Selected Acquisition Report (SAR)

RCS: DD-A&T(Q&A)823-282

MH-60S Fleet Combat Support Helicopter (MH-60S)

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

MH-60S Fleet Combat Support Helicopter (MH-60S)

DoD Component

Navy

Responsible Office

Responsible Office

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Date Assigned July 28, 2011

References

SAR Baseline (Production Estimate)

Navy Acquisition Executive (NAE) Approved Acquisition Program Baseline (APB) dated November 9, 2002

Approved APB

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

Mission and Description

The MH-60S Multi-Mission Helicopter Sea Combat (HSC) support helicopters fielded as three "Blocks" of aircraft with slightly different capabilities. Block 1 Combat Support provides Vertical Replenishment; internal transport of passengers, mail and cargo; Vertical On-Board Delivery; Airhead Operations; and day/night Search and Rescue. Secondary roles include torpedo and drone recovery, Noncombatant Evacuation Operations, Sea Air Land and Explosive Ordnance Disposal support.

Block 2 Airborne Mine Countermeasures (AMCM) provides an organic AMCM capability for the Littoral Combat Ship Mine Countermeasures Mission Package. Block 2A AMCM includes the Carriage, Stream, Tow and Recovery System, Common Console, and the AES-1 Airborne Laser Mine Detection System. Block 2B includes the ASQ-235 Airborne Mine Neutralization System.

Block 3 Armed Helo provides the Navy with organic Surface Warfare, Force Protection, and Combat Search and Rescue capabilities. Additional Armed Helo mission areas include Naval Special Warfare and Maritime Interdiction Operations.

These missions are vital to the Navy's role in power projection in the littoral areas of the world. The first 50 aircraft are only capable of performing Block 1 Combat Support Missions. Aircraft 51 to 275 will be capable of performing Block 1 Combat Support Missions, as well as Block 2 AMCM missions and Block 3 Armed Helo missions with installation of ancillary kits.

Executive Summary

The MH-60S program has delivered 246 of 275 helicopters as of March 31, 2014. In response to the Fast Attack Craft / Fast Inshore Attack Craft (FAC/FIAC) threat the program has fielded a 20mm Fixed Forward Firing Gun and fielded an unguided rocket capability. MH-60S helicopters have been utilized for Humanitarian Assistance and Disaster Relief, including support in 2012 for Hurricane Sandy and most recently in 2013 for Cyclone Phailin.

The MH-60R/S Mission Systems and Common Cockpit Multi-Year Procurement (MYP) contract (MY2) with Lockheed Martin Mission Systems and Training was awarded April 5, 2012. The MH-60R/S Airframe MYP contract (MY8) with Sikorsky Aircraft Corporation was awarded July 6, 2012. These two contracts will complete the MH-60S production buys which conclude in FY 2015.

MH-60S Armed Helicopter fixed forward firing weapons integration and test activities continued through 2013. A Quick Reaction Assessment (QRA) of the LAU-61C/A with 2.75 inch unguided High Explosive (HE) rockets completed in April 2013 and a QRA of the LAU-61 C/A with 2.75 inch unguided Flechette rockets was completed in July 2013. Both capabilities were fielded to fleet users in 2013. The LAU-61G/A Digital Rocket Launcher (DRL) with Advanced Precision Kill Weapons Systems guided rockets completed developmental test in 2013. A QRA of the LAU-61 G/A DRL completed December 2013 and fielded in March 2014.

MH-60S Airborne Mine Countermeasures (AMCM) integration and test activities continued through 2013. Individual AMCM system operational test schedules were aligned with the Littoral Combat Ship (LCS) Mine Countermeasures (MCM) Mission Package schedule. Developmental testing of the MH-60S with the AN/AQS-235 Airborne Mine Neutralizer System continued in 2013.

The program has breached its schedule for AMCM IOC and has experienced an O&S cost breach due to the addition of AMCM and Armed Helo missions and an additional five years of anticipated aircraft service life. Program Deviation Reports for both breaches have been issued by the Program Manager. The program no longer has an APUC breach for unit cost.

