Selected Acquisition Report (SAR)

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

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

As of FY 2015 President's Budget

Defense Acquisition Management
Information Retrieval
(DAMIR)

Table of Contents

Common Acronyms and Abbreviations

Acq O&M - Acquisition-Related Operations and Maintenance
APB - Acquisition Program Baseline
APPN - Appropriation
APUC - Average Procurement Unit Cost
BA - Budget Authority/Budget Activity
BY - Base Year
DAMIR - Defense Acquisition Management Information Retrieval
Dev Est - Development Estimate
DoD - Department of Defense
DSN - Defense Switched Network
Econ - Economic
Eng - Engineering
Est - Estimating
FMS - Foreign Military Sales
FY - Fiscal Year
IOC - Initial Operational Capability
$K - Thousands of Dollars
LRIP - Low Rate Initial Production
$M - Millions of Dollars
MILCON - Military Construction
N/A - Not Applicable
O&S - Operating and Support
Oth - Other
PAUC - Program Acquisition Unit Cost
PB - President's Budget
PE - Program Element
Proc - Procurement
Prod Est - Production Estimate
QR - Quantity Related
Qty - Quantity
RDT&E - Research, Development, Test, and Evaluation
SAR - Selected Acquisition Report
Sch - Schedule
Spt - Support
TBD - To Be Determined
TY - Then Year
UCR - Unit Cost Reporting

Program Information

Program Name

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

DoD Component

Navy

Responsible Office

Responsible Office

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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 April 24, 2013

Mission and Description

The Heavy Lift Replacement (CH-53K) program mission is to generate and support a robust United States Marine Corps heavy-lift capability. The primary mission**,** 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. Critical Technology Elements are maturing to plan, and sub-system ground test activities have begun. First flight is planned for FY 2015. Since the last submission, the CH-53K program accomplishments include:

- The System Demonstration Test Article contract was awarded May 30, 2013.
- Bare Head Light Off of the Ground Test Vehicle was achieved. The Auxiliary Power Unit start was successful on the first attempt and five additional starts were successfully executed for a total run time of 118 minutes.
- All four Engineering Development Models have achieved “power on” status.
- EDM #2 has been delivered to test and instrumentation has begun.
- Aircraft software continues to be updated at the System Integration Lab and is currently in test.

Budgetary constraints delayed start of the Aircraft Procurement Navy program by one year.

The current Full Rate Production quantities have increased from 169 to 174 over FY 2021 to FY 2028. Two additional System Development Test Article aircraft will be procured under RDT&E funding; however, this does not change total Program of Record quantity of 200 aircraft. This change is part of an Acquisition Strategy revision that is currently in staffing for approval.

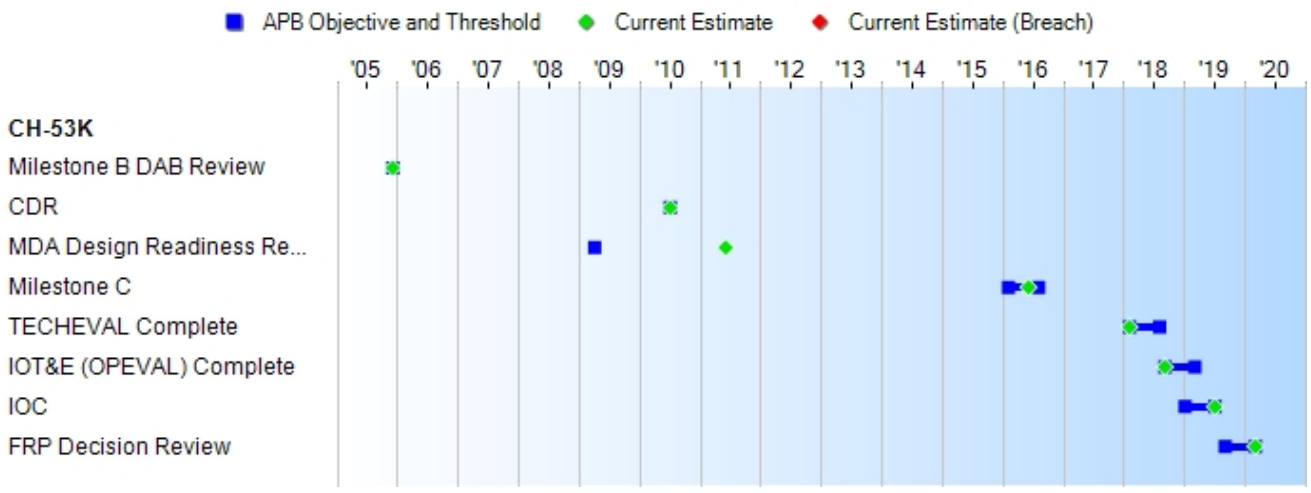
There are no significant software-related issues with this program at this time.

