Selected Acquisition Report (SAR)

RCS: DD-A&T(Q&A)823-253

MQ-8 Fire Scout Unmanned Aircraft System (MQ-8 Fire Scout)

As of FY 2017 President's Budget

Defense Acquisition Management
Information Retrieval
(DAMIR)

Table of Contents

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

MQ-8 Fire Scout Unmanned Aircraft System (MQ-8 Fire Scout)

DoD Component

Navy

Responsible Office

CAPT Jeffrey Dodge
22707 Cedar Point Road
Building 3261
Patuxent River, MD 20670

jeffrey.dodge@navy.mil

Phone: 301-757-9020
Fax: 301-757-7261
DSN Phone: 757-9020
DSN Fax: 757-7261
Date Assigned: October 16, 2014

References

SAR Baseline (Production Estimate)

Navy Acquisition Executive (NAE) Approved Acquisition Program Baseline (APB) dated February 2, 2009

Approved APB

Navy Acquisition Executive (NAE) Approved Acquisition Program Baseline (APB) dated June 20, 2011

Mission and Description

The MQ-8 Fire Scout Unmanned Aircraft System (MQ-8 Fire Scout) program supports the Close Range Reconnaissance, Surveillance and Target Acquisition Capability Mission Need Statement, and the CPD for the Vertical Take-off and Landing Tactical Unmanned Aerial Vehicle System, as amended May 15, 2009. Additionally, the performance attributes of the MQ-8 Fire Scout support the Initial Capabilities Documents for Littoral Combat Ship, Vertical Unmanned Air Vehicle (UAV), Assured Maritime Access in the Littorals, Joint Strike Enable, and Penetrating Intelligence, Surveillance, and Reconnaissance for Area Denial Threat Environments.

A deployed MQ-8 system includes air vehicle(s), payloads (i.e. Electro Optic/Infrared/Laser Designator Range Finder, Automated Identification System, voice communications relay, Radar, Weapons, and other specialty payloads), Mission Control Systems (MCS) (with Tactical Control System software and Tactical Common Data Link integrations for interoperability), a UAV Common Automatic Recovery System for automatic take-offs and landings, and associated spares and support equipment. The MQ-8 Fire Scout air vehicle launches and recovers vertically, and can operate from suitably-equipped air-capable ships as well as confined area land bases. Other characteristics include autonomous waypoint navigation with command override capability, a heavy fuel engine, and the ability to incorporate future mission packages. There are two MQ-8 air vehicle variants: the MQ-8B and the MQ-8C. The MQ-8C uses the majority of the components and software developed for the MQ-8B but is based on a larger airframe, expanding the range, endurance, and payload capacity of the air vehicle and the system. The MCS will perform mission planning, air vehicle and mission payload control, receive incoming payload data and distribute the data to existing shipboard Command, Control, Communication, and Computer Information systems.

Executive Summary

The MQ-8 Fire Scout was delegated to an ACAT IC program on December 11, 2015. The program is aligned to Navy small surface combatants, including the Littoral Combat Ship, for Surface Warfare and Mine Counter Measures missions.

The MQ-8 Fire Scout program went through a Title 10 Section 2433 (Nunn-McCurdy Breach) review in 2014 due to a unit cost breach in the FY 2015 PB. The Department certified a restructured program to Congress on June 16, 2014. The restructured program that was certified includes both the MQ-8B and MQ-8C air vehicles variants. The MQ-8B based system had an approved Milestone (MS) C on May 29, 2007. The Nunn-McCurdy certification process rescinded the MS C approval. A MS C for the restructured MQ-8 program is currently scheduled for the third quarter of FY 2016. A new Acquisition Strategy and APB will be prepared for the MS C decision.

The MQ-8B variant has completed over 15,000 operational flight hours while deployed aboard the Littoral Combat Ships, Guided Missile Frigates, and supporting the Intelligence, Surveillance, and Reconnaissance Task Force in Afghanistan. IOC for this variant was declared on March 31, 2014.

The MQ-8C variant has completed more than 750 flight hours of developmental testing and an Operational Assessment in November 2015. Dynamic Interface testing aboard the Guided Missile Destroyer USS James Dunham was completed successfully in December of 2014.