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	Significant
	APUC	None

Explanation of Breach

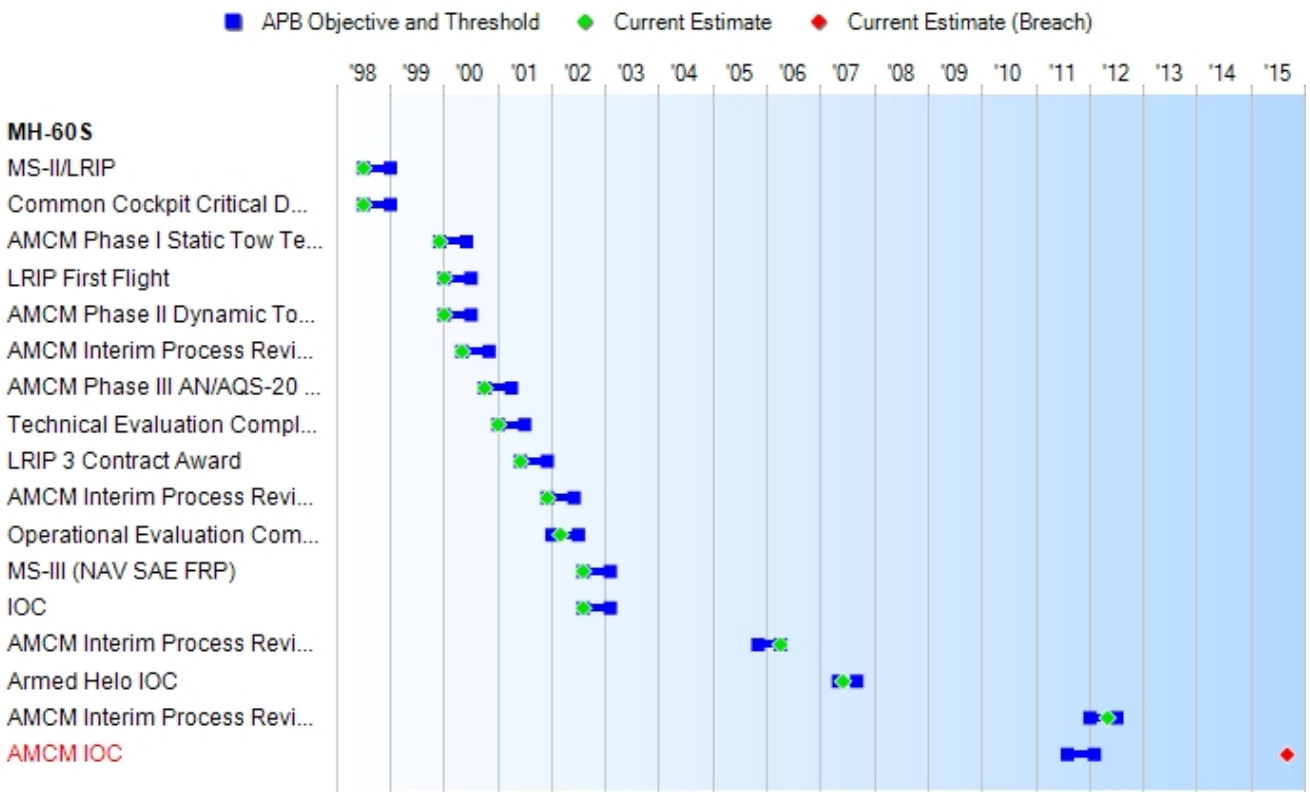
Schedule: This program realized a schedule breach previously reported in the December 2011 SAR. The Airborne Mine Countermeasures (AMCM) IOC changed from October 2014 to September 2015. The change is based on alignment of the MH-60S AMCM schedule with Littoral Combat Ship Mine Countermeasures Mission package Schedule.

An O&S Breach was previously reported in the December 2012 SAR.

This program realized a significant Nunn-McCurdy breach to the original baseline that was first reported in the December 2005 SAR. The supporting breach information and explanations can be found in the Unit Cost Report section of that SAR.

Program Deviations Reports were submitted by the Program Manager at the time of each breach.

Schedule


APB Objective and Threshold
Current Estimate
Current Estimate (Breach)
'98
'99
'00
'01
'02
'03
'04
'05
'06
'07
'08
'09
'10
'11
'12
'13
'14
'15
MH-60S
MS-II/LRIP
Common Cockpit Critical D...
AMCM Phase I Static Tow Te...
LRIP First Flight
AMCM Phase II Dynamic To...
AMCM Interim Process Revi...
AMCM Phase III AN/AQS-20 ...
Technical Evaluation Compl...
LRIP 3 Contract Award
AMCM Interim Process Revi...
Operational Evaluation Com...
MS-III (NAV SAE FRP)
IOC
AMCM Interim Process Revi...
Armed Helo IOC
AMCM Interim Process Revi...
AMCM IOC

