Selected Acquisition Report (SAR)

RCS: DD-A&T(Q&A)823-278

CH-47F

As of December 31, 2010

Defense Acquisition Management
Information Retrieval
(DAMIR)

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Program Information

Designation And Nomenclature (Popular Name)

CH-47F Improved Cargo Helicopter (CH-47F)

DoD Component

Army

Responsible Office

Responsible Office

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Date Assigned June 29, 2009

References

SAR Baseline (Production Estimate)

Army Acquisition Executive (AAE) Approved Acquisition Program Baseline (APB) dated November 22, 2004

Approved APB

AAE Approved Acquisition Program Baseline (APB) dated April 22, 2010

Mission and Description

The CH-47F supports the Army's requirement to be strategically responsive across the full spectrum of operations. It will provide continued support, coverage, and sustainment of Maneuver, Fire Support, Air Defense, and Survivability mission areas. Its mission is transportation of ground forces, class III/class V supplies, and other battle critical cargo in support of all future contingencies. The CH-47F enables the Army to support the rapid response capability necessary for forcible and early entry contingency missions, as well as tactical and operational nonlinear, noncontiguous, simultaneous, or sequential operations, which will be characteristic of future operations.

The CH-47F is a future force system that supports the Army Vision. The CH-47F is a twin-turbine, tandem-rotor, heavy-lift transport helicopter with a useful load of up to 25,000 pounds. The CH-47F's lift capability is invaluable as the Army transforms from a heavy-division dominated force to a more deployable medium weight force focused toward 21st Century Army requirements. The CH-47F, with its upgraded engines, the Common Avionics Architecture System (CAAS) with advanced Avionics, monolithic machined frame components and airframe modifications, will reduce operating costs and continue to be a national asset providing peacetime disaster relief and wartime service to this country for another 20 years.

The CH-47F program fills the Army's Aviation Transformation Chinook requirement for upgraded aircraft and is comprised of both remanufactured and new aircraft. The total remanufactured aircraft will consist of CH-47Fs and MH-47Gs. The MH-47G configuration replaces the current MH-47E/Ds for the special operations. The CH-47F program installs a new digital cockpit, incorporates all new airframe components, and modifies the aircraft to reduce vibration. The CH-47F Common Avionics Architecture System (CAAS) digital cockpit will provide future growth potential. It includes a digital data bus that permits installation of enhanced communications and navigation equipment for improved situational awareness, mission performance, and survivability. New airframe structural components and modifications will reduce harmful vibrations, improving Operations and Support (O&S) efficiency and crew endurance. Other airframe modifications reduce the time required for aircraft tear down and build-up during C-5/C-17 deployment by 60 percent. These modifications significantly enhance the CH-47F's strategic deployment capability.

Executive Summary

The Army Acquisition Executive (AAE) approved a revised Acquisition Program Baseline (APB) on April 22, 2010.

The program remains on schedule with 227 aircraft on contract (137 New Build and 90 ReNew). A total of 174 aircraft have been delivered to date: 2 Development, 65 ReNew, 50 New Build, and 57 MH-47Gs.

The Government awarded Boeing a five-year Multiyear contract for 215 CH-47F Aircraft August 26, 2008. This contract consists of 109 each New Build aircraft, 72 each ReNew aircraft, and priced options for 34 each New Build aircraft. Total five-year contract value, inclusive of options, is $4.3 billion. This secures the production base, stabilizes the work force for Boeing and their supplier partners in more than 45 states, and takes advantage of economies of scale. At time of award, the first year of aircraft was funded as well as exercising an option for 10 New Build Aircraft utilizing Fiscal Year 2008 (FY08) Supplemental funding. The Government obligated the second year, Lot 7, of Multiyear consisting of 15 ReNew aircraft and 23 New Build aircraft. On December 14, 2009 the Government obligated the third year, Lot 8, of Multiyear consisting of 14 ReNew aircraft. The fourth year, Lot 9, was partially obligated on December 22, 2010 with 11 ReNew aircraft and 4 New Build aircraft.

The program successfully met the First through Sixth Unit Equipped (UE) completion dates. The Project Management Office (PMO) has been tasked with New Equipment Training (NET) for Fifth through Thirteenth UE and completed Sixth UE fielding / training on June 16, 2010. CH-47F New Equipment Training Team (NETT) #1 began training the Seventh UE (25th Combat Aviation Brigade (CAB)) February 15, 2011 while NETT #2 will begin NET of the Eighth UE, (12th CAB) on May 1, 2011. Shipping of aircraft and equipment to Hawaii was completed in October 2010. Shipping of aircraft and equipment to Germany will begin and complete in March 2011.