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

Threshold Breaches

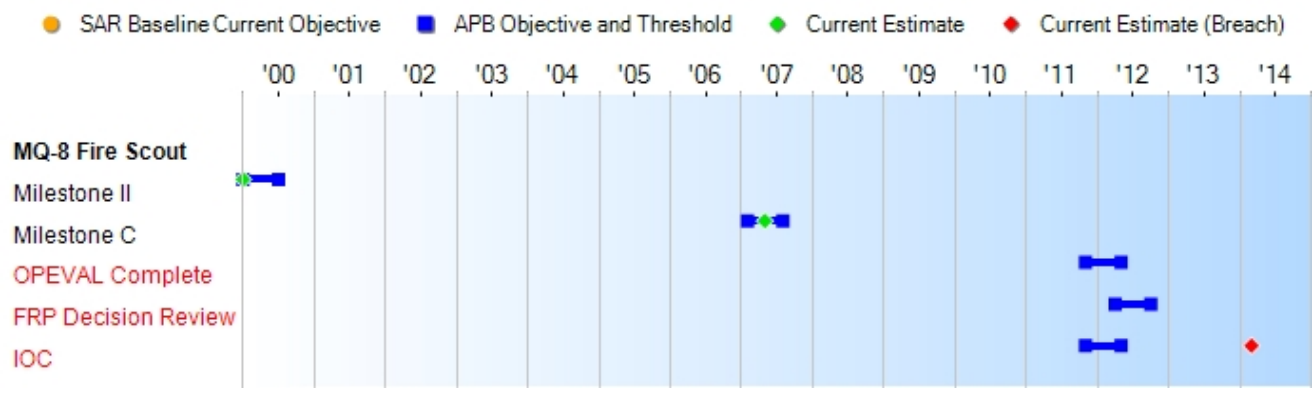
APB Breaches		
Schedule		☑
Performance		☐
Cost	RDT&E	☑
	Procurement	☐
	MILCON	☐
	Acq O&M	☐
O&S Cost		☐
Unit Cost	PAUC	☑
	APUC	☑

Nunn-McCurdy Breaches		
Current UCR Baseline		
	PAUC	Critical
	APUC	Critical
Original UCR Baseline		
	PAUC	Critical
	APUC	Critical

Explanation of Breach

As previously reported in the December 2013 and December 2014 SARs, MQ-8 Fire Scout had a Nunn-McCurdy breach, RDT&E breach, and a schedule breach. A new APB is expected in the third quarter of FY 2016.

Schedule



Schedule Events				
Events	**SAR Baseline Production Estimate**	**Current APB Production Objective/Threshold**		**Current Estimate**
Milestone II	Jan 2000	Jan 2000	Jul 2000	Jan 2000
Milestone C	Feb 2007	Feb 2007	Aug 2007	May 2007
OPEVAL Complete	Sep 2009	Nov 2011	May 2012	**N/A**[1]
FRP Decision Review	Nov 2009	Apr 2012	Oct 2012	**N/A**[1]
IOC	Sep 2009	Nov 2011	May 2012	**Mar 2014**[1]

[1] *APB Breach*

Change Explanations

None

Notes

As reported previously in the December 2013 SAR, OPEVAL and FRP are no longer applicable for the MQ-8B variant and the IOC for the MQ-8B variant was completed in March 2014. Schedule events for the MQ-8C variant will be incorporated into the report when the new APB for the program is signed. The new APB is expected in the third quarter of FY 2016.

Acronyms and Abbreviations

OPEVAL - Operational Evaluation

Performance

Performance Characteristics				
SAR Baseline Production Estimate	**Current APB Production Objective/Threshold**		**Demonstrated Performance**	**Current Estimate**
Automatic Launch/Recovery (Ship Operations)				
Deck Pitch (degrees)				
+/- 5	+/- 5	+/-3	+/-2 at seas; +/- 5 land	+/-5
Deck Roll (degrees)				
+/- 8	+/- 8	+/- 5	+/-5 at seas; +/- 10 land	+/- 8
Target Identification				
Slant Range (km)				
16	16	6	10	16
Operational Availability				
>= 0.95	>= 0.95	>= 0.85	0.88	>= 0.85
Net-Ready				
The system must fully support execution of all operational activities identified in the applicable joint and system integrated architectures and the system must satisfy the technical requirements for Net-Centric Military operations to include 1) DISR mandated GIG IT standards and profiles identified in the TV-1. 2) DISR mandated GIG IPs identified in the KIP declaration table. 3) NCOW RM Enterprise Services. 4) IA requirements including availability, integrity, authenticat-ion, confidential-ity, and issuance of an ATO by the DAA. 5)	The system must fully support execution of all operational activities identified in the applicable joint and system integrated architectures and the system must satisfy the technical requirements for Net-Centric Military operations to include 1) DISR mandated GIG IT standards and profiles identified in the TV-1. 2) DISR mandated GIG IPs identified in the KIP declaration table. 3) NCOW-RM Enterprise Services. 4) IA requirements including availability, integrity, authenticat-ion, confidential-ity, and issuance of an ATO by the DAA. 5)	The system must fully support execution of joint critical operational activities identified in the applicable joint and system integrated architectures and the system must satisfy the technical requirements for Net-Centric Military operations to include 1) ISR mandated GIG IT standards and profiles identified in the TV-1. 2) DISR mandated GIG KIPs identified in the KIP declaration table. 3) NCOW-RM Enterprise Services. 4) IA requirements including availability, integrity, authenticat-ion, confidential-ity, and issuance of an IATO by the DAA. 5) Operationally effective	The system has demonstrated all Net Ready Capabilities that have been implemented in the host FFG and LCS class ships.	The system must fully support execution of joint critical operational activities identified in the applicable joint and system integrated architectures and the system must satisfy the technical requirements for Net-Centric Military operations to include 1) ISR mandated GIG IT standards and profiles identified in the TV-1. 2) DISR mandated GIG KIPs identified in the KIP declaration table. 3) NCOW RM Enterprise Services. 4) IA requirements including availability, integrity, authentication, confidentiality, and issuance of an IATO by the DAA. 5) Operationally effective information exchanges;

