MQ-4C TRITON UNMANNED AIRCRAFT SYSTEM (MQ-4C TRITON)

December 2021 Selected Acquisition Report (SAR)

DECEMBER 31, 2021

DEPARTMENT OF THE NAVY

Contents

Common Acronyms and Abbreviations for MDAP Programs
Acq O&M - Acquisition-Related Operations and Maintenance
ACAT - Acquisition Category
ADM - Acquisition Decision Memorandum
APB - Acquisition Program Baseline
APPN - Appropriation
APUC - Average Procurement Unit Cost
$B - Billions of Dollars
BA - Budget Authority/Budget Activity
Blk - Block
BY - Base Year
CAPE - Cost Assessment and Program Evaluation
CARD - Cost Analysis Requirements Description
CDD - Capability Development Document
CLIN - Contract Line Item Number
CPD - Capability Production Document
CY - Calendar Year
DAB - Defense Acquisition Board
DAE - Defense Acquisition Executive
DAMIR - Defense Acquisition Management Information Retrieval
DoD - Department of Defense
DSN - Defense Switched Network
EMD - Engineering and Manufacturing Development
EVM - Earned Value Management
FOC - Full Operational Capability
FMS - Foreign Military Sales
FRP - Full Rate Production
FY - Fiscal Year
FYDP - Future Years Defense Program
ICE - Independent Cost Estimate
IOC - Initial Operational Capability
Inc - Increment
JROC - Joint Requirements Oversight Council
$K - Thousands of Dollars
KPP - Key Performance Parameter
LRIP - Low Rate Initial Production
$M - Millions of Dollars
MDA - Milestone Decision Authority
MDAP - Major Defense Acquisition Program
MILCON - Military Construction
N/A - Not Applicable
O&M - Operations and Maintenance
ORD - Operational Requirements Document
OSD - Office of the Secretary of Defense
O&S - Operating and Support
PAUC - Program Acquisition Unit Cost
PB - President's Budget
PE - Program Element
PEO - Program Executive Officer
PM - Program Manager
POE - Program Office Estimate
RDT&E - Research, Development, Test, and Evaluation
SAR - Selected Acquisition Report
SCP - Service Cost Position
TBD - To Be Determined
TY - Then Year
UCR - Unit Cost Reporting
U.S. - United States
USD(A&S) - Under Secretary of Defense (Acquisition and Sustainment)
USD(AT&L) - Under Secretary of Defense (Acquisition, Technology and Logistics)

Program Manager

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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

Significant Accomplishments:

The MQ-4C Triton unmanned aircraft system Early Operational Capability (EOC) IFC-3 baseline configuration continues to support SEVENTH Fleet operations with real time Intelligence, Surveillance and Reconnaissance data. The EOC aircraft provides a multi-sensor mission payload (Maritime Radar, Electro-Optical/Infrared, Electronic Support Measures, Automatic Identification System and basic communications relay). The IFC-4 Multi-Intelligence configuration is on track to successfully IOC in August 2023.

Unmanned Patrol Squadron – ONE NINE (VUP-19) operated two Triton Unmanned Air Vehicles (UA) Outside Continental United States (OCONUS) and a Triton Main Operating Base (MOB) in Jacksonville, FL. Currently, VUP-19 continues to operate one UA OCONUS, one UA from Naval Station (NS) Mayport, and a MOB in Jacksonville, FL. The Triton Forward Operating Base utilized at a secondary OCONUS site to support seasonal operations was repositioned, December 16, 2021, to NS Mayport in conjunction with the UA reposition to support operations and training. These operations (OCONUS and Continental United States (CONUS)) exercise flight planning, operations, supply chain management, and intelligence processing, exploitation, and dissemination and are risk reductions for IFC-4 IOC.

Since the April 16, 2018 ADM, the Triton program has progressed with Multi-INT IFC-4 development. The IFC 4 hardware and software build will bring a multi-mission sensor capability to replace the aging EP-3 platform as part of the Navy's Maritime Intelligence, Surveillance, Reconnaissance and Targeting transition plan.

The Program Office received direction from the Milestone Decision Authority (MDA) through a signed ADM dated January 12, 2021 to restructure the IFC-4 program, reflecting a delay to the schedule resulting from FY2020/FY2021 budget constraints.

