



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 2016 President's Budget

Defense Acquisition Management
Information Retrieval
(DAMIR)

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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

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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 Littoral Combat Ship, the Vertical Unmanned Air Vehicle (UAV), the Assured Maritime Access in the Littorals, the Joint Strike Enable and the Penetrating Intelligence, Surveillance, and Reconnaissance for Area Denial Threat Environments Initial Capabilities Documents.

An MQ-8 system is composed of air vehicles, Electro Optic/Infrared/Laser Designator Range Finder payload (one per air vehicle), Mission Control Systems (MCS), Tactical Control System software, Tactical Common Data Link, 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 all 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 is an ACAT ID program. 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: the MQ-8B air vehicles procured under the original Vertical Take-off and Landing Tactical Unmanned Aerial Vehicle program of record; MQ-8C air vehicles procured under the Department of the Navy's Rapid Deployment Capability (RDC) procurement process; an additional 21 MQ-8C air vehicles to be procured to complete the program Fleet requirements of 70 air vehicles (61 procurement and 9 RDT&E); and associated Mission Control Stations, Unmanned Aerial Vehicle Common Automatic Recovery Systems and support equipment. The restructured program also includes endurance upgrade, radar, and weapons capabilities, such as those developed under the Navy's RDC authorities. All acquisition actions previously planned under the RDCs have transitioned into the restructured MQ-8 Program of Record. The MQ-8B based system had an approved Milestone (MS) C in May of 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 second 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 14,000 operational flight hours while deployed aboard Guided Missile Frigates supporting Africa Command Joint Emergent Operational Needs Statement, AF-0002, 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 330 flight hours of developmental testing. Dynamic Interface testing aboard the Guided Missile Destroyer USS James Dunham was completed successfully in December of 2014. Operational Testing is planned to begin September 2015.

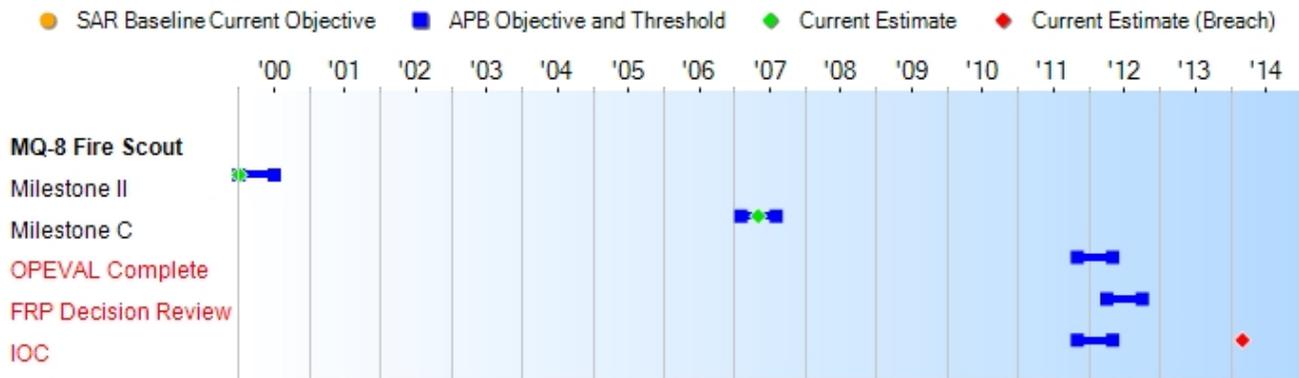
There are no significant software-related issues with this program at this time.

Threshold Breaches

APB Breaches		Explanation of Breach
Schedule	<input checked="" type="checkbox"/>	As previously reported in the December 2013 SAR, MQ-8 Fire Scout had a Nunn-McCurdy breach, RDT&E breach, and a schedule breach.
Performance	<input type="checkbox"/>	
Cost	<input checked="" type="checkbox"/>	
RDT&E	<input checked="" type="checkbox"/>	
Procurement	<input type="checkbox"/>	
MILCON	<input type="checkbox"/>	
Acq O&M	<input type="checkbox"/>	
O&S Cost	<input type="checkbox"/>	
Unit Cost	<input checked="" type="checkbox"/>	
PAUC	<input checked="" type="checkbox"/>	
APUC	<input checked="" type="checkbox"/>	

