Selected Acquisition Report (SAR)

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

MQ-4C UAS BAMS

As of December 31, 2010

Defense Acquisition Management
Information Retrieval
(DAMIR)

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Program Information

Designation And Nomenclature (Popular Name)

(MQ-4C) Unmanned Aircraft System (UAS) Broad Area Maritime Surveillance (BAMS)

DoD Component

Navy

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References

SAR Baseline (Development Estimate)

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

Approved APB

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

Mission and Description

The MQ-4C Unmanned Aircraft System (UAS) Broad Area Maritime Surveillance (BAMS) 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 a multiple-sensor, persistent maritime and littoral Intelligence, Surveillance and Reconnaissance (ISR) data collection and dissemination as well as 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 BAMS UAS provides 360 degree radar and Electro-Optical/Infrared coverage. Additional functionality added to optimize the system for maritime search operations include the addition of Automatic Identification System and an Electronic Sensor Measure with Specific Emitter Identification. The BAMS UAS 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. The system will ramp up to Full Operational Capability (FOC) then operate for 20 years.

Executive Summary

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

The Milestone Decision Authority (MDA) for BAMS UAS is the Under Secretary of Defense for Acquisition, Technology and Logistics (USD(AT&L)). Following a full and open competition, a Cost Plus Award Fee (CPAF) SDD contract with an option for Low Rate Initial Production (LRIP) Lot 1 was awarded to the Northrop Grumman Corporation (NGC) on April 22, 2008 based on a best value source selection process. On May 5, 2008, Lockheed-Martin filed a protest with the Government Accountability Office (GAO). The GAO denied the Lockheed-Martin protest on August 8, 2008. The contract restarted on August 11, 2008.

The program conducted a successful System Requirements Review (SRR) in January 2009, System Functional Review (SFR) in June 2009, Integrated Baseline Review in July 2009, Preliminary Design Review in February 2010, and Critical Design Review in February 2011. The MQ-4C UAS BAMS program also continues to pursue opportunities for joint efficiencies with the Air Force Global Hawk program.

Since the last submission, BAMS UAS Signals Intelligence (SIGINT) capability has been funded for development beginning in FY 2015. Due to the difference in requirements sets between the MQ-4C UAS BAMS Increment 1 (baseline program of record) and the SIGINT capability, the Department is examining acquisition alternatives on how this capability will be developed and fielded. This SAR documents only the Increment 1 program of record; budget and expected development costs for SIGINT are omitted pending requirements refinement and structuring of a formal acquisition effort.

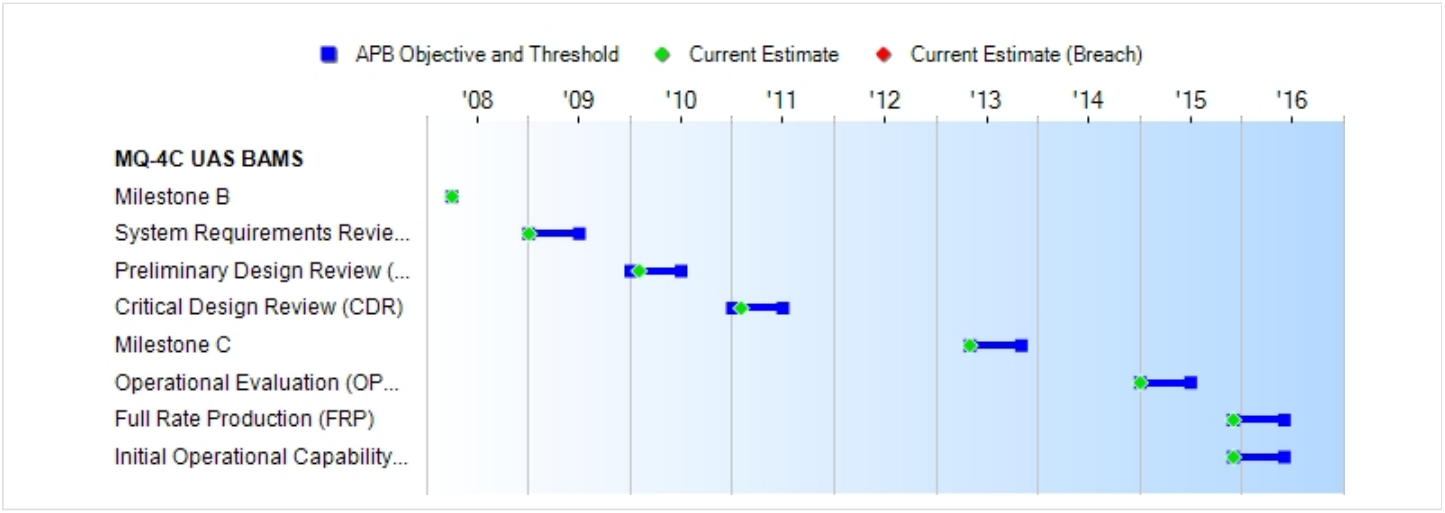
There are no significant software-related issues for this program at this time.

