Selected Acquisition Report (SAR)

RCS: DD-A&T(Q&A)823-390

CH-53K

As of December 31, 2011

Defense Acquisition Management
Information Retrieval
(DAMIR)

Table of Contents

Program Information

Designation And Nomenclature (Popular Name)

CH-53K Heavy Lift Replacement (CH-53K)

DoD Component

Navy

Responsible Office

Responsible Office

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Date Assigned January 27, 2011

References

SAR Baseline (Development Estimate)

Defense Acquisition Executive (DAE) Approved Acquisition Program Baseline (APB) dated December 22, 2005

Approved APB

Defense Acquisition Executive (DAE) Approved Acquisition Program Baseline (APB) dated December 22, 2005

Mission and Description

The CH-53K program mission is to generate and support a robust United States Marine Corps (USMC) heavy-lift capability. The primary mission, as defined in the USMC Heavy Lift Replacement (HLR) Operational Requirements Document (ORD) Change 4, dated July 15, 2010**,** is vertical heavy lift**.** The Program includes improvements in lift and range capabilities, commonality, reliability, maintainability, interoperability, ship integration, survivability, and force protection. The CH-53K helicopter will be a replacement for the CH-53E.

Executive Summary

Development of the helicopter has continued and shows a maturing and technically sound design that is currently projected to meet all Key Performance Parameters (KPPs). Critical Technology Elements (CTEs) are maturing to plan, and ground test sub-system activities have begun. First flight is planned for the second quarter of FY 2014. The program office reviewed and validated the System Development and Demonstration (SDD) contract cost Estimate At Completion (EAC) with Naval Air Systems Command (NAVAIR) leadership. The program continues Life Cycle Cost Estimate (LCCE) update activities in support of 2366b re-certification.

Since the last SAR submission, the CH-53K program accomplishments include:

- Conversion of the SDD contract from Cost Plus Award Fee (CPAF) to Cost Plus Incentive Fee (CPIF) on March 31, 2011.

- The Ground Test Vehicle (GTV) began final assembly in July 2011 and is 60% complete as of January 21, 2012.

- The Static Test Article (STA) fuselage was delivered to Sikorsky (Stratford, CT) for final assembly in November 2011 and is 72% complete as of January 21, 2012.

- First Flight vehicle, Engineering Development Model (EDM) #1 entered final assembly on the production line with receipt of the fuselage and sponsons in December 2011.

- Approval of Acquisition Strategy Revision 1, which includes procurement of four System Demonstration Test Articles (SDTAs), on January 18, 2012.

The initial aircraft software build has been loaded to the System Integration Lab (SIL) and is currently in test.

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	☐
Unit Cost	PAUC	☐
	APUC	☐

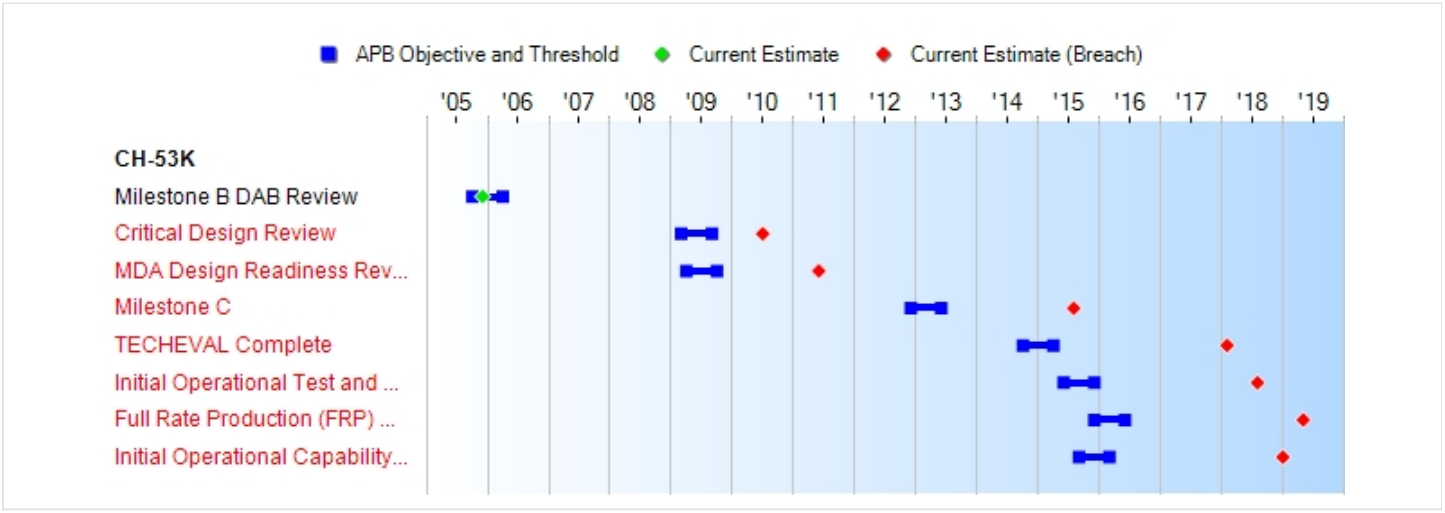
Nunn-McCurdy Breaches		
Current UCR Baseline		
	PAUC	None
	APUC	None
Original UCR Baseline		
	PAUC	None
	APUC	None