Operationally effective information exchanges; and mission critical performance and IA attributes, data correctness, data availability, and consistent data processing specified in the applicable joint and system integrated architectural views.	Operationally effective information exchanges; and mission critical performance and IA attributes, data correctness, data availability, and consistent data processing specified in the applicable joint and system integrated architectural views.	information exchanges; and mission critical performance and IA attributes, data correctness, data availability, and consistent data processing specified in the applicable joint and system integrated architectural views.		and mission critical performance and IA attributes, data correctness, data availability, and consistent data processing specified in the applicable joint and system integrated architectural views.

Requirements Reference

Capability Production Document (CPD) dated May 15, 2009

Change Explanations

None

Acronyms and Abbreviations

ATO - Authority to Operate
DAA - Designated Approving Authority
DISR - Defense Information Standards Registry
FFG - Guided Missile Frigate
GIG - Global Information Grid
IA - Information Assurance
IATO - Interim Authority to Operate
IP - Information Protocol
ISR - Information Standards Registry
IT - Information Technology
KIP - Key Information Protocol
km - Kilometer
LCS - Littoral Combat Ship
NCOW RM - Net-Centric Operational Warfare Reference Model
TV - Technical View

Track to Budget

RDT&E

Appn		BA	PE		
Navy	1319	07	0305204N		
	Project		**Name**		
	2768		Tactical Unmanned Aerial Vehicles/VTUAV	(Shared)	(Sunk)
		Notes:	PU2768, VTUAV		
Navy	1319	07	0305231N		
	Project		**Name**		
	2768		MQ-8 Fire Scout		
		Notes:	PU2768, MQ-8 UAV		

Notes

In FY 2010, VTUAV was moved from PE 0305204N to PE 0305231N.

In FY 2014, the MQ-8 program was restructured as part of a Nunn-McCurdy certification. Separate efforts within the PE are now included in the program, so the PE is no longer shared.

Procurement

Appn		BA	PE		
Navy	1506	04	0305231N		
	Line Item		**Name**		
	0443		MQ-8 UAV	(Shared)	
Navy	1506	04	0305204N		
	Line Item		**Name**		
	0443		Vertical Take-off UAV (VTUAV)		(Sunk)
Navy	1506	06	0305231N		
	Line Item		**Name**		
	0605		Spares and Repair Parts		

Notes

In FY 2010, VTUAV was moved from PE 0305204N to PE 0305231N.

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	541.1	617.1	678.8	**1039.7**[1]	530.3	614.4	1109.2
Procurement	1522.4	1748.9	1923.8	1409.0	1821.5	2226.1	1695.9
Flyaway	--	--	--	922.6	--	--	1106.4
Recurring	--	--	--	893.2	--	--	1069.5
Non Recurring	--	--	--	29.4	--	--	36.9
Support	--	--	--	486.4	--	--	589.5
Other Support	--	--	--	377.3	--	--	464.5
Initial Spares	--	--	--	109.1	--	--	125.0
MILCON	119.6	0.0	--	0.0	126.0	0.0	0.0
Acq O&M	183.3	0.0	--	0.0	309.3	0.0	0.0
Total	2366.4	2366.0	N/A	2448.7	2787.1	2840.5	2805.1

[1] *APB Breach*

Confidence Level

Confidence Level of cost estimate for current APB: 60%

The current estimate aims to provide sufficient resources to execute the program under normal conditions, encountering average levels of technical, schedule and programmatic risk, and external interference. It is consistent with average resource expenditures on historical efforts of similar size, scope, and complexity.