IFC-4 continues to make progress during this reporting period. The program completed System Level III testing of the mission management software and has continued with the Qualification Certification 2 (QC-2) upgrade modification and QC-2 Flight test initiated in 2Q FY2022. Production of one IFC-4 retrofitted UA (B8) and three IFC-4 production UAs (B13, B14, and B15) remain on track to support IOC.

The impacts of the FY 2021-FY 2022 Production Pause and no Advance Procurement were partially mitigated by the FY 2021 Congressionally added UA (B21). The combination of the FY 2021 Congressionally added UA (B21) and the two (2) aircraft already on order by the Commonwealth of Australia allowed the program to partially mitigate the impacts of the FY 2021-FY 2022 Production Pause. The program continues to collaborate with the Joint Staff regarding follow-on validation of program requirements.

The U.S. and Commonwealth of Australia continue strong collaboration. The seventh executive steering committee was successfully completed, November 15, 2021. The Royal Australian Air Force (RAAF) and Australian Department of Defense are seeking final approval for funding of Australian Triton facilities through the Australian Government Public Works Committee process, expected to be complete 3Q FY2022. The process to procure the remaining three AUS AV's is planned to be brought forward for government decision in the Fall of CY 2022.

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**
April 2008	Milestone (MS) B
April 2008	System Development and Demonstration (SDD) Contract Award
January 2009	System Requirements Review (SRR)
February 2010	Preliminary Design Review (PDR)
February 2011	Critical Design Review (CDR)
November 2011	System Demonstration Test Article (SDTA) Contract Award
June 2012	Entered Integrated Testing with receipt of first SDD aircraft
May 2013	First Flight
March 2014	Completed Initial Envelope Expansion
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)
December 2014	Began software installation in support of sensor testing
December 2014	Completed development of Integrated Functional Capability (IFC) 2 software
April 2015	FMS technical services case with the German Federal Ministry of Defense
June 2015	Executive Production Readiness Review
September 2016	MS C
September 2016	LRIP 1 Contract Award
December 2016	Conducted an Operational Assessment in support of MS C
December 2016	Completed flight test for IFC 2 software build demonstrating air vehicle performance, sensor and communication network functionality
May 2017	LRIP 2 Contract Award
October 2018	Delivered SDTA aircraft and supporting ground station assets (1st Quarter FY2018)
November 2017	IFC 4 CDR
November 2017	Redesignated from ACAT ID to ACAT IC
December 2017	LRIP 3 Contract Award
January 2018	Baseline entrance into OT-C1 (2nd Quarter FY2018)
April 2018	MQ-4C Triton Multi-INT (IFC-4) Configuration Low Rate Initial Production Decision Review Acquisition Decision Memorandum approved Multi-INT (IFC-4) cut-in plan
January 2019	Start of IFC 4 System III Testing
March 2019	Interim Sustaining Engineering Support (SES) Contract Award
April 2019	LRIP Lot 3 IFC 4 In Line Modification, (forward fit of B13, B14, B15) Award
April 2019	B7 delivered to VUP-19 at Point Mugu
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
June 2019	OT-C1 Complete
July 2019	BOA IFC 4 Retrofits kits and Install delivery order (B8, B9, B10, B11, MB5, MB7) Contract Award
July 2019	LRIP IFC 4 In-line Modification for LRIP Lot 2 UA B12 Contract Award
August 2019	IFC 4 Development Contract Definitization
October 2019	Due Regard Alternate Means of Compliance (DRAMOC) signed.
December 2019	LRIP 4 Contract Award
December 2019	LRIP 5 Contract Award
January 2020	EOC milestone reached with 2 baseline Aircraft deployed to Forward Operating Base (FOB)
February 2020	LRIP 5 - Exercise USN Options Contract Modification
April 2020	LRIP 5 - Add Priced Options for AUS (5 UAs and two MOBs) Contract Modification
June 2020	LRIP 5 - Exercise AUS Options Contract Modification
November 2020	IFC-4 Qualification Certification (QC-1) completed on schedule
March 2021	LRIP 5 - Congressional Plus Up (UA B21) Contract Award
March 2021	Sustaining Engineering & Support (SES) III Contract Award
May 2021	1st IFC-4 QC-1 aircraft modification complete
July 2021	IFC-4 QC-1 First Flight
August 2021	1st IFC-4 QC-1 Trainer Available
August 2021	1st IFC-4 QC-1 GSEG available for dedicated production flight ops
October 2021	IFC-4 QC-2 SYS III Testing completed on schedule

