Selected Acquisition Report (SAR)

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

CH-53K

As of December 31, 2010

Defense Acquisition Management
Information Retrieval
(DAMIR)

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Program Information

Designation And Nomenclature (Popular Name)

CH-53K - Heavy Lift Replacement

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

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), is vertical heavy lift; this 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-53D and CH-53E.

Executive Summary

Since the last SAR submission, the CH-53K has:

- Achieved Technology Readiness Level (TRL) of 6 on both remaining critical technologies (main rotor blade and split torque gearbox) in February 2010
- Conducted System Critical Design Review (CDR) in July 2010
- Commenced System Integration Lab operations in October 2010
- Commenced test articles and tooling fabrication in November 2010
- Joined and delivered Ground Test Vehicle Fuselage in December 2010

Development of the helicopter has continued and shows a maturing and technically sound design that is currently projecting to meet all 7 Key Performance Parameters (KPPs). Critical Technology Elements are maturing to plan and ground test activities will begin in late FY 2012, with first flight planned for second quarter FY 2013.

In June 2010 the program reviewed and validated the SDD Contract Cost Estimate At Completion (EAC) with NAVAIR leadership. The program began Life Cycle Cost Estimate (LCCE) update activities in 2010, in support of 2366b Re-certification and a potential Re-baseline. The program plans to conduct similar reviews on the entire LCCE and expects this effort to complete in 2011.

There are no significant software related issues for the CH-53K program.

Threshold Breaches

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

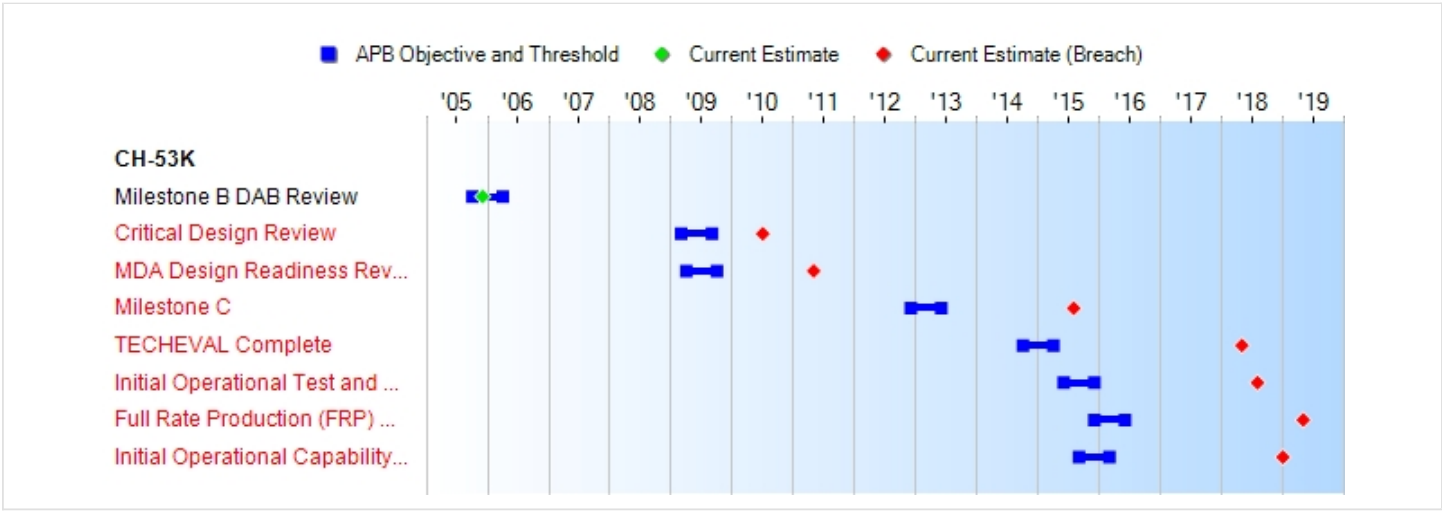
Nunn-McCurdy Breaches		
Current UCR Baseline		
	PAUC	None
	APUC	None
Original UCR Baseline		
	PAUC	None
	APUC	None

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.

