



Selected Acquisition Report (SAR)

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



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

As of FY 2015 President's Budget

Defense Acquisition Management
Information Retrieval
(DAMIR)

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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

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

DoD Component

Navy

Responsible Office

Responsible Office

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Date Assigned July 28, 2011

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 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 (MMR) 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

A total of 177 MH-60R aircraft have been delivered to the fleet as of March 24, 2014 with 13 of 17 prospective MH-60R squadrons having been established or transitioned from SH-60Bs. Full Rate Production (FRP) deliveries to the fleet continue on schedule in support of additional squadron standups and transitions.

FY 2015 PB reduced the MH-60R Program of Record (POR) by 29 aircraft from 280 to 251. The MH-60R is in FRP and executes multi-year contracts (FY 2012 – FY 2016): Navy Multi-Year Contract 2 (MY2) with Lockheed Martin (Mission Systems & Common Cockpits) and Army/Navy MY8 with Sikorsky (Airframe). The last year of MY2/8 contracts will not be executed for MH-60R.

The previous submission reported a six-month delay in the Automatic Radar Periscope Detection and Discrimination (ARPDD) IOC (from July 2013 to January 2014) to accommodate the final Operational Test (OT) period and allow time to receive the OT test report. The OT test report was signed January 24, 2014 and Commander Operational Test and Evaluation Force has determined the AN/APS 153 Multi-Mode Radar has met or exceeded all Key Performance Parameters, Measures of Effectiveness / Measures of Suitability, and Critical Technical Parameters. The ARPDD system has been found operationally suitable/effective in Surface Warfare, Anti-Submarine Warfare (ASW) and Fleet Support Operations missions. Additionally, the Commander, Naval Air Forces, U.S. Atlantic Fleet Director, Aircraft Material & Engineering concurs that all requirements for IOC have been met, including the delivery of 21 ARPDD capable aircraft to the Fleet, completion of initial Fleet Maintenance and Operator training, and Fleet delivery of nine full system spare assets. This completes all schedule milestones in the MH-60R APB.

The Airborne Low Frequency Sonar Reliability Growth Plan Integrated Master Schedule (IMS), Quality Improvement IMS, and Organic Repair IMS continue to be executed. Seventeen (of 17) Reliability Improvement Accelerated Program systems have been delivered to the fleet and are being used in ASW exercises by east coast squadrons.

