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Department of Defense
OFFICE OF PREPUBLICATION AND SECURITY REVIEW

Selected Acquisition Report (SAR)



MQ-25 Stingray (MQ-25)

FY 2024 President's Budget

Defense Acquisition Visibility Environment
(DAVE)

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Common Acronyms and Abbreviations

\$B - Billions of Dollars
\$K - Thousands of Dollars
\$M - Millions of Dollars
ACAT - Acquisition Category
Acq O&M - Acquisition-Related Operations and Maintenance
ADM - Acquisition Decision Memorandum
APB - Acquisition Program Baseline
APPN - Appropriation
APUC - Average Procurement Unit Cost
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
FMS - Foreign Military Sales
FOC - Full Operational Capability
FRP - Full Rate Production
FY - Fiscal Year
FYDP - Future Years Defense Program
ICE - Independent Cost Estimate
Inc - Increment
IOC - Initial Operational Capability
JROC - Joint Requirements Oversight Council
KPP - Key Performance Parameter
LRIP - Low Rate Initial Production
MDA - Milestone Decision Authority
MDAP - Major Defense Acquisition Program
MILCON - Military Construction
N/A - Not Applicable
O&M - Operations and Maintenance
O&S - Operating and Support
ORD - Operational Requirements Document
OSD - Office of the Secretary of Defense
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
U.S. - United States
UCR - Unit Cost Reporting
USD(A&S) - Under Secretary of Defense (Acquisition and Sustainment)
USD(AT&L) - Under Secretary of Defense (Acquisition, Technology and Logistics)

Program Information

Program Name

MQ-25 Stingray

DoD Component

Navy

Responsible Office

Program Manager

Name: CAPT Daniel Fucito

Phone: 301-757-6047

Email: daniel.r.fucito.mil@us.navy.mil

Mission and Description

The MQ-25 Stingray (MQ-25) Program rapidly develops an unmanned capability to embark on Carrier Vessels - Nuclear powered (CVNs) as part of the Carrier Air Wing (CVW) to conduct aerial refueling as a primary mission and provide Intelligence, Surveillance, Reconnaissance (ISR) capability as a secondary mission. MQ-25 extends CVW mission effectiveness range, partially mitigates the current Carrier Strike Group (CSG) organic ISR shortfall and fills the future CVW tanker gap, relieving F/A-18 E/F Strike Fighters of the tanking mission and reducing fatigue life expenditures for this mission. As the first carrier-based Group 5 Unmanned Aircraft System (UAS), MQ-25 will pioneer the integration of manned and unmanned operations, demonstrate mature complex sea-based Command, Control, Communications, Computers, and Intelligence (C4I) UAS technologies, and pave the way for future multifaceted multi-mission UAS to outpace emerging threats. MQ-25 requirements address the need for carrier-based refueling and persistent ISR capabilities. The Joint Requirements Oversight Council's (JROC's) guidance, delineated in the validated Initial Capabilities Document and subsequent JROC memoranda, established a requirement for a versatile platform that supports a myriad of organic Naval missions such as aerial refueling and ISR to support the CSG.