Threshold Breaches

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

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

Schedule



Milestones	SAR Baseline Dev Est	Current APB Development Objective/Threshold		Current Estimate	
Milestone B DAB Review	OCT 2005	DEC 2005	DEC 2005	DEC 2005	
CDR	MAR 2009	JUL 2010	JUL 2010	JUL 2010	
MDA Design Readiness Review	APR 2009	N/A	N/A	JUN 2011	
Milestone C	DEC 2012	FEB 2016	AUG 2016	JUN 2016	(Ch-1)
TECHEVAL Complete	OCT 2014	FEB 2018	AUG 2018	FEB 2018	
IOT&E (OPEVAL) Complete	JUN 2015	SEP 2018	MAR 2019	SEP 2018	
IOC	SEP 2015	JAN 2019	JUL 2019	JUL 2019	(Ch-1)
FRP Decision Review	DEC 2015	SEP 2019	MAR 2020	MAR 2020	(Ch-2)

Change Explanations

(Ch-1) The current estimate for Milestone C and IOC changed from February 2016 to June 2016 and from January 2019 to July 2019, respectively, to align with current estimated program schedule based on FY 2015 PB controls.

(Ch-2) The current estimate for FRP changed from September 2019 to March 2020 due to a budget-driven one year delay to production start date. Program analysis is underway to determine impacts to Pre-FRP requirements and subsequent schedule impacts.

Acronyms and Abbreviations

CDR - Critical Design Review
DAB - Defense Acquisition Board
FRP - Full Rate Production
IOT&E - Initial Operational Test and Evaluation. Used interchangeably with Operational Evaluation (OPEVAL).
MDA - Milestone Decision Authority
OPEVAL - Operational Evaluation. Used interchangeably with Initial Operational Test and Evaluation (IOT&E).
TECHEVAL - Technical Evaluation

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 JIA	Satisfy 100% of NR reqts designated as enterprise-level or critical in JIA	TBD	Satisfy 100% of NR reqts in 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

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

Requirements Source

Operational Requirements Document (ORD) Change 4 dated July 15, 2010

Change Explanations

None

Memo

Net Ready KPP: JVMF, Link-16, and Mode 5 capabilities were approved for deferral by JROCM 142-10 of September 10, 2010 until IOC + 6 months for Mode 5 and IOC+2 years for JVMF and Link-16.

Acronyms and Abbreviations

hrs - Hours
JROCM - Joint Requirements Oversight Council Memorandum
JVMF - Joint Variable Message Format
KPP - Key Performance Parameter
lbs - Pounds
nm - Nautical Miles
reqts - Requirements

Track to Budget

RDT&E

Appn		BA	PE
Navy	1319	05	0605212N
	Project		**Name**
	3059		CH-53K Development

Procurement

Appn		BA	PE
Navy	1506	01	0206122M
	Line Item		**Name**
	0158		CH-53K (Heavy Lift)
Navy	1506	06	0206122M
	Line Item		**Name**
	0605		Initial Spares - CH-53K