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

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 second 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 RW Enterprise Services. 4) IA requirements including availability, integrity, authentication, confidentiality, 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 RW Enterprise Services. 4) IA requirements including availability, integrity, authentication, confidentiality, 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 RW Enterprise Services. 4) IA requirements including availability, integrity, authentication, confidentiality, 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 RW 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.
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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 UAV		
	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	0305204N	
	Line Item	Name		
	0443	Vertical Take-off UAV (VTUAV)		(Sunk)
Navy	1506	04	0305231N	
	Line Item	Name		
	0443	MQ-8 UAV		(Shared)
Navy	1506	06	0305231N	
	Line Item	Name		
	0605	MQ-8 UAV		

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	1039.8 ¹	530.3	614.4	1111.3
Procurement	1522.4	1748.9	1923.8	1420.9	1821.5	2226.1	1728.3
Flyaway	--	--	--	963.4	--	--	1166.6
Recurring	--	--	--	909.4	--	--	1098.1
Non Recurring	--	--	--	54.0	--	--	68.5
Support	--	--	--	457.5	--	--	561.7
Other Support	--	--	--	357.9	--	--	448.7
Initial Spares	--	--	--	99.6	--	--	113.0
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	2460.7	2787.1	2840.5	2839.6

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 2016 President's Budget / December 2014 SAR (TY\$ M)									
Appropriation	Prior	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	To Complete	Total
RDT&E	929.8	43.3	52.8	33.0	6.2	6.3	6.4	33.5	1111.3
Procurement	795.1	122.2	120.0	98.5	88.7	97.3	84.5	322.0	1728.3
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 2016 Total	1724.9	165.5	172.8	131.5	94.9	103.6	90.9	355.5	2839.6
PB 2015 Total	1029.9	94.6	97.4	62.1	31.2	32.7	142.7	1980.2	3470.8
Delta	695.0	70.9	75.4	69.4	63.7	70.9	-51.8	-1624.7	-631.2

Quantity Summary										
FY 2016 President's Budget / December 2014 SAR (TY\$ M)										
Quantity	Undistributed	Prior	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	To Complete	Total
Development	9	0	0	0	0	0	0	0	0	9
Production	0	40	5	2	2	2	2	2	6	61
PB 2016 Total	9	40	5	2	2	2	2	2	6	70
PB 2015 Total	7	23	0	0	0	0	0	6	90	126
Delta	2	17	5	2	2	2	2	-4	-84	-56

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	--	--	--	--	--	--	33.0
2018	--	--	--	--	--	--	6.2
2019	--	--	--	--	--	--	6.3
2020	--	--	--	--	--	--	6.4
2021	--	--	--	--	--	--	6.7
2022	--	--	--	--	--	--	6.7
2023	--	--	--	--	--	--	6.7
2024	--	--	--	--	--	--	6.7
2025	--	--	--	--	--	--	6.7
Subtotal	9	--	--	--	--	--	1111.3

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	--	--	--	--	--	--	100.1
2013	--	--	--	--	--	--	72.5
2014	--	--	--	--	--	--	35.7
2015	--	--	--	--	--	--	36.5
2016	--	--	--	--	--	--	43.8
2017	--	--	--	--	--	--	26.9
2018	--	--	--	--	--	--	4.9
2019	--	--	--	--	--	--	4.9
2020	--	--	--	--	--	--	4.9
2021	--	--	--	--	--	--	5.0
2022	--	--	--	--	--	--	4.9
2023	--	--	--	--	--	--	4.8
2024	--	--	--	--	--	--	4.7
2025	--	--	--	--	--	--	4.7
Subtotal	9	--	--	--	--	--	1039.8

