



Selected Acquisition Report (SAR)

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



CH-47F

As of December 31, 2011

Defense Acquisition Management
Information Retrieval
(DAMIR)

UNCLASSIFIED

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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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| Redstone Arsenal, AL 35898-5280 | | |
| bradley.killen@us.army.mil | 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

Army Acquisition Executive (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 program is in full rate production and remains on schedule with 308 aircraft on contract (203 New Build and 105 ReNew). A total of 226 aircraft have been delivered to date: 2 Development, 79 ReNew, 86 New Build and 59 MH-47Gs.

Boeing submitted their revised proposal for the Multiyear II contract in January 2012 and it is under review. The Cost Assessment and Program Evaluation Office (CAPE) is conducting an independent Multiyear II cost savings analysis. The projected award date for Multiyear II is January 2013. The Secretary of Defense must certify to Congress by March 1, 2012, for congressional approval of legislative proposal.

The Government awarded Boeing a five-year Multiyear contract for 215 CH-47F aircraft on 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. Lots 6 through 8 and part of Lot 9 were exercised as of December 2010. The remaining Lot 9 aircraft consisting of 25 New Build aircraft were awarded March 28, 2011. An additional 8 New Build aircraft options were exercised on June 23, 2011. On December 29, 2011, the Government partially obligated the final year, Lot 10, of Multiyear consisting of 15 ReNew aircraft. On January 31, 2012, the Government completed obligation of Lot 10 of Multiyear consisting of 32 New Build aircraft.

The CH-47F Program Management Office (PMO) is tasked by the Department of the Army (DA) to continue CH-47F training of Active Component, National Guard and Reserve Combat Aviation Brigades (CAB) via New Equipment Training (NET) through 2015. CH-47F NET completed seventh Unit Equipped (UE) (25th CAB) on August 2, 2011. Team #1 completed training of the Hawaii National Guard on December 16, 2011, and NET Team #2 completed training of the 8th UE (12th CAB) on September 30, 2011, and the Instructor and Key Personnel Training (IKPT) for the Pennsylvania/Connecticut National Guard on February 3, 2012. In addition, NET Team #2 began training the Alabama/Georgia IKPT on February 7, 2012.

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

The fifteenth, sixteenth, seventeenth and eighteenth Transportable Flight Proficiency Simulators (TFPS) are being produced by Yulista Aviation Services in Huntsville, AL and the PMO has accepted delivery of units fifteen and sixteen.

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

The funding and quantity profile contained in this SAR assumes an award of a follow-on Multiyear contract beginning in FY 2013.

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

Threshold Breaches

APB Breaches

| | | |
|--------------------|-------------|--------------------------|
| Schedule | | <input type="checkbox"/> |
| Performance | | <input type="checkbox"/> |
| Cost | RDT&E | <input type="checkbox"/> |
| | Procurement | <input type="checkbox"/> |
| | MILCON | <input type="checkbox"/> |
| | Acq O&M | <input type="checkbox"/> |
| Unit Cost | PAUC | <input type="checkbox"/> |
| | APUC | <input type="checkbox"/> |