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

Threshold Breaches

APB Breaches

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

Nunn-McCurdy Breaches

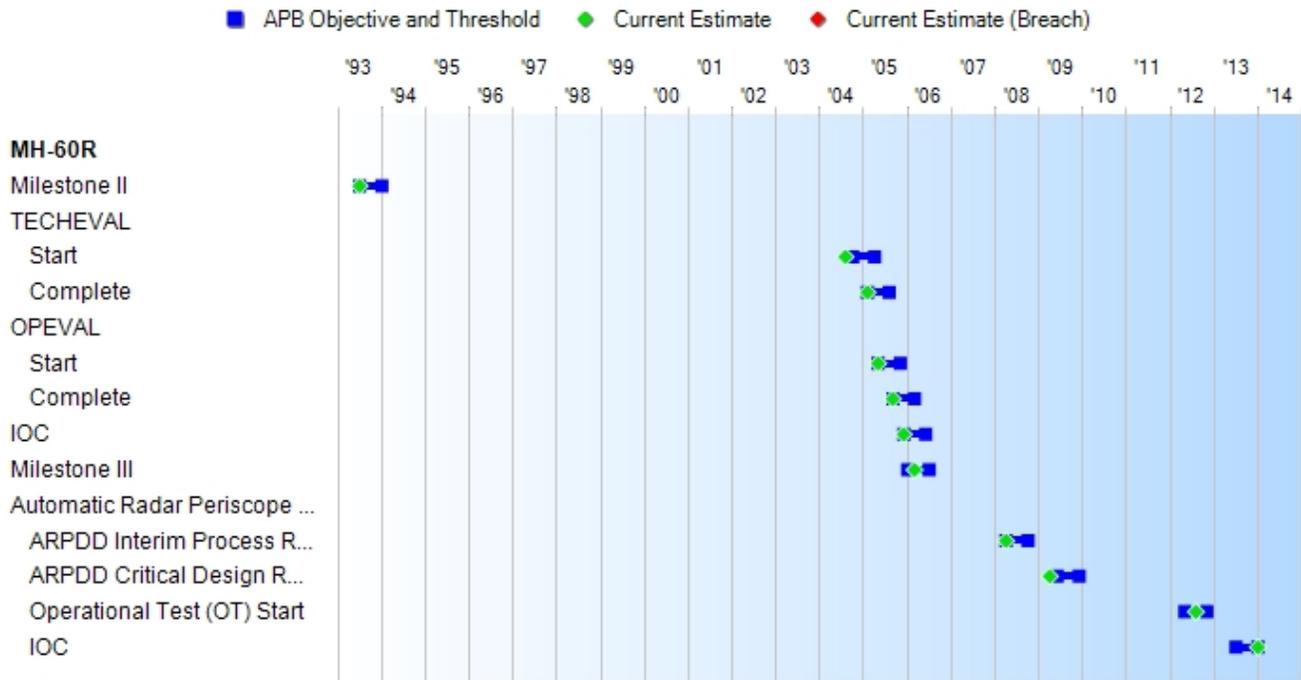
Current UCR Baseline

PAUC	None
APUC	None

Original UCR Baseline

PAUC	None
APUC	None

Schedule



Milestones	SAR Baseline Prod Est	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

Characteristics	SAR Baseline Prod Est	Current APB Production Objective/Threshold		Demonstrated Performance	Current Estimate
Availability (%): Mission Capable	82	82	70	82.3	78.9
Net Ready: All interfaces, services, policy-enforcement, controls, and data-sharing of the NCOW 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.	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
Crew Protection: Crashworthiness, Crew Restraint, and Egress	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 Source

Capability Production Document (CPD) dated November 28, 2005

Change Explanations

None

Acronyms and Abbreviations

G - Gravitational Force

GIG - Global Information Grid

KIPs - Key Interface Profiles

NCOW RM - Net-Centric Operational Warfare Reference Model

Track to Budget

RDT&E

Appn	BA	PE	
Navy	1319	05	0604212N
	Project		Name
	H2412		ASW & Other HELO Development/MH-60R Lamps (Sunk)
Navy	1319	05	0604216N
	Project		Name
	1707		Multil-Mission HELO Upgrade Development/MH-60R
	H9215		Multi-Mission HELO Upgrade Development/MH-60 PMLCC (Sunk)

Procurement

Appn	BA	PE	
Navy	1506	01	0204243N
	Line Item		Name
	0182		MH-60R
	Notes:		MH-60R - Funding does not include initial spares
Navy	1506	06	0204243N
	Line Item		Name
	0605		(Shared)
	Notes:		Light Airborne Multi-Purpose System spares

Cost and Funding

Cost Summary

Total Acquisition Cost and Quantity

Appropriation	BY2006 \$M			BY2006 \$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	1519.0	1718.9	1890.8	1858.3	1375.7	1570.4	1728.6
Procurement	9108.0	11360.2	12495.9	9811.0	10049.0	12573.5	10834.3
Flyaway	--	--	--	8122.6	--	--	8998.2
Recurring	--	--	--	6917.4	--	--	7671.8
Non Recurring	--	--	--	1205.2	--	--	1326.4
Support	--	--	--	1688.4	--	--	1836.1
Other Support	--	--	--	1403.8	--	--	1535.9
Initial Spares	--	--	--	284.6	--	--	300.2
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	11669.3	11424.7	14143.9	12562.9

Confidence Level for Current APB Cost 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.