MILCON

Appn		BA	PE
Navy	1205	01	0202176M
	Project		**Name**
	00318891		CH-53 Infrastructure Upgrades (Kanehoe Bay, HI)
	62573676		CH-53K Maintenance Training Facility (New River, NC)

Cost and Funding

Cost Summary

Total Acquisition Cost and Quantity

Appropriation	BY2006 $M			BY2006 $M	TY $M		
	SAR Baseline Dev Est	Current APB Development Objective/Threshold		Current Estimate	SAR Baseline Dev Est	Current APB Development Objective	Current Estimate
RDT&E	3962.0	5535.9	6089.5	5753.9	4366.4	6273.7	6590.9
Procurement	11018.9	16118.3	17730.0	15855.1	14399.9	22178.8	22827.4
Flyaway	--	--	--	13641.1	--	--	19705.3
Recurring	--	--	--	13220.1	--	--	19108.0
Non Recurring	--	--	--	421.0	--	--	597.3
Support	--	--	--	2214.0	--	--	3122.1
Other Support	--	--	--	1734.6	--	--	2448.8
Initial Spares	--	--	--	479.4	--	--	673.3
MILCON	0.0	39.6	43.6	35.1	0.0	48.1	45.4
Acq O&M	0.0	0.0	--	0.0	0.0	0.0	0.0
Total	14980.9	21693.8	N/A	21644.1	18766.3	28500.6	29463.7

Confidence Level for Current APB Cost 50% -

The cost estimate recommendation aims to provide sufficient resources to execute the program under normal conditions, encountering average levels of technical, schedule, and programmatic risk and external interference. It is consistent with average resource expenditures on historical efforts of similar size, scope, and complexity.

Quantity	SAR Baseline Dev Est	Current APB Development	Current Estimate
RDT&E	4	4	6
Procurement	152	196	194
Total	156	200	200

Cost and Funding

Funding Summary

Appropriation and Quantity Summary
FY2015 President's Budget / December 2013 SAR (TY$ M)

Appropriation	Prior	FY2014	FY2015	FY2016	FY2017	FY2018	FY2019	To Complete	Total
RDT&E	3832.9	462.3	573.2	714.1	471.4	185.1	186.2	165.7	6590.9
Procurement	0.0	0.0	0.0	47.9	507.6	792.1	1154.6	20325.2	22827.4
MILCON	0.0	13.2	0.0	0.0	0.0	0.0	32.2	0.0	45.4
Acq O&M	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PB 2015 Total	3832.9	475.5	573.2	762.0	979.0	977.2	1373.0	20490.9	29463.7
PB 2014 Total	3903.6	516.4	644.6	958.2	1152.9	1337.7	2405.5	17605.5	28524.4
Delta	-70.7	-40.9	-71.4	-196.2	-173.9	-360.5	-1032.5	2885.4	939.3

Quantity	Undistributed	Prior	FY2014	FY2015	FY2016	FY2017	FY2018	FY2019	To Complete	Total
Development	6	0	0	0	0	0	0	0	0	6
Production	0	0	0	0	0	2	4	7	181	194
PB 2015 Total	6	0	0	0	0	2	4	7	181	200
PB 2014 Total	4	0	0	0	2	4	7	14	169	200
Delta	2	0	0	0	-2	-2	-3	-7	12	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	--	--	--	--	--	--	606.3
2013	--	--	--	--	--	--	535.5
2014	--	--	--	--	--	--	462.3
2015	--	--	--	--	--	--	573.2
2016	--	--	--	--	--	--	714.1
2017	--	--	--	--	--	--	471.4
2018	--	--	--	--	--	--	185.1
2019	--	--	--	--	--	--	186.2
2020	--	--	--	--	--	--	165.7
Subtotal	**6**	**--**	**--**	**--**	**--**	**--**	**6590.9**

