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## 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 2019 President's Budget

Defense Acquisition Management  
Information Retrieval  
(DAMIR)

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## **Sensitivity Originator**

No originator info Available at this time.

## 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)**

Assistant Secretary of the Navy (Research, Development & Acquisition) (ASN(RDA)) Approved Acquisition Program Baseline (APB) dated April 13, 2017

### **Approved APB**

Assistant Secretary of the Navy (Research, Development & Acquisition) (ASN(RDA)) Approved Acquisition Program Baseline (APB) dated April 13, 2017

## 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, the CPD for the Vertical Take-off and Landing Tactical Unmanned Aerial Vehicle System, as amended May 15, 2009, and the CPD for the MQ-8C Fire Scout System, approved November 18, 2016. 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 performs mission planning, air vehicle and mission payload control, receives incoming payload data and distributes the data to existing shipboard Command, Control, Communication, and Computer Information systems.

## Executive Summary

The MQ-8 Fire Scout program went through a section 2433 title 10, U.S. Code (Nunn-McCurdy Breach) review in FY 2014 due to a unit cost breach in the FY 2015 PB. The USD(AT&L) 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. A new Acquisition Strategy and a revised original APB have been approved for the program, and a new Milestone C was completed on June 29, 2017.

The MQ-8B variant has completed over 16,500 operational flight hours while deployed aboard Littoral Combat Ships (LCS), Guided Missile Frigates supporting Africa Command Joint Emergent Operational Need 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 1,100 flight hours of developmental testing. Dynamic Interface testing aboard the Guided Missile Destroyer DDG 109 was completed successfully in December 2014, and an Operational Assessment was completed in November 2015. Dynamic Interface testing aboard LCS-8 completed on April 10, 2017. All developmental testing is complete. The program is waiting for LCS availability to begin Operational Testing, currently planned for FY 2018.

Production of the MQ-8B air vehicle is complete and 100% of the Navy requirement for the MQ-8C has been contracted. An additional four MQ-8C air vehicles were appropriated by Congress in FY 2017; however, the associated funding of \$41.2M was insufficient to purchase four air vehicles. The program purchased an additional three aircraft with this funding. At this time, the MQ-8 program is 80% delivered (30 MQ-8B, 21 MQ-8C).

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

## Threshold Breaches

### APB Breaches

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

### Nunn-McCurdy Breaches

#### Current UCR Baseline

PAUC	None
APUC	None

#### Original UCR Baseline

PAUC	None
APUC	None

## Schedule



Schedule Events				
Events	SAR Baseline Production Estimate	Current APB Production Objective/Threshold		Current Estimate
PDR	Oct 2012	Oct 2012	Oct 2012	Oct 2012
CDR	Jan 2013	Jan 2013	Jan 2013	Jan 2013
Milestone C	Mar 2017	Mar 2017	Sep 2017	Jul 2017
IOC	Dec 2018	Dec 2018	Jun 2019	Dec 2018

(Ch-1)

### Change Explanations

(Ch-1) IOC milestone has changed from August 2018 to December 2018 due to delays in availability of an LCS ship to support operational testing.