Rockwell Collins Field Service Representatives and Boeing Logistics Services Representatives continue to support units in Operation Enduring Freedom (OEF).

The thirteenth and fourteenth Transportable Flight Proficiency Simulators (TFPS) were produced by Manned Flight Simulation (MFS), Patuxent River, Maryland. Unit 13 was completed and delivered February 9, 2011. Unit 14 will be delivered not later than August 31, 2011. The fifteenth, sixteenth and seventeenth Transportable Flight Proficiency Simulators (TFPS) are being produced by Yulista Aviation Services in Huntsville, Alabama.

The CH-47F Common Avionics Architecture System (CAAS) cockpit is based on the MH-47G configuration currently used by Special Operations Aviation. The CH-47F PMO fielded updates to the CAAS to support interoperability requirements for software blocking.

The CH-47F PMO is installing InfraRed Suppression System (IRSS) and other Department of the Army (DA) directed post-production modifications at the Millville, New Jersey modification center.

The funding and quantity profile contained in this Selected Acquisition Report assumes an award of a follow-on Multiyear contract beginning in FY13.

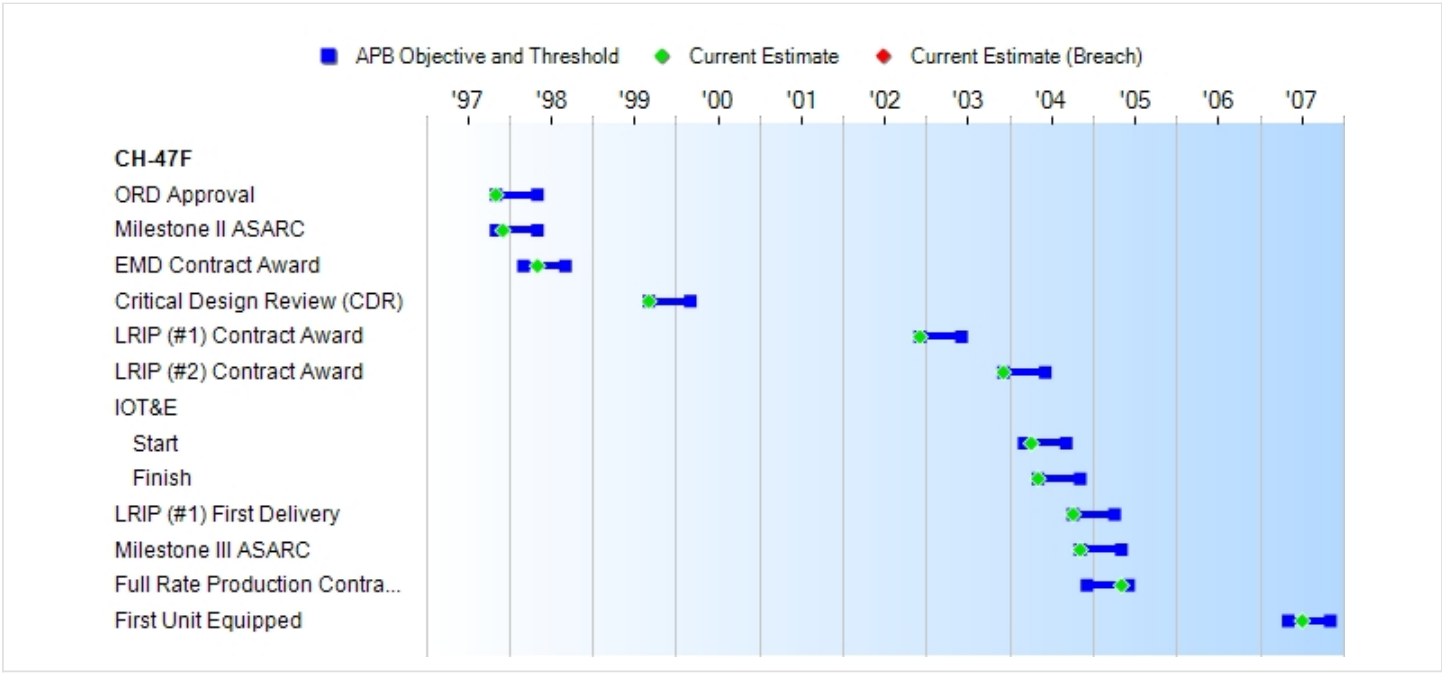
There are no significant software issues with this program at this time.

