



Selected Acquisition Report (SAR)

RCS: DD-A&T(Q&A)823-373



MQ-4C Triton Unmanned Aircraft System (MQ-4C Triton)

As of FY 2017 President's Budget

Defense Acquisition Management
Information Retrieval
(DAMIR)

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Common Acronyms and Abbreviations for MDAP Programs

Acq O&M - Acquisition-Related Operations and Maintenance
ACAT - Acquisition Category
ADM - Acquisition Decision Memorandum
APB - Acquisition Program Baseline
APPN - Appropriation
APUC - Average Procurement Unit Cost
\$B - Billions of Dollars
BA - Budget Authority/Budget Activity
Blk - Block
BY - Base Year
CAPE - Cost Assessment and Program Evaluation
CARD - Cost Analysis Requirements Description
CDD - Capability Development Document
CLIN - Contract Line Item Number
CPD - Capability Production Document
CY - Calendar Year
DAB - Defense Acquisition Board
DAE - Defense Acquisition Executive
DAMIR - Defense Acquisition Management Information Retrieval
DoD - Department of Defense
DSN - Defense Switched Network
EMD - Engineering and Manufacturing Development
EVM - Earned Value Management
FOC - Full Operational Capability
FMS - Foreign Military Sales
FRP - Full Rate Production
FY - Fiscal Year
FYDP - Future Years Defense Program
ICE - Independent Cost Estimate
IOC - Initial Operational Capability
Inc - Increment
JROC - Joint Requirements Oversight Council
\$K - Thousands of Dollars
KPP - Key Performance Parameter
LRIP - Low Rate Initial Production
\$M - Millions of Dollars
MDA - Milestone Decision Authority
MDAP - Major Defense Acquisition Program
MILCON - Military Construction
N/A - Not Applicable
O&M - Operations and Maintenance
ORD - Operational Requirements Document
OSD - Office of the Secretary of Defense
O&S - Operating and Support
PAUC - Program Acquisition Unit Cost

PB - President's Budget
PE - Program Element
PEO - Program Executive Officer
PM - Program Manager
POE - Program Office Estimate
RDT&E - Research, Development, Test, and Evaluation
SAR - Selected Acquisition Report
SCP - Service Cost Position
TBD - To Be Determined
TY - Then Year
UCR - Unit Cost Reporting
U.S. - United States
USD(AT&L) - Under Secretary of Defense (Acquisition, Technology and Logistics)

Program Information

Program Name

MQ-4C Triton Unmanned Aircraft System (MQ-4C Triton)

DoD Component

Navy

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Date Assigned: December 18, 2014

References

SAR Baseline (Development Estimate)

Defense Acquisition Executive (DAE) Approved Acquisition Program Baseline (APB) dated February 7, 2009

Approved APB

Defense Acquisition Executive (DAE) Approved Acquisition Program Baseline (APB) dated July 7, 2014

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 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

During this reporting period, the MQ-4C Triton program initiated sensor flight testing and completed development of Integrated Functional Capability (IFC) 2 software. The program marked the first use of the Main Operating Base Mission Control System installed at the test hangar at Naval Air Station Patuxent River, Maryland. The system completed the first phase of anechoic chamber testing and wrapped up the year with conduct of an Operational Assessment, which consisted of six planned flight events (totaling approximately 60 flight hours, in addition to ground and simulator events) at Patuxent River, MD. IFC 3 software, which will serve as the build for Operational Evaluation and for IOC, is now installed at the MQ-4C Triton Systems Center at the Northrop Grumman Facility in Rancho Bernardo, CA, and will undergo a full year of integration and test in CY 2016. The MQ-4C Triton FMS team implemented an FMS technical services case with the German Federal Ministry of Defense to support the collaborative development of an Airworthiness Qualification Plan.

Milestone C preparations are underway in support of a FY 2016 LRIP decision. An Executive Production Readiness Review was conducted June 23-24, 2015. Production of the System Demonstration Test Article aircraft continued in 2015. An Advanced Acquisition Contract was awarded February 26, 2015 for long lead material in support of LRIP Lot 1.

The program is expected to be fully resourced within the FYDP at Milestone C. Funding associated with phased modifications to update sensor and system performance, including upgrades to the MQ-4C Triton's Multiple Intelligence (Multi-INT) capabilities in support of the Chief of Naval Operations N2/N6 Intelligence, Surveillance, Reconnaissance and Targeting transition plan continues to be omitted from this report. Multi-INT funding will be reflected in the Milestone C APB and subsequent SAR. A separate PE was established for Multi-INT development to satisfy Congressional direction for increased transparency of MQ-4C Triton's modernization funding.