Threshold Breaches

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

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

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	(Ch-1)
Milestone C	MAY 2013	MAY 2013	NOV 2013	MAY 2013	
Operational Evaluation (OPEVAL) Start	JAN 2015	JAN 2015	JUL 2015	JAN 2015	
Full Rate Production (FRP)	DEC 2015	DEC 2015	JUN 2016	DEC 2015	
Initial Operational Capability (IOC)	DEC 2015	DEC 2015	JUN 2016	DEC 2015	

Change Explanations

(Ch-1) Critical Design Review delayed one month, from January 2011 to February 2011, to allow for additional performance analysis.

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 >=92% 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	(Ch-2)

Requirements Source:
Joint Requirements Oversight Council (JROC) approved the Broad Area Maritime Surveillance Unmanned Aircraft System (BAMS UAS) Capability Development Document (CDD), JROCM 126-07, 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) Maritime ISR persistence Effective Time On Station (ETOS) reduction due to updated performance model. Flight test during FY 2012 will develop an updated estimate.

(Ch-2) Operational Availability revised due to increasing fidelity in predictions during detailed system design

Memo

The BAMS UAS "unit of capability" is defined as five Unmanned Aircraft (UA) (with associated mission payload and avionics); one suite of communication systems (Line of Sight (LOS) and Beyond Line of Sight (BLOS)); and one Mission Control System (MCS).

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 A4020	BAMS UAS	(Shared)	(Sunk)
APPN 1319	BA 07	PE 0305220N	(Navy)	
	Project A4020	BAMS UAS		
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 0815976N	(Navy)	
	Project 00207153		(Shared)	
	Project C1002154		(Shared)	
	Project C1002155		(Shared)	
	Project C1002156		(Shared)	
	Project C1002157		(Shared)	
	Project C1002158		(Shared)	
APPN 1205	BA 01	PE 0816376N	(Navy)	
	Project 0428A263		(Shared)	

Cost and Funding

Cost Summary

Total Acquisition Cost and Quantity

	BY2008 $M			BY2008 $M	TY $M		
Appropriation	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	3088.2	3223.6	3223.6	3268.2
Procurement	8871.2	8871.2	9758.3	8957.3	11525.6	11525.6	11056.1
Flyaway	5497.9	--	--	5482.7	7124.5	--	6766.8
Recurring	5316.4	--	--	5330.2	6908.0	--	6592.7
Non Recurring	181.5	--	--	152.5	216.5	--	174.1
Support	3373.3	--	--	3474.6	4401.1	--	4289.3
Other Support	2328.4	--	--	2366.4	3023.9	--	2911.1
Initial Spares	1044.9	--	--	1108.2	1377.2	--	1378.2
MILCON	364.0	364.0	400.4	373.9	423.1	423.1	420.8
Acq O&M	0.0	0.0	--	0.0	0.0	0.0	0.0
Total	12224.5	12224.5	N/A	12419.4	15172.3	15172.3	14745.1

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 Low Rate Initial Production (LRIP) Lot 1 Unmanned Aircraft (UA). The three LRIP UAs will be utilized for operational test and achieving Initial Operating Capability (IOC). Total Acquisition Costs and Quantities do not reflect Signals Intelligence capability.

