

UNCLASSIFIED



Selected Acquisition Report (SAR)

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



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

As of FY 2019 President's Budget

Defense Acquisition Management
Information Retrieval
(DAMIR)

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Sensitivity Originator

No originator info Available at this time.

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: September 5, 2017

References

SAR Baseline (Production Estimate)

Defense Acquisition Executive (DAE) Approved Acquisition Program Baseline (APB) dated December 20, 2016

Approved APB

Defense Acquisition Executive (DAE) Approved Acquisition Program Baseline (APB) dated December 20, 2016

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

Program Highlights Since Last Report

During this reporting period, the MQ-4C Triton program continued flight test for Integrated Functional Capability (IFC) 3 and all asset deliveries are on track to support the next operational test period (OT-C1) in FY 2018. The IFC 3 software build, which will be employed to the fleet during Early Operational Capability in FY 2018, includes sensor enhancements, Link-16 capability, and interoperability functionality. Triton began delivery of aircraft and supporting ground station assets to the fleet in November 2017 as the System Development and Demonstration phase came to a conclusion.

The Triton LRIP contracts are being awarded on schedule to support timely production deliveries. The LRIP Lot 3 contract was awarded December 28, 2017. The IFC 4 Executive Critical Design Review concluded on November 29, 2017. The IFC 4 software build will bring a Multiple Intelligence capability to replace the aging EP-3E Aries platform as part of the Navy's Maritime Intelligence, Surveillance, Reconnaissance, and Targeting transition plan. The Triton program was redesignated from ACAT ID to ACAT IC on November 21, 2017.

A Memorandum of Understanding with Australia for the procurement of six MQ-4C Triton aircraft via cooperative program is expected to be signed in FY 2018.

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
February 2010	Preliminary Design Review
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
4th Quarter FY 2014	Ferried three developmental test aircraft from Palmdale, California to Patuxent River Naval Air Station in Maryland (Fourth Quarter FY 2014 through First Quarter FY 2015)
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
1st Quarter FY 2018	Delivered SDTA aircraft and supporting ground station assets
November 2017	IFC 4 CDR
November 2017	Redesignated from ACAT ID to ACAT IC
December 2017	LRIP 3 Contract Award

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

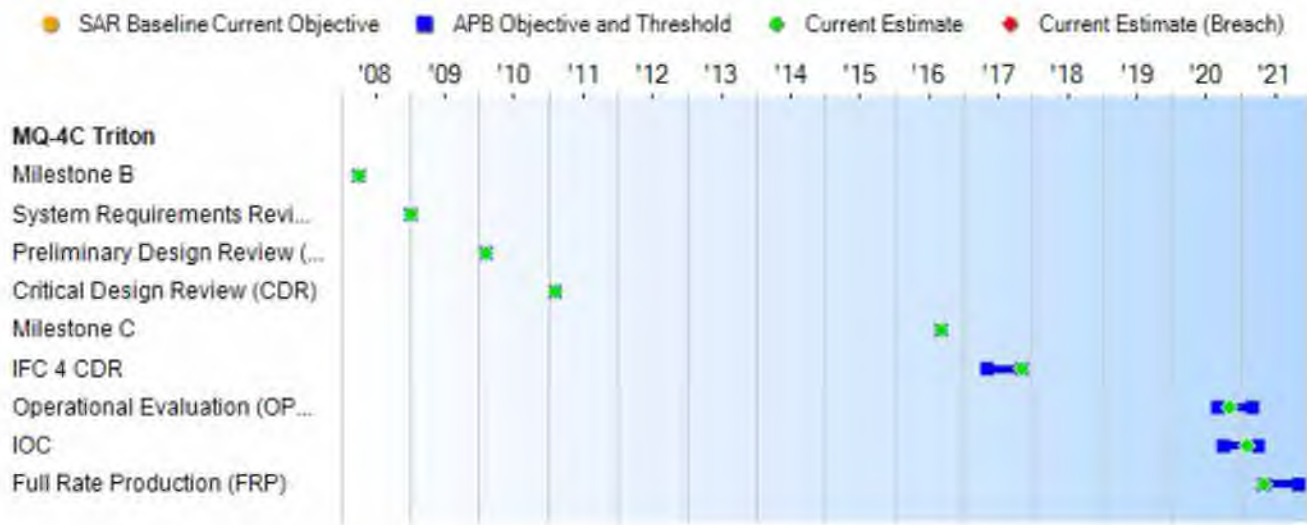
Current UCR Baseline

PAUC	None
APUC	None

Original UCR Baseline

PAUC	None
APUC	None

Schedule



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

Change Explanations

(Ch-1) The current estimate for IFC 4 CDR has changed from August 2017 to November 2017 to reflect the completion date.

