Selected Acquisition Report (SAR)

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

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

As of December 31, 2012

Defense Acquisition Management
Information Retrieval
(DAMIR)

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Program Information

Program Name

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

DoD Component

Navy

Responsible Office

Responsible Office

CAPT James Hoke
47561 Ranch Road
Bldg 4023
Naval Air Station Patuxent River, MD 20670
james.hoke@navy.mil

Phone 301-757-5832
Fax 301-757-9459
DSN Phone 757-5832
DSN Fax 757-9459
Date Assigned June 24, 2011

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 January 19, 2012

Mission and Description

The 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 (ISR) 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 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 with Specific Emitter Identification. 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

The MQ-4C Triton Unmanned Aircraft System (UAS) is an Acquisition Category (ACAT) ID program that entered System Development and Demonstration (SDD) based on a Milestone (MS) B Acquisition Decision Memorandum (ADM) issued on April 18, 2008.

The program conducted a successful System Requirements Review in January 2009, System Functional Review in June 2009, Integrated Baseline Review in July 2009, Preliminary Design Review in February 2010, Critical Design Review in February 2011, and Flight Readiness Review in March 2013. The MQ-4C Triton program also continues to pursue opportunities for joint efficiencies with the Air Force Global Hawk program.

Triton received approval from the Milestone Decision Authority to award the Cost Plus Award Fee option to the SDD contract for the System Demonstration Test Article (SDTA) lot of aircraft and associated ground stations. The November 1, 2011 ADM directed the Navy to rename this lot of aircraft from Low Rate Initial Production (LRIP) Lot 1 to SDTAs in keeping with their intended purpose, to finish system developmental test and to support Operational Evaluation (OPEVAL). Subsequent production lots have been renamed accordingly.

During this reporting period, the MQ-4C Triton UAS program entered integrated testing with receipt of the first SDD aircraft in June 2012. Formal ground and lab test events were conducted in preparation for first flight, with a successful low speed taxi conducted in December 2012. Multiple surrogate risk reduction flights were completed during this year on a Gulfstream testbed for the Multi Function Active Sensor radar. Assembly of the first SDTA aircraft began in November 2012.

This SAR reports that the MQ-4C Triton UAS program will breach the Acquisition Program Baseline cost threshold for Research, Development, Test and Evaluation (RDT&E) and the schedule thresholds for Milestone C, OPEVAL start, Full Rate Production, and Initial Operational Capability. These breaches are based on delays due to technical challenges associated with system integration and developmental testing, which delayed entry into flight test. These delays aligned with Navy initiatives to reprioritize the program's production funding in FY 2014.

This SAR documents only the program of record for baseline Intelligence Surveillance, and Reconnaissance capability; budget and expected development costs for planned Signals Intelligence capability are omitted pending requirements refinement and structuring of an integration effort.

While corrections to software during integration of subsystems are the primary reasons for a delay in the program's operational assessment and production decision, fixes have been implemented. There are no significant software-related issues with this program at this time.

Threshold Breaches

APB Breaches		
Schedule		☑
Performance		☐
Cost	RDT&E	☑
	Procurement	☐
	MILCON	☐
	Acq O&M	☐
O&S Cost		☐
Unit Cost	PAUC	☐
	APUC	☐

Nunn-McCurdy Breaches		
Current UCR Baseline		
	PAUC	None
	APUC	None
Original UCR Baseline		
	PAUC	None
	APUC	None