Explanation of Breach

Schedule Breach -The program submitted a Program Deviation Report (PDR) on January 12, 2009 indicating schedule breaches to near term Acquisition Program Baseline (APB) milestones. An updated PDR was submitted on June 02, 2009 indicating breaches in all future milestones due to delays in the initial contract award, contractor staffing, subcontract awards, and design and schedule maturation.

Cost Breaches -The updated PDR dated June 02, 2009 also indicated cost breaches in RDT&E, driven by a new estimate, and procurement, driven by increased helicopter quantities from 156 to 200. An updated PDR was submitted on March 09, 2011 to address growth in Operating and Support (O&S) costs, driven by the increase in procurement quantities, longer duration of support, and changes in estimating methodologies.

Schedule



Milestones	SAR Baseline Dev Est	Current APB Development Objective/Threshold		Current Estimate	
Milestone B DAB Review	OCT 2005	OCT 2005	APR 2006	DEC 2005	
Critical Design Review	MAR 2009	MAR 2009	SEP 2009	**JUL 2010**[1]	
MDA Design Readiness Review	APR 2009	APR 2009	OCT 2009	**JUN 2011**[1]	(Ch-1)
Milestone C	DEC 2012	DEC 2012	JUN 2013	**AUG 2015**[1]	
TECHEVAL Complete	OCT 2014	OCT 2014	APR 2015	**FEB 2018**[1]	(Ch-2)
Initial Operational Test and Evaluation (OPEVAL) Complete	JUN 2015	JUN 2015	DEC 2015	**AUG 2018**[1]	
Full Rate Production (FRP) Decision Review	DEC 2015	DEC 2015	JUN 2016	**MAY 2019**[1]	
Initial Operational Capability (IOC)	SEP 2015	SEP 2015	MAR 2016	**JAN 2019**[1]	

[1] *APB Breach*

Acronyms And Abbreviations

APB - Acquisition Program Baseline
DAB - Defense Acquisition Board
FRP - Full Rate Production
IOC - Initial Operational Capability
MDA - Milestone Decision Authority
OPEVAL - Initial Operational Test and Evaluation
TECHEVAL - Technical Evaluation

Change Explanations

(Ch-1) The current Milestone Decision Authority (MDA) Design Readiness Review (DRR) date changed from May 2011 to June 2011 to reflect actual date. Since approval of the Acquisition Program Baseline (APB), Design

Readiness Review (DRR) have been replaced by Post-Critical Design Review (CDR) Assessment. The Program Manager's (PM's) Post-CDR report was approved on June 02, 2011 by Director, Assistant Secretary of Defense for Research and Engineering (ASD(R&E)).

(Ch-2) The current Technical Evaluation (TECHEVAL) Complete date changed from May 2018 to February 2018 to align with current estimated Program Schedule and sequence of events leading to Initial Operational Capability (IOC).