Acronyms and Abbreviations

IFC - Integrated Functional Capability

Performance

Performance Characteristics				
SAR Baseline Production Estimate	Current APB Production 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%	ETOS of ~.89 (Estimated)	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
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 1-5)	BLOS and LOS from MOB (Land Based) MCS
UA Mission Radius				
>=3,000 nm	>=3,000 nm	>=2,000 nm	2,400 nm	>=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)	LOS/BLOS multi-ISR payload reception to Maritime Forces	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	IAW CJCSI 5123-01G, CJCSI 3170.01I and the JCIDS Manual (Estimated)	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	0.89 (Estimated)	>=0.86

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

Requirements Reference

CDD in lieu of CPD dated August 2, 2016

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
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

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	
Navy	1319	07	0305421N
	Project	Name	
	2939	RQ-4 Modernization	

Procurement

Appn	BA	PE	
Navy	1506	04	0305220N
	Line Item	Name	
	0442	MQ-4 Triton	
Navy	1506	05	0305220N
	Line Item	Name	
	0596	MQ-4 Series	
Navy	1506	06	0305220N
	Line Item	Name	
	0605	Spares and Repair Parts (Shared)	

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	Triton Mission Control Facility (Sunk)	
Navy	1205	01	0212176N
	Project	Name	
	62995407	BAMS Aircraft and Maintenance Hangar (Sunk)	
	69232577	Triton 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	Triton Forward Operating Base Hangar	(Sunk)
Navy	1205 01	0816376N	
	Project	Name	
	0428A263	BAMS Test and Evaluation Facility	(Sunk)

Cost and Funding

Cost Summary

Total Acquisition Cost							
Appropriation	BY 2016 \$M			BY 2016 \$M	TY \$M		
	SAR Baseline Production Estimate	Current APB Production Objective/Threshold		Current Estimate	SAR Baseline Production Estimate	Current APB Production Objective	Current Estimate
RDT&E	5383.5	5383.5	5921.9	5393.7	5341.0	5341.0	5340.7
Procurement	9357.5	9357.5	10293.3	9342.4	11348.6	11348.6	11247.7
Flyaway	--	--	--	7145.1	--	--	8710.3
Recurring	--	--	--	6581.0	--	--	8075.6
Non Recurring	--	--	--	564.1	--	--	634.7
Support	--	--	--	2197.3	--	--	2537.4
Other Support	--	--	--	1873.2	--	--	2194.0
Initial Spares	--	--	--	324.1	--	--	343.4
MILCON	323.3	323.3	355.6	322.9	337.5	337.5	337.6
Acq O&M	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total	15064.3	15064.3	N/A	15059.0	17027.1	17027.1	16926.0

Current APB Cost Estimate Reference

ICE dated September 21, 2016

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

Quantity Notes

Leading up to the program's Milestone C decision, the Navy and Northrop Grumman Corporation (NGC) entered into an agreement to share cost growth on the System Development and Demonstration contract by utilizing NGC capital contributions to offset future Navy budget requirements. As part of these contributions, NGC provided an Unmanned Aircraft to the Navy at no cost that they had previously built with private capital. This aircraft will be modified to the Multiple Intelligence configuration and used in development before being delivered to the fleet and offsetting one of the planned Aircraft Procurement, Navy funded aircraft procurements. Total aircraft quantity remains at 70.

Cost and Funding

Funding Summary

Appropriation Summary									
FY 2019 President's Budget / December 2017 SAR (TY\$ M)									
Appropriation	Prior	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	To Complete	Total
RDT&E	4269.5	313.5	234.3	148.3	110.1	94.7	86.5	83.8	5340.7
Procurement	1273.8	676.3	719.4	616.1	612.3	604.3	759.0	5986.5	11247.7
MILCON	281.8	0.0	0.0	0.0	55.8	0.0	0.0	0.0	337.6
Acq O&M	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PB 2019 Total	5825.1	989.8	953.7	764.4	778.2	699.0	845.5	6070.3	16926.0
PB 2018 Total	5841.6	989.8	958.0	762.3	781.5	697.5	656.9	6194.8	16882.4
Delta	-16.5	0.0	-4.3	2.1	-3.3	1.5	188.6	-124.5	43.6