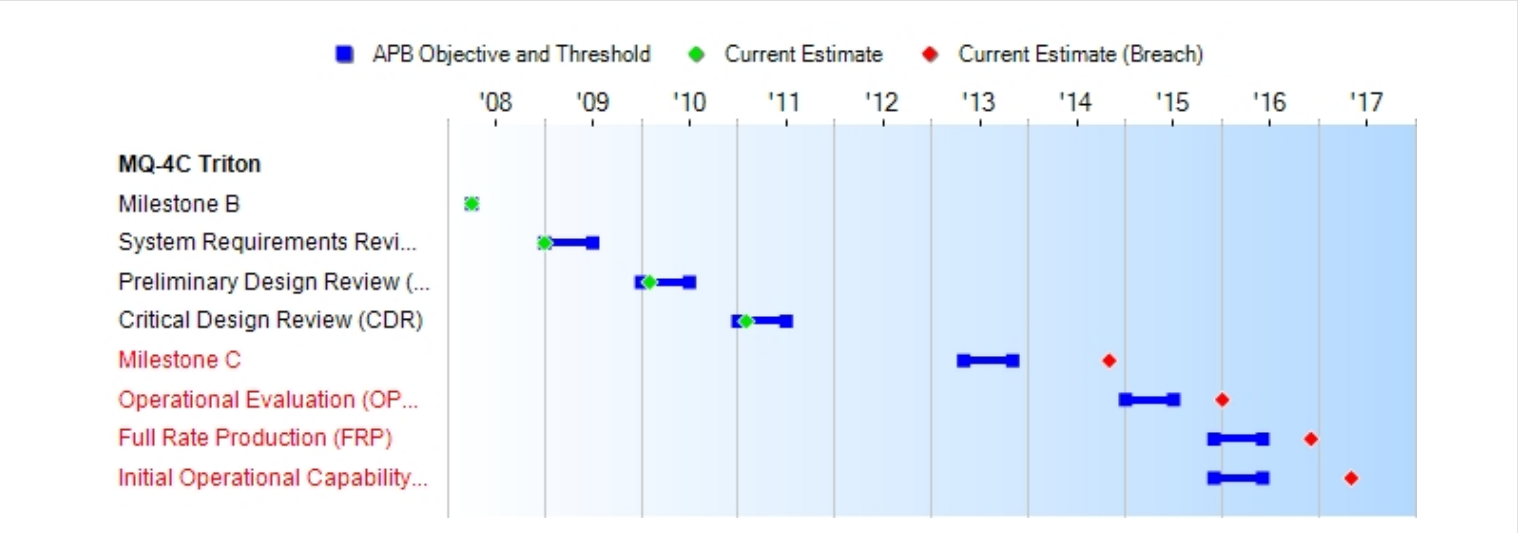
Explanation of Breach

The MQ-4C Triton UAS program will breach the Acquisition Program Baseline (APB) cost threshold for Research, Development, Test and Evaluation (RDT&E) and the schedule thresholds for Milestone (MS) C, Operational Evaluation (OPEVAL) start, Full Rate Production (FRP), and Initial Operational Capability (IOC). These cost and schedule breaches are based on delays due to technical challenges associated with system integration and developmental testing, which delayed entry into flight test. These delays aligned with Navy initiatives to reprioritize the program's production funding in the FY 2014 President's Budget. A Program Deviation Report has been submitted and a proposed APB revision is in development.

The current estimate for the MS C schedule parameter reflects the impact of delayed entry into production. Current estimates for the subsequent OPEVAL start, FRP, and IOC parameters have been aligned with the planned production and delivery schedule to support first orbit standup.

The RDT&E breach is based on cost growth due to technical challenges associated with system integration and developmental testing, which delayed entry into flight test.

Schedule



Milestones	SAR Baseline Dev Est	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	MAY 2013	NOV 2013	**NOV 2014**[1]	(Ch-1)
Operational Evaluation (OPEVAL) Start	JAN 2015	JAN 2015	JUL 2015	**JAN 2016**[1]	(Ch-2)
Full Rate Production (FRP)	DEC 2015	DEC 2015	JUN 2016	**DEC 2016**[1]	(Ch-3)
Initial Operational Capability (IOC)	DEC 2015	DEC 2015	JUN 2016	**MAY 2017**[1]	(Ch-4)

[1] *APB Breach*

Change Explanations

(Ch-1) Milestone (MS) C current estimate has been delayed 16 months from July 2013 to November 2014 due to delayed entry into flight test, and to align with planned entry into production.

(Ch-2) Operational Evaluation (OPEVAL) current estimate has been delayed 12 months from January 2015 to January 2016 to accomodate the full scope of the test program following delayed entry into flight test.

(Ch-3) Full Rate Production (FRP) current estimate has been delayed 12 months from December 2015 to December 2016 due to delayed entry into Low Rate Initial Production (LRIP) as part of FY 2014 President's Budget (PB), which delays the need for an FRP review as part of the orderly production flow.

(Ch-4) Initial Operational Capability (IOC) current estimate has been delayed 17 months from December 2015 to May 2017 due to delayed entry into LRIP as part of FY 2014 PB, which delays delivery of production units required to complete first orbit standup.

Performance

Characteristics	SAR Baseline Dev Est	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 >=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%	TBD	On station 24 hrs a day / 7 days a week for 7 consecutive days with an ETOS of >=88% at a mission radius of 2,000 nm (Ch-1)
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	TBD	BLOS and LOS from MOB (Land Based) MCS
UA Mission Radius	>=3,000 nm	>=3,000 nm	>=2,000 nm	TBD	>=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

Requirements Source: Capability Development Document (CDD) dated May 21, 2007

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
IOC - Initial Operational Capability
IOT&E - Initial Operational Test & Evaluation
ISR - Intelligence, Surveillance, and Reconnaissance
LHA - Amphibious Assault Ship (General Purpose)
LHD - Amphibious Assault Ship (Multi Purpose)
LOS - Line of Sight
MCS - Mission Control System
MOB - Main Operating Base
nm - nautical miles
TBD - To Be Determined
UA - Unmanned Aircraft

Change Explanations

(Ch-1) Persistent multi-sensor maritime Intelligence, Surveillance, and Reconnaissance (ISR) at mission radius Key Performance Parameter Effective Time On Station (ETOS) adjustment from 87% to 88% due to reduced aircraft weight.