Schedule

Schedule Events

Schedule Events					
Events	**Development APB Change 2 Objective**	**Current APB Production Objective/Threshold**		**Current Estimate/Actual**	**Deviation**
Milestone B	April 2008	April 2008	April 2008	April 2008	
System Requirements Review (SRR)	January 2009	January 2009	January 2009	January 2009	
Preliminary Design Review (PDR)	January 2010	February 2010	February 2010	February 2010	
Critical Design Review (CDR)	January 2011	February 2011	February 2011	February 2011	
Milestone C	December 2015	September 2016	September 2016	September 2016	
IFC 4 CDR	N/A	May 2017	November 2017	November 2017	
Operational Evaluation (OPEVAL) Start	August 2017	September 2020	March 2021	January 2023	
IOC	April 2018	October 2020	April 2021	August 2023	
Full Rate Production (FRP)	March 2018	May 2021	November 2021	April 2030	

Schedule Notes:
The current 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 FY 2020/F Y2021.

Deviation Explanations:
The schedule breaches were reported in the December 2019 SAR.

Acronyms and Abbreviations
APN - Aircraft Procurement Navy
EOC - Early Operational Capability
FOB - Forward Operating Base
IFC - Integrated Functional Capability

INT - Intelligence
MOB - Main Operating Base
UA - Unmanned Aircraft

Significant Schedule Risks

Significant Schedule Risks	
Current Estimate (December 2021)	
1.	Currently on track for IOC in August 2023. No significant schedule risks.
Current Estimate (December 2019)	
1.	(Performance) If the Multiple Intelligence (Multi-INT) capability is degraded due to Co-site interference and Electromagnetic Interference (EMI) effects, then additional engineering effort may be required and/or key system attribute performance may be degraded. While changes have been incorporated into the aircraft, results will not be known until Chamber testing scheduled for 3Q FY2021 is complete. The schedule breach is caused by the movement of the Initial Operational Capability (IOC) from 3Q FY2021 to 4Q FY2022 as a result of the late discovery and correction of baseline performance deficiencies for co-site and electromagnetic interference, late IFC-4 contract award, and the technical complexities of the integration of new multiple intelligence (Multi-INT) sensors and architecture.
Milestone C (September 2016)	
1.	(Schedule) If IFC 3.1 baseline is delayed or not sufficiently mature by the IFC 4 Critical Design Review, then IFC 4 development may be delayed.
Milestone B (April 2008)	
1.	(Cost) The Unmanned Aircraft (UA) attrition assumptions may be lower than what actual attrition will be during operational use, potentially resulting in the need for additional UA or restricted fleet operations.
2.	(Schedule) Changes in the Net Centric DoD and Joint Staff policies/guidance could drive requirements beyond those funded for increment one.
3.	(Performance) The Airspace Integration technical standards, procedures and technology necessary for the UA to operate using manned aircraft file-and-fly procedures have not yet been developed, requiring the UA to be operated in segregated airspace.

Performance

Performance Characteristics					
Development APB Change 2 Objective	**Current APB Production Objective/Threshold**		**Demonstrated Performance (include Date of Demonstration)**	**Current Estimate/Actual**	**Deviation**
Persistent multi-sensor maritime ISR at mission radius					
On station 24 hrs a day / 7 days a week for 30 consecutive days with an Effective Time On Station (ETOS) of >=95%	On station 24 hrs a day / 7 days a week for 30 consecutive days with an ETOS of >=95%	On station 24 hrs a day for 7 consecutive days with ETOS of >=80%	Based on predicted performance. (8/20/2025)	Requirement being reevaluated for Multi-INT based on 900lbs of additional weight for Multi-INT sensors and possible quantity reduction proposed in OSD22.	
Level of Interoperability 1-5					
Beyond Line of Sight (BLOS) and Line of Sight (LOS) from Main Operating Base (MOB)/ Forward Operating Base (FOB) (Land Based) Mission Control Station (MCS)	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) (07/07/2016)	BLOS and LOS from the MOB (Land Based) MCS (LOI 1-5)	
UA Mission Radius					
>=3,000 nm	>=3,000 nm	>=2,000 nm	2,400 nm (09/18/2014)	>2,000 Nautical Miles.	
Level Of Interoperability 2 Capability					
LOS/BLOS multi-ISR payload reception to Maritime Forces	LOS/BLOS multi-ISR payload reception to Maritime Forces	LOS, ISR payload sensor data reception to Maritime Forces afloat (Aircraft Carrier, Nuclear Power (CVN), Amphibious Assault	LOS/BLOS multi-ISR payload reception 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).	

