

CLEARED
For Open Publication
By kempr on Apr 17, 2023

Department of Defense
OFFICE OF PREPUBLICATION AND SECURITY REVIEW

Selected Acquisition Report (SAR)



MQ-4C Triton Unmanned Aircraft System

FY 2024 President's Budget

**Defense Acquisition Visibility Environment
(DAVE)**

Table of Contents

Acronyms and Abbreviations..... 3

Program Information..... 5

Responsible Office..... 5

Mission and Description 6

Executive Summary 7

Schedule..... 10

Performance 11

Acquisition Budget Estimate 13

Unit Cost..... 15

Risks 17

Low Rate Initial Production..... 18

Contracts 19

Deliveries and Expenditures..... 32

Operating and Support Costs 33

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-4C Triton Unmanned Aircraft System

DoD Component

Navy

Responsible Office

Program Manager

Name: CAPT Joshua Guerre

Phone: 301-757-5821

Email: joshua.r.guerre.mil@us.navy.mil

Mission and Description

The MQ-4C Triton Unmanned Aircraft System (MQ-4C Triton) is an integrated System of Systems and a force multiplier for the Joint Force and Fleet Commander, enhancing battlespace awareness and shortening the sensor-to-shooter kill chain. The system provides multiple-sensor, persistent maritime and littoral Intelligence, Surveillance and Reconnaissance data collection and dissemination as well as an airborne communications relay capability to Combatant Commanders, Expeditionary Strike Group Commanders, Carrier Strike Group Commanders, and other designated U.S. and Joint Commanders. The incorporation of Signals Intelligence (SIGINT) payloads is part of the Navy's Maritime Intelligence, Surveillance, Reconnaissance, and Targeting (MISR&T) transition plan. The addition of a de-icing capability over the baseline Global Hawk provides operators with the capability to transition through icing conditions. The mission sensors installed on the MQ-4C Triton provide 360 degree radar and Electro-Optical/Infrared coverage. Additional functionality that optimizes the system for maritime search operations includes an Automatic Identification System and an Electronic Support Measures system. The MQ-4C Triton is a tactical, land-based, forward deployed platform that will operate from five operational sites (orbits) worldwide. It will provide surveillance when no other naval forces are present and will support operations in the littorals. Furthermore, the asset will respond to theater level operational or national strategic taskings.

Executive Summary

MQ-4C Triton

Program Highlights Since Last Report

The Triton program has progressed with Multi-Intelligence (Multi-INT) Integrated Functional Capability – Four (IFC-4) development. The program successfully completed IFC-4 Multi-INT System Level III (Representative Aircraft System) laboratory testing on October 18, 2021. IFC-4 Multi-INT ground testing successfully completed on February 19, 2022. System level anechoic chamber testing completed on May 26, 2022, with measured Signals Intelligence (SIGINT) system performance across all frequency bands meeting the design specification requirements. Flight test of the IFC-4 Multi-INT software is currently in progress and on track. Delivery of the first IFC-4 Multi-INT UAS to the fleet occurred on October 14, 2022. VUP-19 commenced Unit Level Training in October 2022 at Naval Air Station Jacksonville and Naval Station Mayport. Operational Test (OT) is scheduled to complete in Q3 FY 2023. Production of UAS remains on track to support IOC and subsequent orbit stand-up. The IFC-4 Multi-INT configuration is on track to successfully complete IOC in Q4 FY 2023.

On January 12, 2021 the MDA signed an ADM directing the Program Office to restructure utilizing an incremental development approach. This direction reflects the dynamic Intelligence, Surveillance, Reconnaissance and Targeting (ISR&T) environment and, following IOC of the first Multi-INT IFC-4 Increment, supports follow-on increments necessary to maintain alignment with operational needs.

Beginning in PB 2023, OSD fully funded MQ-4C Increment 2 development. It is the Navy's intent to designate MQ-4C Increment 1 and Increment 2 as major subprograms and submit a new MQ-4C Increment 1 and 2 APB and Unit Cost Reports in future SAR submissions. MQ-4C Increment 2 will build off the IFC-4 Multi-INT Increment 1 IOC capability with significant sensor enhancements and increases to mission availability.

MQ-4C Increment 1 will deliver an initial High Altitude Long Endurance persistent multi-collection sensor capability suite enabling the Navy's Maritime ISR&T transition plan. The capabilities include Radar (maritime search/Inverse Synthetic Aperture Radar (ISAR)/ Synthetic Aperture Radar (SAR)); Electro-Optic/Infrared (EO/IR) (Full Motion Video and Stills); AIS; Communications Relay (Line of Sight (LOS) and Beyond LOS); SIGINT; and the Minotaur Family of Systems software.

MQ-4C Increment 2 will develop advanced radar modes inclusive of Ground Moving Target Indicator (GMTI), Enhanced Electro-Optic/Infrared (EO/IR) detection in support of Geospatial Intelligence (GEOINT) for increased maritime domain awareness, integration of High Gain Aperture for improved SIGINT, communications and networks resiliency in denied environments, implementation of multi-UA Command and Control, and implementation of Sense and Avoid traffic and weather capability for increased mission availability and airspace integration.

