000	0.210	1.444	41.321

SAR Baseline History				
Item	SAR Planning Estimate	SAR Development Estimate	SAR Production Estimate	Current Estimate
Milestone I	N/A	N/A	N/A	N/A
Milestone II	N/A	Jul 1993	Jul 1993	Jul 1993
Milestone III	N/A	Oct 2001	N/A	Mar 2006
IOC	N/A	Mar 2001	Dec 2005	Dec 2005
Total Cost (TY \$M)	N/A	11424.7	11424.7	13207.9
Total Quantity	N/A	254	254	280
PAUC	N/A	44.979	44.979	47.171

## Cost Variance

Summary TY \$M				
Item	RDT&E	Procurement	MILCON	Total
SAR Baseline (Production Estimate)	1375.7	10049.0	--	11424.7
Previous Changes				
Economic	-9.4	-46.2	--	-55.6
Quantity	--	+931.1	--	+931.1
Schedule	--	+130.1	--	+130.1
Engineering	+268.7	+147.8	--	+416.5
Estimating	+100.4	+273.7	--	+374.1
Other	--	--	--	--
Support	--	+74.6	--	+74.6
Subtotal	+359.7	+1511.1	--	+1870.8
Current Changes				
Economic	-0.3	-23.1	--	-23.4
Quantity	--	--	--	--
Schedule	--	--	--	--
Engineering	--	-23.1	--	-23.1
Estimating	-14.3	-10.5	--	-24.8
Other	--	--	--	--
Support	--	-16.3	--	-16.3
Subtotal	-14.6	-73.0	--	-87.6
Total Changes	+345.1	+1438.1	--	+1783.2
CE - Cost Variance	1720.8	11487.1	--	13207.9
CE - Cost & Funding	1720.8	11487.1	--	13207.9

Summary BY 2006 \$M				
Item	RDT&E	Procurement	MILCON	Total
SAR Baseline (Production Estimate)	1519.0	9108.0	--	10627.0
Previous Changes				
Economic	--	--	--	--
Quantity	--	+793.7	--	+793.7
Schedule	--	+52.5	--	+52.5
Engineering	+238.4	+120.3	--	+358.7
Estimating	+107.0	+300.9	--	+407.9
Other	--	--	--	--
Support	--	+50.5	--	+50.5
Subtotal	+345.4	+1317.9	--	+1663.3
Current Changes				
Economic	--	--	--	--
Quantity	--	--	--	--
Schedule	--	--	--	--
Engineering	--	-18.9	--	-18.9
Estimating	-11.4	-9.3	--	-20.7
Other	--	--	--	--
Support	--	-13.3	--	-13.3
Subtotal	-11.4	-41.5	--	-52.9
Total Changes	+334.0	+1276.4	--	+1610.4
CE - Cost Variance	1853.0	10384.4	--	12237.4
CE - Cost & Funding	1853.0	10384.4	--	12237.4

Previous Estimate: December 2014

<b>RDT&amp;E</b>	<b>\$M</b>	
<b>Current Change Explanations</b>	<b>Base Year</b>	<b>Then Year</b>
Revised escalation indices. (Economic)	N/A	-0.3
Adjustment for current and prior escalation. (Estimating)	+0.2	+0.2
Removal of funds in FY 2018 and beyond that are not related to this acquisition program. (Estimating)	-8.7	-11.0
Revised estimate due to FMS cost sharing of Very High Frequency Omni Ranging/Instrument Landing System development and testing costs. (Estimating)	-2.0	-2.5
Revised estimate to reflect prior year actuals. (Estimating)	-0.9	-1.0
<b>RDT&amp;E Subtotal</b>	<b>-11.4</b>	<b>-14.6</b>

<b>Procurement</b>	<b>\$M</b>	
<b>Current Change Explanations</b>	<b>Base Year</b>	<b>Then Year</b>
Revised escalation indices. (Economic)	N/A	-23.1
Adjustment for current and prior escalation. (Estimating)	+16.5	+19.7
Congressional reduction resulting in program de-scope in acquisition program closeout and production line shutdown activities. (Engineering)	-18.9	-23.1
Revised estimate to reflect actual cost of Government Furnished Equipment. (Estimating)	-5.1	-5.8
Revised estimate to reflect actual cost of Airborne Low Frequency Sonar. (Estimating)	-20.7	-24.4
Adjustment for current and prior escalation. (Support)	+2.4	+2.8
Decrease in Other Support due to refined labor cost estimate. (Support)	-15.7	-19.0
Decrease in Initial Spares due to refined cost estimate. (Support)	0.0	-0.1
<b>Procurement Subtotal</b>	<b>-41.5</b>	<b>-73.0</b>