Quantity Summary										
FY 2019 President's Budget / December 2017 SAR (TY\$ M)										
Quantity	Undistributed	Prior	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	To Complete	Total
Development	5	0	0	0	0	0	0	0	0	5
Production	0	6	3	3	3	3	3	5	39	65
PB 2019 Total	5	6	3	3	3	3	3	5	39	70
PB 2018 Total	4	7	3	3	3	3	3	4	40	70
Delta	1	-1	0	0	0	0	0	1	-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	--	--	--	--	--	--	550.1
2013	--	--	--	--	--	--	612.7
2014	--	--	--	--	--	--	375.2
2015	--	--	--	--	--	--	449.2
2016	--	--	--	--	--	--	473.6
2017	--	--	--	--	--	--	258.1
2018	--	--	--	--	--	--	313.5
2019	--	--	--	--	--	--	234.3
2020	--	--	--	--	--	--	148.3
2021	--	--	--	--	--	--	110.1
2022	--	--	--	--	--	--	94.7
2023	--	--	--	--	--	--	86.5
2024	--	--	--	--	--	--	83.8
Subtotal	5	--	--	--	--	--	5340.7

Annual Funding 1319 RDT&E Research, Development, Test, and Evaluation, Navy							
Fiscal Year	Quantity	BY 2016 \$M					
		End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program
2004	--	--	--	--	--	--	21.9
2005	--	--	--	--	--	--	46.8
2006	--	--	--	--	--	--	--
2007	--	--	--	--	--	--	29.6
2008	--	--	--	--	--	--	92.1
2009	--	--	--	--	--	--	459.9
2010	--	--	--	--	--	--	472.2
2011	--	--	--	--	--	--	553.3
2012	--	--	--	--	--	--	569.7
2013	--	--	--	--	--	--	628.0
2014	--	--	--	--	--	--	379.2
2015	--	--	--	--	--	--	448.5
2016	--	--	--	--	--	--	464.9
2017	--	--	--	--	--	--	249.2
2018	--	--	--	--	--	--	297.6
2019	--	--	--	--	--	--	218.3
2020	--	--	--	--	--	--	135.5
2021	--	--	--	--	--	--	98.6
2022	--	--	--	--	--	--	83.2
2023	--	--	--	--	--	--	74.5
2024	--	--	--	--	--	--	70.7
Subtotal	5	--	--	--	--	--	5393.7

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	--	72.0	--	--	72.0	--	72.0
2016	4	409.9	--	34.7	444.6	161.5	606.1
2017	2	229.9	--	148.9	378.8	216.9	595.7
2018	3	331.2	--	108.6	439.8	236.5	676.3
2019	3	340.5	--	109.8	450.3	269.1	719.4
2020	3	349.9	--	28.7	378.6	237.5	616.1
2021	3	352.7	--	49.5	402.2	210.1	612.3
2022	3	412.1	--	7.8	419.9	184.4	604.3
2023	5	520.3	--	10.7	531.0	228.0	759.0
2024	4	469.1	--	9.1	478.2	153.1	631.3
2025	4	479.5	--	9.3	488.8	79.8	568.6
2026	4	490.0	--	9.5	499.5	81.5	581.0
2027	4	500.9	--	9.7	510.6	73.0	583.6
2028	4	512.3	--	9.9	522.2	74.5	596.7
2029	4	524.1	--	10.1	534.2	75.9	610.1
2030	4	536.2	--	10.4	546.6	78.0	624.6
2031	4	543.5	--	10.5	554.0	79.1	633.1
2032	4	531.2	--	10.7	541.9	80.7	622.6
2033	3	470.3	--	46.8	517.1	17.8	534.9
Subtotal	65	8075.6	--	634.7	8710.3	2537.4	11247.7

Annual Funding								
1506 Procurement Aircraft Procurement, Navy								
Fiscal Year	Quantity	BY 2016 \$M						
		End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program	
2015	--	71.0	--	--	71.0	--	71.0	
2016	4	397.2	--	33.6	430.8	156.6	587.4	
2017	2	219.0	--	141.8	360.8	206.7	567.5	
2018	3	309.9	--	101.6	411.5	221.3	632.8	
2019	3	312.6	--	100.8	413.4	247.0	660.4	
2020	3	315.0	--	25.8	340.8	213.8	554.6	
2021	3	311.3	--	43.7	355.0	185.3	540.3	
2022	3	356.5	--	6.7	363.2	159.6	522.8	
2023	5	441.3	--	9.1	450.4	193.4	643.8	
2024	4	390.1	--	7.6	397.7	127.3	525.0	
2025	4	390.9	--	7.6	398.5	65.1	463.6	
2026	4	391.7	--	7.6	399.3	65.1	464.4	
2027	4	392.5	--	7.6	400.1	57.2	457.3	
2028	4	393.6	--	7.6	401.2	57.2	458.4	
2029	4	394.7	--	7.6	402.3	57.2	459.5	
2030	4	395.9	--	7.7	403.6	57.6	461.2	
2031	4	393.5	--	7.6	401.1	57.2	458.3	
2032	4	377.0	--	7.6	384.6	57.3	441.9	
2033	3	327.3	--	32.5	359.8	12.4	372.2	
Subtotal	65	6581.0	--	564.1	7145.1	2197.3	9342.4	