### Acronyms and Abbreviations

CDR - Critical Design Review  
PDR - Preliminary Design Review

## Performance

Performance Characteristics				
SAR Baseline Production Estimate	Current APB Production Objective/Threshold	Demonstrated Performance	Current Estimate	
Automatic Launch and Recovery (aboard Littoral Combat Ship or Suitably Equipped Air Capable Ship)				
Deck Pitch				
+/- 2 degrees pitch displacement from ship 0 degree centerline	+/- 2 degrees pitch displacement from ship 0 degree centerline	(T=O) +/- 2 degrees pitch displacement from ship 0 degree centerline	+/- 2 degrees pitch displacement from ship 0 degree centerline	+/- 2 degrees pitch displacement from ship 0 degree centerline (Ch-1)
Deck Roll				
+/- 5 degrees roll displacement from ship 0 degree centerline	+/- 5 degrees roll displacement from ship 0 degree centerline	(T=O) +/- 5 degrees roll displacement from ship 0 degree centerline	+/- 4 degrees roll displacement from ship 0 degree centerline	+/- 5 degrees roll displacement from ship 0 degree centerline (Ch-1)
Target Identification				
6 kilometers	6 kilometers	(T=O) 6 kilometers	Electro Optical: 8.5 kilometers; Infrared: 6.3 kilometers	6 kilometers
Operational Availability for the MQ-8C System (Ao)				
>= 0.60	>= 0.60	(T=O) >= 0.60	0.86	>= 0.60
Net Ready				
All critical Information Exchange Requirements, MQ-8C System Information Support Plan and hyperlink	All critical Information Exchange Requirements, MQ-8C System Information Support Plan and hyperlink	(T=O) All critical Information Exchange Requirements, MQ-8C System Information Support Plan and hyperlink	All critical Information Exchange Requirements, MQ-8C System Information Support Plan and hyperlink	All critical Information Exchange Requirements, MQ-8C System Information Support Plan and hyperlink
Size, Weight and Power - Cooling (SWaP-C)				
Volume				
2 cubic feet	2 cubic feet	(T=O) 2 cubic feet	30.6 cubic feet	2 cubic feet
Weight				
100 pounds	100 pounds	(T=O) 100 pounds	250 pounds	100 pounds
Power				

1,860 watts	1,860 watts	(T=O) 1,860 watts	3200 watts	1,860 watts
<b>Training</b>				
End state sustainment training systems will qualify operators/maintainers on 90% of critical tasks and 80% of non-critical tasks derived from a Type Commander approved Job Duty Task Analysis and Media Analysis. Initial training provided by the Original Equipment Manufacturer shall be adequate for operator/maintainer qualification to support Initial Operational Test and Evaluation. End state sustainment training will be delivered via training systems and facilities that enable accession/apprentice, journeyman and master level qualification and/or fleet synthetic training events.	End state sustainment training systems will qualify operators/maintainers on 90% of critical tasks and 80% of non-critical tasks derived from a Type Commander approved Job Duty Task Analysis and Media Analysis. Initial training provided by the Original Equipment Manufacturer shall be adequate for operator/maintainer qualification to support Initial Operational Test and Evaluation. End state sustainment training will be delivered via training systems and facilities that enable accession/apprentice, journeyman and master level qualification and/or fleet synthetic training events.	(T=O) End state sustainment training systems will qualify operators/maintainers on 90% of critical tasks and 80% of non-critical tasks derived from a Type Commander approved Job Duty Task Analysis and Media Analysis. Initial training provided by the Original Equipment Manufacturer shall be adequate for operator/maintainer qualification to support Initial Operational Test and Evaluation. End state sustainment training will be delivered via training systems and facilities that enable accession/apprentice, journeyman and master level qualification and/or fleet synthetic training events.	TBD	End state sustainment training systems will qualify operators/maintainers on 90% of critical tasks and 80% of non-critical tasks derived from a Type Commander approved Job Duty Task Analysis and Media Analysis. Initial training provided by the Original Equipment Manufacturer shall be adequate for operator/maintainer qualification to support Initial Operational Test and Evaluation. End state sustainment training will be delivered via training systems and facilities that enable accession/apprentice, journeyman and master level qualification and/or fleet synthetic training events.
<b>APKWS II/Air Vehicle Weapon Carriage Capacity</b>				
6 missiles	6 missiles	14 missiles	TBD	6 missiles
<b>Radar/Operational Availability for the MQ-8C Radar (Ao)</b>				
>= 0.85	>= 0.85	(T=O) >= 0.85	TBD	>= 0.85

### Requirements Reference

JROC Memorandum (JROCM 140-16) approved CPD for Endurance Baseline of the MQ-8C Fire Scout Unmanned Aerial System, dated November 18, 2016

### Change Explanations

(Ch-1) Automatic Launch and Recovery windows were established for the MQ-8C during Dynamic Interface testing in April 2017. Due to weather limitations, the system was not able to establish a wider roll window. This is expected to be expanded in later Dynamic Interface tests.