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

Threshold Breaches

APB Breaches

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

Nunn-McCurdy Breaches

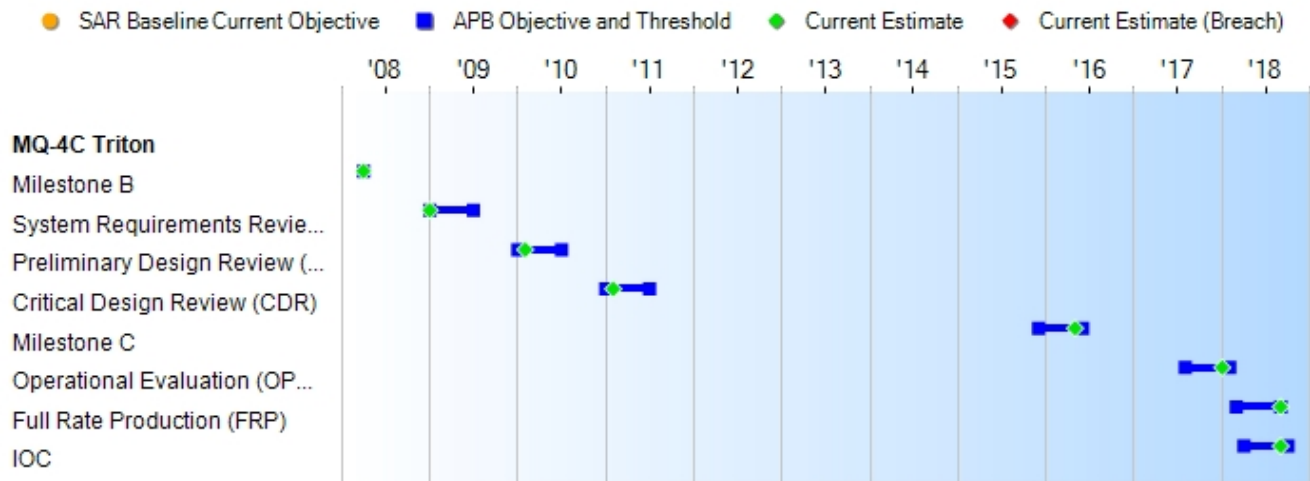
Current UCR Baseline

PAUC	None
APUC	None

Original UCR Baseline

PAUC	None
APUC	None

Schedule



Schedule Events					
Events	SAR Baseline Development Estimate	Current APB Development Objective/Threshold		Current Estimate	
Milestone B	Apr 2008	Apr 2008	Apr 2008	Apr 2008	
System Requirements Review (SRR)	Jan 2009	Jan 2009	Jul 2009	Jan 2009	
Preliminary Design Review (PDR)	Jan 2010	Jan 2010	Jul 2010	Feb 2010	
Critical Design Review (CDR)	Jan 2011	Jan 2011	Jul 2011	Feb 2011	
Milestone C	May 2013	Dec 2015	Jun 2016	May 2016	(Ch-1)
Operational Evaluation (OPEVAL) Start	Jan 2015	Aug 2017	Feb 2018	Jan 2018	(Ch-1)
Full Rate Production (FRP)	Dec 2015	Mar 2018	Sep 2018	Sep 2018	(Ch-1)
IOC	Dec 2015	Apr 2018	Oct 2018	Sep 2018	(Ch-1)

Change Explanations

(Ch-1) The current estimate updates for Milestone C, OPEVAL, FRP, and IOC are a reflection of adjustments made to align with the latest program profile: Milestone C updated from December 2015 to May 2016, OPEVAL updated from August 2017 to January 2018, FRP updated from March 2018 to September 2018, and IOC updated from April 2018 to September 2018.

Performance

Performance Characteristics				
SAR Baseline Development Estimate	Current APB Development Objective/Threshold	Demonstrated Performance	Current Estimate	
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 / 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 $\geq 80\%$	TBD	On station 24 hrs a day / 7 days a week for 7 consecutive days with an ETOS of $\geq 88\%$ at a mission radius of 2,000 nm
Level of Interoperability 1-5				
BLOS and LOS from MOB/ FOB (Land Based) 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 4 and 5)	BLOS and LOS from MOB (Land Based) MCS
UA Mission Radius				
$\geq 3,000$ nm	$\geq 3,000$ nm	$\geq 2,000$ nm	TBD	$\geq 2,000$ nm
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 (CVN, LHA/LHD)	TBD	LOS, ISR payload sensor data reception to Maritime Forces afloat (CVN, LHA/LHD)
Net Ready				
IAW CJCSI 6212.01D	IAW CJCSI 6212.01D	IAW CJCSI 6212.01D	TBD	IAW CJCSI 6212.01D
Operational Availability				
≥ 0.9	≥ 0.9	≥ 0.7 at IOT&E ≥ 0.8 at IOC plus two years	TBD	≥ 0.86

Classified Performance information is provided in the classified annex to this submission.

Requirements Reference

Capability Development Document (CDD) dated May 21, 2007.

Change Explanations

None

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
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

Track to Budget

RDT&E

Appn	BA	PE		
Navy	1319	07	0305205N	
	Project	Name		
	4020		MQ-4C Triton	(Shared) (Sunk)
Navy	1319	07	0305220N	
	Project	Name		
	4020		MQ-4C Triton	

Notes

RDT&E funding totaling \$681.2M (TY) in FY 2015 - FY 2021 funded in PE 0305421N associated with phased modifications to update sensor and system performance, including upgrades to the MQ-4C Triton's Multiple Intelligence (Multi-INT) capabilities in support of the Chief of Naval Operations N2/N6 Intelligence, Surveillance, Reconnaissance and Targeting transition plan, continues to be omitted from this report and will be reflected in the Milestone C APB and subsequent SAR.

Procurement

Appn	BA	PE		
Navy	1506	04	0305220N	
	Line Item	Name		
	0442		BAMS UAS	
Navy	1506	06	0305220N	
	Line Item	Name		
	0605		BAMS UAS	(Shared)

Notes

Aircraft procurement funding totaling \$674.0M (TY) in FY 2018 - FY 2032 associated with phased modifications to update sensor and system performance, including upgrades to the MQ-4C Triton's Multi-INT capabilities in support of the CNOs N2/N6 Intelligence, Surveillance, Reconnaissance and Targeting transition plan, continues to be omitted from this report and will be reflected in the Milestone C APB and subsequent SAR.