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	11.6	47.7	
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	109.8	--	5.8	115.6	40.5	156.1	
2011	3	46.2	--	1.4	47.6	14.6	62.2	
2012	12	159.1	--	4.1	163.2	59.5	222.7	
2013	3	95.4	--	2.4	97.8	19.7	117.5	
2014	2	53.2	--	3.0	56.2	30.2	86.4	
2015	5	73.9	--	0.4	74.3	47.9	122.2	
2016	2	56.5	--	3.4	59.9	60.1	120.0	
2017	2	55.3	--	2.0	57.3	41.2	98.5	
2018	2	59.9	--	1.8	61.7	27.0	88.7	
2019	2	56.1	--	1.9	58.0	39.3	97.3	
2020	2	57.3	--	1.7	59.0	25.5	84.5	
2021	2	58.5	--	1.8	60.3	27.7	88.0	
2022	2	59.7	--	1.8	61.5	27.6	89.1	
2023	2	61.0	--	16.8	77.8	28.4	106.2	
2024	--	--	--	6.6	6.6	13.4	20.0	
2025	--	--	--	5.1	5.1	13.6	18.7	
Subtotal	61	1098.1	--	68.5	1166.6	561.7	1728.3	

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	11.0	45.1	
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	98.8	--	5.2	104.0	36.4	140.4	
2011	3	40.7	--	1.2	41.9	12.9	54.8	
2012	12	138.2	--	3.6	141.8	51.6	193.4	
2013	3	81.9	--	2.1	84.0	16.9	100.9	
2014	2	45.0	--	2.5	47.5	25.5	73.0	
2015	5	61.4	--	0.3	61.7	39.9	101.6	
2016	2	46.1	--	2.8	48.9	49.0	97.9	
2017	2	44.3	--	1.6	45.9	33.0	78.9	
2018	2	47.0	--	1.4	48.4	21.2	69.6	
2019	2	43.2	--	1.5	44.7	30.2	74.9	
2020	2	43.2	--	1.3	44.5	19.3	63.8	
2021	2	43.3	--	1.3	44.6	20.5	65.1	
2022	2	43.3	--	1.3	44.6	20.0	64.6	
2023	2	43.4	--	11.9	55.3	20.2	75.5	
2024	--	--	--	4.6	4.6	9.3	13.9	
2025	--	--	--	3.5	3.5	9.3	12.8	
Subtotal	61	909.4	--	54.0	963.4	457.5	1420.9	

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

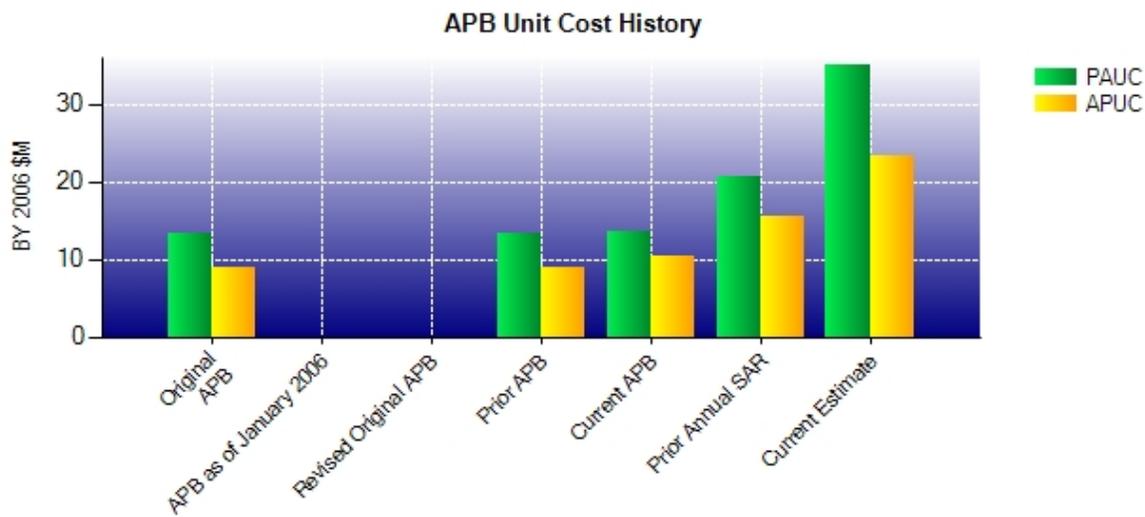
Item	BY 2006 \$M	BY 2006 \$M	% Change
	Current UCR Baseline (Jun 2011 APB)	Current Estimate (Dec 2014 SAR)	
Program Acquisition Unit Cost			
Cost	2366.0	2460.7	
Quantity	175	70	
Item	13.520	35.153	+160.01¹
Average Procurement Unit Cost			
Cost	1748.9	1420.9	
Quantity	168	61	
Unit Cost	10.410	23.293	+123.76¹