Cost Quantity Information		
1506 Procurement Aircraft Procurement, Navy		
Fiscal Year	Quantity	End Item Recurring Flyaway (Aligned With Quantity) BY 2016 \$M
2015	--	--
2016	4	351.8
2017	2	249.0
2018	3	306.7
2019	3	315.7
2020	3	318.1
2021	3	314.2
2022	3	317.9
2023	5	387.5
2024	4	387.8
2025	4	388.3
2026	4	389.0
2027	4	389.9
2028	4	390.9
2029	4	392.0
2030	4	393.2
2031	4	391.6
2032	4	393.0
2033	3	504.4
Subtotal	65	6581.0

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	--	
2020	--	
2021	55.8	
Subtotal	337.6	

Annual Funding 1205 MILCON Military Construction, Navy and Marine Corps	
Fiscal Year	BY 2016 \$M
	Total Program
2011	34.0
2012	4.6
2013	65.1
2014	54.9
2015	--
2016	49.2
2017	67.0
2018	--
2019	--
2020	--
2021	48.1
Subtotal	322.9

Low Rate Initial Production

Item	Initial LRIP Decision	Current Total LRIP
Approval Date	4/18/2008	9/22/2016
Approved Quantity	10	15
Reference	Milestone B ADM	Milestone C ADM
Start Year	2013	2013
End Year	2015	2020

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 LRIP will also support Early Operational Capability.

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 technical services case which provides technical data on the MQ-4C Triton.
Australia	8/1/2013		5.0	Agreement number: AT-P-GTJ is an active technical services case which provides technical data on the MQ-4C Triton.

Notes

The program office is currently executing two FMS technical services 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 High Altitude Long Endurance Unmanned Aircraft System (UAS). Other interested foreign governments include Canada, Japan, New Zealand, Norway and the United Kingdom.

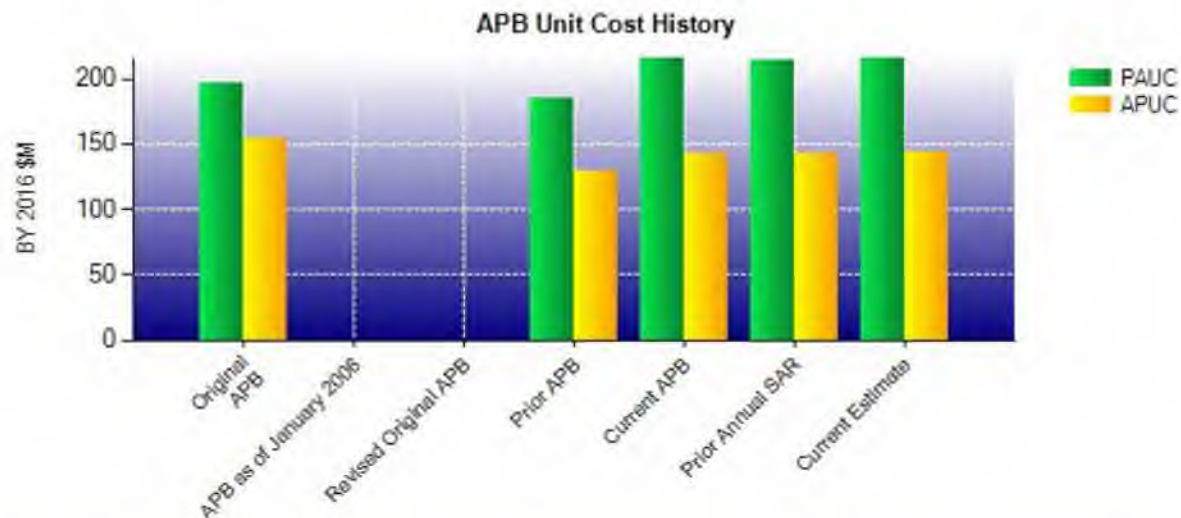
A Memorandum of Understanding with Australia for the procurement of six MQ-4C Triton aircraft via cooperative program is expected to be signed in FY 2018. On March 6, 2017, Germany announced their intent to procure three Triton UAS as a replacement for the Euro Hawk. A Letter of Offer and Acceptance is currently in development and signature is expected in CY 2019.