Total Quantity			
Quantity	SAR Baseline Production Estimate	Current APB Production	Current Estimate
RDT&E	9	7	9
Procurement	168	168	61
Total	177	175	70

Quantity Notes

The quantity reduction aligns with the USD(AT&L) Nunn-McCurdy certification memo, dated June 16, 2014.

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	973.1	52.8	26.5	10.9	6.2	6.4	6.5	26.8	1109.2
Procurement	917.2	163.8	73.9	92.4	102.7	90.9	85.4	169.6	1695.9
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	1890.3	216.6	100.4	103.3	108.9	97.3	91.9	196.4	2805.1
PB 2016 Total	1890.4	172.8	131.5	94.9	103.6	90.9	94.7	260.8	2839.6
Delta	-0.1	43.8	-31.1	8.4	5.3	6.4	-2.8	-64.4	-34.5

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	9	0	0	0	0	0	0	0	0	9
Production	0	45	5	1	2	2	2	2	2	61
PB 2017 Total	9	45	5	1	2	2	2	2	2	70
PB 2016 Total	9	45	2	2	2	2	2	2	4	70
Delta	0	0	3	-1	0	0	0	0	-2	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
2000	--	--	--	--	--	--	34.8
2001	--	--	--	--	--	--	66.2
2002	--	--	--	--	--	--	47.8
2003	--	--	--	--	--	--	39.3
2004	--	--	--	--	--	--	36.0
2005	--	--	--	--	--	--	59.1
2006	--	--	--	--	--	--	93.2
2007	--	--	--	--	--	--	100.1
2008	--	--	--	--	--	--	62.8
2009	--	--	--	--	--	--	22.5
2010	--	--	--	--	--	--	56.3
2011	--	--	--	--	--	--	72.3
2012	--	--	--	--	--	--	113.9
2013	--	--	--	--	--	--	83.8
2014	--	--	--	--	--	--	41.7
2015	--	--	--	--	--	--	43.3
2016	--	--	--	--	--	--	52.8
2017	--	--	--	--	--	--	26.5
2018	--	--	--	--	--	--	10.9
2019	--	--	--	--	--	--	6.2
2020	--	--	--	--	--	--	6.4
2021	--	--	--	--	--	--	6.5
2022	--	--	--	--	--	--	6.7
2023	--	--	--	--	--	--	6.7
2024	--	--	--	--	--	--	6.7
2025	--	--	--	--	--	--	6.7
Subtotal	9	--	--	--	--	--	1109.2

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
2000	--	--	--	--	--	--	38.6
2001	--	--	--	--	--	--	72.4
2002	--	--	--	--	--	--	51.8
2003	--	--	--	--	--	--	42.0
2004	--	--	--	--	--	--	37.4
2005	--	--	--	--	--	--	59.8
2006	--	--	--	--	--	--	91.5
2007	--	--	--	--	--	--	95.9
2008	--	--	--	--	--	--	59.1
2009	--	--	--	--	--	--	20.9
2010	--	--	--	--	--	--	51.5
2011	--	--	--	--	--	--	64.6
2012	--	--	--	--	--	--	100.2
2013	--	--	--	--	--	--	72.9
2014	--	--	--	--	--	--	35.8
2015	--	--	--	--	--	--	36.7
2016	--	--	--	--	--	--	44.0
2017	--	--	--	--	--	--	21.7
2018	--	--	--	--	--	--	8.8
2019	--	--	--	--	--	--	4.9
2020	--	--	--	--	--	--	4.9
2021	--	--	--	--	--	--	4.9
2022	--	--	--	--	--	--	5.0
2023	--	--	--	--	--	--	4.9
2024	--	--	--	--	--	--	4.8
2025	--	--	--	--	--	--	4.7
Subtotal	9	--	--	--	--	--	1039.7

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
2007	3	32.2	--	3.9	36.1	11.5	47.6
2008	3	32.4	--	1.4	33.8	11.6	45.4
2009	3	31.6	--	3.2	34.8	22.3	57.1
2010	11	108.4	--	--	108.4	47.5	155.9
2011	3	46.5	--	--	46.5	15.5	62.0
2012	10	161.7	--	--	161.7	60.9	222.6
2013	5	88.1	--	--	88.1	29.9	118.0
2014	2	35.7	--	--	35.7	50.7	86.4
2015	5	73.9	--	0.4	74.3	47.9	122.2
2016	5	104.1	--	4.3	108.4	55.4	163.8
2017	1	31.3	--	2.7	34.0	39.9	73.9
2018	2	61.2	--	1.8	63.0	29.4	92.4
2019	2	58.3	--	1.0	59.3	43.4	102.7
2020	2	60.2	--	0.8	61.0	29.9	90.9
2021	2	61.7	--	0.8	62.5	22.9	85.4
2022	2	82.2	--	16.6	98.8	35.0	133.8
2023	--	--	--	--	--	24.6	24.6
2024	--	--	--	--	--	9.7	9.7
2025	--	--	--	--	--	1.5	1.5
Subtotal	61	1069.5	--	36.9	1106.4	589.5	1695.9