Performance

Characteristics	SAR Baseline Dev Est	Current APB Development Objective/Threshold		Demonstrated Performance	Current Estimate
Net Ready (NR)	Satisfy 100% of NR reqts in Joint Integrated Architecture (JIA)	Satisfy 100% of NR reqts in Joint Integrated Architecture (JIA)	Satisfy 100% of NR reqts designated as enterprise-level or critical in JIA	TBD	Satisfy 100% of NR reqts in Joint Integrated Architecture (JIA)
Range and Payload (nm)	110 w/30,000 lbs external load no refuel	110 w/30,000 lbs external load no refuel	110 w/27,000 lbs external load no refuel	TBD	110 w/27,000 lbs external load no refuel
Mission Reliability (MR)	90%	90%	89%	TBD	89%
Logistics Footprint	10% reduction from current CH-53E	10% reduction from current CH-53E	<= current CH-53E	TBD	<= current CH-53E
Sortie Generation Rate (SGR)/Average Sortie Duration (ASD)	2.6 sorties/ 2.25 hrs	2.6 sorties/ 2.25 hrs	2.6 sorties/ 2.25 hrs	TBD	2.6 sorties/ 2.25 hrs

Requirements Source: Operational Requirements Document (ORD), dated July 15, 2010.

Acronyms And Abbreviations

ASD - Average Sortie Duration
nm - Nautical Miles
SGR - Sortie Generation Rate

Change Explanations

None

Memo

Net Ready Key Performance Parameter (KPP): Joint Variable Message Format (JVMF), Link-16, and Mode 5 capabilities were approved for deferral by Joint Requirements Oversight Council Memorandum (JROCM) 142-10 of September 10, 2010 until Initial Operational Capabilities (IOC) + 6 months for Mode 5 and IOC+2 years for JVMF and Link-16.

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

Track To Budget

RDT&E			
APPN 1319	BA 05	PE 0605212N	(Navy)
	Project 3059	CH-53K Development	
Procurement			
APPN 1506	BA 01	PE 0206122M	(Navy)
	ICN 0158	CH-53K (Heavy Lift)	
APPN 1506	BA 06	PE 0206122M	(Navy)
	ICN 0605	Initial Spares - CH-53K	(Shared)
MILCON			
APPN 1205	BA 01	PE 0216496M	(Navy)
	Project 62573676	HLR Maintenance Training Facility (New River	
	Project 62573729	Operational Trainer Facility (New River)	

Cost and Funding

Cost Summary

Total Acquisition Cost and Quantity

	BY2006 $M			BY2006 $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	3962.0	3962.0	4358.2	**5436.0** [1]	4366.4	4366.4	6153.7
Procurement	11018.9	11018.9	12120.8	**14921.2** [1]	14399.9	14399.9	20453.5
Flyaway	8751.1	--	--	11721.9	11459.8	--	16089.9
Recurring	8557.5	--	--	11450.5	11220.6	--	15741.5
Non Recurring	193.6	--	--	271.4	239.2	--	348.4
Support	2267.8	--	--	3199.3	2940.1	--	4363.6
Other Support	1485.6	--	--	2146.2	1947.7	--	2960.4
Initial Spares	782.2	--	--	1053.1	992.4	--	1403.2
MILCON	0.0	0.0	--	16.3	0.0	0.0	19.6
Acq O&M	0.0	0.0	--	0.0	0.0	0.0	0.0
Total	14980.9	14980.9	N/A	20373.5	18766.3	18766.3	26626.8

[1] ***APB Breach***

Quantity	SAR Baseline Dev Est	Current APB Development	Current Estimate
RDT&E	4	4	4
Procurement	152	152	196
Total	156	156	200

Cost and Funding

Funding Summary

Appropriation and Quantity Summary
FY2013 President's Budget / December 2011 SAR (TY$ M)

Appropriation	Prior	FY2012	FY2013	FY2014	FY2015	FY2016	FY2017	To Complete	Total
RDT&E	2691.1	624.5	606.2	534.8	531.1	480.3	369.2	316.5	6153.7
Procurement	0.0	0.0	0.0	0.0	47.3	441.1	491.5	19473.6	20453.5
MILCON	0.0	0.0	0.0	14.7	4.9	0.0	0.0	0.0	19.6
Acq O&M	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PB 2013 Total	2691.1	624.5	606.2	549.5	583.3	921.4	860.7	19790.1	26626.8
PB 2012 Total	2710.3	629.5	609.8	534.0	526.4	877.1	1782.5	18075.2	25744.8
Delta	-19.2	-5.0	-3.6	15.5	56.9	44.3	-921.8	1714.9	882.0