**Acronyms and Abbreviations**

Ao - Operational Availability

APKWS - Advanced Precision Kill Weapons System

O - Objective

SWaP-C - Size, Weight and Power - Cooling

T - Threshold

## Track to Budget

### RDT&E

Appn	BA	PE		
Navy	1319	07	0305204N	
	<b>Project</b>	<b>Name</b>		
	2768	Tactical Unmanned Aerial Vehicles/VTUAV		(Shared) (Sunk)
	<b>Notes:</b>	PU2768, VTUAV		
Navy	1319	07	0305231N	
	<b>Project</b>	<b>Name</b>		
	2768	MQ-8 Fire Scout		
	<b>Notes:</b>	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	
	<b>Line Item</b>	<b>Name</b>		
	0443	Vertical Take-off UAV (VTUAV) (Sunk)		
Navy	1506	04	0305231N	
	<b>Line Item</b>	<b>Name</b>		
	0443	MQ-8 UAV		
Navy	1506	06	0305231N	
	<b>Line Item</b>	<b>Name</b>		
	0605	Spares and Repair Parts (Shared)		

### Notes

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

## Cost and Funding

### Cost Summary

Total Acquisition Cost							
Appropriation	BY 2017 \$M			BY 2017 \$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	1415.5	1415.5	1557.1	1422.0	1298.3	1298.3	1313.6
Procurement	1533.6	1533.6	1687.0	1581.9	1523.9	1523.9	1581.4
Flyaway	--	--	--	919.9	--	--	897.1
Recurring	--	--	--	887.4	--	--	864.5
Non Recurring	--	--	--	32.5	--	--	32.6
Support	--	--	--	662.0	--	--	684.3
Other Support	--	--	--	526.2	--	--	552.1
Initial Spares	--	--	--	135.8	--	--	132.2
MILCON	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
Total	2949.1	2949.1	N/A	3003.9	2822.2	2822.2	2895.0

#### Current APB Cost Estimate Reference

Department of the Navy Component Cost Position for the for MQ-8 Fire Scout dated February 17, 2017

#### Cost Notes

In accordance with Section 842 of the National Defense Authorization Act for FY 2017, which amended title 10 U.S.C. § 2334, the Director of Cost Assessment and Program Evaluation, and the Secretary of the military department concerned or the head of the Defense Agency concerned, must issue guidance requiring a discussion of risk, the potential impacts of risk on program costs, and approaches to mitigate risk in cost estimates for MDAPs and major subprograms. The information required by the guidance is to be reported in each SAR. This guidance is not yet available; therefore, the information on cost risk is not contained in this SAR.

An additional four MQ-8C air vehicles were appropriated by Congress in FY 2017; however, the associated funding of \$41.2M was insufficient to purchase four air vehicles. The program purchased an additional three aircraft with this funding, for a total buy of four aircraft in FY 2017.

Total Quantity			
Quantity	SAR Baseline Production Estimate	Current APB Production	Current Estimate
RDT&E	9	9	9
Procurement	51	51	54
Total	60	60	63

## Cost and Funding

### Funding Summary

Appropriation Summary									
FY 2019 President's Budget / December 2017 SAR (TY\$ M)									
Appropriation	Prior	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	To Complete	Total
RDT&E	1052.4	62.7	9.8	17.7	9.6	7.4	7.8	146.2	1313.6
Procurement	1193.0	53.0	54.8	45.5	40.8	59.5	40.8	94.0	1581.4
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 2019 Total	2245.4	115.7	64.6	63.2	50.4	66.9	48.6	240.2	2895.0
PB 2018 Total	2238.4	115.5	91.3	59.2	53.7	69.7	78.3	66.2	2772.3
Delta	7.0	0.2	-26.7	4.0	-3.3	-2.8	-29.7	174.0	122.7

Quantity Summary										
FY 2019 President's Budget / December 2017 SAR (TY\$ M)										
Quantity	Undistributed	Prior	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	To Complete	Total
Development	9	0	0	0	0	0	0	0	0	9
Production	0	54	0	0	0	0	0	0	0	54
PB 2019 Total	9	54	0	0	0	0	0	0	0	63
PB 2018 Total	9	55	0	0	0	0	0	0	0	64
Delta	0	-1	0	0	0	0	0	0	0	-1