Performance Characteristics					
Development APB Change 2 Objective	**Current APB Production Objective/Threshold**		**Demonstrated Performance (include Date of Demonstration)**	**Current Estimate/Actual**	**Deviation**
		Ship, General Purpose (LHA) /LHD))	(03/14/2016)		
Net Ready					
IAW CJCSI 6212.01D	IAW CJCSI 6212.01D	IAW CJCSI 6212.01D	TBD (08/20/2025)	IAW CJCSI 5123-01G, CJCSI 3170.01I and the JCIDS Manual.	
Operational Availability					
>=0.9	>=0.9	>=0.7 at IOT&E >=0 8 at IOC plus two years	TBD (08/20/2025)	>=0.86	

Performance Notes:
The Capability Description Document (CDD) is being updated. Pursuing CDD change via Joint Requirements Oversight Council, providing Effective Time on Station (ETOS) relief.

Requirements Source: CDD in lieu of CPD dated August 2, 2016

Acronyms and Abbreviations
BLOS - Beyond Line of Sight
CJCSI - Chairman of the Joint Chiefs of Staff Instruction
CVN - Aircraft Carrier Nuclear
ETOS - Effective Time On Station
FOB - Forward Operating Base
hrs - hours
IAW - In Accordance With
IOT&E - Initial Operational Test & Evaluation
ISR - Intelligence, Surveillance, and Reconnaissance
JCIDS - Joint Capabilities Integration Development System
LHA - Amphibious Assault Ship (General Purpose)
LHD - Amphibious Assault Ship (Multi Purpose)
LOI - Level of Interoperability
LOS - Line of Sight

MCS - Mission Control System
MOB - Main Operating Base
nm - nautical miles
UA - Unmanned Aircraft

Acquisition Budget Estimate

Total Acquisition Cost

Category	Base Year	Development APB (2/7/2009) Objective (BY$)	APB Production (Current) (12/20/2016) Objective (BY$)	APB Production (Current) (12/20/2016) Threshold (BY$)	Budget Estimate PB 2023 BY$	Budget Estimate PB 2023 TY$	Deviation
RDT&E	2016	3,370.50	5,383.50	5,921.90	5,839.24	5,907.61	8.47%
Procurement	2016	10,002.48	9,357.50	10,293.30	9,584.01	12,241.92	2.42%
MILCON	2016	410.2	323.30	355.60	328.41	357.85	1.58%
Acq. O&M	2016	-	-	-	-	-	N/A
Total		13,783.40	15,064.30	16,570.80	15,751.66	18,507.38	
PAUC	2016	196.91	215.20	236.73	225.02	264.39	4.56%
APUC	2016	153.88	141.78	155.96	147.45	188.34	4.00%

Total End Item Quantity

Quantity Category	Current APB Quantity	Current Estimate Quantity
Development	4	5
Procurement	66	65

Budget Notes:

Budget Reflects PB 2023 MDAP Program of Record Controls

Procurement TY$M: Increase in costs due to FY 2023 production restart and FY 2025-2027 production pause that resulted in the stretch of USN aircraft buys outside the FYDP.

Procurement TY$M: Increase to Initial Spares for Post-MSD engine sparing requirements

Quantity Notes:

The program continues to collaborate with the Joint Staff regarding follow-on validation of program requirements.