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]	(Ch-1)
MDA Design Readiness Review	APR 2009	APR 2009	OCT 2009	**MAY 2011**[1]	(Ch-2)
Milestone C	DEC 2012	DEC 2012	JUN 2013	**AUG 2015**[1]	(Ch-2)
TECHEVAL Complete	OCT 2014	OCT 2014	APR 2015	**MAY 2018**[1]	(Ch-2)
Initial Operational Test and Evaluation (OPEVAL) Complete	JUN 2015	JUN 2015	DEC 2015	**AUG 2018**[1]	(Ch-2)
Full Rate Production (FRP) Decision Review	DEC 2015	DEC 2015	JUN 2016	**MAY 2019**[1]	(Ch-2)
Initial Operational Capability (IOC)	SEP 2015	SEP 2015	MAR 2016	**JAN 2019**[1]	(Ch-2)

[1] *APB Breach*

Acronyms And Abbreviations

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) Reflects actual date of Critical Design Review from TBD to Jul 2010.

(Ch-2) Current estimate for all future milestones is based on the Integrated Master Schedule (IMS), adjusted to

reflect the current funding profile. MDA Design Readiness Review changed from TBD to May 2011, Milestone C changed from TBD to Aug 2015, Technical Evaluation (TECHEVAL) Complete changed from TBD to May 2018, Initial Operational Test and Evaluation (OPEVAL) Complete changed from TBD to Aug 2018, Full Rate Production (FRP) Decision Review changed from TBD to May 2019, and Initial Operational Capability (IOC) changed from TBD to Jan 2019.

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)	(Ch-1)
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

(Ch-1) Previous Current Estimate for Net Ready (NR) was listed as Satisfy 100% of NR requirements (reqts) designated as enterprise-level or critical in Joint Integrated Architecture (JIA), now the Current Estimate is Satisfy 100% of NR reqts in (JIA).

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)

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	**5481.4** [1]	4366.4	4366.4	6152.0
Procurement	11018.9	11018.9	12120.8	**14822.2** [1]	14399.9	14399.9	19592.8
Flyaway	8751.1	--	--	11739.1	11459.8	--	15529.5
Recurring	8557.5	--	--	11467.6	11220.6	--	15189.9
Non Recurring	193.6	--	--	271.5	239.2	--	339.6
Support	2267.8	--	--	3083.1	2940.1	--	4063.3
Other Support	1485.6	--	--	2042.6	1947.7	--	2722.9
Initial Spares	782.2	--	--	1040.5	992.4	--	1340.4
MILCON	0.0	0.0	--	0.0	0.0	0.0	0.0
Acq O&M	0.0	0.0	--	0.0	0.0	0.0	0.0
Total	14980.9	14980.9	N/A	20303.6	18766.3	18766.3	25744.8

[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
FY2012 President's Budget / December 2010 SAR (TY$ M)

Appropriation	Prior	FY2011	FY2012	FY2013	FY2014	FY2015	FY2016	To Complete	Total
RDT&E	2132.9	577.4	629.5	609.8	534.0	479.0	465.9	723.5	6152.0
Procurement	0.0	0.0	0.0	0.0	0.0	47.4	411.2	19134.2	19592.8
MILCON	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Acq O&M	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PB 2012 Total	2132.9	577.4	629.5	609.8	534.0	526.4	877.1	19857.7	25744.8
PB 2011 Total	2151.3	577.4	660.0	641.9	538.5	522.2	942.0	19492.8	25526.1
Delta	-18.4	0.0	-30.5	-32.1	-4.5	4.2	-64.9	364.9	218.7

Quantity	Undistributed	Prior	FY2011	FY2012	FY2013	FY2014	FY2015	FY2016	To Complete	Total
Development	4	0	0	0	0	0	0	0	0	4
Production	0	0	0	0	0	0	0	2	194	196
PB 2012 Total	4	0	0	0	0	0	0	2	194	200
PB 2011 Total	4	0	0	0	0	0	0	2	194	200
Delta	0	0	0	0	0	0	0	0	0	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	--	--	--	--	--	--	577.4
2012	--	--	--	--	--	--	629.5
2013	--	--	--	--	--	--	609.8
2014	--	--	--	--	--	--	534.0
2015	--	--	--	--	--	--	479.0
2016	--	--	--	--	--	--	465.9
2017	--	--	--	--	--	--	383.2
2018	--	--	--	--	--	--	270.3
2019	--	--	--	--	--	--	70.0
Subtotal	**4**	**--**	**--**	**--**	**--**	**--**	**6152.0**