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

Schedule



Milestones	SAR Baseline Prod Est	Current APB Production Objective/Threshold		Current Estimate
ORD Approval	NOV 1997	NOV 1997	MAY 1998	NOV 1997
Milestone II ASARC	NOV 1997	NOV 1997	MAY 1998	DEC 1997
EMD Contract Award	MAR 1998	MAR 1998	SEP 1998	MAY 1998
Critical Design Review (CDR)	SEP 1999	SEP 1999	MAR 2000	SEP 1999
LRIP (#1) Contract Award	DEC 2002	DEC 2002	JUN 2003	DEC 2002
LRIP (#2) Contract Award	DEC 2003	DEC 2003	JUN 2004	DEC 2003
IOT&E				
Start	MAR 2004	MAR 2004	SEP 2004	APR 2004
Finish	MAY 2004	MAY 2004	NOV 2004	MAY 2004
LRIP (#1) First Delivery	OCT 2004	OCT 2004	APR 2005	OCT 2004
Milestone III ASARC	NOV 2004	NOV 2004	MAY 2005	NOV 2004
Full Rate Production Contract Award	DEC 2004	DEC 2004	JUN 2005	MAY 2005
First Unit Equipped	MAY 2007	MAY 2007	NOV 2007	JUL 2007

Acronyms And Abbreviations

ASARC - Army Systems Acquisition Review Council
EMD - Engineering and Manufacturing Development
IOT&E - Initial Operational Test and Evaluation
LRIP - Low Rate Initial Production

ORD - Operational Requirements Document

Change Explanations

None

Memo

Initial Operational Test and Evaluation (IOT&E) is a single effort divided into two phases. Phase I, completed in May 2004, supported Full Rate Production. Phase II, completed June 2007, supported First Unit Equipped.

Performance

Characteristics	SAR Baseline Prod Est	Current APB Production Objective/Threshold		Demonstrated Performance	Current Estimate
Self-deploy w/30 min fuel reserve (nm)	1260	1260	1056	1130	1130
Transport 16,000 lbs of internal/external cargo (nm)	100	100	50	56	56
Transport combat equipped troops:					
Number of Troops	44	44	31	31	31
Range (nm)	150	150	100	150	150
Reliability:					
Mean Time Between Essential Maintenance Actions (MTBEMA) (flt hrs)	3.5	3.5	3.3	4.63	3.5
Maintenance:					
Total Maintenance Ratio (mmh/flt hr)	9.2	9.2	9.8	3.43	9.2

Requirements Source:
Memo SAAL-ZSA from the Army Acquisition Executive, with subject CH-47F Chinook Program Acquisition Decision Memorandum, dated December 23, 2009, accepted the Cargo Helicopter PM's assessment that the Chinook program is appropriately scoped and directed the PM to re-baseline the CH-47F program.

Acronyms And Abbreviations

flt - flight
hr(s) - hour(s)
lbs - pounds
min - minutes
mmh - maintenance man hour
nm - nautical miles
w/ - with

Change Explanations

None

Memo

The data above reflects findings in the September 15, 2009 Reliability and Maintainability (RAM) report from Avion, Inc. The Product Mananger, CH47-F no longer collects Reliability and Maintainability (RAM) Data.

Track To Budget

General Memo

Item Control Number AA0252 is shared with CH-47D modifications applied to currently fielded D aircraft. The CH-47F's funding lines have been changed starting Fiscal Year 2010 (FY10) to CH-47 Helicopter (A05101) - a parent (rollup) of New Build and Service Life Extension Program (SLEP), CH-47 SLEP (A05105), and CH-47 New Build (A05008). CH-47F funding for FY09 and prior resides on the previously combined AA0252 line.

RDT&E

APPN 2040	BA 07	PE 0203744A	(Army)	
	Project D430	Aircraft Modifications/Product Improvement Program/Improved Cargo Helicopter	(Shared)	(Sunk)

Procurement

APPN 2031	BA 01	PE 12106800	(Army)	
	ICN A05008	CH-47 NEW BUILD	(Shared)	
APPN 2031	BA 01	PE 11206781	(Army)	
	ICN A05105	CH-47 SLEP	(Shared)	
APPN 2031	BA 02	PE 12103264	(Army)	
	ICN AA0252	CH-47 CARGO HELICOPTER MODS	(Shared)	(Sunk)

Cost and Funding

Cost Summary

Total Acquisition Cost and Quantity

	BY2005 $M			BY2005 $M	TY $M		
Appropriation	SAR Baseline Prod Est	Current APB Production Objective/Threshold		Current Estimate	SAR Baseline Prod Est	Current APB Production Objective	Current Estimate
RDT&E	179.7	183.3	201.6	183.3	171.0	171.6	171.6
Procurement	10435.1	11869.0	13055.9	12519.8	11976.4	13464.6	14266.9
Flyaway	9840.9	--	--	11887.0	11304.4	--	13555.7
Recurring	9566.2	--	--	11547.8	11032.5	--	13223.3
Non Recurring	274.7	--	--	339.2	271.9	--	332.4
Support	594.2	--	--	632.8	672.0	--	711.2
Other Support	533.4	--	--	571.7	600.2	--	639.7
Initial Spares	60.8	--	--	61.1	71.8	--	71.5
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	10614.8	12052.3	N/A	12703.1	12147.4	13636.2	14438.5

The confidence level of the CH-47F Acquisition Program Baseline (APB) cost estimate, which was approved on April 22, 2010, is 50% in accordance with Army policy.