Risk and Sensitivity Analysis

Risks and Sensitivity Analysis	
Current Procurement Cost (December 2021)	
1.	As a result of the current production pause, the FY23 unit costs include loss of learning and non-recurring costs to address supplier and DMS impacts
Current Procurement Cost (December 2019)	
1.	The RDT&E cost breach is caused by the movement of the IOC from 3Q FY2021 to 4Q FY 2022. The change to IOC required a re-phasing of funding across the FYDP to accommodate developmental changes required to correct baseline performance deficiencies for co-site and electromagnetic interference as well as complete integration of Multi-INT sensors and architecture. These adjustments also resulted in changes in the test schedule and added funding in FY 2026 that was not reflected in the previous Selected Acquisition Report. Additionally, the MQ-4C Triton Modernization Program Element 0305421N includes $142.4M of non-MDAP funding that is currently budgeted in the MDAP Project Unit.
Current Baseline Estimate (December 2016)	
1.	The Program is tracking within the APB parameters.
Original Baseline Estimate (February 2009)	
1.	At Milestone C, additional Functional Capability (IFC) 4 Multiple Intelligence (Multi-INT) capability was incorporated into the program baseline.
Revised Original Estimate (N/A)	
None	
Admin Baseline Estimate (Month YYYY)	
1.	None

Unit Cost

Current Baseline Compared with Current Estimate

Category ($M)	Current APB	Current Estimate	% Change	NMC Breach
PAUC				
Cost	15,064.30	15,751.66	4.56%	No
Quantity	70	70	N/A	N/A
Unit Cost	215.20	225.02	4.56%	No
APUC				
Cost	9,357.50	9,584.01	2.42%	No
Quantity	66	65	-1	-1
Unit Cost	141.78	147.45	4.00%	No

Original Baseline Compared with Current Estimate

Category ($M)	Original APB	Current Estimate	% Change	NMC Breach
PAUC				
Cost	13,783.40	15,751.66	14.28%	No
Quantity	70	70	N/A	N/A
Unit Cost	196.91	225.02	14.28%	No
APUC				
Cost	10,002.48	9,584.01	-4.18%	No
Quantity	65	65	N/A	N/A
Unit Cost	153.88	147.45	-4.18%	No

Unit Cost Notes:
The program continues to collaborate with the Joint Staff regarding follow-on validation of program requirements.

Contracts

Contract Data ($TYM)		
Contract Number	N00019-17-C-0018	
Effort Number	N/A	
Modification Number	Latest – P00036 - 11/23/2021	
Award Date	12/28/2017	
Definitization Date	5/24/2019	
Order Number	N/A	
CAGE Code/CAGE Legal Name	78022/Northrop Grumman Systems Corporation	
Contract Title	MQ-4C LRIP Lot 3 Production	
Contract Address	17066 Goldentop Road, San Diego, California 92127-2412	
Contracts/Effort Price, Quantity, and Performance ($M)		
Initial Target Price $303.1	Current Target Price $357.1	
Initial Ceiling Price $314.1	Current Ceiling Price $370.1	
Contract's EAC $284.8	PM's EAC $282.1	
Initial Quantity 3 A/C	Current Quantity 3A/C	Delivered Quantity 0 A/C
BAC $272.3	BCWP $239.0	ACWP $240.7
BCWS $255.9	Cost Variance $(1.7)	Schedule Variance $(16.9)

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) inline ECPs and IFC-4 install harness kits. Contract includes only A/C. Data is from the most recent reporting period with deliverables: September 2021. The contract is currently in an EVM reporting pause, or "blackout", which will be returning with the delivery of January 2022 data in February.

Cost Variance:
The favorable net change in the cost variance is due to Production (PROD) IPT respreads hitting the production supervision accounts in recent consecutive months.

Schedule Variance:
The unfavorable net change in the cumulative schedule variance is driven by the current baseline production schedule being planned to the 12.0 schedule while the team continues to work to the 19.1 schedule. The current blackout is intended to re-baseline the contract to the 19.1 schedule and correct this difference.