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	--	--	--	--	--	--	324.0
2008	--	--	--	--	--	--	363.6
2009	--	--	--	--	--	--	505.8
2010	--	--	--	--	--	--	463.3
2011	--	--	--	--	--	--	523.6
2012	--	--	--	--	--	--	562.1
2013	--	--	--	--	--	--	535.6
2014	--	--	--	--	--	--	461.2
2015	--	--	--	--	--	--	406.8
2016	--	--	--	--	--	--	389.1
2017	--	--	--	--	--	--	314.6
2018	--	--	--	--	--	--	218.2
2019	--	--	--	--	--	--	55.6
Subtotal	**4**	**--**	**--**	**--**	**--**	**--**	**5481.4**

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	--	47.4	--	--	47.4	--	47.4
2016	2	349.4	--	--	349.4	61.8	411.2
2017	9	933.0	--	111.6	1044.6	354.7	1399.3
2018	14	1255.7	--	158.8	1414.5	465.3	1879.8
2019	21	1662.4	--	69.2	1731.6	657.5	2389.1
2020	24	1795.1	--	--	1795.1	507.9	2303.0
2021	24	1744.0	--	--	1744.0	348.1	2092.1
2022	24	1746.3	--	--	1746.3	342.8	2089.1
2023	24	1766.7	--	--	1766.7	343.3	2110.0
2024	24	1813.1	--	--	1813.1	346.3	2159.4
2025	24	1626.8	--	--	1626.8	349.2	1976.0
2026	6	450.0	--	--	450.0	167.4	617.4
2027	--	--	--	--	--	78.4	78.4
2028	--	--	--	--	--	40.6	40.6
Subtotal	**196**	**15189.9**	**--**	**339.6**	**15529.5**	**4063.3**	**19592.8**

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	--	39.8	--	--	39.8	--	39.8
2016	2	288.2	--	--	288.2	51.0	339.2
2017	9	756.8	--	90.5	847.3	287.7	1135.0
2018	14	1001.5	--	126.7	1128.2	371.1	1499.3
2019	21	1303.7	--	54.3	1358.0	515.6	1873.6
2020	24	1384.3	--	--	1384.3	391.6	1775.9
2021	24	1322.4	--	--	1322.4	263.9	1586.3
2022	24	1302.0	--	--	1302.0	255.6	1557.6
2023	24	1295.2	--	--	1295.2	251.7	1546.9
2024	24	1307.0	--	--	1307.0	249.6	1556.6
2025	24	1153.1	--	--	1153.1	247.5	1400.6
2026	6	313.6	--	--	313.6	116.7	430.3
2027	--	--	--	--	--	53.7	53.7
2028	--	--	--	--	--	27.4	27.4
Subtotal	**196**	**11467.6**	**--**	**271.5**	**11739.1**	**3083.1**	**14822.2**

Cost Quantity Information
1506 | Procurement | Aircraft Procurement, Navy

Fiscal Year	Quantity	End Item Recurring Flyaway (Aligned with Quantity) BY 2006 $M
2015	--	--
2016	2	224.5
2017	9	713.6
2018	14	940.9
2019	21	1282.0
2020	24	1388.2
2021	24	1324.7
2022	24	1302.8
2023	24	1293.3
2024	24	1304.9
2025	24	1319.2
2026	6	373.5
2027	--	--
2028	--	--
Subtotal	**196**	**11467.6**

Low Rate Initial Production

	Initial LRIP Decision	Current Total LRIP
Approval Date	11/22/2005	11/22/2005
Approved Quantity	29	29
Reference	Acquisition Strategy (AS)	AS
Start Year	2012	2015
End Year	2015	2018

Low Rate Initial Production (LRIP) will total 29 CH-53K helicopters, representing 14.5 percent of the estimated 200 fielded (196 & 4 RDT&E) 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 percent guidance. The quantity of 29 CH-53K helicopters includes 4 fully-configured RDT&E helicopters.

LRIP formally begins in FY 2015 with Milestone C approval. Long lead items will be procured in advance of Milestone C, in accordance with the approved Acquisition Strategy.