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	--	--	--	--	--	--	461.2
2011	--	--	--	--	--	--	498.7
2012	--	--	--	--	--	--	532.4
2013	--	--	--	--	--	--	462.9
2014	--	--	--	--	--	--	392.9
2015	--	--	--	--	--	--	478.3
2016	--	--	--	--	--	--	584.3
2017	--	--	--	--	--	--	378.1
2018	--	--	--	--	--	--	145.6
2019	--	--	--	--	--	--	143.6
2020	--	--	--	--	--	--	125.3
Subtotal	**6**	**--**	**--**	**--**	**--**	**--**	**5753.9**

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
2016	--	41.3	--	--	41.3	6.6	47.9
2017	2	300.9	--	1.7	302.6	205.0	507.6
2018	4	532.1	--	12.9	545.0	247.1	792.1
2019	7	773.9	--	73.8	847.7	306.9	1154.6
2020	7	897.0	--	76.3	973.3	339.7	1313.0
2021	14	1552.5	--	102.1	1654.6	233.8	1888.4
2022	21	2056.1	--	88.6	2144.7	232.0	2376.7
2023	24	2258.4	--	20.9	2279.3	273.5	2552.8
2024	24	2271.1	--	20.6	2291.7	247.4	2539.1
2025	24	2295.6	--	20.4	2316.0	244.8	2560.8
2026	24	2338.4	--	49.8	2388.2	241.9	2630.1
2027	24	2274.7	--	50.6	2325.3	224.3	2549.6
2028	19	1516.0	--	79.6	1595.6	192.8	1788.4
2029	--	--	--	--	--	63.8	63.8
2030	--	--	--	--	--	62.5	62.5
Subtotal	**194**	**19108.0**	**--**	**597.3**	**19705.3**	**3122.1**	**22827.4**

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
2016	--	33.3	--	--	33.3	5.3	38.6
2017	2	237.7	--	1.3	239.0	162.0	401.0
2018	4	412.1	--	10.0	422.1	191.4	613.5
2019	7	587.6	--	56.0	643.6	233.1	876.7
2020	7	667.8	--	56.8	724.6	252.9	977.5
2021	14	1133.1	--	74.5	1207.6	170.6	1378.2
2022	21	1471.2	--	63.4	1534.6	166.0	1700.6
2023	24	1584.3	--	14.7	1599.0	191.8	1790.8
2024	24	1562.0	--	14.2	1576.2	170.1	1746.3
2025	24	1547.8	--	13.8	1561.6	165.1	1726.7
2026	24	1545.8	--	32.9	1578.7	159.9	1738.6
2027	24	1474.2	--	32.8	1507.0	145.4	1652.4
2028	19	963.2	--	50.6	1013.8	122.5	1136.3
2029	--	--	--	--	--	39.7	39.7
2030	--	--	--	--	--	38.2	38.2
Subtotal	**194**	**13220.1**	**--**	**421.0**	**13641.1**	**2214.0**	**15855.1**

Cost Quantity Information
1506 | Procurement | Aircraft Procurement, Navy

Fiscal Year	Quantity	End Item Recurring Flyaway (Aligned with Quantity) BY 2006 $M
2016	--	--
2017	2	201.2
2018	4	368.4
2019	7	588.1
2020	7	559.0
2021	14	1027.4
2022	21	1446.3
2023	24	1586.8
2024	24	1562.7
2025	24	1547.2
2026	24	1544.5
2027	24	1545.4
2028	19	1243.1
2029	--	--
2030	--	--
Subtotal	**194**	**13220.1**

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

Fiscal Year	Total Program TY $M
2014	13.2
2015	--
2016	--
2017	--
2018	--
2019	32.2
Subtotal	**45.4**

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

Fiscal Year	Total Program BY 2006 $M
2014	10.9
2015	--
2016	--
2017	--
2018	--
2019	24.2
Subtotal	**35.1**

Low Rate Initial Production

	Initial LRIP Decision	Current Total LRIP
Approval Date	11/22/2005	2/5/2014
Approved Quantity	29	20
Reference	Milestone B Acquisition Strategy (AS)	PB-15 Budget Controls
Start Year	2012	2017
End Year	2015	2020

The Current Total LRIP Quantity is more than 10% of the total production quantity due to the need to plan for an efficient production ramp-up.