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
2007	3	30.4	--	3.7	34.1	10.9	45.0
2008	3	30.2	--	1.3	31.5	10.8	42.3
2009	3	29.0	--	2.9	31.9	20.5	52.4
2010	11	97.5	--	--	97.5	42.8	140.3
2011	3	41.0	--	--	41.0	13.7	54.7
2012	10	140.6	--	--	140.6	53.0	193.6
2013	5	75.8	--	--	75.8	25.7	101.5
2014	2	30.3	--	--	30.3	43.1	73.4
2015	5	61.8	--	0.3	62.1	40.2	102.3
2016	5	85.6	--	3.5	89.1	45.6	134.7
2017	1	25.3	--	2.2	27.5	32.2	59.7
2018	2	48.5	--	1.4	49.9	23.3	73.2
2019	2	45.3	--	0.8	46.1	33.6	79.7
2020	2	45.8	--	0.6	46.4	22.8	69.2
2021	2	46.0	--	0.6	46.6	17.1	63.7
2022	2	60.1	--	12.1	72.2	25.7	97.9
2023	--	--	--	--	--	17.6	17.6
2024	--	--	--	--	--	6.8	6.8
2025	--	--	--	--	--	1.0	1.0
Subtotal	61	893.2	--	29.4	922.6	486.4	1409.0

Low Rate Initial Production

Item	Initial LRIP Decision	Current Total LRIP
Approval Date	5/29/2007	7/22/2010
Approved Quantity	4	23
Reference	Milestone C ADM	Congressional Emergency Supplemental Appropriation HR-4899
Start Year	2007	2007
End Year	2007	2012

The Current Total LRIP Quantity is more than 10% of the total production quantity due to August 4, 2010, Congressional Emergency Supplemental Appropriation HR-4899 which funded Overseas Contingency Operations to convert eight Army airframes bought under the Army's Future Combat System program into Navy Fire Scouts.

The initial ADM for Milestone C approved the program to purchase up to four aircraft, and to buy-to-budget. This guidance resulted in a purchase of three aircraft.

An LRIP decision on September 30, 2008 authorized purchase of three aircraft for LRIP 2 and three aircraft for LRIP 3.

An LRIP decision on July 22, 2010, authorized purchase of five aircraft for LRIP 4 and three aircraft for LRIP 5. Only three new aircraft were purchased under LRIP 4.

Foreign Military Sales

None

Nuclear Costs

None

Unit Cost

Unit Cost Report

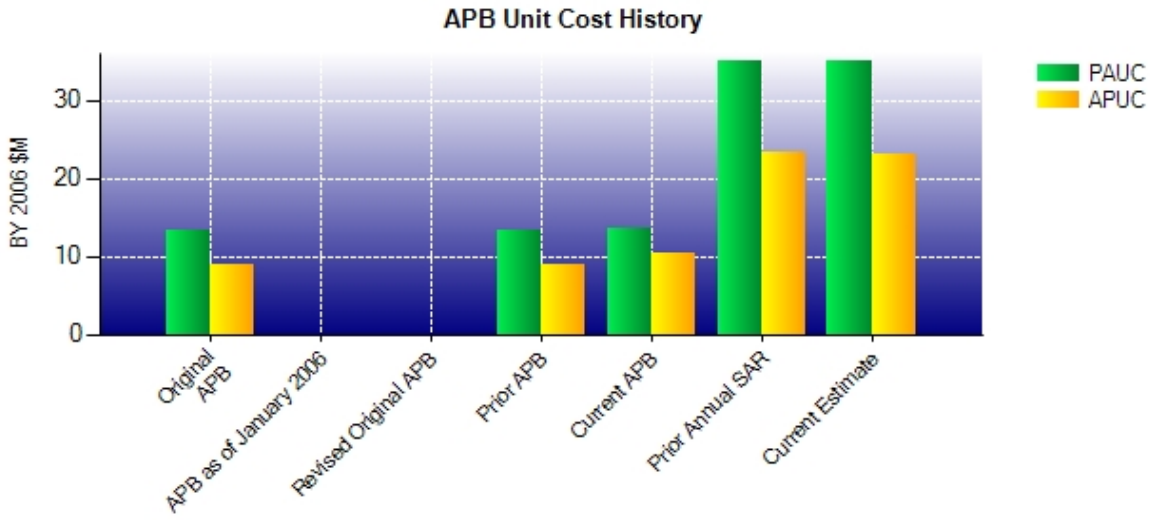
Item	BY 2006 $M Current UCR Baseline (Jun 2011 APB)	BY 2006 $M Current Estimate (Dec 2015 SAR)	% Change
Program Acquisition Unit Cost			
Cost	2366.0	2448.7	
Quantity	175	70	
Unit Cost	13.520	34.981	**+158.74**[1]
Average Procurement Unit Cost			
Cost	1748.9	1409.0	
Quantity	168	61	
Unit Cost	10.410	23.098	**+121.88**[1]