Milestones	SAR Baseline Prod Est	Current APB Production Objective/Threshold		Current Estimate	
MS-II/LRIP	JUL 1998	JUL 1998	JAN 1999	JUL 1998	
Common Cockpit Critical Design Review	JUL 1998	JUL 1998	JAN 1999	JUL 1998	
AMCM Phase I Static Tow Test and OEI Test	DEC 1999	DEC 1999	JUN 2000	DEC 1999	
LRIP First Flight	JAN 2000	JAN 2000	JUL 2000	JAN 2000	
AMCM Phase II Dynamic Tow Test	JAN 2000	JAN 2000	JUL 2000	JAN 2000	
AMCM Interim Process Review I	MAY 2000	MAY 2000	NOV 2000	MAY 2000	
AMCM Phase III AN/AQS-20 Tow Demonstration	OCT 2000	OCT 2000	APR 2001	OCT 2000	
Technical Evaluation Complete	JAN 2001	JAN 2001	JUL 2001	JAN 2001	
LRIP 3 Contract Award	JUN 2001	JUN 2001	DEC 2001	JUN 2001	
AMCM Interim Process Review II	DEC 2001	DEC 2001	JUN 2002	DEC 2001	
Operational Evaluation Complete	JAN 2002	JAN 2002	JUL 2002	MAR 2002	
MS-III (NAV SAE FRP)	AUG 2002	AUG 2002	FEB 2003	AUG 2002	
IOC	AUG 2002	AUG 2002	FEB 2003	AUG 2002	
AMCM Interim Process Review III	APR 2005	NOV 2005	APR 2006	APR 2006	
Armed Helo IOC	MAR 2006	MAY 2007	SEP 2007	JUN 2007	
AMCM Interim Process Review IV	N/A	JAN 2012	JUL 2012	MAY 2012	
AMCM IOC	JUN 2005	AUG 2011	FEB 2012	**SEP 2015**[1]	(Ch-1)

[1] *APB Breach*

Change Explanations

(Ch-1) The Current estimate for AMCM IOC has changed from Oct 2014 to Sep 2015. This will align AMCM IOC with the LCS Mine Countermeasures Mission Package IOT&E and subsequent IOC, as driven by the LCS Test and Evaluation Master Plan.

Acronyms and Abbreviations

AMCM - Airborne Mine Countermeasure
AN/AQS-20A - Sonar Mine Detection Set
IOT&E - Initial Operational Test and Evaluation
LCS - Littoral Combat Ship
MS - Milestone
NAV SAE FRP - Navy Service Acquisition Executive Full Rate Production
OEI - One Engine Inoperative

Performance

Characteristics	SAR Baseline Prod Est	Current APB Production Objective/Threshold		Demonstrated Performance	Current Estimate
*Airspeed-VMAX (KIAS) (Block 1 configuration)	175	175	150	154	154
*Amphibious SAR Mission Radius (nm) (Block 1 configuration)	150	150	50	50	50
*VERTREP Endurance (hrs) (Block 1 configuration)	3	3	1.75	1.85	1.85
*VERTREP, External (lbs) (Block 1 configuration)	5,500	5,500	5,500	6,000	7,500
*VOD (lbs) (Block 1 configuration)	5,500	5,500	5,500	5,000	5,500
MTBF (hrs)	20.3	N/A	N/A	N/A	N/A
MTTR (hrs)	3.6	N/A	N/A	N/A	N/A
*Organic CSAR Overland Mission Radius (nm)	300	200	150	194	194
*SWS Mission Radius (nm)	300	N/A	N/A	N/A	N/A
*CV Plane Guard/SAR Mission Radius (nm)	200	200	100	114	114
*AMCM Free Flight Endurance (mins)	150	150	120	210	210
*AMCM Hover Endurance (mins)	90	90	75	TBD	75
*AMCM Tow Endurance (mins) /6	75	75	60	71.6	71.6
*AMCM Hot Temp Tow Endurance(105 deg F)	45	45	30	30	30
*AMCM Tow Turns (25 knot wind) (deg/sec)	1.5	1.5	1.0	1.5	1.5
*AMCM Wind Speed Tow (KIAS)	30	30	25	26	26
*AMCM Block 2 Information Dissemination (%)	95	N/A	N/A	N/A	N/A
*AMCM Block 2 Information Integrity (%)	99	N/A	N/A	N/A	N/A
*AMCM Block 2 Interoperability (%)	100	N/A	N/A	N/A	N/A
*Armed Helo Airspeed-	165	130	130	135	135

VMAX (KIAS)					
*Armed Helo FMC Rate (%)	60	60	56	60	60
*Armed Helo MC Rate (%)	75	75	69	74	74
*HC Interoperability (%)	100	N/A	N/A	N/A	N/A
*Net Ready (%)	N/A	100	100	Met all evaluation criteria	100
*Force Protection	N/A	Crash Worthy Seats Pilot 35G, 25G, 20G Crew 20G, 20G, 20G	Crash Worthy Seats Pilot 20G, 20G, 10G Crew 14G, 8G, 12G	Seats Designed to meet Pilot 35G, 25G, 20G Crew 18G, 14.5G, 14G	Crash Worthy Seats Pilot 35G, 25G, 20G, Crew 18G, 14.5G 14G
*Combat Survivability	N/A	Pred Survive 95% prior to launch 80% after launch	Warning & Protect RF/IR, Threat	Warning & Protect RF/IR, Threat	Warning & Protect RF/IR, Threat
*Operational Availability (Ao) (%) (Block 2)	N/A	85	75	83.1	85
Information Awareness (%) (Block 1 & 3 configuration)	N/A	99.9	99	Met all evaluation criteria	99.9
Information Dissemination (%) (Block 1 & 3)	N/A	95	95	Met all evaluation criteria	95
Information Integrity (%) (Block 1 & 3)	N/A	99.999	99.99	Met all evaluation criteria	99.999