Budgetary constraints delayed start of the Aircraft Procurement Navy program by one year; therefore, the current LRIP quantities have decreased and LRIP is expected to begin in 2017.

Foreign Military Sales

None

Nuclear Costs

None

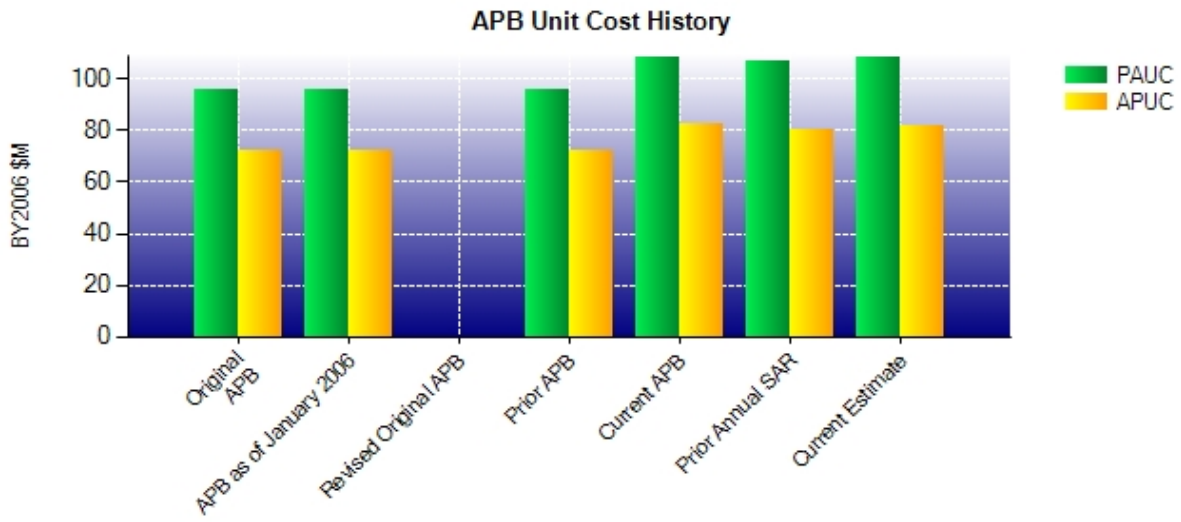
Unit Cost

Unit Cost Report

Unit Cost	BY2006 $M Current UCR Baseline (APR 2013 APB)	BY2006 $M Current Estimate (DEC 2013 SAR)	BY % Change
Program Acquisition Unit Cost (PAUC)			
Cost	21693.8	21644.1	
Quantity	200	200	
Unit Cost	108.469	108.220	-0.23
Average Procurement Unit Cost (APUC)			
Cost	16118.3	15855.1	
Quantity	196	194	
Unit Cost	82.236	81.727	-0.62

Unit Cost	BY2006 $M Original UCR Baseline (DEC 2005 APB)	BY2006 $M Current Estimate (DEC 2013 SAR)	BY % Change
Program Acquisition Unit Cost (PAUC)			
Cost	14980.9	21644.1	
Quantity	156	200	
Unit Cost	96.031	108.220	+12.69
Average Procurement Unit Cost (APUC)			
Cost	11018.9	15855.1	
Quantity	152	194	
Unit Cost	72.493	81.727	+12.74

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	DEC 2005	96.031	72.493	120.297	94.736
Current APB	APR 2013	108.469	82.236	142.503	113.157
Prior Annual SAR	DEC 2012	106.704	80.614	142.622	113.155
Current Estimate	DEC 2013	108.220	81.727	147.318	117.667

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	0.740	-10.580	16.271	0.140	19.388	0.000	1.062	27.021	147.318

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	0.656	-5.411	12.620	0.000	14.306	0.000	0.760	22.931	117.667