Nuclear Costs

None

Unit Cost

Current UCR Baseline and Current Estimate (Base-Year Dollars)			
Item	BY 2016 \$M	BY 2016 \$M	% Change
	Current UCR Baseline (Dec 2016 APB)	Current Estimate (Dec 2017 SAR)	
Program Acquisition Unit Cost			
Cost	15064.3	15059.0	
Quantity	70	70	
Unit Cost	215.204	215.129	-0.03
Average Procurement Unit Cost			
Cost	9357.5	9342.4	
Quantity	66	65	
Unit Cost	141.780	143.729	+1.37
Original UCR Baseline and Current Estimate (Base-Year Dollars)			
Item	BY 2016 \$M	BY 2016 \$M	% Change
	Original UCR Baseline (Feb 2009 APB)	Current Estimate (Dec 2017 SAR)	
Program Acquisition Unit Cost			
Cost	13783.4	15059.0	
Quantity	70	70	
Unit Cost	196.906	215.129	+9.25
Average Procurement Unit Cost			
Cost	10002.5	9342.4	
Quantity	65	65	
Unit Cost	153.885	143.729	-6.60



APB Unit Cost History					
Item	Date	BY 2016 \$M		TY \$M	
		PAUC	APUC	PAUC	APUC
Original APB	Feb 2009	196.906	153.885	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	Jul 2014	184.743	129.664	207.763	156.288
Current APB	Dec 2016	215.204	141.780	243.244	171.948
Prior Annual SAR	Dec 2016	213.394	141.874	241.177	171.777
Current Estimate	Dec 2017	215.129	143.729	241.800	173.042

SAR Unit Cost History

Initial SAR Baseline to Current SAR Baseline (TY \$M)									
Initial PAUC Development Estimate	Changes								PAUC Production Estimate
	Econ	Qty	Sch	Eng	Est	Oth	Spt	Total	
216.747	-5.878	1.731	22.407	24.911	7.156	0.000	-23.830	26.497	243.244

Current SAR Baseline to Current Estimate (TY \$M)									
PAUC Production Estimate	Changes								PAUC Current Estimate
	Econ	Qty	Sch	Eng	Est	Oth	Spt	Total	
243.244	-0.706	-1.414	-0.499	0.000	1.504	0.000	-0.329	-1.444	241.800

Initial SAR Baseline to Current SAR Baseline (TY \$M)									
Initial APUC Development Estimate	Changes								APUC Production Estimate
	Econ	Qty	Sch	Eng	Est	Oth	Spt	Total	
177.317	-5.578	-0.850	23.765	8.085	-5.007	0.000	-25.784	-5.369	171.948

Current SAR Baseline to Current Estimate (TY \$M)									
APUC Production Estimate	Changes								APUC Current Estimate
	Econ	Qty	Sch	Eng	Est	Oth	Spt	Total	
171.948	-0.677	1.122	-0.537	0.000	1.540	0.000	-0.354	1.094	173.042

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	Apr 2008	Apr 2008
Milestone C	N/A	May 2013	Sep 2016	Sep 2016
IOC	N/A	Dec 2015	Oct 2020	Feb 2021
Total Cost (TY \$M)	N/A	15172.3	17027.1	16926.0
Total Quantity	N/A	70	70	70
PAUC	N/A	216.747	243.244	241.800

Cost Variance

Summary TY \$M				
Item	RDT&E	Procurement	MILCON	Total
SAR Baseline (Production Estimate)	5341.0	11348.6	337.5	17027.1
Previous Changes				
Economic	+2.4	+21.3	+2.0	+25.7
Quantity	--	--	--	--
Schedule	--	-39.5	--	-39.5
Engineering	--	--	--	--
Estimating	-135.9	-60.0	-1.9	-197.8
Other	--	--	--	--
Support	--	+66.9	--	+66.9
Subtotal	-133.5	-11.3	+0.1	-144.7
Current Changes				
Economic	-8.4	-65.3	-1.4	-75.1
Quantity	--	-99.1	--	-99.1
Schedule	--	+4.6	--	+4.6
Engineering	--	--	--	--
Estimating	+141.6	+160.1	+1.4	+303.1
Other	--	--	--	--
Support	--	-89.9	--	-89.9
Subtotal	+133.2	-89.6	--	+43.6
Total Changes	-0.3	-100.9	+0.1	-101.1
CE - Cost Variance	5340.7	11247.7	337.6	16926.0
CE - Cost & Funding	5340.7	11247.7	337.6	16926.0