Cost and Funding

Funding Summary

Appropriation and Quantity Summary
FY2012 President's Budget / December 2010 SAR (TY$ M)

Appropriation	Prior	FY2011	FY2012	FY2013	FY2014	FY2015	FY2016	To Complete	Total
RDT&E	1027.0	529.3	548.5	681.8	228.2	132.6	120.8	0.0	3268.2
Procurement	0.0	0.0	0.0	48.2	611.7	676.1	701.5	9018.6	11056.1
MILCON	0.0	42.2	4.5	77.9	76.1	108.8	35.2	76.1	420.8
Acq O&M	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PB 2012 Total	1027.0	571.5	553.0	807.9	916.0	917.5	857.5	9094.7	14745.1
PB 2011 Total	1027.8	571.5	543.3	744.2	894.6	868.2	1105.7	9266.2	15021.5
Delta	-0.8	0.0	9.7	63.7	21.4	49.3	-248.2	-171.5	-276.4

Quantity	Undistributed	Prior	FY2011	FY2012	FY2013	FY2014	FY2015	FY2016	To Complete	Total
Development	5	0	0	0	0	0	0	0	0	5
Production	0	0	0	0	0	4	4	4	53	65
PB 2012 Total	5	0	0	0	0	4	4	4	53	70
PB 2011 Total	5	0	0	0	0	4	4	5	52	70
Delta	0	0	0	0	0	0	0	-1	1	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	--	--	--	--	--	--	529.3
2012	--	--	--	--	--	--	548.5
2013	--	--	--	--	--	--	681.8
2014	--	--	--	--	--	--	228.2
2015	--	--	--	--	--	--	132.6
2016	--	--	--	--	--	--	120.8
Subtotal	**5**	**--**	**--**	**--**	**--**	**--**	**3268.2**

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	--	--	--	--	--	--	411.1
2010	--	--	--	--	--	--	423.7
2011	--	--	--	--	--	--	504.7
2012	--	--	--	--	--	--	515.1
2013	--	--	--	--	--	--	629.8
2014	--	--	--	--	--	--	207.3
2015	--	--	--	--	--	--	118.4
2016	--	--	--	--	--	--	106.1
Subtotal	**5**	**--**	**--**	**--**	**--**	**--**	**3088.2**

The Research, Development, Test and Evaluation (RDT&E) total quantity of five is comprised of two engineering development models and three Low Rate Initial Production (LRIP) Lot 1 Unmanned Aircraft (UA). The three LRIP UAs will be utilized for operational test and achieving Initial Operating Capability (IOC). RDT&E funding for BAMS UAS Signals Intelligence (SIGINT) capability was included in the FY 2012 President's Budget ($32.9M in FY 2015, $112.4M in FY 2016) and the Department is examining acquisition alternatives to develop and field this capability. Funding associated with SIGINT capability is not reported in this submission.

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	--	48.2	--	--	48.2	--	48.2
2014	4	372.5	--	55.9	428.4	183.3	611.7
2015	4	377.2	--	39.9	417.1	259.0	676.1
2016	4	389.2	--	26.0	415.2	286.3	701.5
2017	5	495.4	--	43.5	538.9	436.6	975.5
2018	5	500.1	--	8.8	508.9	493.4	1002.3
2019	6	597.8	--	--	597.8	338.7	936.5
2020	6	589.2	--	--	589.2	328.1	917.3
2021	6	587.1	--	--	587.1	335.3	922.4
2022	5	537.9	--	--	537.9	320.4	858.3
2023	5	527.3	--	--	527.3	311.1	838.4
2024	5	545.3	--	--	545.3	318.6	863.9
2025	5	575.7	--	--	575.7	344.2	919.9
2026	5	449.8	--	--	449.8	334.3	784.1
Subtotal	**65**	**6592.7**	**--**	**174.1**	**6766.8**	**4289.3**	**11056.1**

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	--	44.0	--	--	44.0	--	44.0
2014	4	334.2	--	50.2	384.4	164.5	548.9
2015	4	332.8	--	35.2	368.0	228.5	596.5
2016	4	337.6	--	22.6	360.2	248.4	608.6
2017	5	422.6	--	37.1	459.7	372.4	832.1
2018	5	419.5	--	7.4	426.9	413.8	840.7
2019	6	493.0	--	--	493.0	279.4	772.4
2020	6	477.8	--	--	477.8	266.1	743.9
2021	6	468.2	--	--	468.2	267.3	735.5
2022	5	421.8	--	--	421.8	251.2	673.0
2023	5	406.5	--	--	406.5	239.9	646.4
2024	5	413.4	--	--	413.4	241.5	654.9
2025	5	429.1	--	--	429.1	256.6	685.7
2026	5	329.7	--	--	329.7	245.0	574.7
Subtotal	**65**	**5330.2**	**--**	**152.5**	**5482.7**	**3474.6**	**8957.3**