Quantity	SAR Baseline Prod Est	Current APB Production	Current Estimate
RDT&E	2	2	2
Procurement	510	523	530
Total	512	525	532

The Army Acquisition Objective was increased to 530, increasing quantity procured by seven H-47s.

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	171.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	171.6
Procurement	7010.9	1075.6	1299.2	1277.8	813.3	840.2	1097.4	852.5	14266.9
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	7182.5	1075.6	1299.2	1277.8	813.3	840.2	1097.4	852.5	14438.5
PB 2011 Total	7214.7	1118.6	1168.0	976.9	762.9	808.0	926.7	660.4	13636.2
Delta	-32.2	-43.0	131.2	300.9	50.4	32.2	170.7	192.1	802.3

Minor deltas in quantities exist in FY12 and FY13 between the SAR and PB12 submission. SAR quantities include 1 additional MH-47G in FY12 for Special Operations Aviation and 10 additional CH-47Fs in FY13 added after the PB lock (funding was already included in PB12 during program review process but quantities were not identified until after PB lock). SAR is capturing the correct quantities.

Quantity	Undistributed	Prior	FY2011	FY2012	FY2013	FY2014	FY2015	FY2016	To Complete	Total
Development	2	0	0	0	0	0	0	0	0	2
Production	0	269	40	48	48	28	30	39	28	530
PB 2012 Total	2	269	40	48	48	28	30	39	28	532
PB 2011 Total	2	269	42	47	36	30	32	38	29	525
Delta	0	0	-2	1	12	-2	-2	1	-1	7

Cost and Funding

Annual Funding By Appropriation

Annual Funding TY$
2040 | RDT&E | Research, Development, Test, and Evaluation, Army

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
1995	--	--	--	--	--	--	2.7
1996	--	--	--	--	--	--	4.3
1997	--	--	--	--	--	--	16.6
1998	--	--	--	--	--	--	22.6
1999	--	--	--	--	--	--	23.8
2000	--	--	--	--	--	--	27.1
2001	--	--	--	--	--	--	37.7
2002	--	--	--	--	--	--	17.7
2003	--	--	--	--	--	--	3.3
2004	--	--	--	--	--	--	7.3
2005	--	--	--	--	--	--	--
2006	--	--	--	--	--	--	7.0
2007	--	--	--	--	--	--	1.5
Subtotal	**2**	**--**	**--**	**--**	**--**	**--**	**171.6**

Annual Funding BY$
2040 | RDT&E | Research, Development, Test, and Evaluation, Army

Fiscal Year	Quantity	End Item Recurring Flyaway BY 2005 $M	Non End Item Recurring Flyaway BY 2005 $M	Non Recurring Flyaway BY 2005 $M	Total Flyaway BY 2005 $M	Total Support BY 2005 $M	Total Program BY 2005 $M
1995	--	--	--	--	--	--	3.1
1996	--	--	--	--	--	--	4.8
1997	--	--	--	--	--	--	18.4
1998	--	--	--	--	--	--	24.9
1999	--	--	--	--	--	--	25.9
2000	--	--	--	--	--	--	29.1
2001	--	--	--	--	--	--	39.9
2002	--	--	--	--	--	--	18.5
2003	--	--	--	--	--	--	3.4
2004	--	--	--	--	--	--	7.3
2005	--	--	--	--	--	--	--
2006	--	--	--	--	--	--	6.6
2007	--	--	--	--	--	--	1.4
Subtotal	**2**	**--**	**--**	**--**	**--**	**--**	**183.3**