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

Track To Budget

RDT&E				
APPN 1319	BA 07	PE 0305205N	(Navy)	
	Project 4020	BAMS UAS	(Shared)	(Sunk)
APPN 1319	BA 07	PE 0305220N	(Navy)	
	Project 4020	BAMS UAS	(Shared)	

Research, Development, Test and Evaluation (RDT&E) funding for MQ-4C Triton Signals Intelligence (SIGINT) capability is included in the FY 2014 President's Budget ($32.1M in FY 2015, $109.7M in FY 2016, $117.0M in FY 2017, and $124.3M in FY 2018), and the Department is examining acquisition alternatives to integrate and field this capability. Funding associated with SIGINT capability is not reported in this submission.

Procurement				
APPN 1506	BA 04	PE 0305220N	(Navy)	
	ICN 0442	BAMS UAS		
APPN 1506	BA 06	PE 0305220N	(Navy)	
	ICN 0605	BAMS UAS	(Shared)	

MILCON				
APPN 1205	BA 01	PE 0203176N	(Navy)	
	Project 00207655	BAMS Mission Control Complex	(Shared)	
APPN 1205	BA 01	PE 0212176N	(Navy)	
	Project 00207662	BAMS Mission Control System	(Shared)	
	Project 62995407	BAMS Aircraft and Maintenance Hangar	(Shared)	
	Project 69232593	BAMS Consolidated Maintenance Hangar	(Shared)	
	Project 69232594	BAMS Aircraft and Maintenance Hangar	(Shared)	
	Project C1002960	BAMS Operational Facilities	(Shared)	

APPN 1205	BA 01	PE 0815976N	(Navy)	
	Project 00207153	BAMS UAS Operator Training Facility	(Shared)	(Sunk)
	Project 41557625	BAMS Forward Operational and Maintenance Hangar	(Shared)	
	Project 63042900	BAMS Maintenance Training Facility	(Shared)	
	Project C1002154	BAMS UAS Operator Training Facility	(Shared)	
APPN 1205	BA 01	PE 0816376N	(Navy)	
	Project 0428A263	BAMS Test and Evaluation Facility	(Shared)	(Sunk)

Cost and Funding

Cost Summary

Total Acquisition Cost and Quantity

Appropriation	BY2008 $M			BY2008 $M	TY $M		
	SAR Baseline Dev Est	Current APB Development Objective/Threshold		Current Estimate	SAR Baseline Dev Est	Current APB Development Objective	Current Estimate
RDT&E	2989.3	2989.3	3288.2	**3292.2** [1]	3223.6	3223.6	3557.0
Procurement	8871.2	8871.2	9758.3	8678.5	11525.6	11525.6	11382.2
Flyaway	5497.9	--	--	5620.7	7124.5	--	7342.2
Recurring	5316.4	--	--	5362.6	6908.0	--	7011.9
Non Recurring	181.5	--	--	258.1	216.5	--	330.3
Support	3373.3	--	--	3057.8	4401.1	--	4040.0
Other Support	2328.4	--	--	2119.9	3023.9	--	2806.5
Initial Spares	1044.9	--	--	937.9	1377.2	--	1233.5
MILCON	364.0	364.0	400.4	282.7	423.1	423.1	329.0
Acq O&M	0.0	0.0	--	0.0	0.0	0.0	0.0
Total	12224.5	12224.5	N/A	12253.4	15172.3	15172.3	15268.2

[1] ***APB Breach***

Quantity	SAR Baseline Dev Est	Current APB Development	Current Estimate
RDT&E	5	5	5
Procurement	65	65	65
Total	70	70	70

The Research, Development, Test and Evaluation (RDT&E) total quantity of five is comprised of two engineering development models and three System Demonstration Test Article (SDTA) Unmanned Aircraft (UA).

Cost and Funding

Funding Summary

Appropriation and Quantity Summary
FY2014 President's Budget / December 2012 SAR (TY$ M)

Appropriation	Prior	FY2013	FY2014	FY2015	FY2016	FY2017	FY2018	To Complete	Total
RDT&E	2101.2	657.5	375.2	304.7	96.6	21.8	0.0	0.0	3557.0
Procurement	0.0	51.1	52.0	685.1	649.8	609.0	833.9	8501.3	11382.2
MILCON	37.5	70.9	79.2	74.1	31.5	35.8	0.0	0.0	329.0
Acq O&M	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PB 2014 Total	2138.7	779.5	506.4	1063.9	777.9	666.6	833.9	8501.3	15268.2
PB 2013 Total	2138.4	779.5	840.7	854.8	788.7	747.1	1031.5	7701.6	14882.3
Delta	0.3	0.0	-334.3	209.1	-10.8	-80.5	-197.6	799.7	385.9

Program funding and production quantities listed in this SAR are consistent with the FY 2014 President's Budget (PB). The FY 2014 PB did not reflect the enacted DoD appropriation for FY 2013, nor sequestration; it reflected the President's requested amounts for FY 2013.