Cost Quantity Information
1506 | Procurement | Aircraft Procurement, Navy

Fiscal Year	Quantity	End Item Recurring Flyaway (Aligned with Quantity) BY 2008 $M
2013	--	--
2014	4	332.4
2015	4	331.6
2016	4	324.5
2017	5	398.5
2018	5	398.4
2019	6	495.3
2020	6	475.9
2021	6	477.2
2022	5	424.3
2023	5	404.7
2024	5	407.0
2025	5	431.7
2026	5	428.7
Subtotal	**65**	**5330.2**

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

Fiscal Year	Total Program TY $M
2011	42.2
2012	4.5
2013	77.9
2014	76.1
2015	108.8
2016	35.2
2017	76.1
Subtotal	**420.8**

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

Fiscal Year	Total Program BY 2008 $M
2011	39.7
2012	4.2
2013	70.9
2014	68.1
2015	95.7
2016	30.5
2017	64.8
Subtotal	**373.9**

MILCON costs are for six sites: Patuxent River, Maryland (Test & Evaluation) in FY 2011, Jacksonville, Florida in FY 2012, FY 2013 and FY 2017; CENTCOM in FY 2013 (site pending approval); Beale Air Force Base, California in FY 2013, FY 2015 and FY 2016; Guam in FY 2014; and Whidbey Island, Washington and Sigonella, Italy in FY 2015. Changes since last year reflect a joint basing approach with United States Air Force RQ-4A/B Unmanned Aircraft System Global Hawk, as well as fleet direction on operational priorities.

Low Rate Initial Production

	Initial LRIP Decision	Current Total LRIP
Approval Date	4/18/2008	4/18/2008
Approved Quantity	10	10
Reference	ADM	ADM
Start Year	2013	2013
End Year	2015	2015

The April 18, 2008 Broad Area Maritime Surveillance (BAMS) Unmanned Aircraft System (UAS) Milestone B Acquisition Decision Memorandum (ADM) signed by the Under Secretary of Defense for Acquisition, Technology and Logistics approved the planning for the program's Milestone C Low Rate Initial Production (LRIP) decision and stipulated the quantity will not exceed 10 unmanned aircraft systems and related ground control systems, which exceeds 10 percent of the production quantity. The Department is currently reviewing the limit on LRIP systems. LRIP represents the establishment of an initial production base for the system and provides for an orderly and efficient increase in the production rate.

Foreign Military Sales

There are no Foreign Military Sales data to display.

Nuclear Cost

There are no Nuclear Cost data to display.

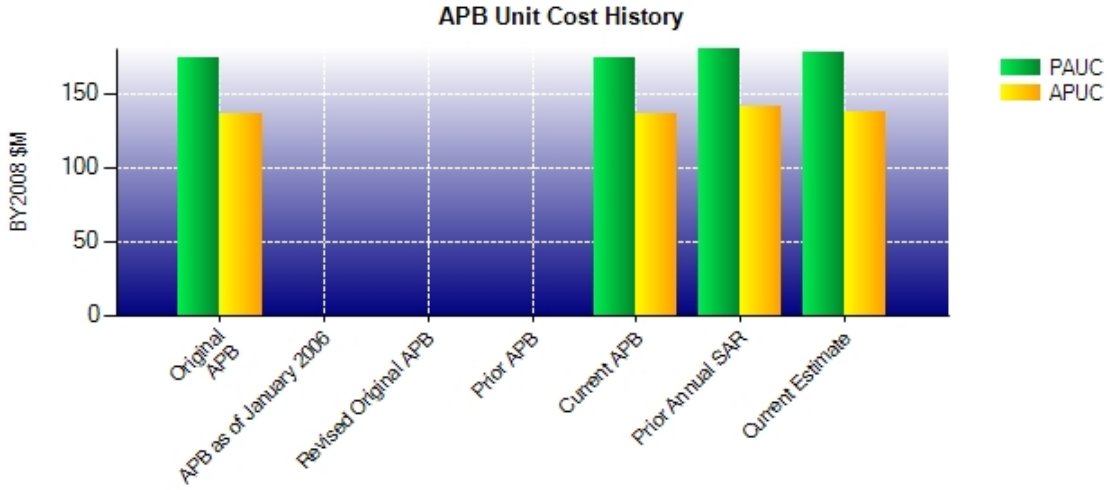
Unit Cost

Unit Cost Report

Unit Cost	BY2008 $M Current UCR Baseline (FEB 2009 APB)	BY2008 $M Current Estimate (DEC 2010 SAR)	BY % Change
Program Acquisition Unit Cost (PAUC)			
Cost	12224.5	12419.4	
Quantity	70	70	
Unit Cost	174.636	177.420	+1.59
Average Procurement Unit Cost (APUC)			
Cost	8871.2	8957.3	
Quantity	65	65	
Unit Cost	136.480	137.805	+0.97