Quantity	Undistributed	Prior	FY2012	FY2013	FY2014	FY2015	FY2016	FY2017	To Complete	Total
Development	4	0	0	0	0	0	0	0	0	4
Production	0	0	0	0	0	0	2	2	192	196
PB 2013 Total	4	0	0	0	0	0	2	2	192	200
PB 2012 Total	4	0	0	0	0	0	2	9	185	200
Delta	0	0	0	0	0	0	0	-7	7	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
2002	--	--	--	--	--	--	2.0
2003	--	--	--	--	--	--	2.7
2004	--	--	--	--	--	--	4.7
2005	--	--	--	--	--	--	99.3
2006	--	--	--	--	--	--	252.0
2007	--	--	--	--	--	--	338.1
2008	--	--	--	--	--	--	386.3
2009	--	--	--	--	--	--	543.9
2010	--	--	--	--	--	--	503.9
2011	--	--	--	--	--	--	558.2
2012	--	--	--	--	--	--	624.5
2013	--	--	--	--	--	--	606.2
2014	--	--	--	--	--	--	534.8
2015	--	--	--	--	--	--	531.1
2016	--	--	--	--	--	--	480.3
2017	--	--	--	--	--	--	369.2
2018	--	--	--	--	--	--	256.7
2019	--	--	--	--	--	--	59.8
Subtotal	**4**	**--**	**--**	**--**	**--**	**--**	**6153.7**

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

Fiscal Year	Quantity	End Item Recurring Flyaway BY 2006 $M	Non End Item Recurring Flyaway BY 2006 $M	Non Recurring Flyaway BY 2006 $M	Total Flyaway BY 2006 $M	Total Support BY 2006 $M	Total Program BY 2006 $M
2002	--	--	--	--	--	--	2.2
2003	--	--	--	--	--	--	2.9
2004	--	--	--	--	--	--	4.9
2005	--	--	--	--	--	--	100.5
2006	--	--	--	--	--	--	247.4
2007	--	--	--	--	--	--	323.9
2008	--	--	--	--	--	--	363.5
2009	--	--	--	--	--	--	505.3
2010	--	--	--	--	--	--	461.1
2011	--	--	--	--	--	--	501.2
2012	--	--	--	--	--	--	551.0
2013	--	--	--	--	--	--	526.1
2014	--	--	--	--	--	--	456.3
2015	--	--	--	--	--	--	445.1
2016	--	--	--	--	--	--	395.4
2017	--	--	--	--	--	--	298.6
2018	--	--	--	--	--	--	203.9
2019	--	--	--	--	--	--	46.7
Subtotal	**4**	**--**	**--**	**--**	**--**	**--**	**5436.0**

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
2015	--	47.3	--	--	47.3	--	47.3
2016	2	273.7	--	--	273.7	167.4	441.1
2017	2	249.7	--	108.3	358.0	133.5	491.5
2018	9	999.7	--	78.8	1078.5	310.0	1388.5
2019	14	1289.0	--	112.3	1401.3	480.0	1881.3
2020	21	1716.8	--	49.0	1765.8	679.9	2445.7
2021	24	1823.4	--	--	1823.4	496.2	2319.6
2022	24	1809.0	--	--	1809.0	359.7	2168.7
2023	24	1813.4	--	--	1813.4	359.4	2172.8
2024	24	1837.6	--	--	1837.6	360.9	2198.5
2025	24	1887.6	--	--	1887.6	365.0	2252.6
2026	24	1665.9	--	--	1665.9	368.9	2034.8
2027	4	328.4	--	--	328.4	155.7	484.1
2028	--	--	--	--	--	83.6	83.6
2029	--	--	--	--	--	43.4	43.4
Subtotal	**196**	**15741.5**	**--**	**348.4**	**16089.9**	**4363.6**	**20453.5**