Summary BY 2016 \$M				
Item	RDT&E	Procurement	MILCON	Total
SAR Baseline (Production Estimate)	5383.5	9357.5	323.3	15064.3
Previous Changes				
Economic	--	--	--	--
Quantity	--	--	--	--
Schedule	--	--	--	--
Engineering	--	--	--	--
Estimating	-131.2	-50.8	-1.7	-183.7
Other	--	--	--	--
Support	--	+57.0	--	+57.0
Subtotal	-131.2	+6.2	-1.7	-126.7
Current Changes				
Economic	--	--	--	--
Quantity	--	-69.3	--	-69.3
Schedule	--	-3.1	--	-3.1
Engineering	--	--	--	--
Estimating	+141.4	+139.3	+1.3	+282.0
Other	--	--	--	--
Support	--	-88.2	--	-88.2
Subtotal	+141.4	-21.3	+1.3	+121.4
Total Changes	+10.2	-15.1	-0.4	-5.3
CE - Cost Variance	5393.7	9342.4	322.9	15059.0
CE - Cost & Funding	5393.7	9342.4	322.9	15059.0

Previous Estimate: December 2016

RDT&E	\$M	
Current Change Explanations	Base Year	Then Year
Revised escalation indices. (Economic)	N/A	-8.4
Adjustment for current and prior escalation. (Estimating)	+2.9	+3.0
Increased estimate at Milestone C to complete the Baseline Triton System Development and Demonstration / System Demonstration Test Article contract. (Estimating)	+114.4	+116.6
Revised estimate due to increases in Multiple Intelligence (Multi-INT) development. (Estimating)	+24.1	+22.0
RDT&E Subtotal	+141.4	+133.2

Procurement	\$M	
Current Change Explanations	Base Year	Then Year
Revised escalation indices. (Economic)	N/A	-65.3
Quantity Variance resulting from reducing the total Unmanned Aircraft (UA) buy from 66 to 65. (Quantity)	-69.3	-99.1
Schedule Variance resulting from the move of one UA from FY 2017 into FY 2023. (Schedule)	-3.1	+4.6
Adjustment for current and prior escalation. (Estimating)	+3.9	+4.3
Revised estimate to reflect actuals. (Estimating)	+24.2	+39.1
Revised estimate to correct for above threshold reprogramming that removed quantity from FY 2017 but funding from FY 2016. (Estimating) (QR)	+111.2	+116.7
Adjustment for current and prior escalation. (Support)	+2.7	+2.6
Increase in Initial Spares due to funding increased to meet total spares requirement. (Support)	+10.3	+11.8
Decrease in Other Support driven by the FY 2016 funding that was reprogrammed to RDT&E. (Support)	-101.2	-104.3
Procurement Subtotal	-21.3	-89.6

(QR) Quantity Related

MILCON	\$M	
Current Change Explanations	Base Year	Then Year
Revised escalation indices. (Economic)	N/A	-1.4
Adjustment for current and prior escalation. (Estimating)	+0.9	+0.9
Revised estimate to reflect actuals. (Estimating)	+0.4	+0.5
MILCON Subtotal	+1.3	0.0

Change Explanations Notes

Leading up to the program's Milestone C decision, the Navy and Northrop Grumman Corporation (NGC) entered into an agreement to share cost growth on the System Development and Demonstration contract by utilizing NGC capital contributions to offset future Navy budget requirements. As part of these contributions, NGC provided a UA to the Navy at

no cost that they had previously built with private capital. This aircraft will be modified to the Multi-INT configuration and used in development before being delivered to the fleet and offsetting one of the planned Aircraft Procurement, Navy funded aircraft procurements. Total aircraft quantity remains at 70.

Contracts

General Notes

The program is reporting all CLINs on the System Development and Demonstration and LRIP contracts individually to increase transparency as each individual effort is over \$40M TY.

Contract Identification

Appropriation: RDT&E
Contract Name: Triton UAS SDD Contract
Contractor: Northrop Grumman Systems Corporation
Contractor Location: 17066 Goldentop Rd
 San Diego, CA 92150
Contract Number: N00019-08-C-0023
Contract Type: Cost Sharing (CS)
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	1948.3	N/A	2	2778.4	2778.4

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 U.S. Navy requirements.