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	JUN 2016
IOC	N/A	SEP 2015	N/A	JUL 2019
Total Cost (TY $M)	N/A	18766.3	N/A	29463.7
Total Quantity	N/A	156	N/A	200
Prog. Acq. Unit Cost (PAUC)	N/A	120.297	N/A	147.318

Cost Variance

Summary Then Year $M				
	RDT&E	Proc	MILCON	Total
SAR Baseline (Dev Est)	4366.4	14399.9	--	18766.3
Previous Changes				
Economic	+50.7	+231.1	+0.4	+282.2
Quantity	--	+3108.9	--	+3108.9
Schedule	+761.7	+1588.9	--	+2350.6
Engineering	--	--	+28.1	+28.1
Estimating	+1054.2	+2627.6	+19.6	+3701.4
Other	--	--	--	--
Support	+64.9	+222.0	--	+286.9
Subtotal	+1931.5	+7778.5	+48.1	+9758.1
Current Changes				
Economic	-29.8	-103.8	-0.5	-134.1
Quantity	+248.0	-179.8	--	+68.2
Schedule	+44.3	+859.3	--	+903.6
Engineering	--	--	--	--
Estimating	+30.5	+147.8	-2.2	+176.1
Other	--	--	--	--
Support	--	-74.5	--	-74.5
Subtotal	+293.0	+649.0	-2.7	+939.3
Total Changes	+2224.5	+8427.5	+45.4	+10697.4
CE - Cost Variance	6590.9	22827.4	45.4	29463.7
CE - Cost & Funding	6590.9	22827.4	45.4	29463.7

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	+579.9	+431.9	--	+1011.8
Engineering	--	--	+21.5	+21.5
Estimating	+907.0	+1968.8	+16.3	+2892.1
Other	--	--	--	--
Support	+53.6	+54.4	--	+108.0
Subtotal	+1540.5	+4781.5	+37.8	+6359.8
Current Changes				
Economic	--	--	--	--
Quantity	+201.7	-116.5	--	+85.2
Schedule	+24.0	+174.1	--	+198.1
Engineering	--	--	--	--
Estimating	+25.7	+105.3	-2.7	+128.3
Other	--	--	--	--
Support	--	-108.2	--	-108.2
Subtotal	+251.4	+54.7	-2.7	+303.4
Total Changes	+1791.9	+4836.2	+35.1	+6663.2
CE - Cost Variance	5753.9	15855.1	35.1	21644.1
CE - Cost & Funding	5753.9	15855.1	35.1	21644.1

Previous Estimate: December 2012

RDT&E	$M	
Current Change Explanations	**Base Year**	**Then Year**
Revised escalation indices. (Economic)	N/A	-29.8
Adjustment for current and prior escalation. (Estimating)	+11.6	+13.3
Revised estimate to reflect the application of new outyear inflation indices. (Estimating)	+14.1	+17.2
Quantity variance resulting from procurement of two additional System Demonstration Test Articles. (Quantity)	+201.7	+248.0
Stretch-out of development effort due to funding constraints in FY 2014 to FY 2019. (Schedule)	+24.0	+44.3
RDT&E Subtotal	+251.4	+293.0

Procurement	$M	
Current Change Explanations	**Base Year**	**Then Year**
Revised escalation indices. (Economic)	N/A	-103.8
Total Quantity variance resulting from a decrease of two production aircraft from 196 to 194. (Subtotal)	-113.8	-175.6
Quantity variance resulting from a decrease of two production aircraft from 196 to 194. (Quantity)	(-97.9)	(-151.1)
Allocation to Schedule resulting from Quantity change. (Schedule) (QR)	(-6.0)	(-9.3)
Allocation to Estimating resulting from Quantity change. (Estimating) (QR)	(-9.9)	(-15.2)
Additional Quantity variance resulting from a decrease of two production aircraft from 196 to 194. (Quantity)	-18.6	-28.7
Stretch-out of procurement buy profile from FY 2016 to FY 2017 due to a one year delay in production start and updated aircraft phasing. (Schedule)	0.0	+639.9
Additional Schedule variance due to a one year delay in production start and updated aircraft phasing. (Schedule)	+180.1	+228.7
Revised estimate due to updated cost estimating methodologies. (Estimating)	+38.3	+59.2
Revised estimate to reflect the application of new outyear inflation indices. (Estimating)	+76.9	+103.8
Increase in Other Support due to stretch out of procurement buy profile. (Support)	+29.8	+92.6
Decrease in Initial Spares required to support fleet assets due to reduced ramp in production. (Support)	-138.0	-167.1
Procurement Subtotal	+54.7	+649.0