Based on Joint Staff reevaluation of worldwide ISR&T requirements, on November 16, 2022 the JROC modified MQ-4C Triton's CDD to reduce required orbits from five to three. This reduction in the total fielded orbits drove the total Program of Record UA quantity requirement from 70 to 27, resulting in the quantity based Critical UCR breach identified herein. NOTE: This document references a reduction from 70 to 27 UAs in some places which accounts for 25 operational UAs, one test UA, and one attrited UA. Cost and Funding contains Increment 1 costs only. Significant Issues: 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
Dec - 2022	PEO(U&W) Endorsement Letter signed
Dec - 2022	Program Deviation Report (PDR) signed
Dec - 2022	Service Acquisition Executive (SAE) Notification Letters to Congress signed
Nov - 2022	JROC Memo signed (5 orbits to 3 orbits, CDD revalidated)
Oct - 2022	EOC Complete
Aug - 2022	IFC-4 Increment 1 IOC Capability First Flight
Jun - 2022	LRIP 5 - FY2022 Congressional Plus Up (B22 and B23) Contract Award
Oct - 2021	IFC-4 Increment 1 QC-2 SYS III Testing completed on schedule
Sep - 2021	Gate 6 Configuration Steering Board (CSB) ADM
Aug - 2021	1st IFC-4 Increment 1 QC-1 Ground Segment (GSEG) available for dedicated production flight operations
Aug - 2021	1st IFC-4 Increment 1 QC-1 Trainer Available
Jul - 2021	IFC-4 Increment 1 QC-1 First Flight
May - 2021	1st IFC-4 Increment 1 QC-1 aircraft modification complete
Mar - 2021	LRIP 5 - Congressional Plus Up (UA B21) Contract Award
Mar - 2021	Sustaining Engineering & Support (SES) III Contract Award
Nov - 2020	IFC-4 Increment 1 Qualification Certification (QC-1) completed on schedule
Jun - 2020	LRIP 5 - Exercise AUS Options Contract Modification
Apr - 2020	LRIP 5 - Add Priced Options for AUS (5 UAs and two Main Operating Bases (MOBs)) Contract Modification
Feb - 2020	LRIP 5 - Exercise USN Options Contract Modification
Jan - 2020	Early Operational Capability (EOC) milestone reached with 2 baseline Aircraft deployed to 7th Fleet
Dec - 2019	LRIP 4 DEFIN Contract Award
Dec - 2019	LRIP 5 DEFIN Contract Award
Oct - 2019	Due Regard Alternate Means of Compliance (DRAMOC) signed.
Aug - 2019	IFC-4 Increment 1 Development Contract Definitization
Jul - 2019	BOA IFC-4 Increment 1 Retrofits kits and Install delivery order (B8, B9, B10, B11, MB5, MB7) Contract Award
Jul - 2019	LRIP IFC-4 Increment 1 In-line Modification for LRIP Lot 2 UA B12 Contract Award
Jun - 2019	OT-C1 Complete
May - 2019	First Project Arrangement under the MQ-4C Triton Development, Production and Sustainment (DPS) Memorandum of Understanding (MOU) for development of a sense and avoid capability was signed
May - 2019	LRIP Lot 5 AAC Contract Award
Apr - 2019	B7 delivered to VUP-19 at Point Mugu
Apr - 2019	LRIP Lot 3 IFC-4 Increment 1 In Line Modification, (forward fit of B13, B14, B15) Award
Mar - 2019	Interim Sustaining Engineering Support (SES) Contract Award

Jan - 2019	Start of IFC-4 Increment 1 System III Testing
Oct - 2018	Delivered SDTA aircraft and supporting ground station assets (1st Quarter FY2018)
Jun - 2018	Cooperative Memo of Understanding (MOU) with Australia signed
May - 2018	LRIP 4 Advance Acquisition Contract (AAC) Award
Apr - 2018	MQ-4C Triton Multi-INT (IFC-4) Configuration LRIP Decision Review Acquisition Decision Memorandum (ADM) approved Multi-INT (IFC-4) cut-in plan
Jan - 2018	Baseline entrance into OT-C1 (2nd Quarter FY2018)
Dec - 2017	LRIP 3 Contract Award
Nov - 2017	IFC-4 CDR
Nov - 2017	Redesignated from ACAT ID to ACAT IC
May - 2017	LRIP 2 Contract Award
Dec - 2016	Completed flight test for IFC-2 software build demonstrating air vehicle performance, sensor and communication network functionality
Dec - 2016	Conducted an Operational Assessment in support of MS C
Sep - 2016	Low Rate Initial Production (LRIP) 1 Contract Award
Sep - 2016	MS C
Jun - 2015	Executive Production Readiness Review
Apr - 2015	FMS technical services case with the German Federal Ministry of Defense
Dec - 2014	Began software installation in support of sensor testing
Dec - 2014	Completed development of Integrated Functional Capability (IFC) 2 software
Aug - 2014	Ferried three developmental test aircraft from Palmdale, California to Patuxent River Naval Air Station in Maryland (Fourth Quarter FY2014 through First Quarter FY2015)
Mar - 2014	Completed Initial Envelope Expansion
May - 2013	First Flight
Jun - 2012	Entered Integrated Testing with receipt of first SDD aircraft
Nov - 2011	System Demonstration Test Article (SDTA) Contract Award
Feb - 2011	Critical Design Review (CDR)
Feb - 2010	Preliminary Design Review (PDR)
Jan - 2009	System Requirements Review (SRR)
Apr - 2008	Milestone (MS) B
Apr - 2008	System Development and Demonstration (SDD) Contract Award