Requirements Source

Operational Requirements Document (ORD) Change 2 dated February 15, 2008

Change Explanations

None

Memo

* Denotes Key Performance Parameters (KPPs)

Acronyms and Abbreviations

AMCM - Airborne Mine Countermeasures
Ao - Operational Availability
CSAR - Combat Search and Rescue
CV - Carrier
deg - Degree
F - Fahrenheit
FMC - Fully Mission Capable
G - Gravitational Load
HC - Helicopter Combat Support
hrs - Hours
KIAS - Knots Indicated Airspeed
lbs - Pounds
LCS - Littoral Combat Ship
MC - Mission Capable
mins - Minutes
MTBF - Mean Time Between Failures
MTTR - Mean Time to Repair
nm - Nautical Miles
RF/IR - Radio Frequency/Infrared
SAR - Search and Rescue
sec - Seconds
SWS - Special Warfare Support
VERTREP - Vertical Replenishment
VMAX - Velocity Maximum
VOD - Vertical Onboard Delivery

Track to Budget

RDT&E

Appn		BA	PE	
Navy	1319	05	0604212N	
	Project		**Name**	
	1709		ASW and Other Helo Development/MH-60S VERTREP	(Sunk)
	2415		ASW and Other Helo Development/MH-60S Development , VERTREP	
	2772		ASW and Other Helo Development/Sentient Sensor	(Sunk)
	2773		ASW and Other Helo Development/MH-60S Engineering Development	(Sunk)
	9213		ASW and Other Helo Development/ADV Tow Cable Design	(Sunk)
Navy	1319	05	0604216N	
	Project		**Name**	
	3053		Multi-Mission Helicopter Upgrade Development/MH-60S AMCM	(Sunk)

Procurement

Appn		BA	PE	
Navy	1506	01	0204453N	
	Line Item		**Name**	
	0179		MH-60S (MYP)	
Navy	1506	02	0204453N	
	Line Item		**Name**	
	0240		MH-60S	(Sunk)
Navy	1506	06	0204453N	
	Line Item		**Name**	
	0605		MH-60S	(Shared)

Cost and Funding

Cost Summary

Total Acquisition Cost and Quantity

Appropriation	BY1998 $M			BY1998 $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	390.9	634.6	698.1	674.1	421.4	723.8	779.0
Procurement	4879.2	6062.0	6668.2	5797.4	5672.4	7134.8	6985.4
Flyaway	--	--	--	4705.7	--	--	5688.2
Recurring	--	--	--	3875.7	--	--	4661.5
Non Recurring	--	--	--	830.0	--	--	1026.7
Support	--	--	--	1091.7	--	--	1297.2
Other Support	--	--	--	934.8	--	--	1121.1
Initial Spares	--	--	--	156.9	--	--	176.1
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	5270.1	6696.6	N/A	6471.5	6093.8	7858.6	7764.4

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	0	0	0
Procurement	237	271	275
Total	237	271	275

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	731.3	21.8	25.9	0.0	0.0	0.0	0.0	0.0	779.0
Procurement	6350.7	396.2	210.2	28.3	0.0	0.0	0.0	0.0	6985.4
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	7082.0	418.0	236.1	28.3	0.0	0.0	0.0	0.0	7764.4
PB 2014 Total	7136.2	455.4	271.6	28.6	0.0	0.0	0.0	0.0	7891.8
Delta	-54.2	-37.4	-35.5	-0.3	0.0	0.0	0.0	0.0	-127.4

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	249	18	8	0	0	0	0	0	275
PB 2015 Total	0	249	18	8	0	0	0	0	0	275
PB 2014 Total	0	249	18	8	0	0	0	0	0	275
Delta	0	0	0	0	0	0	0	0	0	0

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
1997	--	--	--	--	--	--	6.9
1998	--	--	--	--	--	--	29.7
1999	--	--	--	--	--	--	36.8
2000	--	--	--	--	--	--	42.3
2001	--	--	--	--	--	--	30.5
2002	--	--	--	--	--	--	50.2
2003	--	--	--	--	--	--	24.1
2004	--	--	--	--	--	--	49.8
2005	--	--	--	--	--	--	77.9
2006	--	--	--	--	--	--	78.8
2007	--	--	--	--	--	--	81.3
2008	--	--	--	--	--	--	38.1
2009	--	--	--	--	--	--	42.9
2010	--	--	--	--	--	--	48.0
2011	--	--	--	--	--	--	39.4
2012	--	--	--	--	--	--	34.1
2013	--	--	--	--	--	--	20.5
2014	--	--	--	--	--	--	21.8
2015	--	--	--	--	--	--	25.9
Subtotal	**--**	**--**	**--**	**--**	**--**	**--**	**779.0**