Executive Summary

MQ-25

Program Highlights Since Last Report

The MQ-25 program is an ACAT IB program managed by the Program Executive Office, Unmanned Aviation & Strike Weapons Unmanned Carrier Aviation (UCA) Program Office. Pursuant to 10 U.S.C. 2430(d)(1), the MDA is the Assistant Secretary of the Navy for Research, Development and Acquisition (ASN(RDA)).MQ-25 leveraged stand-up as a Maritime Accelerated Acquisition program to accelerate the introduction of needed warfighting capabilities. The MQ-25 program uses event-driven "Knowledge Points" (KPs) at key program inflection points to brief progress to stakeholders throughout the program life cycle. The MQ-25 Air System is integrating a Ground Control Station (GCS) managed by the Unmanned Carrier Aviation Mission Control System (UMCS) program within PMA-268. The UMCS program also integrates with multiple networks and systems both afloat and ashore. The MQ-25 and UMCS programs are synchronized to provide complete capability to the CVN. In June 2022, the program completed its first integration event in the MQ-25 System Test and Integration Lab (STIL) at Patuxent River, Maryland. This event proved end-to-end connection using actual Air Vehicle components and the Ground Control Station (GCS). In September 2022, an end-to-end network test validated interoperability and engineering changes to tactical Wide Area Networks. In November 2022, a second integration event in the STIL at Patuxent River, Maryland executed a simulated mission by simulating flying with actual Air Vehicle components using the GCS. In December 2022, the LRIP Request for Proposal was released. Current estimates for all remaining Acquisition Program Baseline schedule parameters are in breach of the approved APB for delays in the build of EMD aircraft due to supplier management challenges and learning associated with the Full-Size Determinant Assembly (FSDA) manufacturing processes. In addition, the current estimate for Average Procurement Unit Cost is in breach of the approved APB due to an increase in obsolescence and risk costs associated with cost model updates. As a result, the Navy reduced procurement quantities in FY 2023 from 4 to 1 aircraft, and in FY 2024 from 4 to 3 aircraft, creating a 1/3/4/4/7 profile across FYs 2023-2028. Current estimate for IOC has slipped from Q4 FY2025 to Q4 FY2026. A Program Deviation Report is in routing and the APB will be updated upon completion of the Schedule Risk Assessment following the definitization of the Ground Control Station contract effort.

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

History of Significant Developments Since Program Initiation

History of Significant Developments Since Program Initiation	
Date	Significant Development Description
Sep 2022	LRIP Lot 1 Advance Acquisition Contract awarded to procure long-lead components, materials, and parts required to maintain the program's planned LRIP Lot 1 schedule.
Dec 2021	Unmanned Carrier Aviation Demonstration completed aboard CVN 77
Jun 2021	First successful aerial refueling flight with F/A18-E/F completed with T1 Test Asset
Dec 2020	First test of Aerial Refueling Store on T1 Test Asset
Oct 2020	ADM directing program to replace MD-5 A/B Ground Control Stations with new ones (MD-5C/D/E for ship/shore/embarkable), reflecting a change in requirements
Apr 2020	System Demonstration Test Article options exercised on Boeing EMD contract
Mar 2020	Completion of System Design Review (Knowledge Point 3)
Sep 2019	First Flight of Boeing-owned Test Article (T1)
Mar 2019	Integrated Design Review 1
Mar 2019	Program Deviation Report for MILCON Breach
Feb 2019	Integrated Baseline Review
Aug 2018	ADM/KP-2 approved Milestone B entry into EMD
Aug 2018	EMD Contract Awarded
Oct 2017	Request for Proposals for EMD released

Jul 2017

MQ-25 Carrier Based Unmanned Air System CDD

Schedule

MQ-25

Events	Milestone Baseline Objective	Current Baseline Objective/Threshold		Current Estimate/Actual	Deviation
Milestone B Complete	Aug 2018	Aug 2018	Oct 2018	Aug 2018	
System Design Review (SDR) Complete	Oct 2019	Oct 2019	Apr 2020	Mar 2020	
Low Rate Initial Production (LRIP) Complete	Feb 2023	Feb 2023	Aug 2023	Sep 2023	Yes
First Flight Complete	Sep 2021	Sep 2021	Mar 2022	Aug 2024	Yes
First CVN Flight Complete	Dec 2022	Dec 2022	Jun 2023	Jun 2025	Yes
Initial Operational Test and Evaluation (IOT&E) Complete	Jan 2024	Jan 2024	Jul 2024	Jul 2026	Yes
Initial Operational Capability (IOC) Complete	Aug 2024	Aug 2024	Feb 2025	Jul 2026	Yes
Full Rate Production (FRP) Complete	Apr 2026	Apr 2026	Oct 2026	May 2027	Yes