Foreign Military Sales

None

Nuclear Cost

None

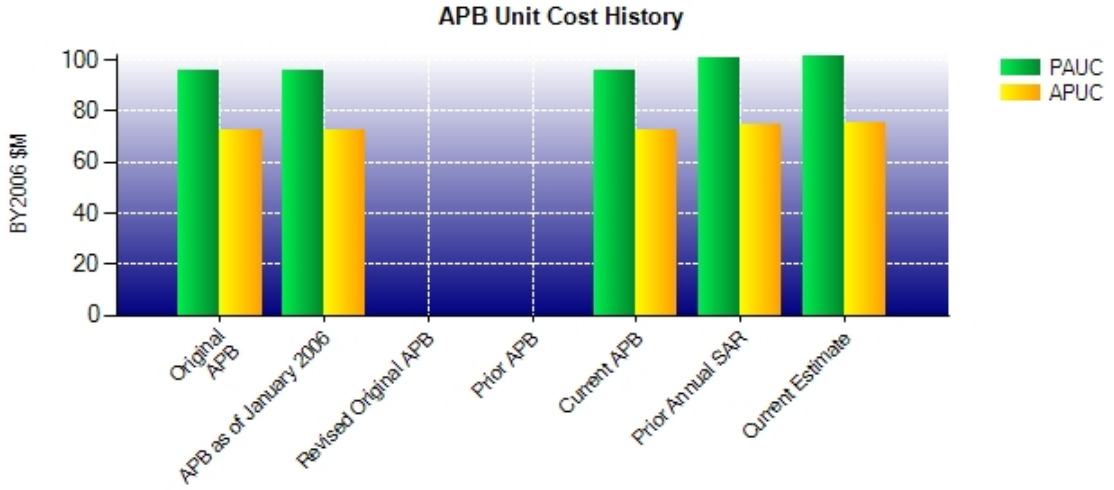
Unit Cost

Unit Cost Report

Unit Cost	BY2006 $M Current UCR Baseline (DEC 2005 APB)	BY2006 $M Current Estimate (DEC 2010 SAR)	BY % Change
Program Acquisition Unit Cost (PAUC)			
Cost	14980.9	20303.6	
Quantity	156	200	
Unit Cost	96.031	101.518	+5.71
Average Procurement Unit Cost (APUC)			
Cost	11018.9	14822.2	
Quantity	152	196	
Unit Cost	72.493	75.623	+4.32

Unit Cost	BY2006 $M Original UCR Baseline (DEC 2005 APB)	BY2006 $M Current Estimate (DEC 2010 SAR)	BY % Change
Program Acquisition Unit Cost (PAUC)			
Cost	14980.9	20303.6	
Quantity	156	200	
Unit Cost	96.031	101.518	+5.71
Average Procurement Unit Cost (APUC)			
Cost	11018.9	14822.2	
Quantity	152	196	
Unit Cost	72.493	75.623	+4.32

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 2009	100.578	74.910	127.630	99.200
Current Estimate	DEC 2010	101.518	75.623	128.724	99.963

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	-3.692	-10.921	9.449	0.000	7.280	0.000	6.311	8.427	128.724

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	-3.485	-5.405	5.859	0.000	1.818	0.000	6.440	5.227	99.963

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	25744.8
Total Quantity	N/A	156	N/A	200
Prog. Acq. Unit Cost (PAUC)	N/A	120.297	N/A	128.724

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	-53.5	-646.4	--	-699.9
Quantity	--	+3108.9	--	+3108.9
Schedule	+669.6	+1148.4	--	+1818.0
Engineering	--	--	--	--
Estimating	+1100.4	+199.8	--	+1300.2
Other	--	--	--	--
Support	--	+1232.6	--	+1232.6
Subtotal	+1716.5	+5043.3	--	+6759.8
Current Changes				
Economic	-2.0	-36.6	--	-38.6
Quantity	--	--	--	--
Schedule	+71.8	--	--	+71.8
Engineering	--	--	--	--
Estimating	-0.7	+156.6	--	+155.9
Other	--	--	--	--
Support	--	+29.6	--	+29.6
Subtotal	+69.1	+149.6	--	+218.7
Total Changes	+1785.6	+5192.9	--	+6978.5
CE - Cost Variance	6152.0	19592.8	--	25744.8
CE - Cost & Funding	6152.0	19592.8	--	25744.8

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	+515.5	+283.7	--	+799.2
Engineering	--	--	--	--
Estimating	+955.8	+260.3	--	+1216.1
Other	--	--	--	--
Support	--	+793.1	--	+793.1
Subtotal	+1471.3	+3663.5	--	+5134.8
Current Changes				
Economic	--	--	--	--
Quantity	--	--	--	--
Schedule	+48.8	--	--	+48.8
Engineering	--	--	--	--
Estimating	-0.7	+117.6	--	+116.9
Other	--	--	--	--
Support	--	+22.2	--	+22.2
Subtotal	+48.1	+139.8	--	+187.9
Total Changes	+1519.4	+3803.3	--	+5322.7
CE - Cost Variance	5481.4	14822.2	--	20303.6
CE - Cost & Funding	5481.4	14822.2	--	20303.6