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

Fiscal Year	Quantity	End Item Recurring Flyaway BY 1998 $M	Non End Item Recurring Flyaway BY 1998 $M	Non Recurring Flyaway BY 1998 $M	Total Flyaway BY 1998 $M	Total Support BY 1998 $M	Total Program BY 1998 $M
1997	--	--	--	--	--	--	6.9
1998	--	--	--	--	--	--	29.5
1999	--	--	--	--	--	--	36.2
2000	--	--	--	--	--	--	41.0
2001	--	--	--	--	--	--	29.1
2002	--	--	--	--	--	--	47.5
2003	--	--	--	--	--	--	22.5
2004	--	--	--	--	--	--	45.2
2005	--	--	--	--	--	--	68.8
2006	--	--	--	--	--	--	67.5
2007	--	--	--	--	--	--	68.0
2008	--	--	--	--	--	--	31.3
2009	--	--	--	--	--	--	34.8
2010	--	--	--	--	--	--	38.4
2011	--	--	--	--	--	--	30.7
2012	--	--	--	--	--	--	26.1
2013	--	--	--	--	--	--	15.5
2014	--	--	--	--	--	--	16.2
2015	--	--	--	--	--	--	18.9
Subtotal	**--**	**--**	**--**	**--**	**--**	**--**	**674.1**

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
1998	1	16.3	--	11.3	27.6	2.1	29.7
1999	5	109.7	--	--	109.7	28.0	137.7
2000	16	298.1	--	--	298.1	63.4	361.5
2001	15	218.8	--	6.3	225.1	94.3	319.4
2002	13	188.7	--	13.4	202.1	70.6	272.7
2003	15	251.2	--	37.3	288.5	75.5	364.0
2004	13	221.0	--	70.5	291.5	135.2	426.7
2005	15	258.0	--	61.2	319.2	79.4	398.6
2006	26	391.4	--	78.3	469.7	67.6	537.3
2007	18	315.0	--	37.1	352.1	124.4	476.5
2008	20	331.8	--	139.5	471.3	99.9	571.2
2009	20	348.6	--	145.3	493.9	78.3	572.2
2010	18	319.4	--	92.6	412.0	60.3	472.3
2011	18	312.4	--	124.4	436.8	92.9	529.7
2012	18	336.1	--	66.1	402.2	44.5	446.7
2013	18	330.8	--	59.9	390.7	43.8	434.5
2014	18	295.6	--	39.3	334.9	61.3	396.2
2015	8	118.6	--	44.2	162.8	47.4	210.2
2016	--	--	--	--	--	28.3	28.3
Subtotal	**275**	**4661.5**	**--**	**1026.7**	**5688.2**	**1297.2**	**6985.4**

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

Fiscal Year	Quantity	End Item Recurring Flyaway BY 1998 $M	Non End Item Recurring Flyaway BY 1998 $M	Non Recurring Flyaway BY 1998 $M	Total Flyaway BY 1998 $M	Total Support BY 1998 $M	Total Program BY 1998 $M
1998	1	16.0	--	11.1	27.1	2.1	29.2
1999	5	106.4	--	--	106.4	27.2	133.6
2000	16	285.4	--	--	285.4	60.7	346.1
2001	15	207.0	--	6.0	213.0	89.2	302.2
2002	13	176.3	--	12.5	188.8	66.0	254.8
2003	15	230.1	--	34.2	264.3	69.2	333.5
2004	13	197.3	--	62.9	260.2	120.7	380.9
2005	15	224.0	--	53.1	277.1	68.9	346.0
2006	26	330.6	--	66.2	396.8	57.1	453.9
2007	18	260.0	--	30.6	290.6	102.7	393.3
2008	20	269.8	--	113.5	383.3	81.2	464.5
2009	20	279.6	--	116.5	396.1	62.8	458.9
2010	18	250.8	--	72.7	323.5	47.4	370.9
2011	18	240.3	--	95.7	336.0	71.4	407.4
2012	18	254.5	--	50.0	304.5	33.7	338.2
2013	18	246.3	--	44.6	290.9	32.6	323.5
2014	18	216.2	--	28.7	244.9	44.9	289.8
2015	8	85.1	--	31.7	116.8	34.0	150.8
2016	--	--	--	--	--	19.9	19.9
Subtotal	**275**	**3875.7**	**--**	**830.0**	**4705.7**	**1091.7**	**5797.4**

Cost Quantity Information
1506 | Procurement | Aircraft Procurement, Navy

Fiscal Year	Quantity	End Item Recurring Flyaway (Aligned with Quantity) BY 1998 $M
1998	1	16.0
1999	5	81.5
2000	16	237.5
2001	15	213.1
2002	13	178.6
2003	15	223.8
2004	13	186.5
2005	15	216.9
2006	26	348.7
2007	18	258.3
2008	20	283.0
2009	20	276.9
2010	18	251.7
2011	18	246.3
2012	18	250.5
2013	18	257.4
2014	18	241.5
2015	8	107.5
2016	--	--
Subtotal	**275**	**3875.7**

Low Rate Initial Production

	Initial LRIP Decision	Current Total LRIP
Approval Date	7/8/1998	7/8/1998
Approved Quantity	37	37
Reference	Milestone (MS) II ADM	MS II ADM
Start Year	1998	1998
End Year	2001	2001

The Current Total LRIP Quantity is more than 10% of the total production quantity due to the MS II decision on July 8, 1998, which set LRIP at 15% of the total procurement quantity or 37 aircraft. The LRIP quantity was appropriate due to the low risk of integrating Navy H-60 Seahawk components into the Army H-60 Blackhawk as well as allowing use of an existing Army multi-year contract for procurement.