Annual Funding TY$
2031 | Procurement | Aircraft Procurement, Army

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
2001	--	--	--	41.6	41.6	17.7	59.3
2002	--	--	--	45.5	45.5	14.9	60.4
2003	14	353.8	--	224.8	578.6	18.6	597.2
2004	16	227.8	--	--	227.8	23.2	251.0
2005	30	700.3	--	4.6	704.9	15.0	719.9
2006	24	461.4	--	2.6	464.0	40.6	504.6
2007	43	1121.7	--	13.3	1135.0	88.3	1223.3
2008	53	1253.8	--	--	1253.8	60.4	1314.2
2009	52	1216.3	--	--	1216.3	54.4	1270.7
2010	37	898.6	--	--	898.6	111.7	1010.3
2011	40	1024.2	--	--	1024.2	51.4	1075.6
2012	48	1272.0	--	--	1272.0	27.2	1299.2
2013	48	1228.4	--	--	1228.4	49.4	1277.8
2014	28	782.8	--	--	782.8	30.5	813.3
2015	30	810.8	--	--	810.8	29.4	840.2
2016	39	1065.7	--	--	1065.7	31.7	1097.4
2017	27	730.1	--	--	730.1	25.8	755.9
2018	1	75.6	--	--	75.6	21.0	96.6
Subtotal	**530**	**13223.3**	**--**	**332.4**	**13555.7**	**711.2**	**14266.9**

Annual Funding BY$
2031 | Procurement | Aircraft Procurement, Army

Fiscal Year	Quantity	End Item Recurring Flyaway BY 2005 $M	Non End Item Recurring Flyaway BY 2005 $M	Non Recurring Flyaway BY 2005 $M	Total Flyaway BY 2005 $M	Total Support BY 2005 $M	Total Program BY 2005 $M
2001	--	--	--	43.9	43.9	18.7	62.6
2002	--	--	--	47.4	47.4	15.5	62.9
2003	14	360.5	--	228.9	589.4	19.0	608.4
2004	16	225.8	--	--	225.8	22.9	248.7
2005	30	675.4	--	4.4	679.8	14.5	694.3
2006	24	433.3	--	2.4	435.7	38.2	473.9
2007	43	1032.9	--	12.2	1045.1	81.3	1126.4
2008	53	1136.9	--	--	1136.9	54.8	1191.7
2009	52	1089.7	--	--	1089.7	48.7	1138.4
2010	37	794.6	--	--	794.6	98.8	893.4
2011	40	891.5	--	--	891.5	44.8	936.3
2012	48	1086.8	--	--	1086.8	23.2	1110.0
2013	48	1032.1	--	--	1032.1	41.5	1073.6
2014	28	646.7	--	--	646.7	25.2	671.9
2015	30	658.6	--	--	658.6	23.9	682.5
2016	39	851.2	--	--	851.2	25.3	876.5
2017	27	573.4	--	--	573.4	20.3	593.7
2018	1	58.4	--	--	58.4	16.2	74.6
Subtotal	**530**	**11547.8**	**--**	**339.2**	**11887.0**	**632.8**	**12519.8**

Cost Quantity Information
2031 | Procurement | Aircraft Procurement, Army

Fiscal Year	Quantity	End Item Recurring Flyaway (Aligned with Quantity) BY 2005 $M
2001	--	--
2002	--	--
2003	14	348.8
2004	16	225.4
2005	30	672.8
2006	24	416.4
2007	43	1038.9
2008	53	1135.2
2009	52	1080.8
2010	37	794.3
2011	40	886.3
2012	48	1089.9
2013	48	1028.4
2014	28	626.8
2015	30	720.8
2016	39	851.2
2017	27	573.4
2018	1	58.4
Subtotal	**530**	**11547.8**

Low Rate Initial Production

	Initial LRIP Decision	Current Total LRIP
Approval Date	12/31/1997	12/31/1997
Approved Quantity	30	23
Reference	Milestone II	Milestone II
Start Year	2003	2003
End Year	2004	2004

The Fiscal Year 2003 (FY03) President's Budget reflected revised Low Rate Initial Production (LRIP) quantities with seven in FY03 and 16 in FY04 for a total of 23 aircraft. However, only the first aircraft in LRIP I was a CH-47F and all remaining aircraft were MH-47G's.

Foreign Military Sales

Country	Date of Sale	Quantity	Total Cost $M	Memo
Turkey	7/9/2010	6	252.0	
Australia	3/19/2010	7	249.0	

The CH-47F aircraft capabilities and operational successes in Operation New Dawn and Operation Enduring Freedom are generating a lot of interest and inquiries from Foreign CH-47D customers. The Common Avionics Architecture System (CAAS) cockpit provides pilot workload reductions and enhanced flight capabilities through flight control coupling. Foreign customers requesting configuration modifications to the aircraft which change the CAAS software, aircraft handling qualities, mission equipment or performance will incur non-recurring and recurring costs to develop, test, qualify, certify, field, and maintain the software and related hardware as well as increase the lead time to deliver the modified CH-47F. Foreign Military Sales will help ensure a robust supply chain and industrial base. The sale dates above are Letter Of Acceptance (LOA) signature dates.