Schedule

MQ-4C Triton

Events	Milestone Baseline Objective	Current Baseline Objective/Threshold		Current Estimate/Actual	Deviation
Milestone B Complete	Apr 2008	Apr 2008	Apr 2008	Apr 2008	
Milestone B (Start)				Apr 2008	
System Requirements Review (SRR) Complete	Jan 2009	Jan 2009	Jan 2009	Jan 2009	
System Requirements Review (SRR) (Start)				Jan 2009	
Preliminary Design Review (PDR) Complete	Feb 2010	Feb 2010	Feb 2010	Feb 2010	
Preliminary Design Review (PDR) (Start)				Feb 2010	
Critical Design Review (CDR) Complete	Feb 2011	Feb 2011	Feb 2011	Feb 2011	
Critical Design Review (CDR) (Start)				Feb 2011	
Milestone C Complete	Sep 2016	Sep 2016	Sep 2016	Sep 2016	
Milestone C (Start)				Sep 2016	
IFC 4 CDR Complete	May 2017	May 2017	Nov 2017	Nov 2017	
IFC 4 CDR (Start)				Nov 2017	
Operational Evaluation (OPEVAL) Start Complete	Sep 2020	Sep 2020	Mar 2021	Jan 2023	Yes
Operational Evaluation (OPEVAL) Start (Start)				Jan 2023	Yes
IOC Complete	Oct 2020	Oct 2020	Apr 2021	Aug 2023	Yes
Full Rate Production (FRP)		May 2021	Nov 2021	-	Yes

Notes

*OPEVAL start and IOC schedule estimates in accordance with September 8, 2021 ADM.

**Reduction in orbits results in reduction in total procurement quantity. LRIP 7 (budgeted and approved) is the last production buy. FRP is no longer required.

Acronyms and Abbreviations

IFC - Integrated Functional Capability

Deviation Explanation

Current Estimate/Actual dates for OPEVAL and IOC have not changed since previous SAR submission. As noted in the previous SAR submission(2021), the current/actual estimate for Operational Evaluation (OPEVAL) Start has changed from February 2022 to January 2023 and the current estimate for IOC has changed from August 2022 to August 2023 due to development and integration delays to the Multiple Intelligence (Multi-INT) (IFC-4) configuration: late discovery of baseline performance deficiencies for co-site and electromagnetic interference; technical complexities of new Multi-INT sensors and architecture; Research, Development, Test, and Evaluation (RDT&E) budget constraints in FY2020/FY2021.

Performance**MQ-4C Triton**

Classified performance information is provided in the classified annex to this submission

Performance Characteristics					
Milestone Baseline	Current Baseline Objective/Threshold		Demonstrated Performance	Current Estimate/Actual	Deviation
(KPP) - Level of Interoperability 1-5					
	BLOS and LOS from MOB/ FOB (Land Based) MCS	BLOS and LOS from the MOB (Land Based) MCS	BLOS and LOS from MOB (Land Based) MCS (LOI 1-5).	BLOS and LOS from the MOB (Land Based) MCS (LOI 1-5)	
(KPP) - Level Of Interoperability 2 Capability					
	LOS/BLOS multi-ISR payload reception to Maritime Forces	LOS, ISR payload sensor data reception to Maritime Forces afloat (CVN, LHA/LHD)	LOS/BLOS multi-ISR payloadreception to Maritime Forces.Threshold demonstrated with surrogate (SAIL and P-8 Systems Integration Laboratory (SIL)).	LOS, ISR payload sensor data reception to Maritime Forces afloat (CVN, LHA/LHD).During IFC-4 ground testing completed 11/14/2022 Lot 2 was revalidated/demonstrated.	

Performance Characteristics					
Milestone Baseline	Current Baseline Objective/Threshold		Demonstrated Performance	Current Estimate/Actual	Deviation
(KPP) - Net Ready					
	IAW CJCSI 6212.01D	IAW CJCSI 6212.01D	TBD	IAW CJCSI 5123 -01G, CJCSI 3170.01I and the JCIDS Manual.	
(KPP) - Operational Availability					
	≥ 0.9	≥ 0.7 at IOT&E ≥ 0.8 at IOC plus two years	TBD.	$> .673$	
(KPP) - Persistent multi-sensor maritime ISR at mission radius					
	On station 24 hrs a day / 7 days a week for 30 consecutive days with an ETOS of $\geq 95\%$	On station 24 hrs a day for 7 consecutive days with ETOS of $\geq 80\%$	UA Endurance with (mission essential) sensors > 20 hrs	UA Endurance with (mission essential) sensors > 20 hrs	
(KPP) - UA Mission Radius					
	$\geq 3,000$ nm	$\geq 2,000$ nm	2,400 nm.	$> 2,000$ Nautical Miles.	