Quantity	Undistributed	Prior	FY2013	FY2014	FY2015	FY2016	FY2017	FY2018	To Complete	Total
Development	5	0	0	0	0	0	0	0	0	5
Production	0	0	0	0	3	4	4	6	48	65
PB 2014 Total	5	0	0	0	3	4	4	6	48	70
PB 2013 Total	5	0	0	3	4	4	5	5	44	70
Delta	0	0	0	-3	-1	0	-1	1	4	0

Cost and Funding

Annual Funding By Appropriation

Annual Funding TY$
1319 | RDT&E | Research, Development, Test, and Evaluation, Navy

Fiscal Year	Quantity	End Item Recurring Flyaway TY $M	Non End Item Recurring Flyaway TY $M	Non Recurring Flyaway TY $M	Total Flyaway TY $M	Total Support TY $M	Total Program TY $M
2004	--	--	--	--	--	--	19.8
2005	--	--	--	--	--	--	39.3
2006	--	--	--	--	--	--	--
2007	--	--	--	--	--	--	26.2
2008	--	--	--	--	--	--	83.1
2009	--	--	--	--	--	--	420.4
2010	--	--	--	--	--	--	438.2
2011	--	--	--	--	--	--	525.6
2012	--	--	--	--	--	--	548.6
2013	--	--	--	--	--	--	657.5
2014	--	--	--	--	--	--	375.2
2015	--	--	--	--	--	--	304.7
2016	--	--	--	--	--	--	96.6
2017	--	--	--	--	--	--	21.8
Subtotal	**5**	**--**	**--**	**--**	**--**	**--**	**3557.0**

Annual Funding BY$
1319 | RDT&E | Research, Development, Test, and Evaluation, Navy

Fiscal Year	Quantity	End Item Recurring Flyaway BY 2008 $M	Non End Item Recurring Flyaway BY 2008 $M	Non Recurring Flyaway BY 2008 $M	Total Flyaway BY 2008 $M	Total Support BY 2008 $M	Total Program BY 2008 $M
2004	--	--	--	--	--	--	21.6
2005	--	--	--	--	--	--	41.8
2006	--	--	--	--	--	--	--
2007	--	--	--	--	--	--	26.4
2008	--	--	--	--	--	--	82.2
2009	--	--	--	--	--	--	410.7
2010	--	--	--	--	--	--	421.7
2011	--	--	--	--	--	--	492.9
2012	--	--	--	--	--	--	504.5
2013	--	--	--	--	--	--	593.1
2014	--	--	--	--	--	--	332.1
2015	--	--	--	--	--	--	264.7
2016	--	--	--	--	--	--	82.3
2017	--	--	--	--	--	--	18.2
Subtotal	**5**	**--**	**--**	**--**	**--**	**--**	**3292.2**

Annual Funding TY$
1506 | Procurement | Aircraft Procurement, Navy

Fiscal Year	Quantity	End Item Recurring Flyaway TY $M	Non End Item Recurring Flyaway TY $M	Non Recurring Flyaway TY $M	Total Flyaway TY $M	Total Support TY $M	Total Program TY $M
2013	--	51.1	--	--	51.1	--	51.1
2014	--	52.0	--	--	52.0	--	52.0
2015	3	368.6	--	42.2	410.8	274.3	685.1
2016	4	418.1	--	42.2	460.3	189.5	649.8
2017	4	425.6	--	37.7	463.3	145.7	609.0
2018	6	587.0	--	37.2	624.2	209.7	833.9
2019	6	628.2	--	81.0	709.2	448.9	1158.1
2020	6	601.1	--	--	601.1	336.1	937.2
2021	6	613.2	--	--	613.2	343.8	957.0
2022	6	646.1	--	--	646.1	370.9	1017.0
2023	6	639.6	--	--	639.6	340.1	979.7
2024	5	549.8	--	--	549.8	327.0	876.8
2025	5	599.2	--	--	599.2	353.6	952.8
2026	5	533.1	--	--	533.1	361.4	894.5
2027	3	299.2	--	90.0	389.2	339.0	728.2
Subtotal	**65**	**7011.9**	**--**	**330.3**	**7342.2**	**4040.0**	**11382.2**