Nuclear Cost

None

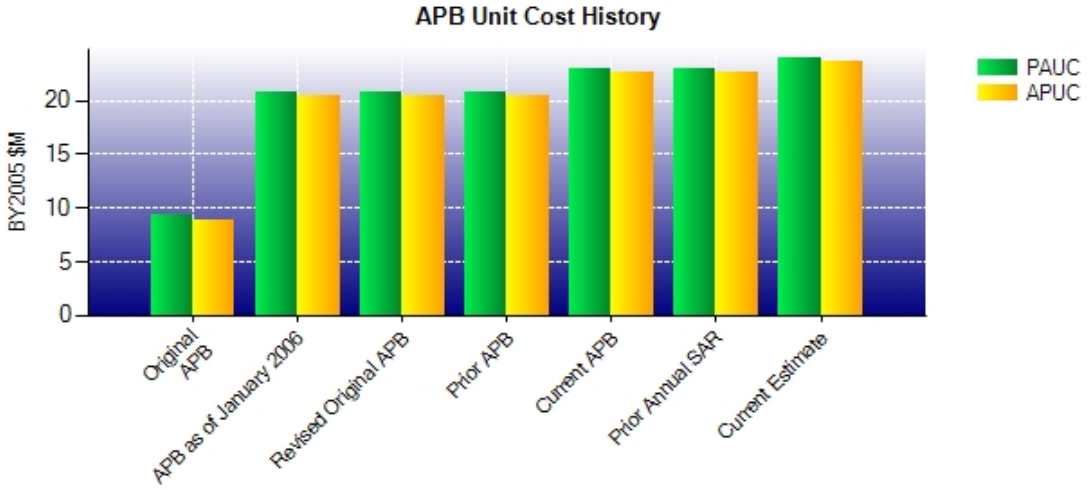
Unit Cost

Unit Cost Report

Unit Cost	BY2005 $M Current UCR Baseline (APR 2010 APB)	BY2005 $M Current Estimate (DEC 2010 SAR)	BY % Change
Program Acquisition Unit Cost (PAUC)			
Cost	12052.3	12703.1	
Quantity	525	532	
Unit Cost	22.957	23.878	+4.01
Average Procurement Unit Cost (APUC)			
Cost	11869.0	12519.8	
Quantity	523	530	
Unit Cost	22.694	23.622	+4.09

Unit Cost	BY2005 $M Revised Original UCR Baseline (NOV 2004 APB)	BY2005 $M Current Estimate (DEC 2010 SAR)	BY % Change
Program Acquisition Unit Cost (PAUC)			
Cost	10614.8	12703.1	
Quantity	512	532	
Unit Cost	20.732	23.878	+15.17
Average Procurement Unit Cost (APUC)			
Cost	10435.1	12519.8	
Quantity	510	530	
Unit Cost	20.461	23.622	+15.45

Unit Cost History



		BY2005 $M		TY $M	
	Date	PAUC	APUC	PAUC	APUC
Original APB	MAY 1998	9.283	8.840	10.316	9.909
APB as of January 2006	NOV 2004	20.732	20.461	23.725	23.483
Revised Original APB	NOV 2004	20.732	20.461	23.725	23.483
Prior APB	NOV 2004	20.732	20.461	23.725	23.483
Current APB	APR 2010	22.957	22.694	25.974	25.745
Prior Annual SAR	DEC 2009	22.957	22.694	25.974	25.745
Current Estimate	DEC 2010	23.878	23.622	27.140	26.919

SAR Unit Cost History

Initial SAR Baseline to Current SAR Baseline (TY $M)

Initial PAUC Dev Est	Changes								PAUC Prod Est
	Econ	Qty	Sch	Eng	Est	Oth	Spt	Total	
10.316	-0.491	3.003	-0.164	2.273	7.378	0.000	1.410	13.409	23.725

Current SAR Baseline to Current Estimate (TY $M)

PAUC Prod Est	Changes								PAUC Current Est
	Econ	Qty	Sch	Eng	Est	Oth	Spt	Total	
23.725	-0.278	0.054	-0.537	0.410	3.702	0.000	0.064	3.415	27.140

Initial SAR Baseline to Current SAR Baseline (TY $M)

Initial APUC Dev Est	Changes								APUC Prod Est
	Econ	Qty	Sch	Eng	Est	Oth	Spt	Total	
9.909	-0.487	3.180	-0.171	2.282	7.354	0.000	1.416	13.574	23.483

Current SAR Baseline to Current Estimate (TY $M)

APUC Prod Est	Changes								APUC Current Est
	Econ	Qty	Sch	Eng	Est	Oth	Spt	Total	
23.483	-0.277	0.063	-0.539	0.410	3.714	0.000	0.065	3.436	26.919