Nunn-McCurdy Breaches

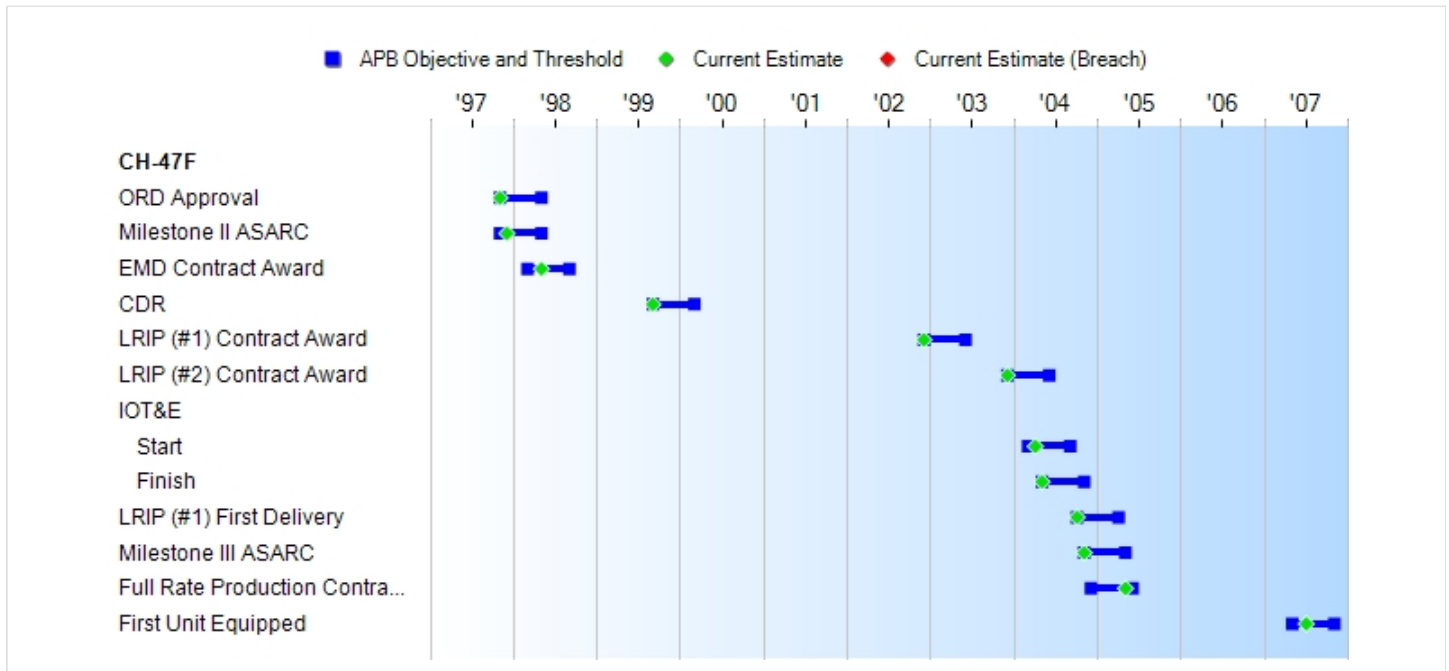
Current UCR Baseline

| | |
|------|------|
| 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 |
| 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 in 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: | | | | | |
| MTBEMA (flt hrs) | 3.5 | 3.5 | 3.3 | 6.1 | 6.0 |
| Maintenance: | | | | | |
| Total Maintenance Ratio (mmh/flt hr) | 9.2 | 9.2 | 9.8 | 4.24 | 3.67 |

(Ch-1)

(Ch-2)

Requirements Source:

Memo SAAL-ZSA from the Army Acquisition Executive, with subject CH-47F Chinook Program Acquisition Decision Memorandum, dated December 23, 2009.

Acronyms And Abbreviations

flt - flight
 hr(s) - hour(s)
 lbs - pounds
 min - minutes
 mmh - maintenance man hour
 MTBEMA - Mean Time Between Essential Maintenance Actions
 nm - nautical miles
 w/ - with

Change Explanations

(Ch-1) The Demonstrated Performance changed from 4.63 to 6.1 based on data from the Army Test and Evaluation Command (ATEC) CH-47F Cargo Helicopter System Evaluation Report (SER) dated May 2007.

The Current Estimate changed from 3.5 to 6.0 based on data extracted from Cargo Helicopter Fleet Management Report, September 2011.

(Ch-2) The Demonstrated Performance changed from 3.43 to 4.24 based on data extracted from 2007 Reliability and Maintainability (RAM) data collection efforts.

The Current Estimate changed from 9.2 to 3.67 based on data extracted from Cargo Helicopter Fleet Management Report, September 2011.