(QR) Quantity Related

MILCON	$M	
Current Change Explanations	**Base Year**	**Then Year**
Revised escalation indices. (Economic)	N/A	-0.5
Adjustment for current and prior escalation. (Estimating)	+0.1	+0.1
Revised estimate due to updated estimating methodologies. (Estimating)	-2.8	-2.3
MILCON Subtotal	-2.7	-2.7

Contracts

Appropriation: RDT&E	
Contract Name	**System Development and Demonstration**
Contractor	Sikorsky Aircraft Corporation
Contractor Location	6900 Main Street Stratford, CT 06615-9129
Contract Number, Type	N00019-06-C-0081, CPIF
Award Date	January 03, 2006
Definitization Date	January 03, 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	0	3019.0	N/A	5	3727.6	3909.4

Target Price Change Explanation

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 Cost Plus Award Fee to Cost Plus Incentive Fee and scope adjustments.

Variance	Cost Variance	Schedule Variance
Cumulative Variances To Date (1/31/2014)	-68.1	-127.4
Previous Cumulative Variances	-27.6	-131.8
Net Change	-40.5	+4.4

Cost and Schedule Variance Explanations

The unfavorable net change in the cost variance is due to delayed component testing and late part deliveries.

The favorable net change in the schedule variance is due to previously late parts being delivered from subcontractors, resulting in completing various component testing (i.e., Main Gearbox, Hydraulic Transfer Modules) with subsequent marginal schedule recovery.

Contract Comments

The definitization date above reflects the definitization of the Interim System Development and Demonstration (iSDD) contract for $7.63M. On April 5, 2006 the System Development and Demonstration (SDD) contract was signed for the negotiated cost of $2.73B.

Initial Contract Price Quantity was updated to correct previous submissions. The iSDD contract had a quantity of 0. This quantity was later negotiated to 5 when the full SDD contract was initialized.

Appropriation: RDT&E

Contract Name	**System Demonstration Test Articles**
Contractor	Sikorsky Aircraft Corporation
Contractor Location	6900 Main Street Stratford, CT 06615-9129
Contract Number, Type	N00019-06-C-0081/2, CPIF
Award Date	May 30, 2013
Definitization Date	May 30, 2013

Initial Contract Price ($M)			Current Contract Price ($M)			Estimated Price at Completion ($M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
435.3	N/A	4	435.3	N/A	4	435.3	495.6

Variance	Cost Variance	Schedule Variance
Cumulative Variances To Date (1/31/2014)	+1.1	-2.9
Previous Cumulative Variances	--	--
Net Change	+1.1	-2.9

Cost and Schedule Variance Explanations

The favorable cumulative cost variance is due to less manpower than planned.

The unfavorable cumulative schedule variance is due to delivery delays of long lead material.

Contract Comments

This is the first time this contract is being reported.

The Program has not held a formal Integrated Baseline Review or Estimate At Completion (EAC) / Schedule Risk Assessment. Therefore, the Program Manager's EAC will be revised at the next update.