Contract Variance

Item	Cost Variance	Schedule Variance
Cumulative Variances To Date (5/26/2017)	-2.8	-17.4
Previous Cumulative Variances	+1.3	-12.6
Net Change	-4.1	-4.8

Cost and Schedule Variance Explanations

The unfavorable net change in the cost variance is due to a large number of deficiencies found post-delivery in integration of the Mission Control Station software. Additional unfavorable cost variance was due to Air Vehicle Engineering primarily for Material Review Board tags and Contract Data Requirement List deliverable.

The unfavorable net change in the schedule variance is due to material accounts, specifically later than planned receipt of costs and performance associated with the delivery of Product Support spare part deliverables.

General Contract Variance Explanation

The final formal report for the contract was May 2017 data.

Notes

This contract is more than 90% complete; therefore, this is the final report for this contract.

Contract Identification

Appropriation: RDT&E
Contract Name: Triton 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 Sharing (CS)
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	275.9	N/A	2	318.7	318.7

Target Price Change Explanation

The difference between the Initial Contract Price Target and the Current Contract Price Target is due to an Over Target Baseline (OTB) in July 2016 which reduced the prior fee earned on the contract which caused the price to decrease.

Contract Variance

Item	Cost Variance	Schedule Variance
Cumulative Variances To Date (5/26/2017)	-4.2	-1.8
Previous Cumulative Variances	-3.1	-1.6
Net Change	-1.1	-0.2

Cost and Schedule Variance Explanations

The unfavorable net change in the cost variance is due to sustaining engineering support for Material Review Boards.

The unfavorable net change in the schedule variance is due to late wing deliveries, tag volume and related mitigation activities.

Notes

This contract is more than 90% complete; therefore, this is the final report for this contract.

Contract Identification

Appropriation: RDT&E
Contract Name: Triton 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	39.0	N/A	0	43.1	43.1

Target Price Change Explanation

The difference between the Initial Contract Price Target and the Current Contract Price Target is due to rounding.

Contract Variance

Item	Cost Variance	Schedule Variance
Cumulative Variances To Date (12/31/2017)	-5.9	-1.6
Previous Cumulative Variances	-5.9	-1.6
Net Change	+0.0	+0.0

Cost and Schedule Variance Explanations

None

Notes

This contract is more than 90% complete; therefore, this is the final report for this contract.

Contract Identification

Appropriation: RDT&E
Contract Name: Triton UAS SDD Contract FTA CLIN
Contractor: Northrop Grumman Systems Corporation
Contractor Location: 17066 Goldentop Rd
 San Diego, CA 92150
Contract Number: N00019-08-C-0023/403
Contract Type: Cost (CR)
Award Date: July 13, 2016
Definitization Date: July 13, 2016

Contract Price

Initial Contract Price (\$M)			Current Contract Price (\$M)			Estimated Price At Completion (\$M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
69.5	N/A	0	69.5	N/A	0	66.5	84.8

Contract Variance

Item	Cost Variance	Schedule Variance
Cumulative Variances To Date (1/26/2018)	-2.6	-4.0
Previous Cumulative Variances	+0.4	-1.9
Net Change	-3.0	-2.1

Cost and Schedule Variance Explanations

The unfavorable net change in the cost variance is due to additional support required from manufacturing engineering.

The unfavorable net change in the schedule variance is due to rework of V-tail and fuselage test fixtures.

Contract Identification

Appropriation: Procurement
Contract Name: Triton UAS LRIP Contract LRIP 1 CLIN
Contractor: Northrop Grumman Systems Corporation
Contractor Location: 17066 Goldentop Rd
 San Diego, CA 92150
Contract Number: N00019-15-C-0002
Contract Type: Fixed Price Incentive(Firm Target) (FPIF)
Award Date: September 27, 2016
Definitization Date: September 27, 2016

Contract Price

Initial Contract Price (\$M)			Current Contract Price (\$M)			Estimated Price At Completion (\$M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
331.5	343.4	3	331.5	343.4	3	332.1	331.5

Contract Variance

Item	Cost Variance	Schedule Variance
Cumulative Variances To Date (1/26/2018)	+7.2	-7.7
Previous Cumulative Variances	+1.8	-8.8
Net Change	+5.4	+1.1

Cost and Schedule Variance Explanations

The favorable net change in the cost variance is due to decreases in planned airframe sustaining engineering and Multi-Function Active Sensor actuals.