Foreign Military Sales

Country	Date of Sale	Quantity	Total Cost $M	Memo
Thailand	3/29/2007	2	64.1	Total Cost based on amended Letter of Offer and Acceptance (LOA) signed January 28, 2011.

Nuclear Costs

None

Unit Cost

Unit Cost Report

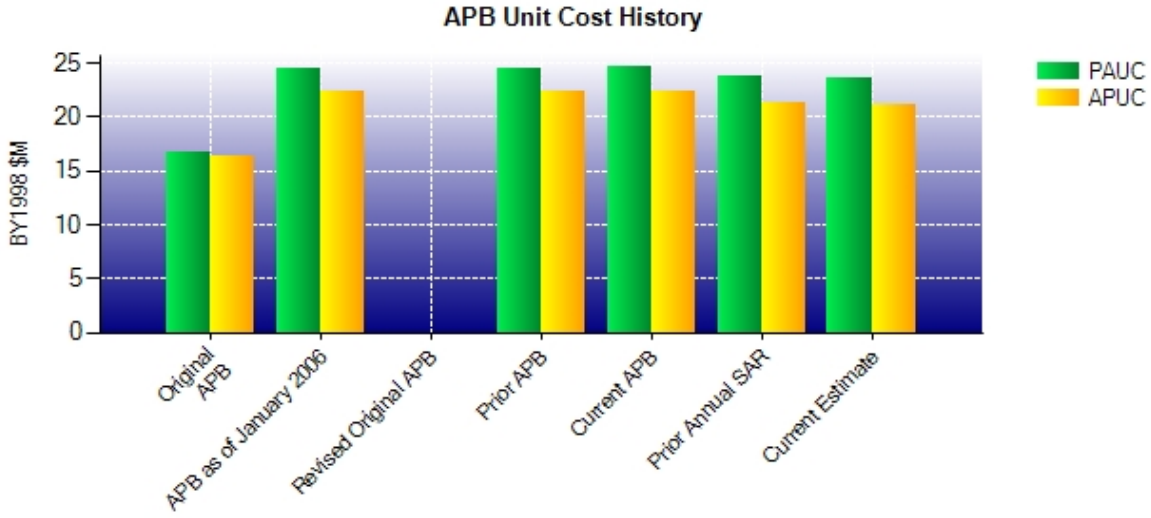
Unit Cost	BY1998 $M Current UCR Baseline (NOV 2010 APB)	BY1998 $M Current Estimate (DEC 2013 SAR)	BY % Change
Program Acquisition Unit Cost (PAUC)			
Cost	6696.6	6471.5	
Quantity	271	275	
Unit Cost	24.711	23.533	-4.77
Average Procurement Unit Cost (APUC)			
Cost	6062.0	5797.4	
Quantity	271	275	
Unit Cost	22.369	21.081	-5.76

Unit Cost	BY1998 $M Original UCR Baseline (JUL 1998 APB)	BY1998 $M Current Estimate (DEC 2013 SAR)	BY % Change
Program Acquisition Unit Cost (PAUC)			
Cost	2769.0	6471.5	
Quantity	166	275	
Unit Cost	16.681	23.533	**+41.08** [1]
Average Procurement Unit Cost (APUC)			
Cost	2698.0	5797.4	
Quantity	165	275	
Unit Cost	16.352	21.081	+28.92

[1] **Nunn-McCurdy Breach**

This program realized a significant Nunn-McCurdy breach to the original baseline that was first reported in the December 2005 SAR. The supporting breach information and explanations can be found in the Unit Cost Report section of that SAR.

Unit Cost History



		BY1998 $M		TY $M	
	Date	PAUC	APUC	PAUC	APUC
Original APB	JUL 1998	16.681	16.352	19.567	19.334
APB as of January 2006	MAY 2005	24.369	22.369	28.489	26.328
Revised Original APB	N/A	N/A	N/A	N/A	N/A
Prior APB	DEC 2008	24.369	22.369	28.489	26.328
Current APB	NOV 2010	24.711	22.369	28.999	26.328
Prior Annual SAR	DEC 2012	23.816	21.325	28.697	25.807
Current Estimate	DEC 2013	23.533	21.081	28.234	25.401

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	
19.000	-0.766	-0.164	-0.001	2.211	3.739	0.000	1.693	6.712	25.712

Current SAR Baseline to Current Estimate (TY $M)