Deliveries and Expenditures

Delivered to Date	Plan to Date	Actual to Date	Total Quantity	Percent Delivered
Development	0	0	6	0.00%
Production	0	0	194	0.00%
Total Program Quantity Delivered	0	0	200	0.00%

Expended and Appropriated (TY $M)			
Total Acquisition Cost	29463.7	Years Appropriated	13
Expended to Date	3576.8	Percent Years Appropriated	44.83%
Percent Expended	12.14%	Appropriated to Date	4308.4
Total Funding Years	29	Percent Appropriated	14.62%

The above data is current as of 2/24/2014.

Operating and Support Cost

CH-53K

Assumptions and Ground Rules

Cost Estimate Reference:
- Estimate Source: Naval Air Systems Command 4.2 February 2014 O&S Update

Sustainment Strategy:
- Organizational, Intermediate, and Depot level maintenance capabilities.
- Organizational and Intermediate level military maintenance support.
- Depot level government and contractor mixed maintenance support.
- Helicopter Service Life: 30 years.
- Estimate Duration: FY 2019 to 2060.
- Aircraft Attrition Rate: 0.5% of Total Aircraft Inventory (TAI) per year.
- Aircraft Pipeline Factor: 15.5% of TAI.
- Total Helicopters Sustained: 200.
- Squadrons: 10 Marine Heavy Helicopter (HMH) squadrons (8 active / 1 reserve) / 1 Marine Training (HMHT) squadron.
- Helicopters per HMH (active) squadron: 16.
- Helicopters per HMH (reserve) squadron: 16.
- Helicopters per HMHT squadron: 21.
- Monthly Flight Hours (FH) per Helicopter (TAI): 17.9.
- Aircraft reliability projections per NAVAIR-4.1.10 input.
- Total Operating Helicopter Years: 4,961.

Antecedent Information:
- Antecedent CH-53E data representative of FY 2010 to FY 2012 average of Visibility And Management of Operating and Support Cost (VAMOSC) reported cost data.
- CH-53E is not capable of meeting Joint Requirements Oversight Council Key Performance Parameter requirements established for the CH-53K (CH-53K provides three times the lift capability compared to CH-53E).
- CH-53E Total O&S Cost (Base Year 2006$) = CH-53E Annual O&S Cost per Helicopter * CH-53K Total Operating Helicopter Years. As historical data is unavailable for all years of the Antecedent System's life cycle, the calculation is supplemented with CH-53K data.

Unitized O&S Costs BY2006 $K		
Cost Element	**CH-53K Avg Annual Cost Per Helicopter**	**CH-53E (Antecedent) Avg Annual Cost Per Helicopter**
Unit-Level Manpower	1119.000	1286.000
Unit Operations	420.000	280.000
Maintenance	4745.000	3223.000
Sustaining Support	191.000	104.000
Continuing System Improvements	592.000	787.000
Indirect Support	490.000	596.000
Other	0.000	0.000
Total	7557.000	6276.000

Unitized Cost Comments:

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

	Total O&S Cost $M			
	Current Development APB Objective/Threshold		Current Estimate	
	CH-53K		CH-53K	CH-53E (Antecedent)
Base Year	37520.3	41272.3	37486.6	31134.3
Then Year	78156.7	N/A	75042.6	N/A

Total O&S Costs Comments:

O&S Cost Variance		
Category	Base Year 2006 $M	Change Explanations
Prior SAR Total O&S Estimate - December 2012	37,496.2	
Cost Estimating Methodology	0.0	
Cost Data Update	-268.4	Updated VAMOSC data, inflation factors, and other cost inputs
Labor Rate	-239.5	2014 Military Composite Pay Rates
Energy Rate	+306.7	Fuel price alignment with current rates
Technical Input	+0.0	
Programmatic/Planning Factors	+191.6	Schedule alignment with PB-15 procurement profile
Other	0.0	
Total Changes	-9.6	
Current Estimate	+37,486.6	

Disposal Costs:

Based on the identified programmatic baseline, the estimated cost of the Demil/Disposal phase for the CH-53K is $23.9 (BY2006$M) The estimate will be refined at Milestone C based on the System Disposal Plan Annex to the Life Cycle Sustainment Plan.