## Contracts

### Contract Identification

**Appropriation:** Procurement  
**Contract Name:** Raytheon Integrated Defense Systems ALFS Lot 9  
**Contractor:** Raytheon Integrated Defense Systems  
**Contractor Location:** 1847 W. Main Rd  
 Portsmouth, RI 02871-1087  
**Contract Number:** N00019-11-C-0077  
**Contract Type:** Firm Fixed Price (FFP)  
**Award Date:** September 27, 2011  
**Definitization Date:** September 27, 2011

Contract Price							
Initial Contract Price (\$M)			Current Contract Price (\$M)			Estimated Price At Completion (\$M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
81.7	N/A	24	162.8	N/A	49	162.8	162.8

### Target Price Change Explanation

The difference between the Initial Contract Price Target and the Current Contract Price Target is due to a contract modification awarded in December 2011 for additional scope for procurement of the 25 Royal Australian Navy Airborne Low Frequency Sonar systems and a contract modification awarded January 2014 for system reliability improvements .

### Cost and Schedule Variance Explanations

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

**Contract Identification**

**Appropriation:** Procurement  
**Contract Name:** MH-60R Airframe (Lots 10-14)  
**Contractor:** Sikorsky Aircraft Corporation (SAC)  
**Contractor Location:** 6900 Main Street  
 Stratford, CT 06614-1385  
**Contract Number:** W58RGZ-12-C-0008  
**Contract Type:** Firm Fixed Price (FFP)  
**Award Date:** July 06, 2012  
**Definitization Date:** July 06, 2012

Contract Price							
Initial Contract Price (\$M)			Current Contract Price (\$M)			Estimated Price At Completion (\$M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
1934.7	N/A	131	1819.5	N/A	120	1819.5	1819.5

**Target Price Change Explanation**

The difference between the Initial Contract Price Target and the Current Contract Price Target is due to the FY 2014 PB reduction of 11 aircraft.

**Cost and Schedule Variance Explanations**

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

**Contract Identification**

**Appropriation:** Procurement  
**Contract Name:** Raytheon Integrated Defense Systems ALFS Lot 10 & 11  
**Contractor:** Raytheon Integrated Defense Systems  
**Contractor Location:** 1847 W. Main Rd  
 Portsmouth, RI 02871-1087  
**Contract Number:** N00019-13-C-0012  
**Contract Type:** Firm Fixed Price (FFP)  
**Award Date:** December 20, 2012  
**Definitization Date:** December 20, 2012

Contract Price							
Initial Contract Price (\$M)			Current Contract Price (\$M)			Estimated Price At Completion (\$M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
158.6	N/A	48	258.4	N/A	80	258.4	258.4

**Target Price Change Explanation**

The difference between the Initial Contract Price Target and the Current Contract Price Target is due to contract modifications, award of \$33M for Lot XII in August 2015, award of \$65.8M for Lot XIII in November 2015, and \$1M in miscellaneous contract modifications.

**Cost and Schedule Variance Explanations**

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

**Contract Identification**

**Appropriation:** Procurement  
**Contract Name:** MH-60R Common Cockpit & Mission Systems (Lots 10-14)  
**Contractor:** Lockheed Martin Mission Systems and Sensors (LM MS2)  
**Contractor Location:** 1801 State Route 17C  
 Owego, NY 13827-3998  
**Contract Number:** N00019-11-C-0020  
**Contract Type:** Firm Fixed Price (FFP)  
**Award Date:** April 05, 2012  
**Definitization Date:** April 05, 2012

Contract Price							
Initial Contract Price (\$M)			Current Contract Price (\$M)			Estimated Price At Completion (\$M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
1107.7	N/A	131	1038.0	N/A	120	1038.0	1038.0

**Target Price Change Explanation**

The difference between the Initial Contract Price Target and the Current Contract Price Target is due to the FY 2014 PB reduction of 11 aircraft.

**Cost and Schedule Variance Explanations**

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

## Deliveries and Expenditures

Deliveries				
Delivered to Date	Planned to Date	Actual to Date	Total Quantity	Percent Delivered
Development	2	2	2	100.00%
Production	170	215	278	77.34%
Total Program Quantity Delivered	172	217	280	77.50%

Expended and Appropriated (TY \$M)			
Total Acquisition Cost	13207.9	Years Appropriated	27
Expended to Date	10617.4	Percent Years Appropriated	96.43%
Percent Expended	80.39%	Appropriated to Date	13141.4
Total Funding Years	28	Percent Appropriated	99.50%

The above data is current as of February 09, 2016.

A total of 231 aircraft have been delivered; of that 217 were domestic and are included in the MH-60R deliveries data above, the remaining 16 are for the Royal Australian Navy.