Contract Data ($TYM)		
Contract Number	N00019-18-C-1028	
Effort Number	N/A	
Modification Number	Latest – P00027 - 1/12/2022	
Award Date	05/16/2018	
Definitization Date	12/20/2019	
Order Number	N/A	
CAGE Code/CAGE Legal Name	78022/Northrop Grumman Systems Corporation	
Contract Title	MQ-4C LRIP Lot 4 Production	
Contract Address	17066 Goldentop Road, San Diego, California 92127-2412	
Contracts/Effort Price, Quantity, and Performance ($M)		
Initial Target Price $344.3	Current Target Price $355.7	
Initial Ceiling Price $353.5	Current Ceiling Price $365.2	
Contract's EAC $320.3	PM's EAC $301.7	
Initial Quantity 3 A/C	Current Quantity 3 A/C	Delivered Quantity 0
BAC $309.7	BCWP $233.8	ACWP $241.0
BCWS $238.7	Cost Variance $(7.2)	Schedule Variance $(4.9)

Contract Notes:
The difference between the Initial Contract Price Target and the Current Contract Price Target is due to additional IFC4.0 Engineering Change Proposal Modification (ECP) contract modifications.
Contract includes three A/C, one Main Operating Base (MOB) and one Forward Operating Base (FOB).
Data is from the most recent reporting period with deliverables: December 2021.

Cost Variance:
The unfavorable net change in the cost variance is due to Palmdale added job effort & time to attain IFC4 configuration under Production (PROD), L3 WACO high value critical material (HVCM) and L3 WCCS HVCM material pricing under Mission Systems (MS) and more support required to manage IFC 4.0 configuration inline requirements across supply base and material placement per manufacturing schedule under Global Supply Chain (GSC).

Schedule Variance:
The unfavorable net change in the cumulative schedule variance is primarily driven by 23P MS MFAS delay in Ringlock material and increased material grouped on the program for the Power Converter Assembly which is resulting in decreased performance, as well as 27A Production labor (B16 CC1400 and B17 CC1600) and material (Tooling CK Technologies (CKT) Test Kit and General Procurement).

Contract Data ($TYM)		
Contract Number	N00019-19-C-0008	
Effort Number	N/A	
Modification Number	Latest – P00023 - 12/07/2021	
Award Date	05/29/2019	
Definitization Date	12/21/2019	
Order Number	N/A	
CAGE Code/CAGE Legal Name	78022/Northrop Grumman Systems Corporation	
Contract Title	MQ-4C LRIP Lot 5 Production	
Contract Address	17066 Goldentop Road, San Diego, California 92127-2412	
Contracts/Effort Price, Quantity, and Performance ($M)		
Initial Target Price $237.6	Current Target Price $652.6	
Initial Ceiling Price $243.8	Current Ceiling Price $669.7	
Contract's EAC $569.0	PM's EAC $568.3	
Initial Quantity 3 A/C	Current Quantity 6 A/C	Delivered Quantity 0
BAC $553.2	BCWP $173.1	ACWP $168.6
BCWS $177.2	Cost Variance $4.5	Schedule Variance $(4.1)

Contract Notes:
The difference between the Initial Contract Price Target and the Current Contract Price Target is mostly due to evolving AUS requirements one FY2021 Congressional Plus-up A/C. Additional factors include IFC4.0 ECP contract modifications.

Contract includes three domestic aircraft, three Australia aircraft, one domestic MOB, two AUS MOBs, and one AUS FOB. Data is from the most recent reporting period with deliverables: December 2021.

Cost Variance:
The unfavorable net change in the cost variance is due to L3 WCC's definitized Purchase Order being lower than the original budgeted value for AUS MOB-1, AUS MOB-2, and AUS FOB L2 WCCS Hardware.

Schedule Variance:
The unfavorable net change in the cumulative schedule variance is primarily driven by the pending negotiations with NGMS Baltimore that set the current baseline to a now obsolete expenditure profile. The program is to be re-baselined to align with the Baltimore Northrop Grumman Mission Systems Integrated Program Management Report (NGMS IPMR) data when the re-plan is complete.