## 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	--	--	--	--	--	--	62.7
2019	--	--	--	--	--	--	9.8
2020	--	--	--	--	--	--	17.7
2021	--	--	--	--	--	--	9.6
2022	--	--	--	--	--	--	7.4
2023	--	--	--	--	--	--	7.8
2024	--	--	--	--	--	--	20.9
2025	--	--	--	--	--	--	24.8
2026	--	--	--	--	--	--	33.5
2027	--	--	--	--	--	--	29.5
2028	--	--	--	--	--	--	18.9
2029	--	--	--	--	--	--	9.2
2030	--	--	--	--	--	--	9.4
Subtotal	9	--	--	--	--	--	1313.6

Annual Funding							
1319   RDT&E   Research, Development, Test, and Evaluation, Navy							
Fiscal Year	Quantity	BY 2017 \$M					
		End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program
2000	--	--	--	--	--	--	46.2
2001	--	--	--	--	--	--	86.8
2002	--	--	--	--	--	--	62.0
2003	--	--	--	--	--	--	50.3
2004	--	--	--	--	--	--	44.8
2005	--	--	--	--	--	--	71.6
2006	--	--	--	--	--	--	109.6
2007	--	--	--	--	--	--	114.9
2008	--	--	--	--	--	--	70.8
2009	--	--	--	--	--	--	25.0
2010	--	--	--	--	--	--	61.7
2011	--	--	--	--	--	--	77.4
2012	--	--	--	--	--	--	120.0
2013	--	--	--	--	--	--	87.3
2014	--	--	--	--	--	--	42.9
2015	--	--	--	--	--	--	44.0
2016	--	--	--	--	--	--	52.7
2017	--	--	--	--	--	--	26.0
2018	--	--	--	--	--	--	60.5
2019	--	--	--	--	--	--	9.3
2020	--	--	--	--	--	--	16.4
2021	--	--	--	--	--	--	8.7
2022	--	--	--	--	--	--	6.6
2023	--	--	--	--	--	--	6.8
2024	--	--	--	--	--	--	17.9
2025	--	--	--	--	--	--	20.9
2026	--	--	--	--	--	--	27.6
2027	--	--	--	--	--	--	23.9
2028	--	--	--	--	--	--	15.0
2029	--	--	--	--	--	--	7.2
2030	--	--	--	--	--	--	7.2
Subtotal	9	--	--	--	--	--	1422.0

Annual Funding 1506   Procurement   Aircraft Procurement, Navy							
Fiscal Year	Quantity	TY \$M					
		End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program
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	35.3	--	2.9	38.2	44.5	82.7
2015	5	87.1	--	--	87.1	42.3	129.4
2016	5	95.9	--	3.4	99.3	59.4	158.7
2017	4	75.9	--	1.8	77.7	35.9	113.6
2018	--	12.8	--	5.9	18.7	34.3	53.0
2019	--	15.7	--	6.6	22.3	32.5	54.8
2020	--	12.0	--	--	12.0	33.5	45.5
2021	--	12.3	--	--	12.3	28.5	40.8
2022	--	16.6	--	3.5	20.1	39.4	59.5
2023	--	--	--	--	--	40.8	40.8
2024	--	--	--	--	--	94.0	94.0
Subtotal	54	864.5	--	32.6	897.1	684.3	1581.4

Annual Funding 1506   Procurement   Aircraft Procurement, Navy							
Fiscal Year	Quantity	BY 2017 \$M					
		End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program
2007	3	36.5	--	4.4	40.9	13.0	53.9
2008	3	36.1	--	1.6	37.7	12.9	50.6
2009	3	34.8	--	3.5	38.3	24.5	62.8
2010	11	116.8	--	--	116.8	51.2	168.0
2011	3	49.1	--	--	49.1	16.4	65.5
2012	10	168.5	--	--	168.5	63.4	231.9
2013	5	90.8	--	--	90.8	30.8	121.6
2014	2	35.9	--	3.0	38.9	45.3	84.2
2015	5	87.4	--	--	87.4	42.5	129.9
2016	5	94.5	--	3.4	97.9	58.5	156.4
2017	4	73.5	--	1.7	75.2	34.9	110.1
2018	--	12.2	--	5.6	17.8	32.6	50.4
2019	--	14.7	--	6.2	20.9	30.3	51.2
2020	--	11.0	--	--	11.0	30.7	41.7
2021	--	11.0	--	--	11.0	25.6	36.6
2022	--	14.6	--	3.1	17.7	34.7	52.4
2023	--	--	--	--	--	35.2	35.2
2024	--	--	--	--	--	79.5	79.5
Subtotal	54	887.4	--	32.5	919.9	662.0	1581.9