Requirement Reference

CDD in lieu of CPD dated August 2, 2016

Deviation Explanation

No deviations for this program/subprogram

Notes

CDD (21 May 2007) in lieu of CPD. CDD was revalidated November 16, 2022 by the JROC reducing required orbits from five to three and deleting ETOS and inclusion of Endurance.

Acronyms and Abbreviations

CJCSI - Chairman of the Joint Chiefs of Staff Instruction

ETOS - Effective Time On Station

hrs – hours

IAW - In Accordance With

IFC - Integrated Functional Capability

IOT&E - Initial Operational Test & Evaluation

ISR - Intelligence, Surveillance, and Reconnaissance

JCIDS - Joint Capabilities Integration Development System

LHD - Amphibious Assault Ship (Multi Purpose)

LOI - Level of Interoperability

nm- nautical miles

UA - Unmanned Aircraft

Acquisition Budget Estimate

MQ-4C Triton

Total Acquisition Cost

		Original Development APB (2/7/2009) Milestone APB	Current Baseline MS C APB (12/20/2016)		Budget Estimate PB 2024		Deviation Against Current APB
Category	Base Year	Objective (BY\$M)	Objective (BY\$M)	Threshold (BY\$M)	BY\$M	TY\$M	Deviation
RDT&E	2016	3,370.5	5,383.5	5,921.9	5,519.7	5,535.0	2.53%
Procurement	2016	10,002.5	9,357.5	10,293.3	4,864.8	5,698.5	-48.01%
MILCON	2016	410.2	323.3	355.6	323.1	357.9	-0.05%
Acq. O&M	2016	0	0	0	0	0	N/A
Total		13,783.4	15,064.3	16,570.8	10,707.6	11,591.3	-28.92%
PAUC	2016	196.906	215.204	236.726	396.580	429.310	84.28%
APUC	2016	153.884	141.780	155.959	221.130	259.020	55.97%

Appropriation Category Deviation Explanations

PAUC Deviation Explanation

APUC Deviation Explanation

Budget Notes

Budget Reflects PB 2024 MDAP Program of Record (Increment 1) funding and adjusted for the quantity reduction. Procurement TY\$M: Decrease in costs due to quantity reduction to Program of Record from 70 to 27 total aircraft.

Total End Item Quantity

Quantity Category	Current APB Quantity	Current Estimate Quantity
Development	4	5
Procurement	66	22
O&M-Acquired		0

Quantity Notes

The program received a new Program of Record quantity requirement via Joint Staff approval of a revised program CDD.

Cost Deviation Explanations:

The reduction of Procurement funded Air Vehicles from 66 to 22 has resulted in a significant reduction in estimated procurement dollars compared to both the Original and Current APBs.

Unit Cost

MQ-4C Triton

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

Category (\$M) Base Year:2016	Current UCR Baseline	Current Estimate	% Change
-------------------------------	----------------------	------------------	----------

Program Acquisition Unit Cost

Cost	15,064.3	10,707.6	
Quantity	70	27	Critical
Unit Cost	215.204	396.580	84.28%

Average Procurement Unit Cost

Cost	9,357.5	4,864.8	
Quantity	66	22	Critical
Unit Cost	141.780	221.130	55.97%

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

Category (\$M) Base Year:2008	Original UCR Baseline	Current Estimate	% Change
-------------------------------	-----------------------	------------------	----------

Program Acquisition Unit Cost

Cost	12,224.5	9,562.1	
Quantity	70	27	Critical
Unit Cost	174.636	354.151	102.79%

Average Procurement Unit Cost

Cost	8,871.2	4,344.3	
Quantity	65	22	Significant
Unit Cost	136.480	197.470	44.69%

Cost Growth Details

Current Baseline PAUC Breach Explanation

The reduction in total program quantity from 70 Air Vehicles to a total of 27 Air Vehicles (25 fleet delivered Air Vehicles) has resulted in a PAUC Critical Breach against the Current APB PAUC in BY 2016\$.

Current Baseline APUC Breach Explanation

The reduction in procurement funded quantity from 66 Air Vehicles to a procurement funded quantity of 22 Air Vehicles has resulted in a APUC Critical Breach against the Current APB APUC in BY 2016\$.

Original Baseline PAUC Breach Explanation

The reduction in total program quantity from 70 Air Vehicles to a total of 27 Air Vehicles (25 fleet delivered Air Vehicles) has resulted in a PAUC Critical Breach against the Original APB PAUC in BY 2008\$.

Original Baseline APUC Breach Explanation

The reduction in procurement funded quantity from 65 Air Vehicles to a procurement funded quantity of 22 Air Vehicles has resulted in a APUC Significant Breach against the Current APB APUC in BY 2016\$.

Impacts of Schedule Changes on Unit Cost

PAUC and APUC percentage change and unit cost growth is not a result of schedule changes.