Contract Data ($TYM)		
Contract Number	N00019-15-C-0002	
Effort Number	N/A	
Modification Number	Latest – P00058 - 11/02/2021	
Award Date	09/30/2016	
Definitization Date	05/16/2017	
Order Number	N/A	
CAGE Code/CAGE Legal Name	78022/Northrop Grumman Systems Corporation	
Contract Title	MQ-4C LRIP Lot 2 CLINs	
Contract Address	17066 Goldentop Road, San Diego, California 92127-2412	
Contracts/Effort Price, Quantity, and Performance ($M)		
Initial Target Price $353.3	Current Target Price $366	
Initial Ceiling Price $365.9	Current Ceiling Price $381.1	
Contract's EAC $315.9	PM's EAC $321.1	
Initial Quantity 3 A/C	Current Quantity 3 A/C	Delivered Quantity 2 A/C
BAC $321.1	BCWP $278.6	ACWP $275.4
BCWS $284.9	Cost Variance $4.3	Schedule Variance $(5.2)

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. A/C 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 4.0 retrofit. B12 is still on the production line, being out fitted with Executive Function Command (EFC) 4.0 ECPs in-line. LRIP Lot 2 also included one MOB and one FOB. Data is from the most recent reporting period with deliverables: December 2021.

Cost Variance:
The unfavorable net change in the cost variance is due to improved processes, rhythm, and tools across the LRIP 2 Business Management production portfolio.

Schedule Variance:
The unfavorable net change in the cumulative schedule variance is driven by the current baseline production schedule being planned to the 12.0 schedule while the team continues to work to the 19.1 schedule. An upcoming blackout is expected to occur in order to re-baseline the contract to the 19.1 schedule and correct this difference.

Contract Data ($TYM)		
Contract Number	N00019-21-C-0060	
Effort Number	N/A	
Modification Number	Latest - P00005 – 1/24/22	
Award Date	3/15/21	
Definitization Date	3/15/21	
Order Number	N/A	
CAGE Code/CAGE Legal Name	78022/Northrop Grumman Systems Corporation	
Contract Title	MQ-4C Sustaining Engineering Support	
Contract Address	17066 Goldentop Road, San Diego, California 92127-2412	
Contracts/Effort Price, Quantity, and Performance ($M)		
Initial Target Price - $82	Current Target Price - $82	
Initial Ceiling Price – N/A	Current Ceiling Price – N/A	
Contract's EAC $67.3	PM's EAC $71.0	
Initial Quantity N/A	Current Quantity N/A	Delivered Quantity N/A
BAC $71.0	BCWP $51.3	ACWP $47.0
BCWS $53.3	Cost Variance $4.4	Schedule Variance $1.9

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: December 2021.

Cost Variance:
The favorable net change in the cost variance is drive by underruns in the VMS IPT.

Schedule Variance:
Schedule variance reporting is not required for this contract.

Contract Data ($TYM)		
Contract Number	N00019-08-C-0023	
Effort Number	N/A	
Modification Number	Latest - P00216 – 1/11/22	
Award Date	7/13/16	
Definitization Date	7/13/16	
Order Number	N/A	
CAGE Code/CAGE Legal Name	78022/Northrop Grumman Systems Corporation	
Contract Title	MQ-4C Triton UAS SDD Contract FTA CLIN	
Contract Address	17066 Goldentop Road, San Diego, California 92127-2412	
Contracts/Effort Price, Quantity, and Performance ($M)		
Initial Target Price - $69.5	Current Target Price - $72.5	
Initial Ceiling Price – N/A	Current Ceiling Price – N/A	
Contract's EAC $87.7	PM's EAC $111.8	
Initial Quantity N/A	Current Quantity N/A	Delivered Quantity N/A
BAC $70.7	BCWP $49.4	ACWP $68.5
BCWS $59.6	Cost Variance $(19.0)	Schedule Variance $(10.1)

Contract Notes:
Fatigue Test Article Testing. Contract Line Item is Cost Only. Research, Development, Test and Engineering Funded. Data is from the most recent reporting period with deliverables: December 2021. Additional data Contract Data Requirements List (CDRLs), valued at $1.2M, were added since the initial ceiling was negotiated. Additionally Northrop Grumman overran costs in the amount of $1.8.

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

Schedule Variance:
The unfavorable net change in the cumulative schedule variance due to continued FY2021 funding limits and deliberate work slowdown on main landing gear, spoiler, & aileron tests.

Technologies and Systems Engineering

Significant Technical Risks

Significant Technical Risks	
Current Estimate (December 2021)	
1.	The program is not tracking any significant technical risks that would preclude a successful IOC.