This note is related to the Cost Quantity Information Table: The procurement funding in FY 2018 - FY 2022 is associated with the purchase of Ground Control Systems, ship's ancillary equipment, and spares required to support ship installations and deployments in those years. It is accounted for with the aircraft quantity in FY 2016 - FY 2017, although other aircraft may be used to support those ships.

Cost Quantity Information		
1506   Procurement   Aircraft Procurement, Navy		
Fiscal Year	Quantity	End Item Recurring Flyaway (Aligned With Quantity) BY 2017 \$M
2007	3	36.5
2008	3	36.1
2009	3	34.8
2010	11	116.9
2011	3	49.1
2012	10	168.5
2013	5	90.8
2014	2	35.9
2015	5	87.4
2016	5	129.7
2017	4	101.7
2018	--	--
2019	--	--
2020	--	--
2021	--	--
2022	--	--
2023	--	--
2024	--	--
Subtotal	54	887.4

## Low Rate Initial Production

Item	Initial LRIP Decision	Current Total LRIP
<b>Approval Date</b>	5/29/2007	7/22/2010
<b>Approved Quantity</b>	4	23
<b>Reference</b>	Milestone C ADM	Congressional Emergency Supplemental Appropriation HR-4899
<b>Start Year</b>	2007	2007
<b>End Year</b>	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 the 2007 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 the purchase of up to five aircraft for LRIP 4 and three aircraft for LRIP 5. Only three new aircraft were purchased under LRIP 4 and three new aircraft were purchased under LRIP 5.