Impacts of Performance Changes on Unit Cost

Actions Taken or Proposed to Control Future Cost Growth

PAUC and APUC percentage change and current cost growth is a result of quantity reduction from 70 to 27 UAs based on a strategic decision to change requirements, reducing five orbits to three orbits.

Unit Cost Notes:

The program received a new program of record quantity requirement via Joint Staff approval of a revised program CDD (November 16, 2022). The reduction of Procurement funded Air Vehicles from 66 to 22 has resulted in a significant reduction in estimated procurement dollars compared to both the Original and Current APBs. Official notification of this quantity based Critical UCR breach was provided to congress on December 13, 2022 in accordance with Title 10 of United States Code (USC), Section 4374. Reassessment of the program is ongoing pursuant to section 4376 of 10 U.S.C. and a report to congress certifying the program under the quantity based exception is expected in Q3 FY 2023.

In accordance with 4377 of 10 USC the quantity based justification is legitimate due to the PAUC cost growth being less than 5% compared to the current baseline prior to the quantity reduction.

Risk and Sensitivity Analysis**MQ-4C Triton****Risk and Sensitivity Analysis****Current Procurement Cost(December - 2022)**

None

Original Baseline Estimate (February - 2009)

At Milestone C, additional Integrated Functional Capability (IFC) 4 Multiple Intelligence (Multi-INT) Increment 1 capability was incorporated into the program baseline.

Current Baseline Estimate (December - 2016)

The program is tracking within the APB parameters.

Schedule Risk		
Current	2022-12-31	Currently on track for IOC in August 2023. No significant schedule risks.
Technical Risks		
Current	2022-12-8	The program is not tracking any significant technical risks that would preclude a successful IOC.

Low Rate Initial Production

MQ-4C Triton

Item	Initial LRIP Decision	Current Total LRIP
Approval Date	04/18/2008	11/15/2022
Approved Quantity	10	22
Reference	Milestone B ADM	JROCM
Start Year	2013	2013
End Year	2015	2024

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. JROCM dated November 16, 2022 reduced quantity down from 70 to 27 UAs, and reduced 5 orbits to 3 orbits, thus the program will never be able to achieve FRP as a result of the quantity reduction.

Notes

Contracts & Efforts

Contract Data	
Contract Number	N00019-15-C-0002
Effort Number	
Modification Number	P00065
Award Date	09/30/2016
Definitization Date	05/16/2017
Order Number	
CAGE Code/CAGE Legal Name	78022/Northrop Grumman Systems Corporation
Contract Title	MQ-4C LRIP Lot 2 CLINs
Contract Address	San Diego, CA
Contracting Office	
Supported Phase	Production
Contract Strategy	
Contract Type	Other
Modification Date	January 12, 2023
Work Start Date	
Technical Data Rights	
Work Completed	91.58%

Contracts/Effort Price, Quantity, and Performance (TY\$M)		
Initial Target Price	Current Target Price	
\$353.3	\$376.8	
Initial Ceiling Price	Current Ceiling Price	
\$365.9	\$390.3	
Contractor EAC	PM EAC	
\$330.6	\$330.6	
Initial Quantity	Current Quantity	Delivered Quantity
3	3	2
BAC	BCWP	ACWP
\$322	\$294.9	\$291.2

BCWS	Cost Variance	Schedule Variance
\$295.9	\$3.7	-\$1

Contract Notes:

The difference between the Initial Contract Price Target and the Current Contract Price Target is due to B12 ECP contract modifications.

Contract N00019-15-C-0002 includes MQ-4C LRIP Lots 1 & 2. The information provided above is only for LRIP Lot 2 CLINs. UAs in LRIP Lot 2 include B10, B11, and B12. B10 and B11 have been conditionally DD250'd with open work to be completed upon IFC-4 retrofit. B12 is still on the production line, being out fitted with IFC-4 ECPs in-line. LRIP Lot 2 also included one MOB and one FOB. Data is from the most recent reporting period with deliverables: November 2022.

Factors Contributing to Cost Variance and Projected Effects on Program Costs

The favorable cumulative cost variance is primarily driven by the Production IPT and Common Production Sustainment Support. This is due to the allocation of touch labor for all LRIP 2 Air Vehicles.

Factors Contributing to Schedule Variance and Projected Effects on Program Schedule

The unfavorable cumulative schedule variance is driven by the lack of Functional Acceptance Test Procedure closeout.