Item	BY 2006 \$M	BY 2006 \$M	% Change
	Original UCR Baseline (Dec 2006 APB)	Current Estimate (Dec 2014 SAR)	
Program Acquisition Unit Cost			
Cost	2366.4	2460.7	
Quantity	177	70	
Unit Cost	13.369	35.153	+162.94¹
Average Procurement Unit Cost			
Cost	1522.4	1420.9	
Quantity	168	61	
Unit Cost	9.062	23.293	+157.04¹

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 2013	20.752	15.537	27.546	22.429
Current Estimate	Dec 2014	35.153	23.293	40.566	28.333

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	-0.189	8.892	6.713	11.344	-4.110	0.000	2.170	24.820	40.566

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	-0.172	1.226	7.703	5.141	1.103	0.000	2.490	17.491	28.333

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	2839.6	
Total Quantity	N/A	177	177	70	
PAUC	N/A	15.746	15.746	40.566	

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	-0.6	+20.3	--	--	+19.7
Quantity	--	-506.5	--	--	-506.5
Schedule	--	+474.9	--	--	+474.9
Engineering	+192.3	+515.8	--	--	+708.1
Estimating	+79.7	+110.4	-126.0	-309.3	-245.2
Other	--	--	--	--	--
Support	--	+232.7	--	--	+232.7
Subtotal	+271.4	+847.6	-126.0	-309.3	+683.7
Current Changes					
Economic	-2.1	-30.8	--	--	-32.9
Quantity	+22.9	-578.9	--	--	-556.0
Schedule	--	-5.0	--	--	-5.0
Engineering	+288.2	-202.2	--	--	+86.0
Estimating	+0.6	-43.1	--	--	-42.5
Other	--	--	--	--	--
Support	--	-80.8	--	--	-80.8
Subtotal	+309.6	-940.8	--	--	-631.2
Total Changes	+581.0	-93.2	-126.0	-309.3	+52.5
CE - Cost Variance	1111.3	1728.3	--	--	2839.6
CE - Cost & Funding	1111.3	1728.3	--	--	2839.6

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	--	-307.8	--	--	-307.8
Schedule	--	+73.4	--	--	+73.4
Engineering	+153.6	+330.0	--	--	+483.6
Estimating	+71.1	+111.0	-119.6	-183.3	-120.8
Other	--	--	--	--	--
Support	--	+119.9	--	--	+119.9
Subtotal	+224.7	+326.5	-119.6	-183.3	+248.3
Current Changes					
Economic	--	--	--	--	--
Quantity	+20.0	-355.9	--	--	-335.9
Schedule	--	+91.9	--	--	+91.9
Engineering	+253.5	-123.1	--	--	+130.4
Estimating	+0.5	-26.2	--	--	-25.7
Other	--	--	--	--	--
Support	--	-14.7	--	--	-14.7
Subtotal	+274.0	-428.0	--	--	-154.0
Total Changes	+498.7	-101.5	-119.6	-183.3	+94.3
CE - Cost Variance	1039.8	1420.9	--	--	2460.7
CE - Cost & Funding	1039.8	1420.9	--	--	2460.7

Previous Estimate: December 2013

RDT&E	\$M	
Current Change Explanations	Base Year	Then Year
Revised escalation indices. (Economic)	N/A	-2.1
Increase due to the change in procurement from 7 to 9 aircraft to account for the addition of the MQ-8C assets. (Quantity)	+20.0	+22.9
Increase in scope to develop and transition endurance upgrade, radar and weapons capabilities to the program. (Engineering)	+253.5	+288.2
Adjustment for current and prior escalation. (Estimating)	+0.5	+0.6
RDT&E Subtotal	+274.0	+309.6