## Operating and Support Cost

### Cost Estimate Details

<b>Date of Estimate:</b>	January 20, 2016
<b>Source of Estimate:</b>	POE
<b>Quantity to Sustain:</b>	280
<b>Unit of Measure:</b>	Aircraft
<b>Service Life per Unit:</b>	24.60 Years
<b>Fiscal Years in Service:</b>	FY 2002 - FY 2042

O&S Cost uses FY 2016 PB Escalation Indices.

Actual aircraft flight hour data used to calculate the 10,000 hour service life. Maintenance Costs consisting of Aviation Depot Level Repairable and Consumables are now estimated using a bottoms up model, utilizing both historical costs and reliability performance to date for the MH-60R which includes the cost savings of new I-level capabilities, instead of the observed historical cost ratios from other similar H-60s. In addition, a MH-60R specific manning document and sundown plan is now being utilized instead of the legacy manning documents for other H-60 platforms. A phased approach estimate includes the ramp-up of aircraft as they are introduced to the fleet through the retirement of MH-60R aircraft from service.

Aircraft Attrition Rate = 0.2% of Total Active Inventory (TAI) per Year

Aircraft Pipeline Rate = 17.6% of TAI per year

Average Flight Hours per Month per Aircraft = 33.9

Total Operating Aircraft Years = 5,666

### Sustainment Strategy

Organizational, Intermediate, and Depot level maintenance capabilities.

Organizational and Intermediate level military maintenance support.

Depot level government and contractor mixed maintenance support.

Performance Based Logistics Contract: Seahawk 2015 (+1,700 parts).

### Antecedent Information

The antecedent system is the SH-60B/F aircraft. All costs are from the FY 2015 Naval Visibility and Management of Operating and Support Costs (VAMOSC) Aviation Type Model Series Report database (data from 2009 through 2014) and the FY 2015 Aircraft Planning Data File Primary Aircraft Authorization. Indirect Support is a function of Unit Level Manpower costs.

Legacy systems have experienced and continue to experience service life adjustments and system modifications that make the compilation of Total O&S cost by assuming a static service life (e.g. 25 years) not credible.

In addition, the capture of O&S data in available reporting systems has changed significantly over time. VAMOSC, the Navy's official system for collecting and reporting O&S cost, provides cost from 1997 - 2014. The cost data for platforms in existence prior to 1997 is either unavailable or incomplete. In summary, sufficient historical data and resources do not exist to create a comparable, credible Total O&S cost.

For comparison purposes, the BY Antecedent Total O&S Costs is the product of the Antecedent's Average Annual Cost per Aircraft and the Operational Aircraft Years of the MH-60R.

Annual O&S Costs BY2006 \$M			
Cost Element	MH-60R		SH-60B/F (Antecedent)
	Average Annual Cost Per Aircraft		Average Annual Cost Per Aircraft
Unit-Level Manpower		1.801	1.850
Unit Operations		0.233	0.210
Maintenance		1.848	2.123
Sustaining Support		0.121	0.105
Continuing System Improvements		0.276	0.224
Indirect Support		0.789	0.848
Other		0.000	0.000
<b>Total</b>		<b>5.068</b>	<b>5.360</b>

Item	Total O&S Cost \$M			
	MH-60R			SH-60B/F (Antecedent)
	Current Production APB Objective/Threshold	Current Estimate		
<b>Base Year</b>	36067.5	39674.3	28716.6	30369.8
<b>Then Year</b>	49181.1	N/A	41878.2	N/A

Disposal Cost is included in the Operating and Support Cost of the current APB objective and threshold for this program.

#### Equation to Translate Annual Cost to Total Cost

The Average Annual Cost per Aircraft for the MH-60R is calculated by dividing the Total O&S Cost by the Total Operating Aircraft Years for the program.

Total O&S Cost (\$28,716.6M) / Total Operating Aircraft Years (5,666) = Average Annual Cost per Aircraft (\$ 5.068M)

O&S Cost Variance		
Category	BY 2006 \$M	Change Explanations
Prior SAR Total O&S Estimates - Dec 2014 SAR	28360.7	
Programmatic/Planning Factors	298.4	Aircraft Planning Data File and Depot Schedule Update
Cost Estimating Methodology	-134.8	Updated In-Service training munitions using actual costs vice legacy data
Cost Data Update	22.0	Updated historical cost information
Labor Rate	-252.4	Composite Labor Rates update
Energy Rate	-47.2	Fuel rate update
Technical Input	469.9	Increased consumable material cost estimate to reflect historical performance

Other	0.0
Total Changes	355.9
Current Estimate	28716.6

### Disposal Estimate Details

<b>Date of Estimate:</b>	January 20, 2016
<b>Source of Estimate:</b>	POE
<b>Disposal/Demilitarization Total Cost (BY 2006 \$M):</b>	Total costs for disposal of all Aircraft are 70.0

The Rough Order of Magnitude estimate will be refined as the System Disposal Plan Annex to the Life Cycle Sustainment Plan is developed.