Previous Estimate: December 2009

RDT&E	$M	
Current Change Explanations	**Base Year**	**Then Year**
Revised escalation indices. (Economic)	N/A	-2.0
Adjustment for current and prior escalation. (Estimating)	-0.7	-0.7
Increase for schedule growth due to revised phasing, delaying IOC to January 2019. (Schedule)	+48.8	+71.8
RDT&E Subtotal	+48.1	+69.1

Procurement	$M	
Current Change Explanations	**Base Year**	**Then Year**
Revised escalation indices. (Economic)	N/A	-36.6
Increase in total flyaway due to correction in labor rates calculation and updated phasing of Advance Procurement (AP). (Estimating)	+117.6	+156.6
Increase in Other support due to correction in labor rates calculation. (Support)	+11.7	+15.4
Increase in Initial Spares due to correction in labor rates calculation, and updated phasing for funding constraints. (Support)	+10.5	+14.2
Procurement Subtotal	+139.8	+149.6

Contracts

Appropriation: RDT&E

Contract Name	**System Development and Demonstration**
Contractor	Sikorsky Aircraft Corporation
Contractor Location	Stratford, CT 06614
Contract Number, Type	N00019-06-C-0081, CPAF
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	3056.8	N/A	5	3637.7	3908.3

Variance	Cost Variance	Schedule Variance
Cumulative Variances To Date (1/31/2011)	-148.8	-33.0
Previous Cumulative Variances	-33.0	-57.1
Net Change	-115.8	+24.1

Cost And Schedule Variance Explanations

The favorable net change in schedule variance drivers were Fuselage, Main Fuel System, and Propulsion Non-Engine. The majority of favorable schedule change is attributable to the February 2010 Sikorsky realignment of efforts for System Critical Design Review (CDR), Ground Test Vehicle (GTV) Light Off, and First Flight milestones.

The unfavorable net change in cost variance is attributable to Fuselage (preliminary design/basic data, detail offload and tool development), Transmissions and Drive Train (Gear Box (GBX) Test Stands, Main Gear Box (MGB) process planning, and supplier parts), and Rotors (additional engineering efforts).

Contract Comments

The change in initial to current contract target price of $4.6M reflects scope increases.

The five deliverables on this System Development and Demonstration (SDD) contract are not fully configured end items, and are therefore not included in the 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	25744.8	Years Appropriated	10
Expenditures To Date	2131.6	Percent Years Appropriated	37.04%
Percent Expended	8.28%	Appropriated to Date	2710.3
Total Funding Years	27	Percent Appropriated	10.53%

Expenditures are current as of January 31, 2011.

Operating and Support Cost

Assumptions And Ground Rules

The CH-53K O&S Costs shown represent PB-12 estimates, including 200 helicopters on the current program schedule. This reflects a significant increase from the Milestone B O&S estimate, from $23,519.2 to $38,450.6 (BY2006$M). Major drivers for this change include: increase in helicopter quantity from 156 to 200, schedule shift and extension, increase in squadrons from 6 to 9, increase in total flight hours and updates to estimating methodologies.

Estimate Duration = Fiscal Year (FY) 2018 – 2058
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 APN + 4 RDT&E)
Squadrons: 11 (9 Marine Heavy Helicopter squadron (HMH) / 1 HMH (reserve) /
1 Marine Helicopter Training squadron (HMT)
Helicopters per HMH squadron: 16
Helicopters per HMH (reserve) squadron: 8
Helicopters per HMT squadron: 21
Monthly Flight Hours (FH) per Helicopter (TAI): 17.9
Total operating helicopter years: 6,145

CH-53K Avg Annual Cost per Helicopter = Total O&S Costs (Base Year) / Total operating helicopter years.

O&S data is not available for the CH-53E for comparision purposes.

Date of estimate: January 2011

Costs BY2006 $M		
Cost Element	**CH-53K Avg Annual Cost Per Helicopter**	**CH-53E Avg Annual Cost Per Helicopter**
Unit-Level Manpower	1.239	0.000
Unit Operations	0.250	0.000
Maintenance	3.682	0.000
Sustaining Support	0.151	0.000
Continuing System Improvements	0.339	0.000
Indirect Support	0.596	0.000
Other	0.000	0.000
Total Unitized Cost (Base Year 2006 $)	6.257	--

Total O&S Costs $M	CH-53K	CH-53E
Base Year	38450.6	0.0
Then Year	86134.5	0.0