Annual Funding BY$
1506 | Procurement | Aircraft Procurement, Navy

Fiscal Year	Quantity	End Item Recurring Flyaway BY 2008 $M	Non End Item Recurring Flyaway BY 2008 $M	Non Recurring Flyaway BY 2008 $M	Total Flyaway BY 2008 $M	Total Support BY 2008 $M	Total Program BY 2008 $M
2013	--	45.3	--	--	45.3	--	45.3
2014	--	45.3	--	--	45.3	--	45.3
2015	3	314.9	--	36.1	351.0	234.4	585.4
2016	4	350.6	--	35.4	386.0	158.8	544.8
2017	4	350.2	--	31.0	381.2	119.9	501.1
2018	6	474.0	--	30.0	504.0	169.4	673.4
2019	6	497.8	--	64.2	562.0	355.7	917.7
2020	6	467.5	--	--	467.5	261.3	728.8
2021	6	468.0	--	--	468.0	262.4	730.4
2022	6	483.9	--	--	483.9	277.8	761.7
2023	6	470.1	--	--	470.1	250.0	720.1
2024	5	396.6	--	--	396.6	235.8	632.4
2025	5	424.1	--	--	424.1	250.3	674.4
2026	5	370.3	--	--	370.3	251.0	621.3
2027	3	204.0	--	61.4	265.4	231.0	496.4
Subtotal	**65**	**5362.6**	**--**	**258.1**	**5620.7**	**3057.8**	**8678.5**

Procurement funding in FY 2013 ($51.1M TY/$45.3M BY) was Advance Procurement for 3 Low Rate Initial Production (LRIP) aircraft in FY 2014. In the FY 2014 President's Budget (PB), production was shifted to FY 2015 and System Development and Demonstration (SDD) efforts were extended. The program plans to request reprogramming of FY 2013 Aircraft Procurement, Navy (APN) funding to support MQ-4C Triton development execution.

Cost Quantity Information
1506 | Procurement | Aircraft Procurement, Navy

Fiscal Year	Quantity	End Item Recurring Flyaway (Aligned with Quantity) BY 2008 $M
2013	--	--
2014	--	--
2015	3	298.3
2016	4	349.5
2017	4	318.6
2018	6	472.4
2019	6	496.2
2020	6	465.9
2021	6	466.4
2022	6	497.4
2023	6	468.7
2024	5	395.2
2025	5	422.8
2026	5	399.2
2027	3	312.0
Subtotal	**65**	**5362.6**

Annual Funding TY$
1205 | MILCON | Military Construction, Navy and Marine Corps

Fiscal Year	Total Program TY $M
2011	33.0
2012	4.5
2013	70.9
2014	79.2
2015	74.1
2016	31.5
2017	35.8
Subtotal	**329.0**

Annual Funding BY$
1205 | MILCON | Military Construction, Navy and Marine Corps

Fiscal Year	Total Program BY 2008 $M
2011	30.1
2012	4.0
2013	62.3
2014	68.3
2015	62.7
2016	26.1
2017	29.2
Subtotal	**282.7**

Military Construction (MILCON) costs are for seven sites: Patuxent River, Maryland (Test & Evaluation) in FY 2011; Jacksonville, Florida in FY 2012, FY 2013 and FY 2015; Central Command in FY 2013; Ventura County, California in FY 2013, FY 2014 and FY 2016; Guam in FY 2014; Whidbey Island, Washington in FY 2016; and Sigonella, Italy in FY 2015. Changes since last year reflect improved accuracy in estimates based on increased understanding of specific site requirements, and Navy adjustments to account for US Air Force plans to divest of the Global Hawk Block 30 and cease operations at Beale Air Force Base, California. The shift from Beale Air Force Base to Navy facilities at Ventura County reduced Triton's total estimated MILCON requirement.

Low Rate Initial Production

	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	2016

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 (MS) B Acquisition Decision Memorandum (ADM) approved the planning for the program's MS C LRIP decision and stipulated the quantity will not exceed 10 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 Key Performance Parameters (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 seven aircraft before proceeding to a Full Rate Production 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.

The program plans to request reprogramming of FY 2013 Aircraft Procurement, Navy funding to support MQ-4C Triton development execution. FY 2014 President's Budget (PB) delays entry into production by one year, with no change to the quantity of aircraft to be produced under LRIP.

Foreign Military Sales

The Office of the Under Secretary of Defense (OUSD) Acquisition, Technology & Logistics (AT&L) selected the MQ-4C Triton to participate in Phase-I of the Defense Exportability Features (DEF) pilot program to assess the feasibility of incorporating technology protection measures to enhance the exportability of the MQ-4C Triton. Efforts began in 2012 and will continue through 2013. The goal of the DEF program is to define export configurations for the MQ-4C Triton. This will ultimately increase interoperability with our allies while reducing the unit cost to the United States Government (USG). Actual implementation of the features will be covered under Phase II of the DEF program.