Item	BY 2006 $M Original UCR Baseline (Dec 2006 APB)	BY 2006 $M Current Estimate (Dec 2015 SAR)	% Change
Program Acquisition Unit Cost			
Cost	2366.4	2448.7	
Quantity	177	70	
Unit Cost	13.369	34.981	**+161.66**[1]
Average Procurement Unit Cost			
Cost	1522.4	1409.0	
Quantity	168	61	
Unit Cost	9.062	23.098	**+154.89**[1]

[1] *Nunn-McCurdy Breach*

MQ-8 Fire Scout previously reported a critical Nunn-McCurdy breach and provided detailed Unit Cost reporting in the December 2013 SAR. The Department certified a restructured program to Congress on June 16, 2014. This section will be updated when an APB is approved at Milestone C.

Unit Cost History



Item	Date	BY 2006 $M		TY $M	
		PAUC	APUC	PAUC	APUC
Original APB	Dec 2006	13.369	9.062	15.746	10.842
APB as of January 2006	N/A	N/A	N/A	N/A	N/A
Revised Original APB	N/A	N/A	N/A	N/A	N/A
Prior APB	Feb 2009	13.369	9.062	15.746	10.842
Current APB	Jun 2011	13.520	10.410	16.231	13.251
Prior Annual SAR	Dec 2014	35.153	23.293	40.566	28.333
Current Estimate	Dec 2015	34.981	23.098	40.073	27.802

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	
15.746	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	15.746

Current SAR Baseline to Current Estimate (TY $M)									
PAUC Production Estimate	Changes								PAUC Current Estimate
	Econ	Qty	Sch	Eng	Est	Oth	Spt	Total	
15.746	-0.341	8.891	6.454	11.344	-4.627	0.000	2.606	24.327	40.073

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	
10.842	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	10.842

Current SAR Baseline to Current Estimate (TY $M)									
APUC Production Estimate	Changes								APUC Current Estimate
	Econ	Qty	Sch	Eng	Est	Oth	Spt	Total	
10.842	-0.318	1.225	7.407	5.141	0.515	0.000	2.990	16.960	27.802

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	Jan 2000	Jan 2000	Jan 2000
Milestone C	N/A	Feb 2007	Feb 2007	May 2007
IOC	N/A	N/A	Sep 2009	Mar 2014
Total Cost (TY $M)	N/A	2787.1	2787.1	2805.1
Total Quantity	N/A	177	177	70
PAUC	N/A	15.746	15.746	40.073

Cost Variance

Summary TY $M					
Item	**RDT&E**	**Procurement**	**MILCON**	**Acq O&M**	**Total**
SAR Baseline (Production Estimate)	530.3	1821.5	126.0	309.3	2787.1
Previous Changes					
Economic	-2.7	-10.5	--	--	-13.2
Quantity	+22.9	-1085.4	--	--	-1062.5
Schedule	--	+469.9	--	--	+469.9
Engineering	+480.5	+313.6	--	--	+794.1
Estimating	+80.3	+67.3	-126.0	-309.3	-287.7
Other	--	--	--	--	--
Support	--	+151.9	--	--	+151.9
Subtotal	+581.0	-93.2	-126.0	-309.3	+52.5
Current Changes					
Economic	-1.8	-8.9	--	--	-10.7
Quantity	--	--	--	--	--
Schedule	--	-18.1	--	--	-18.1
Engineering	--	--	--	--	--
Estimating	-0.3	-35.9	--	--	-36.2
Other	--	--	--	--	--
Support	--	+30.5	--	--	+30.5
Subtotal	-2.1	-32.4	--	--	-34.5
Total Changes	+578.9	-125.6	-126.0	-309.3	+18.0
CE - Cost Variance	1109.2	1695.9	--	--	2805.1
CE - Cost & Funding	1109.2	1695.9	--	--	2805.1