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

Fiscal Year	Quantity	End Item Recurring Flyaway BY 2006 $M	Non End Item Recurring Flyaway BY 2006 $M	Non Recurring Flyaway BY 2006 $M	Total Flyaway BY 2006 $M	Total Support BY 2006 $M	Total Program BY 2006 $M
2015	--	39.1	--	--	39.1	--	39.1
2016	2	222.1	--	--	222.1	135.9	358.0
2017	2	199.1	--	86.3	285.4	106.4	391.8
2018	9	782.8	--	61.7	844.5	242.8	1087.3
2019	14	991.5	--	86.4	1077.9	369.2	1447.1
2020	21	1297.2	--	37.0	1334.2	513.8	1848.0
2021	24	1353.4	--	--	1353.4	368.3	1721.7
2022	24	1319.0	--	--	1319.0	262.3	1581.3
2023	24	1298.8	--	--	1298.8	257.4	1556.2
2024	24	1292.9	--	--	1292.9	253.9	1546.8
2025	24	1304.6	--	--	1304.6	252.2	1556.8
2026	24	1131.0	--	--	1131.0	250.5	1381.5
2027	4	219.0	--	--	219.0	103.9	322.9
2028	--	--	--	--	--	54.8	54.8
2029	--	--	--	--	--	27.9	27.9
Subtotal	**196**	**11450.5**	**--**	**271.4**	**11721.9**	**3199.3**	**14921.2**

Cost Quantity Information
1506 | Procurement | Aircraft Procurement, Navy

Fiscal Year	Quantity	End Item Recurring Flyaway (Aligned with Quantity) BY 2006 $M
2015	--	--
2016	2	222.0
2017	2	199.1
2018	9	676.5
2019	14	930.6
2020	21	1275.2
2021	24	1357.2
2022	24	1321.2
2023	24	1299.5
2024	24	1291.1
2025	24	1302.6
2026	24	1316.2
2027	4	259.3
2028	--	--
2029	--	--
Subtotal	**196**	**11450.5**

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

Fiscal Year	Total Program TY $M
2014	14.7
2015	4.9
Subtotal	**19.6**

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

Fiscal Year	Total Program BY 2006 $M
2014	12.3
2015	4.0
Subtotal	**16.3**

Low Rate Initial Production

	Initial LRIP Decision	Current Total LRIP
Approval Date	11/22/2005	1/18/2012
Approved Quantity	29	27
Reference	AS	AS
Start Year	2012	2015
End Year	2015	2019

The current total Low Rate Initial Production (LRIP) quantity is more than 10% of the total production quantity due to Revision 1 of the Acquisition Strategy (AS), dated January 18, 2012.

LRIP previously included 29 CH-53K helicopters (Four (4) Research, Development, Test, and Evaluation (RDT&E) and 25 Aircraft Procurement, Navy (APN) from FY 2016 to FY 2018). A delay in the ramp-up of the procurement buy profile increased the APN total to 27 from FY 2016 to FY 2019. Additionally, the revised AS removes the LRIP designation for the four RDT&E helicopters. This results in 27 total LRIP aircraft, which is 13.5% of the estimated 200 fielded CH-53K helicopters. The Full Operational Capability (FOC) requirement was used to plan Full Rate Production (FRP) capacity and the associated production ramp-up, driving total LRIP quantities above the 10% guidance.