Unit Cost	BY2008 $M Original UCR Baseline (FEB 2009 APB)	BY2008 $M Current Estimate (DEC 2010 SAR)	BY % Change
Program Acquisition Unit Cost (PAUC)			
Cost	12224.5	12419.4	
Quantity	70	70	
Unit Cost	174.636	177.420	+1.59
Average Procurement Unit Cost (APUC)			
Cost	8871.2	8957.3	
Quantity	65	65	
Unit Cost	136.480	137.805	+0.97

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	N/A	N/A	N/A	N/A	N/A
Current APB	FEB 2009	174.636	136.480	216.747	177.317
Prior Annual SAR	DEC 2009	179.807	141.182	214.593	175.117
Current Estimate	DEC 2010	177.420	137.805	210.644	170.094

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	-10.197	0.000	0.341	0.000	1.450	0.000	2.303	-6.103	210.644

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	-9.545	0.000	0.368	0.000	-0.009	0.000	1.963	-7.223	170.094

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	MAY 2013
IOC	N/A	DEC 2015	N/A	DEC 2015
Total Cost (TY $M)	N/A	15172.3	N/A	14745.1
Total Quantity	N/A	70	N/A	70
Prog. Acq. Unit Cost (PAUC)	N/A	216.747	N/A	210.644

Cost Variance

Cost Variance Summary

Summary Then Year $M				
	RDT&E	Proc	MILCON	Total
SAR Baseline (Dev Est)	3223.6	11525.6	423.1	15172.3
Previous Changes				
Economic	-80.5	-598.8	-11.6	-690.9
Quantity	--	--	--	--
Schedule	--	+43.2	--	+43.2
Engineering	--	--	--	--
Estimating	+73.9	+89.0	+10.4	+173.3
Other	--	--	--	--
Support	--	+323.6	--	+323.6
Subtotal	-6.6	-143.0	-1.2	-150.8
Current Changes				
Economic	-0.5	-21.6	-0.8	-22.9
Quantity	--	--	--	--
Schedule	--	-19.3	--	-19.3
Engineering	--	--	--	--
Estimating	+18.1	-89.6	-0.3	-71.8
Other	--	--	--	--
Support	+33.6	-196.0	--	-162.4
Subtotal	+51.2	-326.5	-1.1	-276.4
Total Changes	+44.6	-469.5	-2.3	-427.2
CE - Cost Variance	3268.2	11056.1	420.8	14745.1
CE - Cost & Funding	3268.2	11056.1	420.8	14745.1

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	--	--	--	--
Engineering	--	--	--	--
Estimating	+53.6	+58.9	+2.8	+115.3
Other	--	--	--	--
Support	--	+246.7	--	+246.7
Subtotal	+53.6	+305.6	+2.8	+362.0
Current Changes				
Economic	--	--	--	--
Quantity	--	--	--	--
Schedule	--	-0.6	--	-0.6
Engineering	--	--	--	--
Estimating	+14.3	-73.5	+7.1	-52.1
Other	--	--	--	--
Support	+31.0	-145.4	--	-114.4
Subtotal	+45.3	-219.5	+7.1	-167.1
Total Changes	+98.9	+86.1	+9.9	+194.9
CE - Cost Variance	3088.2	8957.3	373.9	12419.4
CE - Cost & Funding	3088.2	8957.3	373.9	12419.4

Previous Estimate: December 2009

RDT&E	$M	
Current Change Explanations	Base Year	Then Year
Revised escalation indices. (Economic)	N/A	-0.5
Adjustment for current and prior escalation. (Estimating)	-0.8	-0.8
Reductions in expected staffing costs (Estimating)	-14.4	-15.9
Funding to account for department portfolio priorities and phasing (Estimating)	+30.3	+35.6
Execution year adjustments (Estimating)	-0.8	-0.8
Additional RDT&E funding for maintenance training due to shift from contractor to more efficient organic maintenance concept. (Support)	+31.0	+33.6
RDT&E Subtotal	+45.3	+51.2