Deliveries and Expenditures

Deliveries				
Delivered to Date	**Planned to Date**	**Actual to Date**	**Total Quantity**	**Percent Delivered**
Development	5	5	5	100.00%
Production	2	2	65	3.08%
Total Program Quantity Delivered	7	7	70	10.00%

Expended and Appropriated (TY $M)	
Total Acquisition Cost:	18507.4
Expended to Date:	8106.1
Percent Expended:	43.8%
Total Funding Years:	34
Years Appropriated:	19
Percent Years Appropriated:	55.88%
Appropriated to Date:	9389.0
Percent Appropriated:	50.73%

The above data is current as of April 18, 2022.

Deliveries and Expenditures Notes:
The total quantity of 70 includes 1 test asset, 1 stricken mishap aircraft (B6) and 68 fleet assets. The program continues to collaborate with the Joint Staff regarding follow-on validation of program requirements.

Low Rate Initial Production

Item	Initial LRIP Decision	Current Total LRIP
Approval Date	4/18/2002	9/22/2016
Approved Quantity	10	18
Reference	Milestone B ADM	Gate 6/Configuration Steering Board (CSB) ADM
Start Year	2013	2013
End Year	2015	2020

Rationale if Current Total LRIP Quantity exceeds 10% of the total Procurement quantities:
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. The increase to 18 LRIP aircraft was authorized due to a change of FRP to 4Q FY 2021. With the latest schedule update and production pause, FRP moves to 3Q FY 2030. It is anticipated that there will be at least two additional LRIP buys that will result in an LRIP quantity of 24. The program will require MDA approval if additional LRIP procurements are necessary.

Operating and Support Costs

Total Program O&S Cost Compared with Baseline

	Current APB Objective (BY$)	Current APB Threshold (BY$)	Current Estimate (BY$)	Current Estimate (TY$)	Deviation
Total O&S ($Millions)	14,806.70	16,287.40	14,806.70	20,551.10	0.0

O&S Cost Breakdown

Equation to translate Annual Cost to Total Cost
Total Aircraft O&S = Unitized cost * number of operational aircraft years ($14,806.7M = $32.862M * 450.572 aircraft years)

Annual O&S Costs (BY2016$ Million)	MQ-4C Triton Average Annual Cost Per Aircraft
Unit-Level Manpower	4.601
Unit Operations	1.764
Maintenance	19.093
Sustaining Support	1.697
Continued System Improvements	4.053
Indirect Support	1.654
Other	0.000
Total O&S	32.862

Cost Estimate Source: Current Estimate aligns with the Program's Milestone C CAPE ICE, dated December 20, 2016. The average monthly flight hour utilization rate is 256.2 flight hours/month/aircraft beginning at IOC, and the average annual flight hour utilization rate is 3,074.4 flight hours/year/aircraft. Primary Authorized Aircraft is 20, and these 20 aircraft are to be distributed equally across five orbits. The program is estimated to have a five year ramp up period, followed by a 20 year service period, followed by a four year ramp down period, and after accounting for the specific months of delivery and attrition, this results in 450.572 aircraft years. The predicted attrition rate of the Unmanned Aircraft is four per 100,000 flight hours. The quantity of aircraft to sustain is 68, comprised of three operationalized System Demonstration Test Article aircraft and 65 production aircraft. The program will not sustain the Fatigue Test Article (B4) and the Mishap aircraft (B6). Program is updating O&S estimate as part of the updated APB associated with the Program Deviation Report and Program Restructure.

O&S Cost Notes:

a. Disposal/Demilitarization Cost Estimate and Source of Estimate:
Date of Estimate: December 20, 2016
Source of Estimate: CAPE ICE
Disposal/Demilitarization Total Cost (BY 2016 $M): 17.5
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 is providing Interim Contractor Support as the organic infrastructure is being established during Early Operational

Capability in FY2020. The prime contractor continues to provide Interim Contractor Support as the organic infrastructure continues to be established prior to planned IOC in FY2023.

c. For Each Acquired System or System Variant:
    i. Quantity to Sustain: 68
    ii. First Operational Fiscal Year: FY2018
    iii. Final Operational Fiscal Year: FY2048
    iv. Unit Expected Service Life: 20.00 Years

d. 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 missions, different concept of operations, and different payloads; resulting in substantially different projected avionics repair costs (the next major O&S cost driver after the number of flight hours).