Foreign Military Sales

None

Nuclear Cost

None

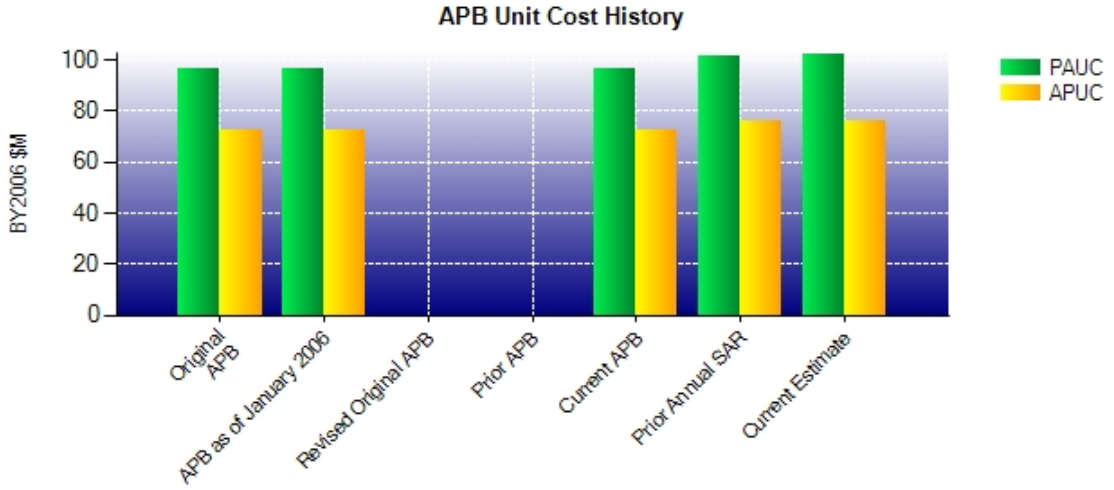
Unit Cost

Unit Cost Report

Unit Cost	BY2006 $M Current UCR Baseline (DEC 2005 APB)	BY2006 $M Current Estimate (DEC 2011 SAR)	BY % Change
Program Acquisition Unit Cost (PAUC)			
Cost	14980.9	20373.5	
Quantity	156	200	
Unit Cost	96.031	101.868	+6.08
Average Procurement Unit Cost (APUC)			
Cost	11018.9	14921.2	
Quantity	152	196	
Unit Cost	72.493	76.129	+5.02

Unit Cost	BY2006 $M Original UCR Baseline (DEC 2005 APB)	BY2006 $M Current Estimate (DEC 2011 SAR)	BY % Change
Program Acquisition Unit Cost (PAUC)			
Cost	14980.9	20373.5	
Quantity	156	200	
Unit Cost	96.031	101.868	+6.08
Average Procurement Unit Cost (APUC)			
Cost	11018.9	14921.2	
Quantity	152	196	
Unit Cost	72.493	76.129	+5.02

Unit Cost History



		BY2006 $M		TY $M	
	Date	PAUC	APUC	PAUC	APUC
Original APB	DEC 2005	96.031	72.493	120.297	94.736
APB as of January 2006	DEC 2005	96.031	72.493	120.297	94.736
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	DEC 2005	96.031	72.493	120.297	94.736
Prior Annual SAR	DEC 2010	101.518	75.623	128.724	99.963
Current Estimate	DEC 2011	101.868	76.129	133.134	104.355

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	
120.297	-1.288	-10.922	11.608	0.000	6.064	0.000	7.375	12.837	133.134

Current SAR Baseline to Current Estimate (TY $M)

Initial APUC Dev Est	Changes								APUC Current Est
	Econ	Qty	Sch	Eng	Est	Oth	Spt	Total	
94.736	-1.312	-5.405	8.062	0.000	0.748	0.000	7.526	9.619	104.355

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	OCT 2005	N/A	DEC 2005
Milestone C	N/A	DEC 2012	N/A	AUG 2015
IOC	N/A	SEP 2015	N/A	JAN 2019
Total Cost (TY $M)	N/A	18766.3	N/A	26626.8
Total Quantity	N/A	156	N/A	200
Prog. Acq. Unit Cost (PAUC)	N/A	120.297	N/A	133.134

Cost Variance

Cost Variance Summary

Summary Then Year $M				
	RDT&E	Proc	MILCON	Total
SAR Baseline (Dev Est)	4366.4	14399.9	--	18766.3
Previous Changes				
Economic	-55.5	-683.0	--	-738.5
Quantity	--	+3108.9	--	+3108.9
Schedule	+741.4	+1148.4	--	+1889.8
Engineering	--	--	--	--
Estimating	+1099.7	+356.4	--	+1456.1
Other	--	--	--	--
Support	--	+1262.2	--	+1262.2
Subtotal	+1785.6	+5192.9	--	+6978.5
Current Changes				
Economic	+55.0	+425.9	--	+480.9
Quantity	--	--	--	--
Schedule	--	+431.7	--	+431.7
Engineering	--	--	--	--
Estimating	-53.3	-209.7	+19.6	-243.4
Other	--	--	--	--
Support	--	+212.8	--	+212.8
Subtotal	+1.7	+860.7	+19.6	+882.0
Total Changes	+1787.3	+6053.6	+19.6	+7860.5
CE - Cost Variance	6153.7	20453.5	19.6	26626.8
CE - Cost & Funding	6153.7	20453.5	19.6	26626.8