**Foreign Military Sales**

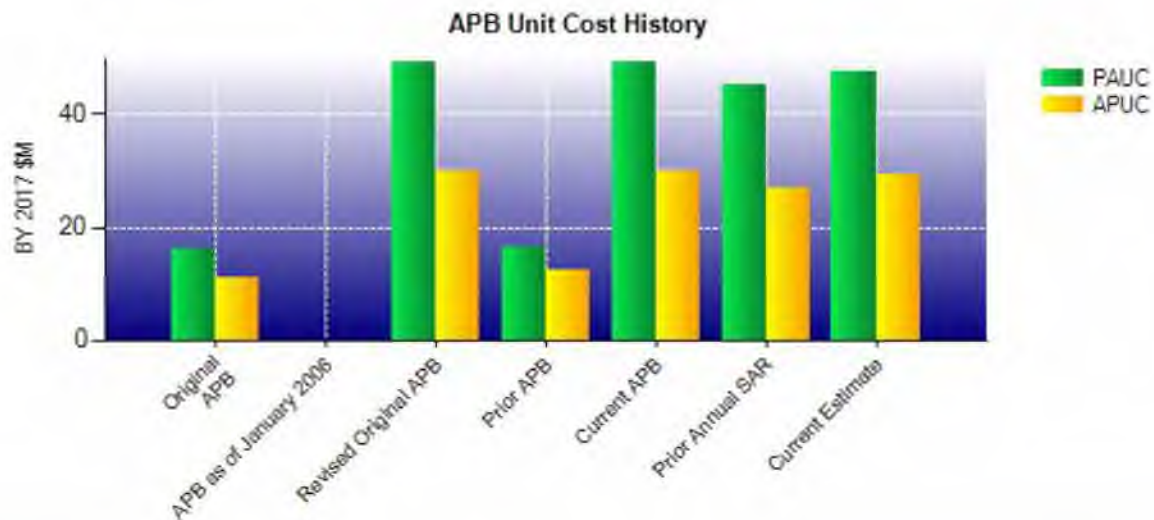
None

**Nuclear Costs**

None

## Unit Cost

Current UCR Baseline and Current Estimate (Base-Year Dollars)			
Item	BY 2017 \$M	BY 2017 \$M	% Change
	Current UCR Baseline (Apr 2017 APB)	Current Estimate (Dec 2017 SAR)	
Program Acquisition Unit Cost			
Cost	2949.1	3003.9	
Quantity	60	63	
Unit Cost	49.152	47.681	-2.99
Average Procurement Unit Cost			
Cost	1533.6	1581.9	
Quantity	51	54	
Unit Cost	30.071	29.294	-2.58
Original UCR Baseline and Current Estimate (Base-Year Dollars)			
Item	BY 2017 \$M	BY 2017 \$M	% Change
	Revised Original UCR Baseline (Apr 2017 APB)	Current Estimate (Dec 2017 SAR)	
Program Acquisition Unit Cost			
Cost	2949.1	3003.9	
Quantity	60	63	
Unit Cost	49.152	47.681	-2.99
Average Procurement Unit Cost			
Cost	1533.6	1581.9	
Quantity	51	54	
Unit Cost	30.071	29.294	-2.58



APB Unit Cost History					
Item	Date	BY 2017 \$M		TY \$M	
		PAUC	APUC	PAUC	APUC
Original APB	Dec 2006	16.140	10.939	15.746	10.842
APB as of January 2006	N/A	N/A	N/A	N/A	N/A
Revised Original APB	Apr 2017	49.152	30.071	47.037	29.880
Prior APB	Jun 2011	16.321	12.567	16.231	13.251
Current APB	Apr 2017	49.152	30.071	47.037	29.880
Prior Annual SAR	Dec 2016	45.364	27.020	43.317	26.753
Current Estimate	Dec 2017	47.681	29.294	45.952	29.285

### 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	-0.070	5.423	8.681	14.691	-4.644	0.000	4.192	28.273	47.037

Current SAR Baseline to Current Estimate (TY \$M)									
PAUC Production Estimate	Changes								PAUC Current Estimate
	Econ	Qty	Sch	Eng	Est	Oth	Spt	Total	
47.037	0.011	-0.800	0.000	0.000	-0.383	0.000	0.087	-1.085	45.952

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	-0.135	-2.932	9.718	5.055	1.440	0.000	4.878	18.024	29.880

Current SAR Baseline to Current Estimate (TY \$M)									
APUC Production Estimate	Changes								APUC Current Estimate
	Econ	Qty	Sch	Eng	Est	Oth	Spt	Total	
29.880	0.004	0.019	0.000	0.000	-0.720	0.000	0.102	-0.595	29.285

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	N/A	N/A
Milestone C	N/A	Feb 2007	Mar 2017	Jul 2017
IOC	N/A	N/A	Dec 2018	Dec 2018
Total Cost (TY \$M)	N/A	2787.1	2822.2	2895.0
Total Quantity	N/A	177	60	63
PAUC	N/A	15.746	47.037	45.952

**Cost Variance**

Summary TY \$M				
Item	RDT&E	Procurement	MILCON	Total
SAR Baseline (Production Estimate)	1298.3	1523.9	--	2822.2
Previous Changes				
Economic	+0.5	+1.1	--	+1.6
Quantity	--	+91.6	--	+91.6
Schedule	--	--	--	--
Engineering	--	--	--	--
Estimating	+2.1	-56.7	--	-54.6
Other	--	--	--	--
Support	--	-88.5	--	-88.5
Subtotal	+2.6	-52.5	--	-49.9
Current Changes				
Economic	--	-0.9	--	-0.9
Quantity	--	-0.9	--	-0.9
Schedule	--	--	--	--
Engineering	--	--	--	--
Estimating	+12.7	+17.8	--	+30.5
Other	--	--	--	--
Support	--	+94.0	--	+94.0
Subtotal	+12.7	+110.0	--	+122.7
Total Changes	+15.3	+57.5	--	+72.8
CE - Cost Variance	1313.6	1581.4	--	2895.0
CE - Cost & Funding	1313.6	1581.4	--	2895.0