Notes

Deviation Explanation

- The Low-Rate Initial Production current estimate changed from August 2023 to September 2023 and is a breach to the approved APB for delays in the build of EMD aircraft due to supplier management challenges and learning associated with the Full-Size Determinant Assembly (FSDA) manufacturing processes.
- The First Flight (Initial Unmanned Carrier Aviation Mission Control System-controlled flight) current estimate changed from September 2023 to August 2024 and is a breach to the approved APB for delays in the build of EMD aircraft due to supplier management challenges and learning associated with the Full-Size Determinant Assembly (FSDA) manufacturing processes.
- The First CVN Flight current estimate changed from December 2024 to June 2025 and is a breach to the approved APB for delays in the build of EMD aircraft due to supplier management challenges and learning associated with the FSDA manufacturing processes.
- The LRIP current estimate changed from August 2023 to September 2023 and is a breach to the approved APB for delays in the build of EMD aircraft due to supplier management challenges and learning associated with the FSDA manufacturing processes.
- The IOT&E current estimate changed from August 2025 to July 2026 and is a breach to the approved APB for delays in the build of EMD aircraft due to supplier management challenges and learning associated with the FSDA manufacturing processes.
- The IOC current estimate changed from September 2025 to July 2026 and is a breach to the approved APB for delays in the build of EMD aircraft due to supplier management challenges and learning associated with the FSDA manufacturing processes.
- The FRP current estimate changed from March 2026 to May 2027 and is a breach to the approved APB for delays in the build of EMD aircraft due to

supplier management challenges and learning associated with the FSDA manufacturing processes.

A Program Deviation Report is in routing and the APB will be updated upon completion of the Schedule Risk Assessment following the definitization of the Ground Control Station contract effort.

Performance

MQ-25

Performance Characteristics				
Milestone Baseline	Current Baseline Objective/Threshold	Demonstrated Performance	Current Estimate/Actual	Deviation
(KPP) - KPP 1: Carrier Suitability				
	NIMITZ and FORD class CVNs	(T=O) NIMITZ and FORD class CVNs	NIMITZ and FORD class CVNs	
(KPP) - KPP 2: Air Refueling				
	>= 16K lbs of give at 500 nm from CVN	>= 14K lbs of give at 500 nm from CVN	>= 16K lbs of give at 500 nm from CVN	

Requirement Reference

Capability Development Document (CDD) dated 21 July 2017.

Deviation Explanation

No deviations for this program/subprogram

Notes

lbs – Pounds
 K – Thousands
 nm – Nautical Mile
 O – Objective
 T – Threshold

Acquisition Budget Estimate

MQ-25

Total Acquisition Cost

		Milestone APB	Current Baseline		Budget Estimate PB 2024		
Category	Base Year	Objective (BY\$M)	Objective (BY\$M)	Threshold (BY\$M)	BY\$M	TY\$M	Deviation
RDT&E	2018	3,489.3	3,489.3	3,838.2	2,677.3	3,071.7	
Procurement	2018	8,766.1	8,766.1	9,642.7	9,605.1	12,642.2	
MILCON	2018	362.9	362.9	399.2	597.1	747.5	Yes
Acq. O&M	2018	0	0	0			
Total		12,618.3	12,618.3		12,879.5	16,461.4	
PAUC	2018	166.030	166.030	182.633	169.467	216.597	
APUC	2018	121.751	121.751	133.926	139.204	183.220	Yes

Appropriation Category Deviation Explanations

MILCON

PAUC Deviation Explanation

APUC Deviation Explanation

The Average Procurement Unit Cost current estimate is a breach to the approved APB due to reasons stated in the Budget Notes.

A Program Deviation Report is in routing and the APB will be updated upon completion of the Schedule Risk Assessment following the definitization of the Ground Control Station contract effort.

Budget Notes

Estimates based on latest Component Cost Estimate approved January 19, 2023.

Base Year conversions use PB 2023 indices due to delay of finalization of PB 2024 indices at time of submittal.