Quantity	SAR Baseline Prod Est	Current APB Production	Current Estimate
RDT&E	2	2	2
Procurement	252	298	249
Total	254	300	251

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	1665.0	17.6	11.4	22.9	4.4	4.5	2.8	0.0	1728.6
Procurement	8762.8	780.2	1040.6	250.7	0.0	0.0	0.0	0.0	10834.3
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	10427.8	797.8	1052.0	273.6	4.4	4.5	2.8	0.0	12562.9
PB 2014 Total	10565.7	849.2	990.8	974.7	81.3	0.0	0.0	0.0	13461.7
Delta	-137.9	-51.4	61.2	-701.1	-76.9	4.5	2.8	0.0	-898.8

Quantity	Undistributed	Prior	FY2014	FY2015	FY2016	FY2017	FY2018	FY2019	To Complete	Total
Development		2	0	0	0	0	0	0	0	2
Production		0	201	19	29	0	0	0	0	249
PB 2015 Total		2	201	19	29	0	0	0	0	251
PB 2014 Total		2	201	19	29	29	0	0	0	280
Delta		0	0	0	0	-29	0	0	0	-29

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
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	--	--	--	--	--	--	17.6
2015	--	--	--	--	--	--	11.4

2016	--	--	--	--	--	--	22.9
2017	--	--	--	--	--	--	4.4
2018	--	--	--	--	--	--	4.5
2019	--	--	--	--	--	--	2.8
Subtotal	2	--	--	--	--	--	1728.6

Annual Funding BY\$

1319 | RDT&E | Research, Development, Test, and Evaluation, Navy

Fiscal Year	Quantity	End Item Recurring Flyaway BY 2006 \$M	Non End Item Recurring Flyaway BY 2006 \$M	Non Recurring Flyaway BY 2006 \$M	Total Flyaway BY 2006 \$M	Total Support BY 2006 \$M	Total Program BY 2006 \$M
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	--	--	--	--	--	--	15.0
2015	--	--	--	--	--	--	9.5
2016	--	--	--	--	--	--	18.7
2017	--	--	--	--	--	--	3.5
2018	--	--	--	--	--	--	3.5

2019	--	--	--	--	--	--	2.2
Subtotal	2	--	--	--	--	--	1858.3

Annual Funding TY\$
1506 | Procurement | Aircraft 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
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	714.7	--	71.9	786.6	131.3	917.9
2008	28	868.9	--	95.2	964.1	115.6	1079.7
2009	30	924.8	--	121.7	1046.5	146.4	1192.9
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	731.4	--	141.9	873.3	79.2	952.5
2013	19	629.0	--	60.4	689.4	55.7	745.1
2014	19	638.9	--	66.7	705.6	74.6	780.2
2015	29	785.6	--	26.9	812.5	228.1	1040.6
2016	--	--	--	219.6	219.6	31.1	250.7
Subtotal	249	7671.8	--	1326.4	8998.2	1836.1	10834.3

Annual Funding BY\$
1506 | Procurement | Aircraft Procurement, Navy

Fiscal Year	Quantity	End Item Recurring Flyaway BY 2006 \$M	Non End Item Recurring Flyaway BY 2006 \$M	Non Recurring Flyaway BY 2006 \$M	Total Flyaway BY 2006 \$M	Total Support BY 2006 \$M	Total Program BY 2006 \$M
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	675.6	--	68.0	743.6	124.1	867.7
2008	28	809.2	--	88.7	897.9	107.7	1005.6
2009	30	849.4	--	111.8	961.2	134.5	1095.7
2010	24	601.6	--	85.9	687.5	168.0	855.5
2011	24	646.5	--	97.2	743.7	194.1	937.8
2012	24	634.2	--	123.0	757.2	68.7	825.9
2013	19	536.4	--	51.5	587.9	47.5	635.4
2014	19	535.1	--	55.9	591.0	62.5	653.5
2015	29	645.6	--	22.1	667.7	187.5	855.2
2016	--	--	--	176.9	176.9	25.1	202.0
Subtotal	249	6917.4	--	1205.2	8122.6	1688.4	9811.0

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	627.7
2011	24	623.7
2012	24	613.2
2013	19	550.7
2014	19	491.0
2015	29	733.6
2016	--	92.0
Subtotal	249	6917.4

Low Rate Initial Production

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

In May 1999, LRIP was approved by the Assistant Secretary of the Navy (Research, Development and Acquisition) for a total LRIP quantity of 21, which was less than 10% of the total procurement (243). In April 2005, an Acquisition Decision Memorandum was approved to reduce the LRIP quantity from 21 to 15, which was less than 10% of the total procurement (254).