MILCON

Appn	BA	PE		
Navy	1205	01	0203176N	
	Project	Name		
	00207655		BAMS Mission Control Complex	(Sunk)
Navy	1205	01	0212176N	
	Project	Name		
	00207662		BAMS Mission Control System	(Sunk)

Navy	1205	02	0212176N	
	Project	Name		
	00620240	BAMS Facility		
Navy	1205	01	0212176N	
	Project	Name		
	62995407	BAMS Aircraft and Maintenance Hangar		(Sunk)
	69232577	BAMS Forward Operating Base 3rd Fleet		
	69232593	BAMS Consolidated Maintenance Hangar		(Sunk)
	C1002960	BAMS Operational Facilities		(Sunk)
Navy	1205	01	0712876N	
	Project	Name		
	62995407	BAMS Triton Hangar and Operations Facility		(Sunk)
Navy	1205	01	0805976N	
	Project	Name		
	69232607	Triton Avionics and Fuel Systems Trainer		(Sunk)
Navy	1205	01	0815976N	
	Project	Name		
	00207153	BAMS UAS Operator Training Facility		(Sunk)
	41557625	BAMS Forward Operational and Maintenance Hangar		(Sunk)
	63042900	BAMS Maintenance Training Facility		(Sunk)
	C1002154	BAMS UAS Operator Training Facility		
Navy	1205	01	0816376N	
	Project	Name		
	0428A263	BAMS Test and Evaluation Facility		(Sunk)

Notes

Two new MILCON projects 69232607 and 62995407 were added to correctly align MILCON projects with program plans. No funds were expended under project 69232954.

Cost and Funding

Cost Summary

Total Acquisition Cost							
Appropriation	BY 2008 \$M			BY 2008 \$M	TY \$M		
	SAR Baseline Development Estimate	Current APB Development Objective/Threshold		Current Estimate	SAR Baseline Development Estimate	Current APB Development Objective	Current Estimate
RDT&E	2989.3	3586.8	3945.5	3582.8	3223.6	3885.8	3858.0
Procurement	8871.2	7589.9	8348.9	7660.9	11525.6	10315.0	10267.2
Flyaway	--	--	--	5852.8	--	--	7916.8
Recurring	--	--	--	5440.2	--	--	7386.6
Non Recurring	--	--	--	412.6	--	--	530.2
Support	--	--	--	1808.1	--	--	2350.4
Other Support	--	--	--	1521.8	--	--	2012.3
Initial Spares	--	--	--	286.3	--	--	338.1
MILCON	364.0	292.7	322.0	267.9	423.1	342.6	309.5
Acq O&M	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total	12224.5	11469.4	N/A	11511.6	15172.3	14543.4	14434.7

Current APB Cost Estimate Reference

Service Cost Position dated April 25, 2014

Confidence Level

Confidence Level of cost estimate for current APB: 50%

The current APB cost estimate assumes sufficient resources to execute the program under normal conditions; encountering average levels of technical, schedule, and programmatic risk and external interference. It is consistent with average resource expenditures based on historical actual cost data and represents a notional 50% confidence level when established.

Cost Notes

RDT&E funding totaling \$681.2M (TY) in FY 2015 - FY 2021 and Aircraft Procurement, Navy funding totaling \$674.0M (TY) in FY 2018 - FY 2032 associated with phased modifications to update sensor and system performance, including upgrades to the MQ-4C Triton's Multiple Intelligence capabilities in support of the Chief of Naval Operations N2/N6 Intelligence, Surveillance, Reconnaissance, and Targeting transition plan, continues to be omitted from this report. Funding values are based on PB 2017.

Total Quantity			
Quantity	SAR Baseline Development Estimate	Current APB Development	Current Estimate
RDT&E	5	4	4
Procurement	65	66	66
Total	70	70	70

Cost and Funding

Funding Summary

Appropriation Summary									
FY 2017 President's Budget / December 2015 SAR (TY\$ M)									
Appropriation	Prior	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	To Complete	Total
RDT&E	3508.1	227.1	111.7	9.0	2.1	0.0	0.0	0.0	3858.0
Procurement	67.7	723.6	579.1	637.2	651.7	670.5	702.9	6234.5	10267.2
MILCON	158.0	51.9	71.9	0.0	27.7	0.0	0.0	0.0	309.5
Acq O&M	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PB 2017 Total	3733.8	1002.6	762.7	646.2	681.5	670.5	702.9	6234.5	14434.7
PB 2016 Total	3766.0	981.9	768.9	690.3	688.6	660.2	762.1	6010.5	14328.5
Delta	-32.2	20.7	-6.2	-44.1	-7.1	10.3	-59.2	224.0	106.2

Quantity Summary										
FY 2017 President's Budget / December 2015 SAR (TY\$ M)										
Quantity	Undistributed	Prior	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	To Complete	Total
Development	4	0	0	0	0	0	0	0	0	4
Production	0	0	4	2	3	3	5	6	43	66
PB 2017 Total	4	0	4	2	3	3	5	6	43	70
PB 2016 Total	4	0	3	3	4	4	4	4	44	70
Delta	0	0	1	-1	-1	-1	1	2	-1	0