Procurement	\$M	
Current Change Explanations	Base Year	Then Year
Revised escalation indices. (Economic)	N/A	-30.8
Adjustment for current and prior escalation. (Estimating)	+0.1	+0.2
Total quantity variance resulting from a decrease of 58 aircraft from 119 to 61. (Subtotal)	-642.2	-1052.9
Quantity variance resulting from a decrease of 58 aircraft from 119 to 61. (Quantity)	(-379.5)	(-621.4)
Allocation to Schedule resulting from Quantity change. (Schedule) (QR)	(-113.3)	(-186.0)
Allocation to Engineering resulting from Quantity change. (Engineering) (QR)	(-123.1)	(-202.2)
Allocation to Estimating resulting from Quantity change. (Estimating) (QR)	(-26.3)	(-43.3)
Increase due to the change in procurement from 0 to 30 aircraft in FY 2012 - FY 2019 (Quantity)	+23.6	+42.5
Decrease due to the reduction of procurement quantity from 72 to 0 aircraft in FY 2024 - FY 2035. (Schedule) (QR)	0.0	-70.4
Additional schedule variance associated with the acceleration of the procurement buy profile. (Schedule)	+23.9	+27.4
Additional schedule variance in FY 2011 - FY 2014 for incorporating prior year air vehicle, Mission Control Station, and other material costs procurement profile changes for the endurance upgrade, radar and weapons efforts. (Schedule)	+85.0	+98.8
Additional schedule variance in FY 2015 - FY 2019 for incorporating air vehicle, Mission Control Station, and other material costs procurement profile changes for the endurance upgrade, radar and weapons efforts. (Schedule)	+96.3	+125.2
Adjustment for current and prior escalation. (Support)	+0.6	+0.6
Decrease in Other Support due to decrease in aircraft quantity. (Support) (QR)	-46.2	-116.2
Increase in Initial Spares due to increased flight hour estimates to support the warfighter. (Support)	+30.9	+34.8
Procurement Subtotal	-428.0	-940.8

(QR) Quantity Related

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	376.3	N/A	19	398.8	395.6

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 (12/31/2014)	-30.2		-3.0
Previous Cumulative Variances	--		--
Net Change	-30.2		-3.0

Cost and Schedule Variance Explanations

The unfavorable cumulative 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 unfavorable cumulative schedule variance is due to delayed parts delivery, leading to late labor costs to incorporate the parts.

Notes

This is the first time this contract is being reported.

This contract includes both RDT&E and Procurement APPNs.

Deliveries and Expenditures

Deliveries				
Delivered to Date	Planned to Date	Actual to Date	Total Quantity	Percent Delivered
Development	7	7	9	77.78%
Production	24	24	61	39.34%
Total Program Quantity Delivered	31	31	70	44.29%

Expended and Appropriated (TY \$M)			
Total Acquisition Cost	2839.6	Years Appropriated	16
Expended to Date	1541.7	Percent Years Appropriated	61.54%
Percent Expended	54.29%	Appropriated to Date	1890.4
Total Funding Years	26	Percent Appropriated	66.57%

The above data is current as of January 31, 2015.

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. To-date, one procurement MQ-8C has been delivered to the Department of the Navy.

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 has been updated to reflect the most recently defined programmatic and sustainment strategy and includes 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-60S. The MQ-8 will be operated and maintained by MH-60S 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-60S AVDET and the manpower costs associated with the MH-60S 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.

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 2013 SAR	3631.4	
Programmatic/Planning Factors	-2188.5	Includes sustainment of 60 MQ-8 aircraft, previous estimate sustained 168 aircraft. Includes sustainment of MQ-8B and MQ-8C aircraft. Reduction in Total Flight Hours due to changes in mission requirements. Reduction in Unit Level Manpower due to composite AVDET supplied by HSC EXP MH-60S and funded by OPNAV N98.
Cost Estimating Methodology	1.8	Updated cost estimating methodologies to begin moving from analogies to historical data inputs.
Cost Data Update	-8.0	Updated 2015 inflation indices; previous SAR estimate used 2011 estimate and 2011 indices.
Labor Rate	0.1	Updated with 2015 OSD Labor Rates.
Energy Rate	-1.4	Updated with latest Energy Rates.
Technical Input	82.7	Updated technical inputs to account for MQ-8C Fire Scout technical baseline and sustainment.
Other	0.0	
Total Changes	-2113.3	

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.