Over the years, the Commonwealth of Australia (CoA) has maintained interest in the MQ-4C Triton as a top solution to meet their need for a Multi-mission Unmanned Aircraft System (MUAS). The CoA participated in a cooperative program with the USG for the pre-System Development and Demonstration (SDD) phase of the MQ-4C Triton program. However in 2008, they decided not to continue as a cooperative partner for SDD phase citing competing priorities with the P-8A Poseidon and limited resources to integrate the P-8A Poseidon and MQ-4C Triton into their fleet nearly simultaneously. In spite of this, the CoA has maintained interest in the MQ-4C Triton program, and plans to implement an FMS Planning case in 2013. The FMS Planning case will provide technical information and services to validate that the MQ-4C Triton UAS will meet their specific MUAS requirements and help transition the CoA to an FMS procurement case.

In October 2012, the Navy briefed and received approval (with provisos) to offer a technical services planning case to the CoA.

Other interested foreign governments include Canada, Japan, Germany, Norway and the United Kingdom.

Nuclear Cost

None

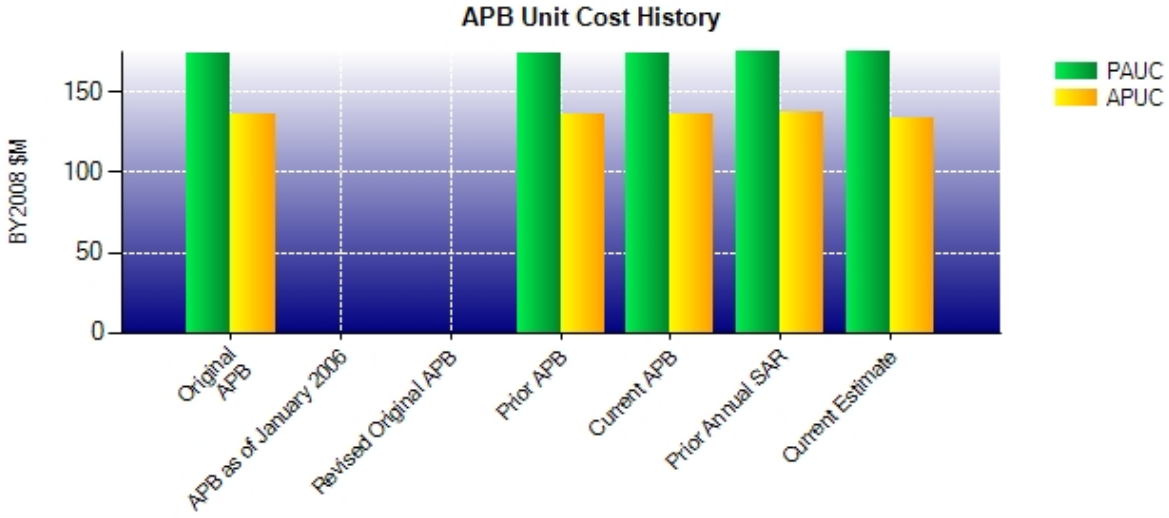
Unit Cost

Unit Cost Report

Unit Cost	BY2008 $M Current UCR Baseline (JAN 2012 APB)	BY2008 $M Current Estimate (DEC 2012 SAR)	BY % Change
Program Acquisition Unit Cost (PAUC)			
Cost	12224.5	12253.4	
Quantity	70	70	
Unit Cost	174.636	175.049	+0.24
Average Procurement Unit Cost (APUC)			
Cost	8871.2	8678.5	
Quantity	65	65	
Unit Cost	136.480	133.515	-2.17

Unit Cost	BY2008 $M Original UCR Baseline (FEB 2009 APB)	BY2008 $M Current Estimate (DEC 2012 SAR)	BY % Change
Program Acquisition Unit Cost (PAUC)			
Cost	12224.5	12253.4	
Quantity	70	70	
Unit Cost	174.636	175.049	+0.24
Average Procurement Unit Cost (APUC)			
Cost	8871.2	8678.5	
Quantity	65	65	
Unit Cost	136.480	133.515	-2.17

Unit Cost History



		BY2008 $M		TY $M	
	Date	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	FEB 2009	174.636	136.480	216.747	177.317
Current APB	JAN 2012	174.636	136.480	216.747	177.317
Prior Annual SAR	DEC 2011	174.913	137.332	212.604	174.158
Current Estimate	DEC 2012	175.049	133.515	218.117	175.111

SAR Unit Cost History

Current SAR Baseline to Current Estimate (TY $M)

Initial PAUC Dev Est	Changes								PAUC Current Est
	Econ	Qty	Sch	Eng	Est	Oth	Spt	Total	
216.747	-2.354	0.000	4.912	0.319	2.410	0.000	-3.917	1.370	218.117