RDT&E TY\$: \$311M increase from PB 2023 due to shift in IOC from FY 2025 in PB 2023 to FY 2026 in PB 2024 and RDT&E adjustments made as part of the Component Cost Estimate approved January 19, 2023.

Procurement TY\$: \$1287M increase from PB 2023 due to updated quantity phasing and airframe/part level cost analogies.

Procurement TY\$: \$92M decrease from PB 2023 due to updated tooling assumptions utilizing reuse of RDT&E procured tooling.

Procurement TY\$: \$752M increase from PB 2023 due to added obsolescence and risk associated with cost model updates.

Procurement TY\$: \$381M decrease from PB 2023 to logistics and government support assumptions associated with cost model updates.

Total End Item Quantity

Quantity Category	Current APB Quantity	Current Estimate Quantity
Development	4	7
Procurement	72	69

Quantity Notes

President's Budget 2024 shifted 4 aircraft out of the first two production lots, creating an additional lot of production.

Unit Cost

MQ-25

Current UCR Baseline and Current Estimate (Base-Year Dollars)

Category (\$M) Base Year:2018	Current UCR Baseline	Current Estimate	% Change
Program Acquisition Unit Cost			
Cost	12,618.3	12,879.5	
Quantity	76	76	
Unit Cost	166.030	169.467	2.07%
Average Procurement Unit Cost			
Cost	8,766.1	9,605.1	
Quantity	72	69	
Unit Cost	121.751	139.204	14.34%

Original UCR Baseline and Current Estimate (Base-Year Dollars)

Category (\$M) Base Year:2018	Original UCR Baseline	Current Estimate	% Change
Program Acquisition Unit Cost			
Cost	12,618.3	12,879.5	
Quantity	76	76	
Unit Cost	166.030	169.467	2.07%
Average Procurement Unit Cost			
Cost	8,766.1	9,605.1	
Quantity	72	69	
Unit Cost	121.751	139.204	14.34%

Cost Growth Details**Current Baseline PAUC Breach Explanation****Current Baseline APUC Breach Explanation****Original Baseline PAUC Breach Explanation****Original Baseline APUC Breach Explanation****Impacts of Schedule Changes on Unit Cost****Impacts of Performance Changes on Unit Cost****Actions Taken or Proposed to Control Future Cost Growth**

Risk and Sensitivity Analysis**MQ-25**

Risk and Sensitivity Analysis		
Current Procurement Cost(January - 2023)		
The Procurement estimate includes risk captured in the Component Cost Estimate approved January 19, 2023. The risk ensures the procurement estimate is at 50% on the cost risk S-Curve. This risk is captured in the Non-Recurring Engineering Cost Work Breakdown Structure element within the Total Flyaway Cost.		
Original Baseline Estimate (August - 2018)		
(1) An Independent Cost Estimate has been completed for the program in the previous year to support Knowledge Point 2. Program risks identified in the estimate include engineering changes, economic price adjustment (EPA) provisions, the program office acting as the lead system integrator, development and integration of a control system with connectivity to carriers, availability of CVN's used for testing, and the Joint Precision Approach and Landing System. The potential impacts of the risks on program cost would increase the costs above the agreed upon Fixed Price contract. Any modification to the baseline contract could result in reopening the contracts cost. If the Navy delays any delivering of government provided materials, the contract could also be opened. To mitigate these risks, the program office is working closely with the Navy to ensure there is minimal requirement creep and that all government provided materials are provided in a timely manner. Ensuring full funding of the UCA Mission Control System program is extremely important to keep MQ-25 on track.		
(2) The Original Baseline matches the Current Baseline Estimate.		
Current Baseline Estimate (August - 2018)		
(1) An Independent Cost Estimate has been completed for the program in the previous year to support Knowledge Point 2. Program risks identified in the estimate include engineering changes, economic price adjustment (EPA) provisions, the program office acting as the lead system integrator, development and integration of a control system with connectivity to carriers, availability of CVN's used for testing, and the Joint Precision Approach and Landing System. The potential impacts of the risks on program cost would increase the costs above the agreed upon Fixed Price contract. Any modification to the baseline contract could result in reopening the contracts cost. If the Navy delays any delivering of government provided materials, the contract could also be opened. To mitigate these risks, the program office is working closely with the Navy to ensure there is minimal requirement creep and that all government provided materials are provided in a timely manner. Ensuring full funding of the UCA Mission Control System program is extremely important to keep MQ-25 on track.		
(2) The Original Baseline matches the Current Baseline Estimate.		
Schedule Risk		
Current	2022-12-31	Carrier Availability: Limited CVNs configured for test in planned testing windows and limited timing, number, and length of Planned Incremental Availabilities per CVN for required modifications may lead to USN caused schedule delays.
Current	2022-12-31	Deliveries of EMD aircraft: Delays in the build of EMD aircraft due to supplier management challenges and learning associated with the Full-Size Determinant Assembly (FSDA) manufacturing processes may lead to schedule delays.
Technical Risks		