Summary BY 2006 $M					
Item	**RDT&E**	**Procurement**	**MILCON**	**Acq O&M**	**Total**
SAR Baseline (Production Estimate)	541.1	1522.4	119.6	183.3	2366.4
Previous Changes					
Economic	--	--	--	--	--
Quantity	+20.0	-663.7	--	--	-643.7
Schedule	--	+165.3	--	--	+165.3
Engineering	+407.1	+206.9	--	--	+614.0
Estimating	+71.6	+84.8	-119.6	-183.3	-146.5
Other	--	--	--	--	--
Support	--	+105.2	--	--	+105.2
Subtotal	+498.7	-101.5	-119.6	-183.3	+94.3
Current Changes					
Economic	--	--	--	--	--
Quantity	--	--	--	--	--
Schedule	--	-8.9	--	--	-8.9
Engineering	--	--	--	--	--
Estimating	-0.1	-31.9	--	--	-32.0
Other	--	--	--	--	--
Support	--	+28.9	--	--	+28.9
Subtotal	-0.1	-11.9	--	--	-12.0
Total Changes	+498.6	-113.4	-119.6	-183.3	+82.3
CE - Cost Variance	1039.7	1409.0	--	--	2448.7
CE - Cost & Funding	1039.7	1409.0	--	--	2448.7

Previous Estimate: December 2014

RDT&E	$M	
Current Change Explanations	Base Year	Then Year
Revised escalation indices. (Economic)	N/A	-1.8
Adjustment for current and prior escalation. (Estimating)	+1.0	+1.1
Revised estimate due to departmental adjustments to account for actual program execution. (Estimating)	-1.3	-1.6
Revised estimate to reflect the application of new out-year inflation indices. (Estimating)	+0.2	+0.2
RDT&E Subtotal	-0.1	-2.1

Procurement	$M	
Current Change Explanations	Base Year	Then Year
Revised escalation indices. (Economic)	N/A	-8.9
Acceleration of the procurement buy profile from FY 2017 (-1) and FY 2013 (-2) to FY 2016 (+3). (Schedule)	0.0	-7.6
Additional schedule variance for Material Cost and Mission Control System procurement profile changes. (Schedule)	-8.9	-10.1
Additional schedule variance to realign quantities in prior years. (Schedule)	0.0	-0.4
Adjustment for current and prior escalation. (Estimating)	+1.2	+1.7
Realignment of ancillary equipment funds to Other Support for procurement of logistics and training equipment. (Estimating)	-34.2	-39.2
Adjustment to the phasing of the production line shutdown costs due to the change in procurement profile. (Estimating)	-0.4	-0.5
Shift in funding for the addition of the radar capability. (Estimating)	+1.5	+2.1
Adjustment for current and prior escalation. (Support)	+1.3	+1.2
Increase in Other Support funds due to realignment of ancillary equipment funds for procurement of logistics and training equipment and updated phasing due to the stretch out of the procurement buy profile. (Support)	+18.3	+17.5
Increase in Initial Spares due to shift IOC date. (Support)	+9.3	+11.8
Procurement Subtotal	-11.9	-32.4

Contracts

Contract Identification

Appropriation: Procurement

Contract Name: MQ-8 Endurance Upgrade Development and Production

Contractor: Northrop-Grumman Systems Corporation

Contractor Location: 17066 Goldentop Road
San Diego, CA 92127

Contract Number: N00019-12-C-0059/1

Contract Type: Cost Plus Incentive Fee (CPIF), Cost Plus Fixed Fee (CPFF), Firm Fixed Price (FFP)

Award Date: April 23, 2012

Definitization Date: November 14, 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
252.8	N/A	8	328.1	N/A	19	339.7	338.4

Target Price Change Explanation

The difference between the Initial Contract Price Target and the Current Contract Price Target is due to additional work contracted to transition the effort from a Rapid Deployment Capability to a Program of Record; additional airframes, training equipment, and spare parts required; and the maintenance concept migration from contractor supported to military organic maintenance.

Contract Variance		
Item	Cost Variance	Schedule Variance
Cumulative Variances To Date (1/1/2016)	-42.5	-1.4
Previous Cumulative Variances	-30.2	-3.0
Net Change	-12.3	+1.6

Cost and Schedule Variance Explanations

The unfavorable net change in the cost variance is due to changes required to the network architecture which drove delays to software development and testing schedules; and aircraft delivery schedule adjustments made to provide for a more efficient production flow by evenly distributing delivery dates.

The favorable net change in the schedule variance is due to adjustments to the aircraft delivery schedules made to provide for a more efficient production flow by evenly distributing delivery dates.

Notes

This contract includes both RDT&E and Procurement APPNs.