Contract Data	
Contract Number	N00019-17-C-0018
Effort Number	
Modification Number	P00044
Award Date	12/28/2017
Definitization Date	05/24/2019
Order Number	
CAGE Code/CAGE Legal Name	78022/Northrop Grumman Systems Corporation
Contract Title	MQ-4C LRIP Lot 3 Production
Contract Address	San Diego, CA
Contracting Office	
Supported Phase	Production
Contract Strategy	
Contract Type	Other
Modification Date	January 06, 2023
Work Start Date	January 26, 2023
Technical Data Rights	
Work Completed	96.63%

Contracts/Effort Price, Quantity, and Performance (TY\$M)		
Initial Target Price	Current Target Price	
\$303.1	\$344.5	
Initial Ceiling Price	Current Ceiling Price	
\$314.1	\$356.8	
Contractor EAC	PM EAC	
\$324.8	\$332.1	
Initial Quantity	Current Quantity	Delivered Quantity
3	3	1
BAC	BCWP	ACWP
\$291	\$281.2	\$308
BCWS	Cost Variance	Schedule Variance

\$283.5	-\$26.8	-\$2.3
---------	---------	--------

Contract Notes:

The difference between the Initial Contract Price Target and the Current Contract Price Target is due to contract modifications for Integrated Functional Capability (IFC-4) in-line Engineering Change Proposals (ECPs) and IFC-4 install harness kits. Contract includes only unmanned aircraft. Data is from the most recent reporting period with deliverables: November 2022.

Factors Contributing to Cost Variance and Projected Effects on Program Costs

The unfavorable cumulative cost variance is primarily driven by continuous cost growth across all three air vehicles due to disruption caused by the in-line development build, testing and troubleshooting efforts above the expected budget, and complications experienced in flight operations.

Factors Contributing to Schedule Variance and Projected Effects on Program Schedule

The unfavorable cumulative schedule variance is primarily driven by continuous cost growth across all three air vehicles due to disruption caused by the in-line development build, testing and troubleshooting efforts above the expected budget, and complications experienced in flight operations.

Contract Data	
Contract Number	N00019-18-C-1028
Effort Number	
Modification Number	P00034
Award Date	05/16/2018
Definitization Date	12/20/2019
Order Number	
CAGE Code/CAGE Legal Name	78022/Northrop Grumman Systems Corporation
Contract Title	MQ-4C LRIP Lot 4 Production
Contract Address	San Diego, CA
Contracting Office	
Supported Phase	Production
Contract Strategy	
Contract Type	Other
Modification Date	December 21, 2022
Work Start Date	
Technical Data Rights	
Work Completed	88.16%

Contracts/Effort Price, Quantity, and Performance (TY\$M)		
Initial Target Price	Current Target Price	
\$344.3	\$376.5	
Initial Ceiling Price	Current Ceiling Price	
\$353.3	\$382.2	
Contractor EAC	PM EAC	
\$349.5	\$349.5	
Initial Quantity	Current Quantity	Delivered Quantity
3	3	0
BAC	BCWP	ACWP
\$321	\$283	\$297
BCWS	Cost Variance	Schedule Variance

\$287.5	-\$14	-\$4.5
---------	-------	--------

Contract Notes:

The difference between the Initial Contract Price Target and the Current Contract Price Target is due to additional IFC-4 Increment 1 ECP contract modifications. Contract includes three UAs, one Main Operating Base (MOB) and one Forward Operating Base (FOB). Data is from the most recent reporting period with deliverables: November 2022.

Factors Contributing to Cost Variance and Projected Effects on Program Costs

The unfavorable cumulative cost variance is due to additional rework that was not originally planned. Subcontracts experienced surge support in order to burn down open supplier negotiations and ensure placement/availability of hardware according to the manufacturing schedule. In addition, Subcontractor material unit prices were definitized at higher values than baseline.

Factors Contributing to Schedule Variance and Projected Effects on Program Schedule

The unfavorable cumulative schedule variance is primarily driven by Radar kitting delays and impacts from predecessor programs that are affecting Electronic Power Assembly and Array builds. The cumulative schedule variance is also being driven by subcontractor site support reachback, Field Service Representative support, the Government Furnished Equipment server room not being available, as well as unanticipated rework that was not originally planned.

Contract Data	
Contract Number	N00019-19-C-0008
Effort Number	
Modification Number	P000232
Award Date	05/29/2019
Definitization Date	12/21/2019
Order Number	
CAGE Code/CAGE Legal Name	78022/Northrop Grumman Systems Corporation
Contract Title	MQ-4C LRIP Lot 5 Production
Contract Address	San Diego, CA
Contracting Office	
Supported Phase	Production
Contract Strategy	
Contract Type	Other
Modification Date	December 29, 2022
Work Start Date	
Technical Data Rights	
Work Completed	45.11%

Contracts/Effort Price, Quantity, and Performance (TY\$M)		
Initial Target Price	Current Target Price	
\$237.6	\$920.1	
Initial Ceiling Price	Current Ceiling Price	
\$243.8	\$945.1	
Contractor EAC	PM EAC	
\$835.6	\$835.6	
Initial Quantity	Current Quantity	Delivered Quantity
3	8	0
BAC	BCWP	ACWP
\$785.8	\$354.5	\$352.8
BCWS	Cost Variance	Schedule Variance

\$358.5	\$1.7	-\$4
---------	-------	------

Contract Notes:

The difference between the Initial Contract Price Target and the Current Contract Price Target is mostly due to evolving Australia requirements, one FY2021 Congressional Plus-up UA and two FY2022 Congressional Plus-up UAs. Additional factors include IFC-4 Increment 1 ECP contract modifications. Contract includes five domestic UAs, three Australia (AUS) UAs, one domestic MOB, two AUS MOBs, and one AUS FOB. Data is from the most recent reporting period with deliverables: November 2022.