Cost and Funding

Annual Funding By Appropriation

Annual Funding							
1319 RDT&E Research, Development, Test, and Evaluation, Navy							
Fiscal Year	Quantity	TY \$M					
		End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program
2004	--	--	--	--	--	--	17.9
2005	--	--	--	--	--	--	39.3
2006	--	--	--	--	--	--	--
2007	--	--	--	--	--	--	26.2
2008	--	--	--	--	--	--	83.1
2009	--	--	--	--	--	--	420.4
2010	--	--	--	--	--	--	438.1
2011	--	--	--	--	--	--	525.6
2012	--	--	--	--	--	--	550.4
2013	--	--	--	--	--	--	612.7
2014	--	--	--	--	--	--	375.2
2015	--	--	--	--	--	--	419.2
2016	--	--	--	--	--	--	227.1
2017	--	--	--	--	--	--	111.7
2018	--	--	--	--	--	--	9.0
2019	--	--	--	--	--	--	2.1
Subtotal	4	--	--	--	--	--	3858.0

Annual Funding 1319 RDT&E Research, Development, Test, and Evaluation, Navy							
Fiscal Year	Quantity	BY 2008 \$M					
		End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program
2004	--	--	--	--	--	--	19.6
2005	--	--	--	--	--	--	41.8
2006	--	--	--	--	--	--	--
2007	--	--	--	--	--	--	26.4
2008	--	--	--	--	--	--	82.2
2009	--	--	--	--	--	--	410.7
2010	--	--	--	--	--	--	421.7
2011	--	--	--	--	--	--	494.1
2012	--	--	--	--	--	--	509.0
2013	--	--	--	--	--	--	560.7
2014	--	--	--	--	--	--	338.5
2015	--	--	--	--	--	--	373.5
2016	--	--	--	--	--	--	199.1
2017	--	--	--	--	--	--	96.2
2018	--	--	--	--	--	--	7.6
2019	--	--	--	--	--	--	1.7
Subtotal	4	--	--	--	--	--	3582.8

Annual Funding 1506 Procurement Aircraft Procurement, Navy								
Fiscal Year	Quantity	TY \$M						
		End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program	
2015	--	67.7	--	--	67.7	--	67.7	
2016	4	352.2	--	94.4	446.6	277.0	723.6	
2017	2	265.9	--	55.5	321.4	257.7	579.1	
2018	3	321.4	--	87.3	408.7	228.5	637.2	
2019	3	363.1	--	46.5	409.6	242.1	651.7	
2020	5	489.9	--	50.5	540.4	130.1	670.5	
2021	6	510.7	--	16.7	527.4	175.5	702.9	
2022	4	418.3	--	8.2	426.5	120.0	546.5	
2023	4	426.7	--	8.3	435.0	86.4	521.4	
2024	4	435.7	--	8.4	444.1	79.2	523.3	
2025	4	445.0	--	8.6	453.6	79.2	532.8	
2026	4	454.7	--	8.8	463.5	80.9	544.4	
2027	4	464.9	--	9.0	473.9	72.5	546.4	
2028	4	475.4	--	9.2	484.6	74.0	558.6	
2029	4	486.3	--	9.4	495.7	75.5	571.2	
2030	4	497.7	--	9.6	507.3	77.0	584.3	
2031	4	481.7	--	9.8	491.5	78.6	570.1	
2032	3	429.3	--	90.0	519.3	216.2	735.5	
Subtotal	66	7386.6	--	530.2	7916.8	2350.4	10267.2	

Annual Funding 1506 Procurement Aircraft Procurement, Navy								
Fiscal Year	Quantity	BY 2008 \$M						
		End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program	
2015	--	59.6	--	--	59.6	--	59.6	
2016	4	304.7	--	81.7	386.4	239.6	626.0	
2017	2	225.7	--	47.1	272.8	218.8	491.6	
2018	3	267.6	--	72.7	340.3	190.3	530.6	
2019	3	296.4	--	38.0	334.4	197.6	532.0	
2020	5	392.1	--	40.4	432.5	104.1	536.6	
2021	6	400.7	--	13.1	413.8	137.7	551.5	
2022	4	321.8	--	6.3	328.1	92.3	420.4	
2023	4	321.8	--	6.3	328.1	65.1	393.2	
2024	4	322.1	--	6.2	328.3	58.6	386.9	
2025	4	322.6	--	6.2	328.8	57.4	386.2	
2026	4	323.1	--	6.3	329.4	57.5	386.9	
2027	4	323.9	--	6.3	330.2	50.5	380.7	
2028	4	324.7	--	6.3	331.0	50.6	381.6	
2029	4	325.7	--	6.3	332.0	50.5	382.5	
2030	4	326.8	--	6.3	333.1	50.5	383.6	
2031	4	310.0	--	6.3	316.3	50.6	366.9	
2032	3	270.9	--	56.8	327.7	136.4	464.1	
Subtotal	66	5440.2	--	412.6	5852.8	1808.1	7660.9	

Cost Quantity Information 1506 Procurement Aircraft Procurement, Navy		
Fiscal Year	Quantity	End Item Recurring Flyaway (Aligned With Quantity) BY 2008 \$M
2015	--	--
2016	4	304.7
2017	2	225.7
2018	3	267.6
2019	3	296.4
2020	5	392.1
2021	6	400.7
2022	4	321.8
2023	4	321.8
2024	4	322.1
2025	4	322.6
2026	4	323.1
2027	4	323.9
2028	4	324.7
2029	4	325.7
2030	4	326.8
2031	4	310.0
2032	3	330.5
Subtotal	66	5440.2