PAUC Prod Est	Changes								PAUC Current Est
	Econ	Qty	Sch	Eng	Est	Oth	Spt	Total	
25.712	0.691	-0.751	0.825	-0.468	0.981	0.000	1.244	2.522	28.234

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	
18.679	-0.765	-0.147	-0.001	1.123	3.352	0.000	1.693	5.255	23.934

Current SAR Baseline to Current Estimate (TY $M)

APUC Prod Est	Changes								APUC Current Est
	Econ	Qty	Sch	Eng	Est	Oth	Spt	Total	
23.934	0.658	-0.506	0.825	-0.592	-0.162	0.000	1.244	1.467	25.401

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	APR 1998	JUL 1998	JUL 1998
Milestone III	N/A	SEP 2000	AUG 2002	AUG 2002
IOC	N/A	DEC 2001	AUG 2002	AUG 2002
Total Cost (TY $M)	N/A	3154.0	6093.8	7764.4
Total Quantity	N/A	166	237	275
Prog. Acq. Unit Cost (PAUC)	N/A	19.000	25.712	28.234

Cost Variance

Summary Then Year $M				
	RDT&E	Proc	MILCON	Total
SAR Baseline (Prod Est)	421.4	5672.4	--	6093.8
Previous Changes				
Economic	+10.3	+201.1	--	+211.4
Quantity	--	+770.4	--	+770.4
Schedule	--	+227.0	--	+227.0
Engineering	+50.2	-163.9	--	-113.7
Estimating	+313.1	+52.3	--	+365.4
Other	--	--	--	--
Support	--	+337.5	--	+337.5
Subtotal	+373.6	+1424.4	--	+1798.0
Current Changes				
Economic	-1.1	-20.2	--	-21.3
Quantity	--	--	--	--
Schedule	--	--	--	--
Engineering	-16.0	+1.0	--	-15.0
Estimating	+1.1	-96.8	--	-95.7
Other	--	--	--	--
Support	--	+4.6	--	+4.6
Subtotal	-16.0	-111.4	--	-127.4
Total Changes	+357.6	+1313.0	--	+1670.6
CE - Cost Variance	779.0	6985.4	--	7764.4
CE - Cost & Funding	779.0	6985.4	--	7764.4

Summary Base Year 1998 $M				
	RDT&E	**Proc**	**MILCON**	**Total**
SAR Baseline (Prod Est)	390.9	4879.2	--	5270.1
Previous Changes				
Economic	--	--	--	--
Quantity	--	+572.5	--	+572.5
Schedule	--	+121.8	--	+121.8
Engineering	+38.9	-123.9	--	-85.0
Estimating	+255.4	+174.6	--	+430.0
Other	--	--	--	--
Support	--	+240.1	--	+240.1
Subtotal	+294.3	+985.1	--	+1279.4
Current Changes				
Economic	--	--	--	--
Quantity	--	--	--	--
Schedule	--	--	--	--
Engineering	-11.9	+0.7	--	-11.2
Estimating	+0.8	-70.6	--	-69.8
Other	--	--	--	--
Support	--	+3.0	--	+3.0
Subtotal	-11.1	-66.9	--	-78.0
Total Changes	+283.2	+918.2	--	+1201.4
CE - Cost Variance	674.1	5797.4	--	6471.5
CE - Cost & Funding	674.1	5797.4	--	6471.5

Previous Estimate: December 2012

RDT&E	$M	
Current Change Explanations	**Base Year**	**Then Year**
Revised escalation indices. (Economic)	N/A	-1.1
Reductions in scope of targeting solution for Fast Attack Craft/Fast Inshore Attack Craft Forward Firing Weapons (FAC/FIAC FFW). (Engineering)	-7.4	-10.0
Correction of deficiencies for Airborne Mine Countermeasures (AMCM) Airborne Mine Neutralization System Operational Assement (OA) and Littoral Combat Ship Mine Countermeasures Mission Package OA. (Engineering)	-4.5	-6.0
Adjustment for current and prior escalation. (Estimating)	+0.6	+0.8
Revised estimate to reflect the application of new outyear escalation indices. (Estimating)	+0.2	+0.3
RDT&E Subtotal	-11.1	-16.0

Procurement	$M	
Current Change Explanations	**Base Year**	**Then Year**
Revised escalation indices. (Economic)	N/A	-20.2
Incorporation of additional Sikorsky Airframe Engineering Change Proposals. (Engineering)	+0.7	+1.0
Adjustment for current and prior escalation. (Estimating)	+11.3	+14.8
Revised estimate to reflect the application of new outyear escalation indices. (Estimating)	+2.2	+3.1
Revised cost estimate for Government Furnished Equipment. (Estimating)	+0.6	+0.8
Incorporation of the purchase of refurbished engines vice new engines to meet production line delivery requirements. (Estimating)	-4.3	-5.9
Revised Non-Recurring Engineering for Production Line Shutdown and Fatigue Life Assessment. (Estimating)	-19.7	-26.6
Decrease in cost estimate for Ancillary equipment, i.e. Armed Helo kits, AMCM fielding requirements, and auxiliary fuel tanks. (Estimating)	-60.7	-83.0
Adjustment for current and prior escalation. (Support)	+1.6	+2.3
Increase in Other Support for peculiar ground support equipment to establish Core Depot Standup capability. (Support)	+1.5	+2.7
Decrease in Initial Spares for actuals. (Support)	-0.1	-0.4
Procurement Subtotal	-66.9	-111.4