Summary Base Year 2006 $M				
	RDT&E	Proc	MILCON	Total
SAR Baseline (Dev Est)	3962.0	11018.9	--	14980.9
Previous Changes				
Economic	--	--	--	--
Quantity	--	+2326.4	--	+2326.4
Schedule	+564.3	+283.7	--	+848.0
Engineering	--	--	--	--
Estimating	+955.1	+377.9	--	+1333.0
Other	--	--	--	--
Support	--	+815.3	--	+815.3
Subtotal	+1519.4	+3803.3	--	+5322.7
Current Changes				
Economic	--	--	--	--
Quantity	--	--	--	--
Schedule	--	+136.8	--	+136.8
Engineering	--	--	--	--
Estimating	-45.4	-154.0	+16.3	-183.1
Other	--	--	--	--
Support	--	+116.2	--	+116.2
Subtotal	-45.4	+99.0	+16.3	+69.9
Total Changes	+1474.0	+3902.3	+16.3	+5392.6
CE - Cost Variance	5436.0	14921.2	16.3	20373.5
CE - Cost & Funding	5436.0	14921.2	16.3	20373.5

Previous Estimate: December 2010

RDT&E	$M	
Current Change Explanations	Base Year	Then Year
Revised escalation indices. (Economic)	N/A	+55.0
Adjustment for current and prior escalation. (Estimating)	-14.8	-16.5
Decrease due to updated budget phasing and funding constraints. (Estimating)	-30.6	-36.8
RDT&E Subtotal	-45.4	+1.7

Procurement	$M	
Current Change Explanations	Base Year	Then Year
Revised escalation indices. (Economic)	N/A	+425.9
Delay in ramp-up of procurement profile, extending procurement by one year. Basic ramp shifted 22 aircraft from FY 2017 through FY 2020 to FY 2026 through FY 2027. (Schedule)	+136.8	+431.7
Decrease in Total Flyaway due to updated phasing of Advance Procurement (AP). (Estimating)	-154.0	-209.7
Increase in Other Support due to delay in ramp-up of production profile and updated phasing. (Support)	+103.6	+177.0
Increase in Initial Spares due to delay in ramp-up of production profile and updated phasing. (Support)	+12.6	+35.8
Procurement Subtotal	+99.0	+860.7

MILCON	$M	
Current Change Explanations	Base Year	Then Year
Increase for additional Operational and Maintenance Training facilities during the transition from CH-53E to CH-53K (original plans assumed use of existing CH-53E facilities, but recent analysis proved them inadequate to support both platforms). (Estimating)	+16.3	+19.6
MILCON Subtotal	+16.3	+19.6

Contracts

Appropriation: RDT&E

Contract Name	**System Development and Demonstration**
Contractor	Sikorsky Aircraft Corporation
Contractor Location	6900 Main Street Stratford, CT 06614
Contract Number, Type	N00019-06-C-0081, CPIF
Award Date	January 03, 2006
Definitization Date	April 05, 2006

Initial Contract Price ($M)			Current Contract Price ($M)			Estimated Price At Completion ($M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
3052.2	N/A	5	3011.8	N/A	5	3681.7	3801.6

Variance	Cost Variance	Schedule Variance
Cumulative Variances To Date (12/31/2011)	-9.6	-8.9
Previous Cumulative Variances	-148.8	-33.0
Net Change	+139.2	+24.1

Cost And Schedule Variance Explanations

The favorable net change in the cost variance is due to Sikorsky completing an Earned Value Management System (EVMS) Over Target Baseline (OTB) during the month of August 2011, resulting in all Cost and Schedule variances being reset to zero.

The favorable net change in the schedule variance is due to Sikorsky completing an Earned Value Management System (EVMS) Over Target Baseline (OTB) during the month of August 2011, resulting in all Cost and Schedule variances being reset to zero.

The primary variance drivers since OTB have been design maturity, producibility, and the first builds of main gear box, harnesses, and System Integration Lab (SIL) facility.