SAR Baseline History

Item/Event	SAR Planning Estimate (PE)	SAR Development Estimate (DE)	SAR Production Estimate (PdE)	Current Estimate
Milestone I	N/A	N/A	N/A	N/A
Milestone II	N/A	NOV 1997	NOV 1997	DEC 1997
Milestone III	N/A	JAN 2004	NOV 2004	NOV 2004
FUE	N/A	SEP 2004	MAY 2007	JUL 2007
Total Cost (TY $M)	N/A	3115.4	12147.4	14438.5
Total Quantity	N/A	302	512	532
Prog. Acq. Unit Cost (PAUC)	N/A	10.316	23.725	27.140

Cost Variance

Cost Variance Summary

Summary Then Year $M				
	RDT&E	Proc	MILCON	Total
SAR Baseline (Prod Est)	171.0	11976.4	--	12147.4
Previous Changes				
Economic	-0.9	-147.9	--	-148.8
Quantity	--	+348.5	--	+348.5
Schedule	--	-267.1	--	-267.1
Engineering	+0.5	--	--	+0.5
Estimating	+1.0	+1542.5	--	+1543.5
Other	--	--	--	--
Support	--	+12.2	--	+12.2
Subtotal	+0.6	+1488.2	--	+1488.8
Current Changes				
Economic	--	+1.0	--	+1.0
Quantity	--	+154.4	--	+154.4
Schedule	--	-18.5	--	-18.5
Engineering	--	+217.5	--	+217.5
Estimating	--	+425.8	--	+425.8
Other	--	--	--	--
Support	--	+22.1	--	+22.1
Subtotal	--	+802.3	--	+802.3
Total Changes	+0.6	+2290.5	--	+2291.1
CE - Cost Variance	171.6	14266.9	--	14438.5
CE - Cost & Funding	171.6	14266.9	--	14438.5

Summary Base Year 2005 $M				
	RDT&E	Proc	MILCON	Total
SAR Baseline (Prod Est)	179.7	10435.1	--	10614.8
Previous Changes				
Economic	--	--	--	--
Quantity	--	+296.0	--	+296.0
Schedule	--	-4.2	--	-4.2
Engineering	+0.5	--	--	+0.5
Estimating	+3.1	+1120.3	--	+1123.4
Other	--	--	--	--
Support	--	+21.8	--	+21.8
Subtotal	+3.6	+1433.9	--	+1437.5
Current Changes				
Economic	--	--	--	--
Quantity	--	+121.0	--	+121.0
Schedule	--	-4.1	--	-4.1
Engineering	--	+176.9	--	+176.9
Estimating	--	+340.2	--	+340.2
Other	--	--	--	--
Support	--	+16.8	--	+16.8
Subtotal	--	+650.8	--	+650.8
Total Changes	+3.6	+2084.7	--	+2088.3
CE - Cost Variance	183.3	12519.8	--	12703.1
CE - Cost & Funding	183.3	12519.8	--	12703.1

Previous Estimate: December 2009

Procurement	$M	
Current Change Explanations	Base Year	Then Year
Revised escalation indices. (Economic)	N/A	+1.0
Total Quantity variance resulting from increase of seven H-47s from 523 to 530. (Subtotal)	+140.6	+179.4
Quantity variance resulting from increase of seven H-47s from 523 to 530. (Quantity)	(+121.0)	(+154.4)
Allocation to Schedule resulting from Quantity change. (Schedule) (QR)	(-4.1)	(-5.3)
Allocation to Estimating resulting from Quantity change. (Estimating) (QR)	(+23.7)	(+30.3)
Acceleration of procurement buy profile. (Schedule)	0.0	-13.2
Cut-in of go-to-war modifications that are currently done post-production: critical safety items, Alternate Communications, InfraRed Suppression System (IRSS), and Cargo On/Off Loading System (COOLS). (Engineering)	+176.9	+217.5
Adjustment for current and prior escalation. (Estimating)	+1.8	+2.2
Increase for engine Service Life Extension Program (SLEP) because of higher flying hours. (Estimating)	+119.8	+146.1
Increase due to revised Multi-Year II cost estimate. (Estimating)	+111.6	+141.9
Refined System Engineering/Program Management Estimate. (Estimating)	+48.9	+62.5
Increase due to additonal New Build aircraft and reduction in ReNew aircraft. (Estimating)	+34.4	+42.8
Adjustment for current and prior escalation. (Support)	+0.2	0.0
Increase in Other Support due to additional aircraft. (Support) (QR)	+10.2	+14.4
Increase in Initial Spares due to additional aircraft. (Support) (QR)	+6.4	+7.7
Procurement Subtotal	+650.8	+802.3

(QR) Quantity Related

Contracts

Appropriation: Procurement

Contract Name	**New Build Recurring**
Contractor	Boeing Helicopter
Contractor Location	Philadelphia, PA 19142
Contract Number, Type	W58RGZ-04-C-0012/2, FFP
Award Date	December 21, 2004
Definitization Date	December 22, 2005

Initial Contract Price ($M)			Current Contract Price ($M)			Estimated Price At Completion ($M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
616.6	N/A	19	1485.7	N/A	59	1485.7	1485.7

Cost And Schedule Variance Explanations

Cost and Schedule variance reporting is not required on this FFP contract.