Current	December 24, 2022	Electrical bonding and lightning design: Design still in work
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Low Rate Initial Production**MQ-25**

Item	Initial LRIP Decision	Current Total LRIP
Approval Date	08/24/2018	11/06/2020
Approved Quantity	11	12
Reference	KP 2 ADM	ASN(RD&A) ADM
Start Year	2023	2023
End Year	2025	2026

Rationale if quantity exceeds 10% of the total number of articles to be procured:

The Current Total LRIP Quantity is more than 10% of the total production quantity due to the establishment of an initial production base for the system and an orderly and efficient increase in the production rate.

Notes

LRIP contract award is contingent upon successfully achieving Knowledge Point 6 entry criteria identified in the MQ-25 Acquisition Strategy.

Contracts & Efforts

Contract Data	
Contract Number	N00019-18-C-1012
Effort Number	1
Modification Number	P00052
Award Date	08/30/2018
Definitization Date	08/30/2018
Order Number	
CAGE Code/CAGE Legal Name	76301/The Boeing Company
Contract Title	MQ-25 Engineering and Manufacturing Development (EMD)
Contract Address	St. Louis, MO
Contracting Office	
Supported Phase	Development
Contract Strategy	
Contract Type	Fixed-Price Incentive (Firm Target)
Modification Date	December 16, 2022
Work Start Date	
Technical Data Rights	
Work Completed	58.37%

Contracts/Effort Price, Quantity, and Performance (TY\$M)

Initial Target Price	Current Target Price	
\$649.1	\$789.6	
Initial Ceiling Price	Current Ceiling Price	
\$805.3	\$1,093.9	
Contractor EAC	PM EAC	
\$2,255.4	\$2,333	
Initial Quantity	Current Quantity	Delivered Quantity
1	1	0
BAC	BCWP	ACWP
\$1,739.9	\$1,015.5	\$1,335.2

BCWS	Cost Variance	Schedule Variance
\$1,210.8	-\$319.7	-\$195.3

Contract Notes:**Factors Contributing to Cost Variance and Projected Effects on Program Costs**

The unfavorable net change in the cost variance is due to delays in the build of EMD aircraft delaying deliveries of air vehicles to test. Multiple factors have resulted in these delays:

1. The aircraft design was intentionally paused to optimize weight and strength.
2. Quality issues and Notices of Escape were identified during the build process. Root causes are understood, process improvements and corrective actions have been incorporated, and delivery of replacement parts are compliant.
3. Redesign of the lightning protection solution for implementation into the design.
4. The COVID-19 pandemic has impacted multiple Boeing suppliers, delaying the manufacture and delivery of parts.