Foreign Military Sales

Country	Date of Sale	Quantity	Total Cost \$M	Memo
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. Foreign Military Sales (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 (TLS), 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.

Nuclear Costs

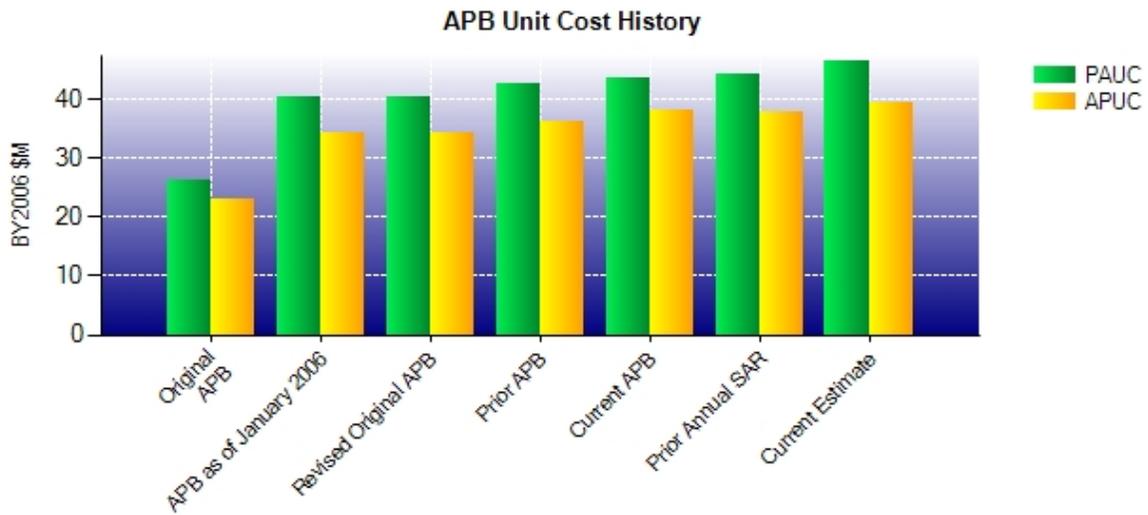
None

Unit Cost**Unit Cost Report**

	BY2006 \$M	BY2006 \$M	
Unit Cost	Current UCR Baseline (NOV 2010 APB)	Current Estimate (DEC 2013 SAR)	BY % Change
Program Acquisition Unit Cost (PAUC)			
Cost	13079.1	11669.3	
Quantity	300	251	
Unit Cost	43.597	46.491	+6.64
Average Procurement Unit Cost (APUC)			
Cost	11360.2	9811.0	
Quantity	298	249	
Unit Cost	38.121	39.402	+3.36

	BY2006 \$M	BY2006 \$M	
Unit Cost	Revised Original UCR Baseline (MAY 2004 APB)	Current Estimate (DEC 2013 SAR)	BY % Change
Program Acquisition Unit Cost (PAUC)			
Cost	9894.9	11669.3	
Quantity	243	251	
Unit Cost	40.720	46.491	+14.17
Average Procurement Unit Cost (APUC)			
Cost	8361.1	9811.0	
Quantity	241	249	
Unit Cost	34.693	39.402	+13.57

Unit Cost History



	Date	BY2006 \$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 2012	44.116	37.808	48.078	42.279
Current Estimate	DEC 2013	46.491	39.402	50.051	43.511

SAR Unit Cost History

Initial SAR Baseline to Current SAR Baseline (TY \$M)