Annual Funding 1205 MILCON Military Construction, Navy and Marine Corps		
Fiscal Year	TY \$M	
	Total Program	
2011		33.0
2012		4.5
2013		65.0
2014		55.5
2015		--
2016		51.9
2017		71.9
2018		--
2019		27.7
Subtotal		309.5

Annual Funding 1205 MILCON Military Construction, Navy and Marine Corps	
Fiscal Year	BY 2008 \$M
	Total Program
2011	30.4
2012	4.1
2013	58.1
2014	48.9
2015	--
2016	44.2
2017	60.0
2018	--
2019	22.2
Subtotal	267.9

Low Rate Initial Production

Item	Initial LRIP Decision	Current Total LRIP
Approval Date	4/18/2008	11/1/2011
Approved Quantity	10	10
Reference	Milestone B ADM	ADM
Start Year	2013	2013
End Year	2015	2017

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 April 18, 2008 Milestone B ADM approved the planning for the program's Milestone C LRIP decision and stipulated the quantity will not exceed ten unmanned aircraft systems and related ground control systems.

A subsequent ADM directed redesignation of the first lot of aircraft from LRIP Lot 1 to System Demonstration Test Articles (SDTAs), with LRIP Lot 1 to follow. The SDTA aircraft will validate critical KPPs in developmental test and serve as the test articles for Operational Evaluation (OPEVAL). These aircraft will receive hardware and software updates as required to make them production representative and will be transferred for operational use at the conclusion of OPEVAL. The result of redesignating this lot of aircraft is a net reduction in the quantity produced as LRIP. The program is authorized to procure ten LRIP aircraft but currently plans to procure six aircraft before proceeding to a FRP decision. The total number of vehicles delivered for operational use over the life of the program, and the funding source for each lot of aircraft, are unaffected by this decision.

Foreign Military Sales

Country	Date of Sale	Quantity	Total Cost \$M	Description
Germany	4/2/2015		2.0	Agreement number: GY-P-GPT is an active planning case which provides technical data on the MQ-4C Triton.
Australia	8/1/2013		5.0	Agreement number: AT-P-GTJ is an active planning case which provides technical data on the MQ-4C Triton.

Notes

The program office is currently executing two FMS technical services planning cases for information on the MQ-4C Triton with both Australia and Germany to help them determine if the MQ-4C Triton will meet their needs for a platform. Other interested foreign governments include Canada, Japan, Germany, Norway and the United Kingdom.

Nuclear Costs

None

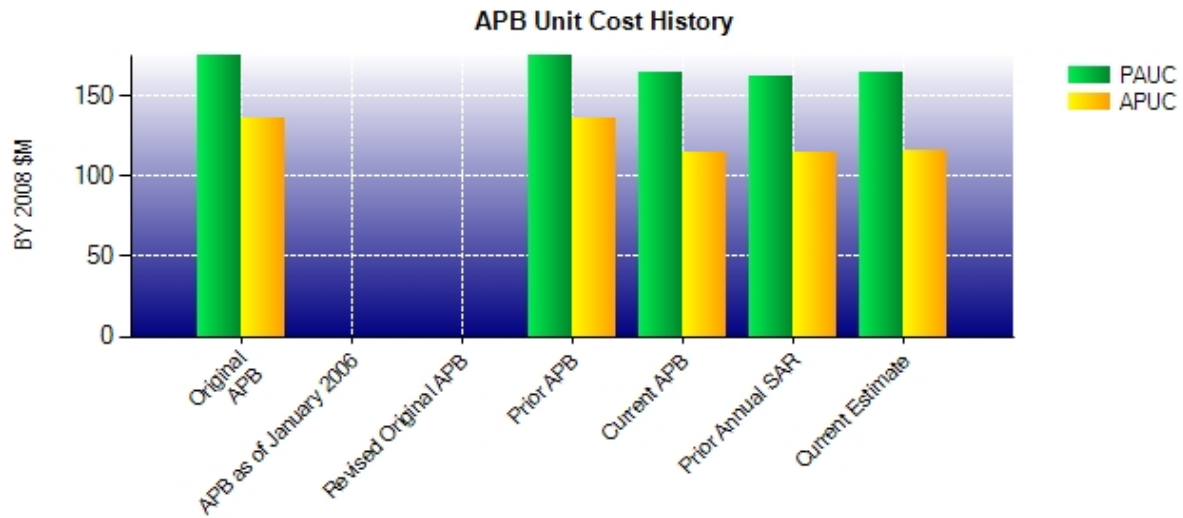
Unit Cost

Unit Cost Report

Item	BY 2008 \$M	BY 2008 \$M	% Change
	Current UCR Baseline (Jul 2014 APB)	Current Estimate (Dec 2015 SAR)	
Program Acquisition Unit Cost			
Cost	11469.4	11511.6	
Quantity	70	70	
Unit Cost	163.849	164.451	+0.37
Average Procurement Unit Cost			
Cost	7589.9	7660.9	
Quantity	66	66	
Unit Cost	114.998	116.074	+0.94