Summary BY 2017 \$M				
Item	RDT&E	Procurement	MILCON	Total
SAR Baseline (Production Estimate)	1415.5	1533.6	--	2949.1
Previous Changes				
Economic	--	--	--	--
Quantity	--	+88.5	--	+88.5
Schedule	--	--	--	--
Engineering	--	--	--	--
Estimating	+1.7	-54.6	--	-52.9
Other	--	--	--	--
Support	--	-81.4	--	-81.4
Subtotal	+1.7	-47.5	--	-45.8
Current Changes				
Economic	--	--	--	--
Quantity	--	-0.8	--	-0.8
Schedule	--	--	--	--
Engineering	--	--	--	--
Estimating	+4.8	+17.5	--	+22.3
Other	--	--	--	--
Support	--	+79.1	--	+79.1
Subtotal	+4.8	+95.8	--	+100.6
Total Changes	+6.5	+48.3	--	+54.8
CE - Cost Variance	1422.0	1581.9	--	3003.9
CE - Cost & Funding	1422.0	1581.9	--	3003.9

Previous Estimate: December 2016

<b>RDT&amp;E</b>	<b>\$M</b>	
<b>Current Change Explanations</b>	<b>Base Year</b>	<b>Then Year</b>
Adjustment for current and prior escalation. (Estimating)	-1.0	-1.0
Revised estimate to reflect actual cost data. (Estimating)	+5.8	+13.7
<b>RDT&amp;E Subtotal</b>	<b>+4.8</b>	<b>+12.7</b>

<b>Procurement</b>	<b>\$M</b>	
<b>Current Change Explanations</b>	<b>Base Year</b>	<b>Then Year</b>
Revised escalation indices. (Economic)	N/A	-0.9
Total Quantity variance resulting from a decrease of 1 aircraft from 55 to 54. (Subtotal)	-18.8	-19.4
Quantity variance resulting from a decrease of 1 aircraft from 55 to 54. (Quantity)	(-22.1)	(-22.8)
Allocation to Estimating resulting from Quantity change. (Estimating) (QR)	(+3.3)	(+3.4)
Additional quantity variance reflects actual funding adjustments associated with the reduction of one aircraft in FY 2017. (Quantity)	+21.3	+21.9
Revised estimate to incorporate ancillary equipment to support the purchase of a mobile mission control system to support LCS training requirements and a mission control system to support the Expeditionary Mobile Base. (Estimating)	+14.5	+14.7
Adjustment for current and prior escalation. (Estimating)	-0.3	-0.3
Adjustment for current and prior escalation. (Support)	+0.1	+0.1
Increase in Other Support to fully fund Title 10 depot repair capabilities, support equipment, trainer, and other outfitting requirements to field MQ-8 systems. (Support)	+73.2	+86.3
Increase in Initial Spares to support the MQ-8C radar system. (Support)	+5.8	+7.6
<b>Procurement Subtotal</b>	<b>+95.8</b>	<b>+110.0</b>

(QR) Quantity Related

## Contracts

### Contract Identification

**Appropriation:** Procurement  
**Contract Name:** MQ-8C Production  
**Contractor:** Northrop Grumman Corporation  
**Contractor Location:** San Diego, CA 92150  
**Contract Number:** N00019-16-C-0055/0  
**Contract Type:** Fixed Price Incentive(Firm Target) (FPIF)  
**Award Date:** September 09, 2016  
**Definitization Date:** September 09, 2016

Contract Price							
Initial Contract Price (\$M)			Current Contract Price (\$M)			Estimated Price At Completion (\$M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
108.1	113.9	10	152.8	160.4	14	118.3	118.5

### Target Price Change Explanation

The difference between the Initial Contract Price Target and the Current Contract Price Target is due to the increase in total quantity purchased on the contract, and the integration of an updated Bell 407 baseline airframe into the program.

Contract Variance		
Item	Cost Variance	Schedule Variance
Cumulative Variances To Date (1/24/2018)	+5.9	-0.7
Previous Cumulative Variances	+0.7	0.0
Net Change	+5.2	-0.7

### Cost and Schedule Variance Explanations

The favorable net change in the cost variance is due to favorable cost negotiations and labor rates, efficiencies gained from a more skilled labor force, and the global supply chain goods movement requiring a lower level of support than planned.