Initial PAUC Dev Est	Changes								PAUC Prod Est
	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 Prod Est	Changes								PAUC Current Est
	Econ	Qty	Sch	Eng	Est	Oth	Spt	Total	
44.979	-0.100	0.841	0.496	1.605	2.349	0.000	-0.119	5.072	50.051

Initial SAR Baseline to Current SAR Baseline (TY \$M)

Initial APUC Dev Est	Changes								APUC Prod Est
	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 Prod Est	Changes								APUC Current Est
	Econ	Qty	Sch	Eng	Est	Oth	Spt	Total	
39.877	-0.067	0.786	0.500	0.569	1.966	0.000	-0.120	3.634	43.511

SAR Baseline History

Item/Event	SAR Planning Estimate (PE)	SAR Development Estimate (DE)	SAR Production Estimate (PdE)	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	JAN 2006	MAR 2006
IOC	N/A	MAR 2001	DEC 2005	DEC 2005
Total Cost (TY \$M)	N/A	11424.7	11424.7	12562.9
Total Quantity	N/A	254	254	251
Prog. Acq. Unit Cost (PAUC)	N/A	44.979	44.979	50.051

Cost Variance

Summary Then Year \$M				
	RDT&E	Proc	MILCON	Total
SAR Baseline (Prod Est)	1375.7	10049.0	--	11424.7
Previous Changes				
Economic	-7.9	+39.3	--	+31.4
Quantity	--	+734.6	--	+734.6
Schedule	--	+126.3	--	+126.3
Engineering	+235.6	+162.6	--	+398.2
Estimating	+102.5	+582.2	--	+684.7
Other	--	--	--	--
Support	--	-20.4	--	-20.4
Subtotal	+330.2	+1624.6	--	+1954.8
Current Changes				
Economic	-0.7	-55.9	--	-56.6
Quantity	--	-658.6	--	-658.6
Schedule	--	-1.7	--	-1.7
Engineering	+25.7	-21.0	--	+4.7
Estimating	-2.3	-92.7	--	-95.0
Other	--	--	--	--
Support	--	-9.4	--	-9.4
Subtotal	+22.7	-839.3	--	-816.6
Total Changes	+352.9	+785.3	--	+1138.2
CE - Cost Variance	1728.6	10834.3	--	12562.9
CE - Cost & Funding	1728.6	10834.3	--	12562.9

Summary Base Year 2006 \$M				
	RDT&E	Proc	MILCON	Total
SAR Baseline (Prod Est)	1519.0	9108.0	--	10627.0
Previous Changes				
Economic	--	--	--	--
Quantity	--	+625.5	--	+625.5
Schedule	--	+49.4	--	+49.4
Engineering	+211.8	+136.1	--	+347.9
Estimating	+109.1	+554.4	--	+663.5
Other	--	--	--	--
Support	--	-30.9	--	-30.9
Subtotal	+320.9	+1334.5	--	+1655.4
Current Changes				
Economic	--	--	--	--
Quantity	--	-529.7	--	-529.7
Schedule	--	-1.4	--	-1.4
Engineering	+20.7	-20.9	--	-0.2
Estimating	-2.3	-77.1	--	-79.4
Other	--	--	--	--
Support	--	-2.4	--	-2.4
Subtotal	+18.4	-631.5	--	-613.1
Total Changes	+339.3	+703.0	--	+1042.3
CE - Cost Variance	1858.3	9811.0	--	11669.3
CE - Cost & Funding	1858.3	9811.0	--	11669.3