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

Deliveries and Expenditures

Deliveries				
Delivered to Date	**Planned to Date**	**Actual to Date**	**Total Quantity**	**Percent Delivered**
Development	7	7	9	77.78%
Production	30	31	61	50.82%
Total Program Quantity Delivered	37	38	70	54.29%

Expended and Appropriated (TY $M)			
Total Acquisition Cost	2805.1	Years Appropriated	17
Expended to Date	1718.8	Percent Years Appropriated	65.38%
Percent Expended	61.27%	Appropriated to Date	2106.9
Total Funding Years	26	Percent Appropriated	75.11%

The above data is current as of February 11, 2016.

All MQ-8B deliveries are complete.

Nineteen MQ-8C Fire Scout aircraft were contracted under the Navy's Rapid Deployment Capability authority and have now been included in the Program of Record as part of the Nunn-McCurdy restructure in 2014. This includes two RDT&E aircraft and 17 procurement aircraft.

Operating and Support Cost

Cost Estimate Details

Date of Estimate:	January 26, 2015
Source of Estimate:	POE
Quantity to Sustain:	60
Unit of Measure:	Aircraft
Service Life per Unit:	20.00 Years
Fiscal Years in Service:	FY 2014 - FY 2035

The O&S costs are based on the updated Program Office Life Cycle Cost Estimate from January 2015, which reflects the Nunn-McCurdy certification and program restructure. The cost estimate was updated to reflect the most recently defined programmatic and sustainment strategy to include both the MQ-8B and MQ-8C. The MQ-8 Sustainment strategy supports 60 aircraft, which excludes seven stricken aircraft and three test assets from the total production quantity of 70. This estimate is based on 494 total operational aircraft years. This estimate includes MQ-8B attrition of one aircraft for every 14,500 flight hours and anticipated MQ-8C attrition of one aircraft loss per each of first four years (FY 2016 - FY 2019) based on current actual attrition rates on ship deployments, and learning curve; after FY 2019, includes attrition of one aircraft for every 14,500 flight hours. The MQ-8 will be deployed with the MH-60. The MQ-8 will be operated and maintained by MH-60 Aviation Detachment (AVDET) personnel while in deployed status. The addition of the MQ-8 capability does not directly impact manpower requirements of the Helicopter Sea Combat Squadron expeditionary MH-60 AVDET and the manpower costs associated with the MH-60 AVDET is the responsibility of Office of the Chief of Naval Operations N98; there are no costs associated with that AVDET included in this estimate. This estimate is being refined to support the upcoming Milestone C for the program. These refinements will be included in the December 2016 SAR.

Sustainment Strategy

The strategy includes a mixture of Organic and Contractor Organizational to Depot sustainment support. Upon further Business Case Analyses the anticipated mix of sustainment is to optimize Organic and Contractor solutions.

Antecedent Information

No Antecedent. Fire Scout is a distinctly new platform that will operate with a significant increase in persistence over current Naval helicopters, and for this primary reason there is no appropriate analogous program for O&S cost comparisons.

Annual O&S Costs BY2006 $K		
Cost Element	**MQ-8 Fire Scout Average Annual Cost Per Aircraft**	**No Antecedent (Antecedent) N/A**
Unit-Level Manpower	51.477	--
Unit Operations	247.057	--
Maintenance	1685.350	--
Sustaining Support	669.328	--
Continuing System Improvements	408.631	--
Indirect Support	11.296	--
Other	0.000	--
Total	3073.139	--

Item	Total O&S Cost $M			
	MQ-8 Fire Scout			No Antecedent (Antecedent)
	Current Production APB Objective/Threshold		Current Estimate	
Base Year	3307.0	3637.7	1518.1	N/A
Then Year	5131.3	N/A	2181.7	N/A

Equation to Translate Annual Cost to Total Cost

The Average Cost per Air Vehicle of $3.073M is calculated by dividing Total O&S of $1,518.1M by the total number of operational aircraft years of 494.

O&S Cost Variance		
Category	**BY 2006 $M**	**Change Explanations**
Prior SAR Total O&S Estimates - Dec 2014 SAR	1518.1	
Programmatic/Planning Factors	0.0	
Cost Estimating Methodology	0.0	
Cost Data Update	0.0	
Labor Rate	0.0	
Energy Rate	0.0	
Technical Input	0.0	
Other	0.0	
Total Changes	0.0	
Current Estimate	1518.1	

Disposal Estimate Details

Date of Estimate: January 26, 2015

Source of Estimate: POE

Disposal/Demilitarization Total Cost (BY 2006 $M): Total costs for disposal of all Aircraft are 8.2

The disposal costs are based on 37 air vehicles at $220,600 each.