The favorable net change in the schedule variance is due to material deliveries.

Contract Identification

Appropriation: Procurement
Contract Name: Triton UAS LRIP Contract LRIP 2 CLIN
Contractor: Northrop Grumman Systems Corporation
Contractor Location: 17066 Goldentop Rd
 San Diego, CA 92150
Contract Number: N00019-15-C-0002/201
Contract Type: Fixed Price Incentive(Firm Target) (FPIF)
Award Date: May 16, 2017
Definitization Date: May 16, 2017

Contract Price							
Initial Contract Price (\$M)			Current Contract Price (\$M)			Estimated Price At Completion (\$M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
353.3	366.0	3	353.3	366.0	3	357.4	358.4

Contract Variance			
Item	Cost Variance	Schedule Variance	
Cumulative Variances To Date (1/26/2018)	+1.5	+1.3	
Previous Cumulative Variances	--	--	
Net Change	+1.5	+1.3	

Cost and Schedule Variance Explanations

The favorable cumulative cost variance is due to lower than anticipated labor cost.

The favorable cumulative schedule variance is due to early material deliveries.

Notes

This is the first time this contract is being reported.

Contract Identification

Appropriation: Procurement
Contract Name: Triton UAS LRIP 3 Contract
Contractor: Northrop Grumman Systems Corporation
Contractor Location: 17066 Goldentop Rd
 San Diego, CA 92127
Contract Number: N00019-17-C-0018
Contract Type: Fixed Price Incentive(Firm Target) (FPIF)
Award Date: December 28, 2017
Definitization Date: December 28, 2017

Contract Price							
Initial Contract Price (\$M)			Current Contract Price (\$M)			Estimated Price At Completion (\$M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
261.3	270.7	3	261.3	270.7	3	270.7	270.7

Cost and Schedule Variance Explanations

Cost and Schedule Variance reporting is not required on this (FPIF) contract.

General Contract Variance Explanation

Cost and schedule variances are not reported for this contract, because EVM reporting has not yet commenced due to the recent contract award in December 2017. EVM reporting will begin June 2018.

Notes

This is the first time this contract is being reported.

Deliveries and Expenditures

Deliveries				
Delivered to Date	Planned to Date	Actual to Date	Total Quantity	Percent Delivered
Development	4	4	5	80.00%
Production	0	0	65	0.00%
Total Program Quantity Delivered	4	4	70	5.71%

Expended and Appropriated (TY \$M)			
Total Acquisition Cost	16926.0	Years Appropriated	15
Expended to Date	4721.6	Percent Years Appropriated	50.00%
Percent Expended	27.90%	Appropriated to Date	6814.9
Total Funding Years	30	Percent Appropriated	40.26%

The above data is current as of February 12, 2018.

Operating and Support Cost

Cost Estimate Details

Date of Estimate:	December 20, 2016
Source of Estimate:	CAPE ICE
Quantity to Sustain:	68
Unit of Measure:	Aircraft
Service Life per Unit:	20.00 Years
Fiscal Years in Service:	FY 2018 - FY 2046

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.

Sustainment Strategy

The MQ-4C Triton UAS 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, resourced, 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 will provide some Interim Contractor Support as the organic infrastructure is established beginning with Early Operational Capability (EOC) in FY 2018.

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).

Annual O&S Costs BY2016 \$M		
Cost Element	MQ-4C Triton Average Annual Cost Per Aircraft	No Antecedent (Antecedent) N/A
Unit-Level Manpower	4.601	0.000
Unit Operations	1.764	0.000
Maintenance	19.093	0.000
Sustaining Support	1.697	0.000
Continuing System Improvements	4.053	0.000
Indirect Support	1.654	0.000
Other	0.000	0.000
Total	32.862	--

Item	Total O&S Cost \$M			
	MQ-4C Triton			No Antecedent (Antecedent)
	Current Production APB Objective/Threshold		Current Estimate	
Base Year	14806.7	16287.4	14806.7	0.0
Then Year	20551.1	N/A	20551.1	0.0

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)

O&S Cost Variance		
Category	BY 2016 \$M	Change Explanations
Prior SAR Total O&S Estimates - Dec 2016 SAR	14806.7	
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	14806.7	

Disposal Estimate Details

Date of Estimate: December 20, 2016
Source of Estimate: CAPE ICE
Disposal/Demilitarization Total Cost (BY 2016 \$M): Total costs for disposal of all Aircraft are 17.5

Disposal of attrition aircraft is included in the Disposal estimate.