Factors Contributing to Cost Variance and Projected Effects on Program Costs

The unfavorable cost variance is driven by inefficiencies and over-time work in North Dakota manufacturing and Avionics Lab Offload. However, this unfavorable cost variance is also offset by favorable cost variances on PM Integrated Product Team (IPT); driven by Diminishing Manufacturing Sources (DMS) Management and Program Management/Integration Travel.

Factors Contributing to Schedule Variance and Projected Effects on Program Schedule

The unfavorable net change in the cumulative schedule variance is primarily driven by unfavorable schedule variances on Air Vehicle IPT material. This is primarily due to delayed wing delivery and late completion of testing.

Contract Data	
Contract Number	N00019-21-C-0060
Effort Number	
Modification Number	P00015
Award Date	03/15/2021
Definitization Date	03/15/2021
Order Number	
CAGE Code/CAGE Legal Name	78022/Northrop Grumman Systems Corporation
Contract Title	MQ-4C Sustaining Engineering Support
Contract Address	San Diego, CA
Contracting Office	
Supported Phase	Production
Contract Strategy	
Contract Type	Other
Modification Date	December 21, 2022
Work Start Date	
Technical Data Rights	
Work Completed	81.43%

Contracts/Effort Price, Quantity, and Performance (TY\$M)		
Initial Target Price	Current Target Price	
\$82	\$89.3	
Initial Ceiling Price	Current Ceiling Price	
\$0	\$0	
Contractor EAC	PM EAC	
\$142.2	\$151.6	
Initial Quantity	Current Quantity	Delivered Quantity
0	0	0
BAC	BCWP	ACWP
\$154	\$125.4	\$113.8
BCWS	Cost Variance	Schedule Variance

\$125.8	\$11.6	-\$0.4
---------	--------	--------

Contract Notes:

Contract is primarily Cost Plus Fixed Fee. Initial Target Price and Current Target Price includes base period line items only. Amounts will be updated as options items are exercised. Data is from the most recent reporting period with deliverables: November 2022.

Factors Contributing to Cost Variance and Projected Effects on Program Costs

The favorable net change in the cost variance is driven by under-runs in Engineering & Travel.

Factors Contributing to Schedule Variance and Projected Effects on Program Schedule

Schedule variance reporting is not required for this contract.

Contract Data	
Contract Number	N00019-08-C-0023
Effort Number	
Modification Number	P00219
Award Date	07/13/2016
Definitization Date	07/13/2016
Order Number	
CAGE Code/CAGE Legal Name	78022/Northrop Grumman Systems Corporation
Contract Title	MQ-4C Triton UAS SDD Contract
Contract Address	San Diego, CA
Contracting Office	
Supported Phase	Production
Contract Strategy	
Contract Type	Other
Modification Date	January 31, 2023
Work Start Date	July 13, 2016
Technical Data Rights	
Work Completed	71.85%

Contracts/Effort Price, Quantity, and Performance (TY\$M)		
Initial Target Price	Current Target Price	
\$69.5	\$72.5	
Initial Ceiling Price	Current Ceiling Price	
Contractor EAC	PM EAC	
\$87.7	\$111.8	
Initial Quantity	Current Quantity	Delivered Quantity
BAC	BCWP	ACWP
\$70.7	\$50.8	\$70
BCWS	Cost Variance	Schedule Variance

\$60.6	-\$19.2	-\$9.8
--------	---------	--------

Contract Notes:

This effort is for Fatigue Test Article Testing (contract line item is cost only). This RDT&E funded contract ended in May 2022 with a follow on contract award. No further data from that effort was or will be received. Data is from the last reporting period with deliverables received on May 25, 2022 and reflects data up to the close of April 2022 month accounting period. This is the final reporting period for this contract. Additional data Contract Data Requirements List, valued at \$1.2M, were added since the initial ceiling was negotiated. Additionally Northrop Grumman over-ran costs in the amount of \$1.8M.

Factors Contributing to Cost Variance and Projected Effects on Program Costs

The unfavorable net change in the cost variance is due to testing delays from inspections for the control surface and full airframe tests.

Factors Contributing to Schedule Variance and Projected Effects on Program Schedule

The unfavorable net change in the cumulative schedule variance is due to continued FY 2021 funding limits and deliberate work slowdown on main landing gear, spoiler, and aileron tests.

External Government Activities

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

Deliveries and Expenditures

MQ-4C Triton

Deliveries				
Delivered to Date	Planned to Date	Actual to Date	Total Quantity	Percent Delivered
Development	5	5	5	100.00%
Production	2	2	22	9.09%
Total Program Quantity Delivered	7	7	27	25.93%
Expended and Appropriated (TY \$M)				

Years Appropriated to date: 19

Total Years Appropriated Funding (Current Baseline): 26

Percent Years Appropriated: 55.88%

Then-Year Funding Appropriated as Percentage of Total Acquisition Estimate: 73.08%

Then-Year Funding Expended as Percentage of Total Acquisition Estimate: 75%

Total Acquisition Cost: 11,591.32

Deliveries & Expenditures Notes:

The total quantity of 27 includes 1 test asset, 1 stricken mishap UA (B6) and 25 fleet assets. This quantity reflects updates originating from a November 16, 2022 JROC revalidated CDD. The above data is current as of 3/13/2023.