Current SAR Baseline to Current Estimate (TY $M)

Initial APUC Dev Est	Changes								APUC Current Est
	Econ	Qty	Sch	Eng	Est	Oth	Spt	Total	
177.317	-2.123	0.000	5.291	0.000	-0.638	0.000	-4.735	-2.205	175.111

SAR Baseline History

Item/Event	SAR Planning Estimate (PE)	SAR Development Estimate (DE)	SAR Production Estimate (PdE)	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	NOV 2014
IOC	N/A	DEC 2015	N/A	MAY 2017
Total Cost (TY $M)	N/A	15172.3	N/A	15268.2
Total Quantity	N/A	70	N/A	70
Prog. Acq. Unit Cost (PAUC)	N/A	216.747	N/A	218.117

Cost Variance

Summary Then Year $M				
	RDT&E	Proc	MILCON	Total
SAR Baseline (Dev Est)	3223.6	11525.6	423.1	15172.3
Previous Changes				
Economic	-52.3	-391.4	-3.7	-447.4
Quantity	--	--	--	--
Schedule	--	+80.5	--	+80.5
Engineering	--	--	--	--
Estimating	+16.6	+91.1	-78.9	+28.8
Other	--	--	--	--
Support	+33.6	+14.5	--	+48.1
Subtotal	-2.1	-205.3	-82.6	-290.0
Current Changes				
Economic	+23.0	+253.4	+6.2	+282.6
Quantity	--	--	--	--
Schedule	--	+263.4	--	+263.4
Engineering	+22.3	--	--	+22.3
Estimating	+290.2	-132.6	-17.7	+139.9
Other	--	--	--	--
Support	--	-322.3	--	-322.3
Subtotal	+335.5	+61.9	-11.5	+385.9
Total Changes	+333.4	-143.4	-94.1	+95.9
CE - Cost Variance	3557.0	11382.2	329.0	15268.2
CE - Cost & Funding	3557.0	11382.2	329.0	15268.2

Summary Base Year 2008 $M				
	RDT&E	**Proc**	**MILCON**	**Total**
SAR Baseline (Dev Est)	2989.3	8871.2	364.0	12224.5
Previous Changes				
Economic	--	--	--	--
Quantity	--	--	--	--
Schedule	--	+36.3	--	+36.3
Engineering	--	--	--	--
Estimating	-0.4	+52.2	-66.6	-14.8
Other	--	--	--	--
Support	+31.0	-33.1	--	-2.1
Subtotal	+30.6	+55.4	-66.6	+19.4
Current Changes				
Economic	--	--	--	--
Quantity	--	--	--	--
Schedule	--	+132.4	--	+132.4
Engineering	+19.2	--	--	+19.2
Estimating	+253.1	-98.1	-14.7	+140.3
Other	--	--	--	--
Support	--	-282.4	--	-282.4
Subtotal	+272.3	-248.1	-14.7	+9.5
Total Changes	+302.9	-192.7	-81.3	+28.9
CE - Cost Variance	3292.2	8678.5	282.7	12253.4
CE - Cost & Funding	3292.2	8678.5	282.7	12253.4

Previous Estimate: December 2011

RDT&E	$M	
Current Change Explanations	**Base Year**	**Then Year**
Revised escalation indices. (Economic)	N/A	+23.0
Additional funding for engineering analysis and development of Unmanned Aircraft System (UAS) Airspace Integration. (Engineering)	+19.2	+22.3
Adjustment for current and prior escalation. (Estimating)	-15.0	-16.4
Revised estimate to reflect application of new escalation indicies. (Estimating)	-5.6	-6.4
Revised estimate for technology protection, information assurance and encryption updates. (Estimating)	+104.4	+119.6
Revised estimate due to challenges encountered during systems development and subsequent rephasing of funding. (Estimating)	+155.7	+177.1
Additional funding required to support Follow On Test and Evaluation. (Estimating)	+13.6	+16.3
RDT&E Subtotal	+272.3	+335.5

Procurement	$M	
Current Change Explanations	**Base Year**	**Then Year**
Revised escalation indices. (Economic)	N/A	+253.4
Increase due to a one year shift to production from FY 2013 through FY 2026 to FY 2014 through FY 2027. (Schedule)	0.0	+96.8
Additional Schedule Variance related to production line inefficiencies and lost learning due to the one year shift. (Schedule)	+132.4	+166.6
Adjustment for current and prior escalation. (Estimating)	-0.7	-0.8
Revised estimate to reflect application of new escalation indicies. (Estimating)	-161.6	-212.8
Increase in estimate to incorporate technology refresh. (Estimating)	+64.2	+81.0
Decrease in Other Support due to a reduction of Interim Contractor Support related to the production schedule shift and associated manpower allocations. (Support)	-255.1	-286.0
Decrease in Initial Spares due to revised estimate associated with the Baseline Assessment Memorandum (BAM) process. (Support)	-27.3	-36.3
Procurement Subtotal	-248.1	+61.9