The unfavorable cumulative schedule variance is due to late receipt of parts, supplies, tooling and manpower constraints which negatively impacted the program's schedule.

## Deliveries and Expenditures

Deliveries				
Delivered to Date	Planned to Date	Actual to Date	Total Quantity	Percent Delivered
Development	9	9	9	100.00%
Production	42	42	54	77.78%
Total Program Quantity Delivered	51	51	63	80.95%

Expended and Appropriated (TY \$M)			
Total Acquisition Cost	2895.0	Years Appropriated	19
Expended to Date	1968.4	Percent Years Appropriated	61.29%
Percent Expended	67.99%	Appropriated to Date	2361.1
Total Funding Years	31	Percent Appropriated	81.56%

The above data is current as of February 12, 2018.

All MQ-8B deliveries are complete.

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

An additional four MQ-8C air vehicles were appropriated by Congress in FY 2017; however, the associated funding of \$41.2M was insufficient to purchase four air vehicles. The program was able to purchase three air vehicles with this funding, so the total quantity of aircraft is 63.

## Operating and Support Cost

### Cost Estimate Details

<b>Date of Estimate:</b>	December 31, 2017
<b>Source of Estimate:</b>	SCP
<b>Quantity to Sustain:</b>	53
<b>Unit of Measure:</b>	Aircraft
<b>Service Life per Unit:</b>	20.00 Years
<b>Fiscal Years in Service:</b>	FY 2014 - FY 2045

The O&S costs are based on the updated Navy SCP from December 2017. 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 53 aircraft, which excludes seven stricken aircraft and three test assets from a total production quantity of 63. This estimate is based on 623 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 2019 - FY 2022) based on current actual attrition rates on ship deployments, and learning curve; after FY 2022, this 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.

### Sustainment Strategy

The MQ-8 maintenance concept is a two-level, Organizational level (O-Level) to Depot level (D-Level), concept. O-Level maintenance will be performed by military (organic) personnel shipboard and ashore and by civilian contractors at Naval Base Ventura County, CA (NBVC) under the administrative control of Commander, Helicopter Sea Combat Wing Pacific (CHSCWP). D-level maintenance is performed at organic Fleet Readiness Centers (FRCs) and at Original Equipment Manufacturer (OEM) facilities. D-Level maintenance will be performed at a combination of organic and commercial facilities by military and civilian/contractor personnel.

### 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 BY2017 \$K		
Cost Element	MQ-8 Fire Scout Average Annual Cost Per Aircraft	No Antecedent (Antecedent) N/A
Unit-Level Manpower	81.023	--
Unit Operations	44.967	--
Maintenance	1173.529	--
Sustaining Support	2150.018	--
Continuing System Improvements	1383.941	--
Indirect Support	90.258	--
Other	0.000	--
Total	4923.736	--

Item	Total O&S Cost \$M			
	MQ-8 Fire Scout			No Antecedent (Antecedent)
	Current Production APB Objective/Threshold	Current Estimate		
Base Year	3229.3	3552.2	3067.5	N/A
Then Year	4029.1	N/A	3882.6	N/A

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

The Average Cost per Air Vehicle of \$4.924M is calculated by dividing Total O&S of \$3,067.5M by the total number of operational aircraft years of 623.

O&S Cost Variance		
Category	BY 2017 \$M	Change Explanations
Prior SAR Total O&S Estimates - Dec 2016 SAR	3229.3	
Programmatic/Planning Factors	-191.4	Decrease due to flying hour adjustments and time frame.
Cost Estimating Methodology	0.0	
Cost Data Update	29.6	Increase for incorporation of updated actual aircraft parts demand and budget data.
Labor Rate	0.0	
Energy Rate	0.0	
Technical Input	0.0	
Other	0.0	
Total Changes	-161.8	
Current Estimate	3067.5	

#### Disposal Estimate Details

Date of Estimate: December 31, 2017  
Source of Estimate: SCP

**Disposal/Demilitarization Total Cost (BY 2017 \$M):**

Total costs for disposal of all Aircraft are 14.7