Contract Comments

The target price changed from $616.6M to $1,485.7M due to increase in quantity from 19 to 59 CH-47F aircraft.

Appropriation: Procurement

Contract Name	**Multiyear I**
Contractor	Boeing Helicopter
Contractor Location	Philadelphia, PA 19142
Contract Number, Type	W58RGZ-04-C-0098/1, FFP
Award Date	August 26, 2008
Definitization Date	December 22, 2010

Initial Contract Price ($M)			Current Contract Price ($M)			Estimated Price At Completion ($M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
722.7	N/A	35	2783.6	N/A	135	2783.6	2783.6

Cost And Schedule Variance Explanations

Cost and Schedule variance reporting is not required on this FFP contract.

Contract Comments

The target price changed from $722.7M to $2,783.6M due to increase in quantity from 35 to 135 CH-47F aircraft.

Appropriation: Procurement

Contract Name	**Full Rate Production G Lot 6**
Contractor	Boeing Helicopter
Contractor Location	Philadelphia, PA 19142
Contract Number, Type	W58RGZ-04-G-0023/78, FFP
Award Date	January 11, 2008
Definitization Date	January 11, 2008

Initial Contract Price ($M)			Current Contract Price ($M)			Estimated Price At Completion ($M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
81.5	N/A	6	88.1	N/A	6	88.1	88.1

Cost And Schedule Variance Explanations

Cost and Schedule variance reporting is not required on this FFP contract.

Contract Comments

Although the MH-47G funding for the common portion to CH-47F aircraft is included in CH-47F total program funding, the contract is managed by the Technology Application Program Office (TAPO).

Appropriation: Procurement

Contract Name	**Full Rate Production G Lot 7**
Contractor	Boeing Helicopter
Contractor Location	Philadelphia, PA 19142
Contract Number, Type	W58RGZ-04-G-0023/106, FFP
Award Date	May 01, 2008
Definitization Date	December 17, 2008

Initial Contract Price ($M)			Current Contract Price ($M)			Estimated Price At Completion ($M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
100.7	N/A	6	100.7	N/A	6	100.7	100.7

Cost And Schedule Variance Explanations

Cost and Schedule variance reporting is not required on this FFP contract.

Contract Comments

This is the first time this contract is being reported.

Although the MH-47G funding for the common portion to CH-47F aircraft is included in CH-47F total program funding, the contract is managed by the Technology Application Program Office (TAPO).

Deliveries and Expenditures

Deliveries To Date	Plan To Date	Actual To Date	Total Quantity	Percent Delivered
Development	2	2	2	100.00%
Production	169	172	530	32.45%
Total Program Quantities Delivered	171	174	532	32.71%

Expenditures and Appropriations (TY $M)			
Total Acquisition Cost	14438.5	Years Appropriated	17
Expenditures To Date	4986.0	Percent Years Appropriated	70.83%
Percent Expended	34.53%	Appropriated to Date	8258.1
Total Funding Years	24	Percent Appropriated	57.20%

Operating and Support Cost

Assumptions And Ground Rules
Data for the CH-47F is based on a January 2011 Project Office Estimate (POE), which assumes an end state of 440 CH-47F operational aircraft when fully fielded flying 180 peacetime hours per year. The total Operating and Support (O&S) cost is based on a 20-year useful life. The antecedent to the CH-47F is the CH-47D, for which the O&S costs are from the D model POE with a production quantity of 422 aircraft. Both the CH-47F and CH-47D estimates utilize the Department of Defense (DoD) latest inflation Indices in Automated Cost Estimating Integrated Tools (ACEIT), dated January 2011.

Costs BY2005 $K		
Cost Element	**CH-47F Average Annual Per Aircraft**	**CH-47D Average Annual Per Aircraft**
Unit-Level Manpower	353.9	549.0
Unit Operations	911.3	836.7
Maintenance	194.9	116.3
Sustaining Support	39.8	634.7
Continuing System Improvements	55.6	71.0
Indirect Support	138.7	144.4
Other	165.1	160.5
Total Unitized Cost (Base Year 2005 $)	1859.3	2512.6

Total O&S Costs $M	CH-47F	CH-47D
Base Year	16361.8	21207.3
Then Year	22208.9	21829.1