Item	BY 2008 \$M	BY 2008 \$M	% Change
	Original UCR Baseline (Feb 2009 APB)	Current Estimate (Dec 2015 SAR)	
Program Acquisition Unit Cost			
Cost	12224.5	11511.6	
Quantity	70	70	
Unit Cost	174.636	164.451	-5.83
Average Procurement Unit Cost			
Cost	8871.2	7660.9	
Quantity	65	66	
Unit Cost	136.480	116.074	-14.95

Unit Cost History



Item	Date	BY 2008 \$M		TY \$M	
		PAUC	APUC	PAUC	APUC
Original APB	Feb 2009	174.636	136.480	216.747	177.317
APB as of January 2006	N/A	N/A	N/A	N/A	N/A
Revised Original APB	N/A	N/A	N/A	N/A	N/A
Prior APB	Jan 2012	174.636	136.480	216.747	177.317
Current APB	Jul 2014	163.849	114.998	207.763	156.288
Prior Annual SAR	Dec 2014	162.361	115.080	204.693	155.253
Current Estimate	Dec 2015	164.451	116.074	206.210	155.564

SAR Unit Cost History

Current SAR Baseline to Current Estimate (TY \$M)									
Initial PAUC Development Estimate	Changes								PAUC Current Estimate
	Econ	Qty	Sch	Eng	Est	Oth	Spt	Total	
216.747	-7.233	1.732	19.107	-0.407	3.004	0.000	-26.740	-10.537	206.210

Current SAR Baseline to Current Estimate (TY \$M)									
Initial APUC Development Estimate	Changes								APUC Current Estimate
	Econ	Qty	Sch	Eng	Est	Oth	Spt	Total	
177.317	-6.618	-0.850	20.265	0.000	-5.680	0.000	-28.870	-21.753	155.564

SAR Baseline History				
Item	SAR Planning Estimate	SAR Development Estimate	SAR Production Estimate	Current Estimate
Milestone A	N/A	N/A	N/A	N/A
Milestone B	N/A	Apr 2008	N/A	Apr 2008
Milestone C	N/A	May 2013	N/A	May 2016
IOC	N/A	Dec 2015	N/A	Sep 2018
Total Cost (TY \$M)	N/A	15172.3	N/A	14434.7
Total Quantity	N/A	70	N/A	70
PAUC	N/A	216.747	N/A	206.210

Cost Variance

Summary TY \$M				
Item	RDT&E	Procurement	MILCON	Total
SAR Baseline (Development Estimate)	3223.6	11525.6	423.1	15172.3
Previous Changes				
Economic	-57.5	-350.8	-2.8	-411.1
Quantity	--	+121.2	--	+121.2
Schedule	--	+1348.6	--	+1348.6
Engineering	+22.3	--	--	+22.3
Estimating	+550.7	-954.1	-111.2	-514.6
Other	--	--	--	--
Support	+33.6	-1443.8	--	-1410.2
Subtotal	+549.1	-1278.9	-114.0	-843.8
Current Changes				
Economic	-7.4	-86.0	-1.8	-95.2
Quantity	--	--	--	--
Schedule	--	-11.1	--	-11.1
Engineering	-50.8	--	--	-50.8
Estimating	+143.5	+579.2	+2.2	+724.9
Other	--	--	--	--
Support	--	-461.6	--	-461.6
Subtotal	+85.3	+20.5	+0.4	+106.2
Total Changes	+634.4	-1258.4	-113.6	-737.6
CE - Cost Variance	3858.0	10267.2	309.5	14434.7
CE - Cost & Funding	3858.0	10267.2	309.5	14434.7

Summary BY 2008 \$M				
Item	RDT&E	Procurement	MILCON	Total
SAR Baseline (Development Estimate)	2989.3	8871.2	364.0	12224.5
Previous Changes				
Economic	--	--	--	--
Quantity	--	+81.0	--	+81.0
Schedule	--	+588.6	--	+588.6
Engineering	+19.2	--	--	+19.2
Estimating	+464.4	-752.3	-97.9	-385.8
Other	--	--	--	--
Support	+31.0	-1193.2	--	-1162.2
Subtotal	+514.6	-1275.9	-97.9	-859.2
Current Changes				
Economic	--	--	--	--
Quantity	--	--	--	--
Schedule	--	+1.7	--	+1.7
Engineering	-43.1	--	--	-43.1
Estimating	+122.0	+435.9	+1.8	+559.7
Other	--	--	--	--
Support	--	-372.0	--	-372.0
Subtotal	+78.9	+65.6	+1.8	+146.3
Total Changes	+593.5	-1210.3	-96.1	-712.9
CE - Cost Variance	3582.8	7660.9	267.9	11511.6
CE - Cost & Funding	3582.8	7660.9	267.9	11511.6

Previous Estimate: December 2014

RDT&E	\$M	
Current Change Explanations	Base Year	Then Year
Revised escalation indices. (Economic)	N/A	-7.4
Adjustment for current and prior escalation. (Estimating)	+6.7	+7.4
Revised estimate to align with the current approved program baseline. (Estimating)	+115.3	+136.1
Revised estimate to align work scope not included in the baseline MQ-4C Triton APB to the Modernization PE. (Engineering)	-43.1	-50.8
RDT&E Subtotal	+78.9	+85.3