Operating and Support Costs

MQ-4C Triton

O&S Cost Breakdown:

Category (BY\$ Million)	MQ-4C TRITON
Unit-Level Manpower	1,836.1
Unit Operations	418.5
Maintenance	3,881.7
Sustaining Support	2,328.0
Continued System Improvements	1,360.7
Other	
Total	9,825.0

Cost Estimate Source: CCE dated February 08, 2023

Approved by: NAVAIR Cost and Schedule Analysis Department, February 8, 2023

O&S Cost Notes:

The program is updating the O&S estimate as part of an updated APB associated with the Program Deviation Report and Program Restructure resulting from the November 16, 2022 revalidated CDD. Notable programmatic input changes to the estimate include the reduced procurement end-strength from 70 aircraft to 27 (25 Operational UAs, one test UA, and one attrited UA), reduced orbits from five to three, and reduced flight hour utilization rates. Cost driving technical input changes to the estimate include refinements to unit repair cost estimates and increases to the sustainment labor categories of Program Related Logistics and Program Related Engineering. Also, the Indirect Support category is now not reported, per guidance.

O&S Cost Notes

a. Disposal/Demilitarization Cost Estimate and Source of Estimate:

Date of Estimate: February 08, 2023

Source of Estimate: NAVAIR Cost and Schedule Analysis Department

Disposal/Demilitarization Total Cost (BY 2016 \$M): 6.4

Note: Disposal of attrition aircraft is included in the Disposal estimate.

b. Sustainment Strategy: The MQ-4C Triton Unmanned Aircraft System logistics focuses on total platform supportability to include air vehicle, mission control, information technology (e.g., networks) and payload sustainment across the program life cycle. The Triton Product Support team is organized and executing the plan to establish organic supply support, repair capability, and sustaining engineering, to include Software Support, that will meet future operational readiness requirements and operating cost objectives. The prime contractor continues to provide Interim Contractor Support as the organic infrastructure continues to be established. IOC is planned for FY 2023.

c. Acquired Aircraft System Sustainment Parameters:

i. Operational Quantity to Sustain: 25

ii. First Operational Fiscal Year: FY 2019

iii. Final Operational Fiscal Year: FY 2048

iv. Unit Expected Service Life: 20.0 Years

Antecedent System(s) O&S Costs:

i. No Antecedent. The MQ-4C Triton is projected to fly significantly more hours than the closest analogous airframe and has different mission requirements, different concept of operations, different payloads, and it requires communication links with ground based Mission Control Stations to operate. This results in substantially different projected maintenance costs as compared to other previous aircraft.

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	14,806.7	16,287.4	9,825.0	16,160.3	

Note: O&S TY amount will not save, amount should be 16,160.33 in the DAVE tool.

Total Aircraft O&S = Unitized Cost * Number of Operational Aircraft Years (\$9,825M = \$27.502M * 357.25 Aircraft Years).

O&S Cost Deviation Explanation

Operating and Support Costs - Disposal and Unitized Costs**MQ-4C Triton****Annual Unitized O&S Cost Definition and Calculation Relative to Total O&S Cost:**

Total Aircraft O&S = Unitized cost * number of operational aircraft years (\$9,825M = \$27.502M * 357.25 aircraft years)

Sustainment Factors	System Name: MQ-4	Antecedent System Name: No antecedent
Quantity to Sustain	25	
Unit of Measure	Maximum Total Aircraft Inventory	
Unit Expected Service Life	20	
First and Final Fiscal Year Operational	2019 2048	

Base Year: 2016

Annual Unitized O&S Cost by Category Base Year \$ Unit:(\$M)	System Name: MQ-4	Antecedent System Name: No antecedent
Unit-Level Manpower	5.1	
Unit Operations	1.2	
Maintenance	10.9	
Sustaining Support	6.5	
Continued System Improvements	3.8	
Other	0.0	
Total O&S	27.5	0.0

Disposal/Demilitarization Cost Estimate

(Base Year \$Millions)	System Name: MQ-4	Antecedent System Name: No antecedent
Total Disposal	6.4	

Cost Estimate Source - Disposal	
Type:	Program Office Estimate
Approval Authority and Date:	
Note:	
Disposal Cost Notes:	
\$257.1K per aircraft CY16\$. This number was multiplied times the aircraft attrition quantity (17) plus the aircraft retirement quantity (8).	

Additional O&S Estimate Assumptions:

Sustainment Strategy:
Military personnel perform Organization-level (O-lvl) flight line maintenance and are augmented by contractor field service representatives. Control station maintenance performed by contractors. All fleet maintenance supported by an organic Fleet Support Team and contractor Engineering Reachback. Component repair strategy primarily O-lvl to Depot level. Depot level maintenance capability still being developed and is anticipated to be a mixture of organic and original equipment manufacturer (OEM) support.
Antecedent Estimate Assumptions:
No antecedent