Procurement	$M	
Current Change Explanations	Base Year	Then Year
Revised escalation indices. (Economic)	N/A	-21.6
Acceleration of procurement buy profile by two aircraft from FY 2027 moved into FY 2020 and FY 2021. Delayed procurement of one aircraft from FY 2016 to FY 2019. (Schedule)	0.0	-19.2
Additional schedule change to reflect Advance Procurement adjustments (Schedule)	-0.6	-0.1
Decrease due to reductions in expected staffing costs (Estimating)	-3.2	-3.8
Decrease due to updated estimate related to manufacturing and tooling (Estimating)	-41.0	-47.2
Estimating changes related to acceleration of procurement buy profile by two aircraft from FY 2027 moved into FY 2020 and FY 2021 and delayed procurement of one aircraft from FY 2016 to FY 2019. (Estimating)	-29.3	-38.6
Decrease in Other Support due to changes in buy profile, completing in FY 2026 vice FY 2027. (Support)	-139.1	-182.8
Decrease in Initial Spares due to changes in buy profile. (Support)	-6.3	-13.2
Procurement Subtotal	-219.5	-326.5

MILCON	$M	
Current Change Explanations	Base Year	Then Year
Revised escalation indices. (Economic)	N/A	-0.8
Adjustment for current and prior escalation. (Estimating)	+0.1	+0.1
Changes to basing location sequence to satisfy fleet requirements (Estimating)	+7.0	-0.4
MILCON Subtotal	+7.1	-1.1

Contracts

Appropriation: RDT&E

Contract Name	**BAMS 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	N/A	1831.3	N/A	N/A	1748.6	1748.6

Variance	Cost Variance	Schedule Variance
Cumulative Variances To Date (12/31/2010)	-22.6	-32.1
Previous Cumulative Variances	+6.4	+0.3
Net Change	-29.0	-32.4

Cost And Schedule Variance Explanations

The unfavorable net cost and schedule variances are primarily driven by the aggressive contractual targets levied on suppliers. Delays in executing the subsystem level design reviews resulted in overall variances, which are against contract targets that are more aggressive than the top-level Acquisition Program Baseline objectives.

Contract Comments

The increase in the contract price during the reporting period was a result of authorized unpriced work and 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	0	0	5	0.00%
Production	0	0	65	0.00%
Total Program Quantities Delivered	0	0	70	0.00%

Expenditures and Appropriations (TY $M)			
Total Acquisition Cost	14745.1	Years Appropriated	8
Expenditures To Date	1102.1	Percent Years Appropriated	34.78%
Percent Expended	7.47%	Appropriated to Date	1598.5
Total Funding Years	23	Percent Appropriated	10.84%

Total Expenditures to Date as of March 21, 2011.

Operating and Support Cost

Assumptions And Ground Rules

All costs were estimated in FY 2008 dollars, the Base Year (BY) of the estimate.

The MQ-4C Unmanned Aircraft System (UAS) Broad Area Maritime Surveillance (BAMS) Operation and Support (O&S) costs are based on a 2-level maintenance concept. Life cycle is phase-in +20 years of operation per aircraft. Maintenance at Milestone B planned a combination of contractor and Military personnel. December 2010 SAR reflects a shift toward only Military maintenance.

This estimate was based on historical/analogous program costs with an organic 3-level maintenance concept adjusted to a 2-level maintenance concept.

Average annual cost per aircraft is calculated by dividing total O&S cost by the sum of the operational aircraft years.

MQ-4C UAS BAMS Total Operating Aircraft Years:	440
Estimate Duration:	FY 2015 - 2039
Average Flight Hours per Month per Aircraft:	226
Flight Hours per Aircraft per Year	2711
Aircraft Attrition Rate:	4 per 100K Flight Hours
Aircraft per Main Operating Base (MOB):	4
Primary Authorized Aircraft (PAA)	20
Total Operational Aircraft Procured:	68

Date of estimate: January 2011

Costs BY2008 $M		
Cost Element	**MQ-4C UAS BAMS Cost per Air Vehicle per Year**	**No Antecedent**
Unit-Level Manpower	3.395	--
Unit Operations	1.519	--
Maintenance	8.828	--
Sustaining Support	0.542	--
Continuing System Improvements	1.158	--
Indirect Support	1.081	--
Other	--	--
Total Unitized Cost (Base Year 2008 $)	16.523	--

Total O&S Costs $M	MQ-4C UAS BAMS	No Antecedent
Base Year	7270.1	--
Then Year	11364.6	--

MQ-4C UAS BAMS has no antecedent program.