Factors Contributing to Schedule Variance and Projected Effects on Program Schedule

The unfavorable net change in the schedule variance is due to delays in the build of EMD aircraft delaying deliveries of air vehicles to test. Multiple factors have resulted in these delays:

1. The aircraft design was intentionally paused to optimize weight and strength.
2. Quality issues and Notices of Escape were identified during the build process. Root causes are understood, process improvements and corrective actions have been incorporated, and delivery of replacement parts are compliant.
3. Redesign of the lightning protection solution for implementation into the design.
4. The COVID-19 pandemic has impacted multiple Boeing suppliers, delaying the manufacture and delivery of parts.

External Government Activities

Activity Title		Government Entity	Supported Phase
CAGE		Work Start Date	
City		State/Province:	
Notes			

Deliveries and Expenditures

MQ-25

Deliveries				
Delivered to Date	Planned to Date	Actual to Date	Total Quantity	Percent Delivered
Development			7	0.00%
Production			69	0.00%
<hr/>				
Total Program Quantity Delivered	0	0	76	0.00%

Expended and Appropriated (TY \$M)

Years Appropriated to date: 7

Total Years Appropriated Funding (Current Baseline): 18

Percent Years Appropriated: 38.89%

Then-Year Funding Appropriated as Percentage of Total Acquisition Estimate: 38.89%

Then-Year Funding Expended as Percentage of Total Acquisition Estimate: 7.99%

Total Acquisition Cost: 16,461.4

Deliveries & Expenditures Notes:

This data is current as of March 13, 2023.

Operating and Support Costs

MQ-25

O&S Cost Breakdown:

Category (BY\$ Million)	MQ-25
Unit-Level Manpower	3,545.6
Unit Operations	1,167.1
Maintenance	4,982.8
Sustaining Support	1,185.5
Continued System Improvements	1,321.3
Other	
Total	12,202.2

Cost Estimate Source: CCE dated January 19, 2023

O&S Cost Notes:

Estimate represents the Component Cost Estimate with addition of Repair of Repairable included.

Total Program O&S Cost Compared with Baseline					
	Current Baseline				
	Objective (BY\$M)	Threshold (BY\$M)	Current Estimate (BY\$M)	Current Estimate (TY\$M)	Deviation
Total O&S	13,777.6	15,155.4	12,202.2	22,861.8	

Note:

6.0 Indirect Support removed from total estimate based on CAPE Structure.

O&S Cost Deviation Explanation

Operating and Support Costs - Disposal and Unitized Costs**MQ-25****Annual Unitized O&S Cost Definition and Calculation Relative to Total O&S Cost:**

Sustainment Factors	System Name: MQ-25A	Antecedent System Name:
Quantity to Sustain	74	
Unit of Measure	Air Vehicles	
Unit Expected Service Life	20	

Base Year:

Annual Unitized O&S Cost by Category Base Year \$ Unit:(\$M)	System Name: MQ-25A	Antecedent System Name:
Unit-Level Manpower	3.4	
Unit Operations	1.1	
Maintenance	4.7	
Sustaining Support	1.1	
Continued System Improvements	1.3	
Other		
Total O&S	11.6	0.0

Disposal/Demilitarization Cost Estimate

(Base Year \$Millions)	System Name: MQ-25A	Antecedent System Name:
Total Disposal	19.8	

Cost Estimate Source - Disposal	
Type:	Program Office Estimate
Approval Authority and Date:	12/15/2022
Note:	
Disposal Cost Notes:	
Additional O&S Estimate Assumptions:	
624,773 total flying hours with 1,052 total aircraft operating years.	
Sustainment Strategy:	

The contractor will provide product support through IOC and first deployment. The Life Cycle Sustainment Plan will address short and long term support activities and requirements. The Product Support Manager will investigate the possible usage of performance based agreements, contract logistics support, or performance based logistics as the program matures. The aircraft will be operated and maintained by sailors and be supported by three level maintenance based on the results of the level of repair analysis which will be performed once the final design is solidified.

Antecedent Estimate Assumptions:

There is no antecedent for the MQ-25. This will be the first carrier-based unmanned aircraft in the fleet.