Procurement	\$M	
Current Change Explanations	Base Year	Then Year
Revised escalation indices. (Economic)	N/A	-86.0
Adjustment for current and prior escalation. (Estimating)	+2.9	+3.2
Acceleration of procurement buy profile (moved 1 Unmanned Aircraft (UA) from FY 2017 to FY 2016). (Schedule)	0.0	-17.6
Additional schedule variance (moved 1 UA from FY 2017 to FY 2016). (Schedule)	+1.7	+6.5
Realized savings based on providing Electro-Optical Infrared as Government Furnished Equipment. (Estimating)	-44.7	-60.8
Revised estimate for obsolescence methodology change from three years to annually. (Estimating)	+60.3	+78.4
Revised estimate for radar modification to Antenna Group Assembly to reduce future O&S costs. (Estimating)	+25.0	+30.0
Revised estimate for Triton major sub-contractors using actuals provided with the LRIP 1 Proposal. (Estimating)	+89.0	+123.7
Revised estimate for the MQ-4C Triton wing using actuals provided with the LRIP 1 Proposal. (Estimating)	+205.9	+278.7
Revised estimate for Northrop Grumman Corporation prime labor using actuals provided with the LRIP 1 Proposal. (Estimating)	+97.5	+126.0
Adjustment for current and prior escalation. (Support)	+2.3	+2.8
Decrease in Other Support for Production Engineering Support, organic depot planning, and organic depot stand-up. (Support)	-150.0	-183.1
Decrease in Initial Spares as a result of Congressional reduction in FY 2016 which shifted the initial spares account to a replenishment account increasing risk to aircraft availability during an interim period following IOC. (Support)	-224.3	-281.3
Procurement Subtotal	+65.6	+20.5

MILCON	\$M	
Current Change Explanations	Base Year	Then Year
Revised escalation indices. (Economic)	N/A	-1.8
Adjustment for current and prior escalation. (Estimating)	+0.9	+1.0
Revised estimate due to Navy-wide funding adjustments. (Estimating)	+0.9	+1.2
MILCON Subtotal	+1.8	+0.4

Contracts

General Notes

In previous years SARs (2011-2014) the System Development and Demonstration (SDD) and System Development Test Article (SDTA) contracts were reported as one effort under the same contract number. This year the program is reporting all CLINs on the SDD contract individually to increase transparency as each individual effort is over 40M TY\$.

Contract Identification

Appropriation: RDT&E
Contract Name: BAMS UAS SDD Contract
Contractor: Northrop Grumman Systems Corporation
Contractor Location: 17006 Goldentop Rd
 San Diego, CA 92150
Contract Number: N00019-08-C-0023
Contract Type: Cost Plus Incentive Fee (CPIF)
Award Date: April 22, 2008
Definitization Date: April 22, 2008

Contract Price							
Initial Contract Price (\$M)			Current Contract Price (\$M)			Estimated Price At Completion (\$M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
1164.0	N/A	2	1970.9	N/A	2	2666.1	2615.0

Target Price Change Explanation

The difference between the Initial Contract Price Target and the Current Contract Price Target is due to contract scope increases negotiated to satisfy United States Navy requirements.

Contract Variance		
Item	Cost Variance	Schedule Variance
Cumulative Variances To Date (1/29/2016)	-106.1	-38.0
Previous Cumulative Variances	-22.3	-51.2
Net Change	-83.8	+13.2

Cost and Schedule Variance Explanations

The unfavorable net change in the cost variance is due to continued greater than expected software defect corrections, increased and extended mission systems flight and ground test support at Patuxent River, MD, and test procedure maturity.

The favorable net change in the schedule variance is due to [See General Variance Explanation below]. There is not a favorable net change in schedule variance. There is an unfavorable net change in schedule variance.

General Contract Variance Explanation

Due to the break out of the SDTA and Air-to-Air Radar Sub-System (AARSS) CLINs, the contract variance section was manually calculated. This issue will be corrected in the 2016 SAR submission:

Cumulative Variances To Date (01/26/2016):	Cost: -106.1/Schedule: -38.0
Previous Cumulative Variances:	Cost: -24.9/Schedule: -28.2
Net Change:	Cost: -81.2/Schedule: -9.8

Schedule Variance Explanations

The unfavorable net change in the schedule variance is due to Integrated Functional Capability-3.1 schedule delays impacting software configuration, coupon testing and fatigue test analysis efforts being delayed, and flight test delays.

Contract Identification

Appropriation: RDT&E
Contract Name: BAMS UAS SDD Contract SDTA CLIN
Contractor: Northrop Grumman Systems Corporation
Contractor Location: 17006 Goldentop Rd
 San Diego, CA 92150
Contract Number: N00019-08-C-0023/1
Contract Type: Cost Plus Incentive Fee (CPIF)
Award Date: November 04, 2011
Definitization Date: November 04, 2011

Contract Price							
Initial Contract Price (\$M)			Current Contract Price (\$M)			Estimated Price At Completion (\$M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
280.3	N/A	3	283.4	N/A	2	241.6	292.6

Target Price Change Explanation

The difference between the Initial Contract Price Target and the Current Contract Price Target is due to contract scope increases negotiated to satisfy United States Navy requirements.

Contract Variance		
Item	Cost Variance	Schedule Variance
Cumulative Variances To Date (1/29/2016)	-1.2	-30.3
Previous Cumulative Variances	--	--
Net Change	-1.2	-30.3

Cost and Schedule Variance Explanations

The unfavorable cumulative cost variance is due to the Air Vehicle team's effort to assist with the repair of the wings.