Contracts

Appropriation: Procurement	
Contract Name	**MH-60S Common Cockpit (Lots 14-17)**
Contractor	Lockheed Martin Corporation
Contractor Location	1801 State Rt 17C Owego, NY 13827
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
111.1	N/A	62	111.1	N/A	62	111.1	111.1

Cost and Schedule Variance Explanations

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

Appropriation: Procurement	
Contract Name	**MH-60S Production Aircraft (Lots 14-17)**
Contractor	Sikorsky Aircraft Corporation
Contractor Location	6900 Main Street Stratford, 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
888.8	N/A	62	888.8	N/A	62	888.8	888.8

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	245	246	275	89.45%
Total Program Quantity Delivered	245	246	275	89.45%

Expended and Appropriated (TY $M)			
Total Acquisition Cost	7764.4	Years Appropriated	18
Expended to Date	6675.3	Percent Years Appropriated	90.00%
Percent Expended	85.97%	Appropriated to Date	7500.0
Total Funding Years	20	Percent Appropriated	96.59%

The above data is current as of 3/31/2014.

Operating and Support Cost

MH-60S

Assumptions and Ground Rules

Cost Estimate Reference:
Date of Estimate: February 2014

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

The MH-60S Operating and Support (O&S) cost estimate was updated from the Navy Service Cost Position (SCP) dated November 1, 2010. Maintenance Cost consisting of Aviation Depot Level Repairables (AVDLR) and Consumables were updated using a bottoms-up estimating model that is based on actual MH-60S reliability performance and cost instead of analogous data from other H-60 platforms. In addition, the MH-60S specific manning document and sundown plan is now being utilized instead of the analogous data from 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 the MH-60S aircraft from service with a total aircraft procurement of 275.

Sustainment Strategy:
- Quantity: 275 (5 stricken)
- Service Life (useful life): 10,000 hours or 20 years
- Estimated duration = Fiscal Year 2000 to 2035
- Aircraft Attrition Rate = 0.7% of Total Aircraft Inventory (TAI) per year
- Aircraft Pipeline Rate = 15% of TAI per year
- Average Flight Hours per Month per Aircraft = 30.6
- Total Operating Aircraft Years = 4,518

Antecedent Information:
The antecedent system is the HH-60H aircraft. All costs are from the FY 2012 Navy Visibility and Management of Operating and Support Costs (VAMOSC) Aviation Type Model Series Report (ATMSR) database (data from 2009 through 2012) and the FY 2013 Aircraft Program Data File (APDF) Primary Authorized Aircraft (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-60S.

Unitized O&S Costs BY1998 $K		
Cost Element	**MH-60S Average Annual Cost Per Aircraft**	**HH-60H (Antecedent) Average Annual Cost Per Aircraft**
Unit-Level Manpower	1592.400	1500.000
Unit Operations	121.600	130.000
Maintenance	1209.700	1390.000
Sustaining Support	56.400	80.000
Continuing System Improvements	228.700	200.000
Indirect Support	675.100	590.000
Other	0.000	0.000
Total	3883.900	3890.000

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-60S		MH-60S	HH-60H (Antecedent)
Base Year	14424.9	15867.4	**17548.0** [1]	17575.0
Then Year	0.0	N/A	27330.0	N/A

[1] **APB O&S Cost Breach**

Total O&S Costs Comments:

O&S Cost Variance Explanation		
Category	BY1998 $M	Explanation
DEC 2012 SAR O&S Estimate	17,200.0	
Cost Estimating Methodology	+158.0	Refined I-Level personnel counts
Cost Data Update	+103.0	Updated historical cost information (FY actuals)
Labor Rate	+82.0	Composite Labor and Indirect Rates update
Energy Rate	+13.0	Fuel Rate update
Technical Input	0.0	
Programmatic/Planning	-8.0	FHP calculation update
Other	0.0	
Total Changes	+348.0	
Current Estimate	17,548.0	

The Program has realized an O&S APB breach, as reported in the December 31, 2012 SAR, due to the addition of Airborne Mine Countermeasures, Armed Helo missions and an additional five years of anticipated aircraft service life.

Disposal Costs:

The Rough Order Magnitude estimated cost of the demilitarization/disposal phase for the remaining aircraft is $68.7M (BY 1998$). The estimate will be refined as the system Disposal Plan Annex to the the Life Cycle Sustainment Plan is developed.