Contract Comments

The difference between the initial contract price target and the current contract price target is due to a reduction in target fee associated with contract type conversion from Contract Plus Award Fee (CPAF) to Contract Plus Incentive Fee (CPIF) and scope adjustments.

The five deliverables on this System Development and Demonstration (SDD) contract are not fully configured end items, and are therefore not included in the Research, Development, Test, and Evaluation (RDT&E) acquisition quantity of four helicopters.

Design is maturing according to plan. Critical technologies (main rotor blade and split torque gearbox) are maturing on plan and Technical Readiness Level (TRL) 6 was achieved in February 2010.

Deliveries and Expenditures

Deliveries To Date	Plan To Date	Actual To Date	Total Quantity	Percent Delivered
Development	0	0	4	0.00%
Production	0	0	196	0.00%
Total Program Quantities Delivered	0	0	200	0.00%

Expenditures and Appropriations (TY $M)			
Total Acquisition Cost	26626.8	Years Appropriated	11
Expenditures To Date	2651.7	Percent Years Appropriated	39.29%
Percent Expended	9.96%	Appropriated to Date	3315.6
Total Funding Years	28	Percent Appropriated	12.45%

Deliveries and expenditures are current as of December 31, 2011.

Operating and Support Cost

Assumptions And Ground Rules

The CH-53K Operating and Support (O&S) Costs shown represent FY 2013 President's Budget (PB 2013) estimates, including 200 helicopters on the current program schedule. This reflects a minor increase (<1%) from the 2010 SAR/PB 2012 O&S estimate from $38,450.6 to $38,618.3 (Base Year (BY) 2006$M). Areas of change include updates to military pay rates, fuel rates, squadron quantity and size (9 Marine Heavy Helicopter Squadrons (HMH) & .5 HMH Reserve to 8 HMH & 1 HMH Reserve), and program procurement schedules.

Estimate Duration = FY 2018 – FY 2059
CH-53K Fatigue Life = 10,000 Hours
Aircraft Attrition Rate = 0.5% of Total Aircraft Inventory (TAI) per year
Aircraft Pipeline Rate = 15.5% of TAI
Total Helicopters = 200 (196 Aircraft Procurement, Navy (APN) + 4 System Demonstration Test Articles (SDTA))
Squadrons: 10 (8 HMH squadrons/ 1 HMH (reserve) squadron/ 1 Marine Helicopter Training (HMT) squadron
Helicopters per HMH squadron: 16
Helicopters per HMH (reserve) squadron: 16
Helicopters per HMT squadron: 21
Monthly Flight Hours (FH) per Helicopter (TAI): 17.9
Total Operating Helicopter Years: 6,060

CH-53K Avg Annual Cost per Helicopter = Total O&S Costs (BY) / Total Operating Helicopter Years.

CH-53E Avg Annual Cost per Helicopter reflects average Visibility and Management of Operating and Support Costs (VAMOSC) data from FY 2008 to FY 2010. CH-53E is not capable of meeting Joint Requirements Oversight Council (JROC) Key Performance Parameter (KPP) requirements established for the CH-53K.

CH-53E Total O&S Costs remain unavailable due to insufficient historical data (CH-53Es first delivered in FY 1979, and VAMOSC provides costs starting in FY 1997).

Date and source of estimate: January 2012 by Naval Air Systems Command (NAVAIR) 4.2.2

Costs BY2006 $M		
Cost Element	**CH-53K Avg Annual Cost Per Helicopter**	**CH-53E Avg Annual Cost Per Helicopter**
Unit-Level Manpower	1.193	1.213
Unit Operations	0.257	0.231
Maintenance	3.847	3.245
Sustaining Support	0.160	0.117
Continuing System Improvements	0.351	0.783
Indirect Support	0.564	0.573
Other	0.000	0.000
Total Unitized Cost (Base Year 2006 $)	6.372	6.162

Total O&S Costs $M	CH-53K	CH-53E
Base Year	38618.3	0.0
Then Year	87095.7	0.0

As defined by the Cost Assessment and Program Evaluation Department O&S Cost Estimating Guide of October

2007, disposal costs are not part of O&S. They are not currently estimated for this program.