MILCON	$M	
Current Change Explanations	**Base Year**	**Then Year**
Revised escalation indices. (Economic)	N/A	+6.2
Adjustment for current and prior escalation. (Estimating)	-1.5	-1.6
Revised estimate to reflect application of new escalation indicies. (Estimating)	-3.8	-4.6
Decrease due to improved estimates and reduced cost of facilities at Ventura County compared to Beale Air Force Base. (Estimating)	-9.4	-11.5
MILCON Subtotal	-14.7	-11.5

Contracts

Appropriation: RDT&E	
Contract Name	**Triton UAS SDD Contract**
Contractor	Northrop Grumman Systems Corporation
Contractor Location	Bethpage, NY 11714
Contract Number, Type	N00019-08-C-0023, CPAF
Award Date	April 22, 2008
Definitization Date	April 22, 2008

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	2220.7	N/A	5	2352.1	2406.0

Variance	Cost Variance	Schedule Variance
Cumulative Variances To Date (3/24/2013)	-186.1	-49.5
Previous Cumulative Variances	-62.5	-58.5
Net Change	-123.6	+9.0

Cost And Schedule Variance Explanations

The unfavorable net change in the cost variance is due to the increased cost of laboratory system integration and test efforts.

The favorable net change in the schedule variance is due to material deliveries to support the flight test program.

Contract Comments

The difference between the Initial Contract Price Target and the Current Contract Price Target is due to funding of developmental risk reduction efforts and award of the option for System Demonstration Test Articles.

The increase in the contract price during the reporting period was a result of contract scope increases negotiated to satisfy priority requirements.

Deliveries and Expenditures

Deliveries To Date	Plan To Date	Actual To Date	Total Quantity	Percent Delivered
Development	2	2	5	40.00%
Production	0	0	65	0.00%
Total Program Quantities Delivered	2	2	70	2.86%

Expenditures and Appropriations (TY $M)			
Total Acquisition Cost	15268.2	Years Appropriated	10
Expenditures To Date	2234.0	Percent Years Appropriated	41.67%
Percent Expended	14.63%	Appropriated to Date	2918.2
Total Funding Years	24	Percent Appropriated	19.11%

The above data is current as of 4/30/2013.

Operating and Support Cost

MQ-4C Triton

Assumptions and Ground Rules

Cost Estimate Reference:

The date of the estimate is January 2012, and the source is Naval Air Systems Command (NAVAIR) 4.2 Cost Department. Costs are estimated in FY 2008 dollars, the Base Year (BY) of the estimate. The estimate is based on historical analogous program costs and factors in adjustments that account for known system differences.

Total Operational Aircraft Procured:	68
Primary Authorized Aircraft:	20
Aircraft Attrition Rate:	4 per 100K Flight Hours
Total Operational Aircraft Years:	440

Sustainment Strategy:

The MQ-4C Triton UAS Product Support Strategy (PSS) focuses on total platform support to ensure compliance with operational requirements and metrics as defined by the Fleet via a Warfighter Performance Based Agreement (WPBA). 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. The average flight hour utilization per month, per aircraft, is 226. The flight hour utilization per aircraft, per year, is 2,711. The number of aircraft per Main Operating Base (MOB) and Forward Operating Base (FOB) is 4.

Quantity: The total quantity of operational aircraft being procured is 68.

Service Life: The aircraft will be operated and maintained from FY 2016 through FY 2039.

Antecedent Information:

The MQ-4C Triton UAS is a new capability, and there is no antecedent program.

Unitized O&S Costs BY2008 $M		
Cost Element	**MQ-4C Triton Cost per Air Vehicle per Year**	**No Antecedent (Antecedent) N/A**
Unit-Level Manpower	3.433	0.000
Unit Operations	1.843	0.000
Maintenance	9.074	0.000
Sustaining Support	0.539	0.000
Continuing System Improvements	1.163	0.000
Indirect Support	1.081	0.000
Other	0.000	0.000
Total	17.133	--

Unitized Cost Comments:

The average annual cost per unit for the MQ-4C Triton UAS is calculated by dividing the Total O&S Cost by the Total Operational Aircraft Years for the program.

	Total O&S Cost $M			
	Current Development APB Objective/Threshold		Current Estimate	
	MQ-4C Triton		MQ-4C Triton	No Antecedent (Antecedent)
Base Year	6912.1	7603.3	7538.3	N/A
Then Year	10494.5	N/A	11689.3	N/A

Total O&S Costs Comments:

None.

Disposal Costs

Disposal costs are estimated at $3.4M (BY 2008) based on the January 2012 cost estimate.