Previous Estimate: September 2013

RDT&E	\$M	
	Base Year	Then Year
Current Change Explanations		
Revised escalation indices. (Economic)	N/A	-0.7
Integration of Instrument Landing System. (Engineering)	+9.5	+11.7
Integration of Helicopter Infrared Suppression System. (Engineering)	+11.2	+14.0
Adjustment for current and prior escalation. (Estimating)	+0.5	+0.5
Decrease in cost estimate to reflect prior year actuals. (Estimating)	-2.5	-2.5
Decrease in estimate for Sustaining Engineering/Program Management costs. (Estimating)	-0.3	-0.3
RDT&E Subtotal	+18.4	+22.7
Procurement	\$M	
	Base Year	Then Year
Current Change Explanations		
Revised escalation indices. (Economic)	N/A	-55.9
Total Quantity variance resulting from a decrease of 29 aircraft from 278 to 249. (Subtotal)	-707.5	-878.0
Quantity variance resulting from a decrease of 29 from 278 to 249. (Quantity)	(-697.9)	(-866.1)
Allocation to Schedule resulting from Quantity change. (Schedule) (QR)	(-1.4)	(-1.7)
Allocation to Engineering resulting from Quantity change. (Engineering) (QR)	(-1.8)	(-2.2)
Allocation to Estimating resulting from Quantity change. (Estimating) (QR)	(-6.4)	(-8.0)
Additional Quantity variance resulting from the decrease of 29 aircraft to reflect Naval Air Systems Command cost model calculations. (Quantity)	+168.2	+207.5
De-scope of Advanced Data Transfer System and cancellation of Fatigue Life Substantiation. (Engineering)	-21.0	-21.1
Incorporation of new Sikorsky Airframe Engineering Change Proposals (ECPs). (Engineering)	+1.9	+2.3
Adjustment for current and prior escalation. (Estimating)	+25.8	+30.2
Revised estimate to reflect the application of new outyear escalation indices. (Estimating)	+18.1	+22.2
Decrease in cost estimate to incorporate re-pricing of the Airframe and Mission Systems Multi-Year Contracts. (Estimating)	-12.9	-15.4
Increase in cost estimate for Lockheed Martin Mission Systems and Common Cockpit ECPs. (Estimating)	+15.1	+17.8
Decrease in cost estimate of Sikorsky Airframe ECPs. (Estimating)	-5.9	-6.5
Decrease in cost estimate for refinement of Economic Change Orders. (Estimating)	-7.1	-8.5
Decrease in cost estimate for reduction of Airborne Low Frequency Sonar quantities. (Estimating)	-87.2	-105.6
Decrease in cost estimate for Engines and Government Furnished Equipment. (Estimating)	-16.6	-18.9
Adjustment for current and prior escalation. (Support)	+3.2	+3.5
Decrease in Other Support. (Support)	-5.1	-12.2
Decrease in Initial Spares due to refined cost estimates. (Support)	-0.5	-0.7
Procurement Subtotal	-631.5	-839.3

(QR) Quantity Related

Contracts

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, Type N00019-11-C-0020, FFP
Award Date April 05, 2012
Definitization Date April 05, 2012

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.

Contract Comments

The FY 2015 PB reduction of 29 aircraft is not reflected in the Contractor or Program Manager's Estimate at Completion. The contract modification will be completed to cancel this contract after FY 2015.

Appropriation: Procurement

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

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 Comments

The FY 2015 PB reduction of 29 aircraft is not reflected in the Contractor or Program Manager's Estimate at Completion. The contract modification will be completed to cancel this contract after FY 2015.

Appropriation: Procurement

Contract Name **Raytheon Integrated Defense Systems ALFS Lot 10 & 11**
 Contractor Raytheon Integrated Defense Systems
 Contractor Location Portsmouth, RI 02871-1087
 Contract Number, Type N00019-13-C-0012, FFP
 Award Date December 20, 2012
 Definitization Date December 20, 2012

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	158.6	N/A	48	158.6	158.6

Cost and Schedule Variance Explanations

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

Appropriation: Procurement

Contract Name **Raytheon Integrated Defense Systems ALFS Lot 9**
 Contractor Raytheon Integrated Defense Systems
 Contractor Location Portsmouth, RI 02871-1087
 Contract Number, Type N00019-11-C-0077, FFP
 Award Date September 27, 2011
 Definitization Date September 27, 2011

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.