The unfavorable cumulative schedule variance is due to wing quality issues at Triumph that are delaying the wing deliveries.

Notes

This is the first time this contract is being reported.

Due to the break out of the System Demonstration Test Article and Air-to-Air Radar Sub-System (AARSS) CLINs the contract variance section was manually calculated, this issue will be corrected in the 2016 SAR submission:

Cumulative Variances To Date (1/29/2016): Cost: -1.2/Schedule: -30.3
 Previous Cumulative Variances: Cost: +2.7/Schedule: -22.9
 Net Change: Cost: -3.9/Schedule: -7.4

Contract Identification

Appropriation: RDT&E
Contract Name: BAMS UAS SDD Contract AARSS CLIN
Contractor: Northrop Grumman Systems Corporation
Contractor Location: 17066 Goldentop Rd
 San Diego, CA 92150
Contract Number: N00019-08-C-0023/402
Contract Type: Cost (CR)
Award Date: June 16, 2015
Definitization Date: June 16, 2015

Contract Price							
Initial Contract Price (\$M)			Current Contract Price (\$M)			Estimated Price At Completion (\$M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
39.1	N/A	0	39.1	N/A	0	38.9	39.1

Contract Variance		
Item	Cost Variance	Schedule Variance
Cumulative Variances To Date (1/29/2016)	-0.9	-0.5
Previous Cumulative Variances	--	--
Net Change	-0.9	-0.5

Cost and Schedule Variance Explanations

The unfavorable cumulative cost variance is due to the antenna development, radar build, and integration work being completed with less than planned amount of resources and also due to the work being lower than expected cost.

The unfavorable cumulative schedule variance is due to the Thin Tile Subarray Assembly development work experiencing delays.

Notes

This is the first time this contract is being reported.

A modification is anticipated that will increase the contract value above \$40M.

Deliveries and Expenditures

Deliveries				
Delivered to Date	Planned to Date	Actual to Date	Total Quantity	Percent Delivered
Development	2	2	4	50.00%
Production	0	0	66	0.00%
Total Program Quantity Delivered	2	2	70	2.86%

Expended and Appropriated (TY \$M)			
Total Acquisition Cost	14434.7	Years Appropriated	13
Expended to Date	3554.8	Percent Years Appropriated	44.83%
Percent Expended	24.63%	Appropriated to Date	4736.4
Total Funding Years	29	Percent Appropriated	32.81%

The above data is current as of March 02, 2016.

Operating and Support Cost

Cost Estimate Details

Date of Estimate:	April 09, 2014
Source of Estimate:	SCP
Quantity to Sustain:	68
Unit of Measure:	Aircraft
Service Life per Unit:	20.00 Years
Fiscal Years in Service:	FY 2018 - FY 2045

The average monthly flight hour utilization rate is 256.2 flight hours/month/aircraft, 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 four year ramp up period, followed by a 20 year service period, followed by a four year ramp down period which results in 456.832 aircraft years. The predicted attrition rate of this Unmanned Aircraft System is four per 100,000 flight hours. Two of the 70 aircraft will remain as test articles, resulting in a quantity to sustain of 68 aircraft.

Sustainment Strategy

The MQ-4C Sustainment Strategy focuses on total platform support to ensure compliance with operational requirements and metrics as defined by the Fleet via a Warfighter Performance Based Agreement. The Life Cycle Sustainment Strategy is being evaluated by a series of single element Business Case Analyses and studies to identify element support strategies that provide the greatest cost, benefit, performance and risk solutions for each element to comply with Naval Organizational, Intermediate, and Depot Level Maintenance Concepts. Maintenance support will be Organic.

Antecedent Information

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).

Cost Element	Annual O&S Costs BY2008 \$M	
	MQ-4C Triton Average Annual Cost Per Aircraft	No Antecedent (Antecedent) N/A
Unit-Level Manpower	3.558	0.000
Unit Operations	1.848	0.000
Maintenance	15.404	0.000
Sustaining Support	0.793	0.000
Continuing System Improvements	1.757	0.000
Indirect Support	1.337	0.000
Other	0.000	0.000
Total	24.697	--

Item	Total O&S Cost \$M			
	MQ-4C Triton		Current Estimate	No Antecedent (Antecedent)
	Current Development APB Objective/Threshold			
Base Year	11282.4	12410.6	11282.4	N/A
Then Year	17309.0	N/A	17309.0	0.0

Equation to Translate Annual Cost to Total Cost

Total Aircraft O&S = Unitized cost * number of operational aircraft years (\$11,282.4M = \$24.697M * 456.832 aircraft years)

O&S Cost Variance		
Category	BY 2008 \$M	Change Explanations
Prior SAR Total O&S Estimates - Dec 2014 SAR	11282.4	
Programmatic/Planning Factors	0.0	
Cost Estimating Methodology	0.0	
Cost Data Update	0.0	
Labor Rate	0.0	
Energy Rate	0.0	
Technical Input	0.0	
Other	0.0	
Total Changes	0.0	
Current Estimate	11282.4	

Disposal Estimate Details

Date of Estimate: April 09, 2014
Source of Estimate: SCP
Disposal/Demilitarization Total Cost (BY 2008 \$M): Total costs for disposal of all Aircraft are 15.6

Disposal of attrition aircraft is included in the Disposal estimate.