Deliveries and Expenditures

Delivered to Date	Plan to Date	Actual to Date	Total Quantity	Percent Delivered
Development	2	2	2	100.00%
Production	170	174	249	69.88%
Total Program Quantity Delivered	172	176	251	70.12%

Expended and Appropriated (TY \$M)

Total Acquisition Cost	12562.9	Years Appropriated	25
Expended to Date	9199.6	Percent Years Appropriated	83.33%
Percent Expended	73.23%	Appropriated to Date	11225.6
Total Funding Years	30	Percent Appropriated	89.36%

The above data is current as of 3/24/2014.

Operating and Support Cost

MH-60R

Assumptions and Ground Rules

Cost Estimate Reference:

Date of Estimate: February 2014

Source: Naval Air System Command Cost Department; Operating & Sustainment Division

The current O&S Cost Estimate for MH-60R will be updated when a new Aircraft Program Data File (APDF) is received and reflective of Primary Authorized Aircraft (PAA) flight profile for operating aircraft that takes into account the current reduction of 29 aircraft and pipeline requirements for the platform. The current estimate is based on APDF Version 111, with the assumption the platform will have all aircraft operating from FY2021 until the end of life and does not account for scheduled depot maintenance or current pipeline requirements during that timeframe.

Sustainment Strategy:

- Quantity: 251
- Service Life (Useful Life): 10,000 Hours or 20 Years
- Estimated Duration = FY 2002 to 2037
- Aircraft Attrition Rate = 0.5% of Total Active Inventory (TAI) per Year
- Aircraft Pipeline Rate = 10% of TAI per year
- Average Flight Hours per Month per Aircraft = 34.5
- Total Operating Aircraft Years = 4,618

Antecedent Information:

The antecedent system is the SH-60B/F aircraft. All costs are from the FY 2012 Navy Visibility and Management of Operating and Support Costs (VAMOSC) Aviation Type Model Series Report database (data from 2009 through 2012) and the FY 2013 APDF PAA. (6.0) 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 - present. 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 Base Year 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.

Unitized O&S Costs BY2006 \$K		
Cost Element	MH-60R Average Annual Cost per Aircraft	SH-60B/F (Antecedent) Average Annual Cost per Aircraft
Unit-Level Manpower	1907.800	1850.400
Unit Operations	229.000	210.000
Maintenance	1991.300	2123.000
Sustaining Support	77.200	104.500
Continuing System Improvements	246.300	224.000
Indirect Support	833.200	848.100
Other	0.000	0.000
Total	5284.800	5360.000

Unitized Cost Comments:

Total O&S cost is the product of the average annual cost per unit multiplied by the operational aircraft years.

	Total O&S Cost \$M			
	Current Production APB Objective/Threshold		Current Estimate	
	MH-60R		MH-60R	SH-60B/F (Antecedent)
Base Year	36067.5	39674.3	24405.0	24752.0
Then Year	49181.1	N/A	31189.0	N/A

Total O&S Costs Comments:

O&S Cost Variance Explanation		
Category	BY2006 \$M	Explanation
DEC 2012 SAR Total O&S Estimate	26,522.0	
Cost Estimating Methodology	-521.0	Refined I-Level personnel counts
Cost Data Update	+54.0	Updated historical cost information (FY12 Actuals)
Labor Rate	+146.0	Composite Labor and Indirect Rates Update
Energy Rate	+46.0	Fuel Rate Update
Technical Input	0.0	
Programmatic/Planning	-1,842.0	Decreased AC QTY by 29
Other	0.0	
Total Changes	-2,117.0	
Current Estimate	24,405.0	

The cost estimate was updated to reflect a reduction in the total aircraft procurement from 280 to 251 from SAR 2012. Maintenance Costs consisting of Aviation Depot Level Repairable (AVDLR) 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. The BY total was calculated multiplying the dollar per aircraft cost by the total number of aircraft years of the O&S cycle. 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.

Disposal Costs:

The Rough Order of Magnitude estimated cost of the demil/disposal phase for the remaining aircraft is \$70M (BY 2006). The estimate will be refined as the System Disposal Plan Annex to the Life Cycle Sustainment Plan is developed.