Memo

Operational Test was completed on June 4, 2007; RAM data final scoring conference completed on June 5, 2007. Demonstrated Performance based on the ATEC CH-47F Cargo Helicopter SER dated May 2007 with the

exception of maintenance, which is extracted from 2007 RAM data collection efforts.

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 FY 2010 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 FY 2009 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 | | (Army) | |
| | ICN A05008 | CH-47 NEW BUILD | (Shared) | |
| | ICN A05105 | CH-47 SLEP | (Shared) | |
| APPN 2031 | BA 02 | | (Army) | |
| | ICN AA0252 | CH-47 CARGO HELICOPTER MODS | (Shared) | (Sunk) |

A05008 and A05105 fund other aircraft modification efforts.

Cost and Funding

Cost Summary

Total Acquisition Cost and Quantity

| Appropriation | BY2005 \$M | | | BY2005 \$M | TY \$M | | |
|----------------|-----------------------|--|---------|------------------|-----------------------|----------------------------------|------------------|
| | 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 | 12291.3 | 11976.4 | 13464.6 | 14085.1 |
| Flyaway | 9840.9 | -- | -- | 11583.8 | 11304.4 | -- | 13280.7 |
| Recurring | 9566.2 | -- | -- | 11244.6 | 11032.5 | -- | 12948.3 |
| Non Recurring | 274.7 | -- | -- | 339.2 | 271.9 | -- | 332.4 |
| Support | 594.2 | -- | -- | 707.5 | 672.0 | -- | 804.4 |
| Other Support | 533.4 | -- | -- | 649.2 | 600.2 | -- | 735.4 |
| Initial Spares | 60.8 | -- | -- | 58.3 | 71.8 | -- | 69.0 |
| 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 | 12474.6 | 12147.4 | 13636.2 | 14256.7 |

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 |

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 | 171.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 171.6 |
| Procurement | 8236.2 | 1307.0 | 1066.3 | 858.7 | 855.7 | 1106.6 | 654.6 | 0.0 | 14085.1 |
| 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 2013 Total | 8407.8 | 1307.0 | 1066.3 | 858.7 | 855.7 | 1106.6 | 654.6 | 0.0 | 14256.7 |
| PB 2012 Total | 8258.1 | 1299.2 | 1277.8 | 813.3 | 840.2 | 1097.4 | 755.9 | 96.6 | 14438.5 |
| Delta | 149.7 | 7.8 | -211.5 | 45.4 | 15.5 | 9.2 | -101.3 | -96.6 | -181.8 |

Minor deltas in quantities exist in FY 2012 and FY 2013 between the SAR and PB 2013 submission. SAR quantities include 1 additional MH-47G in FY 2012 for Special Operations Aviation. The PB13 submission includes 6 Ongoing Contingency Operations (OCO) aircraft in FY 2013 for \$231.3M that are not reported in this SAR.

| Quantity | Undistributed | Prior | FY2012 | FY2013 | FY2014 | FY2015 | FY2016 | FY2017 | To Complete | Total |
|---------------|---------------|-------|--------|--------|--------|--------|--------|--------|-------------|-------|
| Development | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| Production | 0 | 320 | 48 | 38 | 28 | 30 | 39 | 27 | 0 | 530 |
| PB 2013 Total | 2 | 320 | 48 | 38 | 28 | 30 | 39 | 27 | 0 | 532 |
| PB 2012 Total | 2 | 309 | 48 | 48 | 28 | 30 | 39 | 27 | 1 | 532 |
| Delta | 0 | 11 | 0 | -10 | 0 | 0 | 0 | 0 | -1 | 0 |

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 | 57.5 | 1273.8 |
| 2010 | 39 | 852.2 | -- | -- | 852.2 | 83.4 | 935.6 |
| 2011 | 49 | 1183.2 | -- | -- | 1183.2 | 113.7 | 1296.9 |
| 2012 | 48 | 1287.2 | -- | -- | 1287.2 | 19.8 | 1307.0 |
| 2013 | 38 | 975.7 | -- | -- | 975.7 | 90.6 | 1066.3 |
| 2014 | 28 | 784.9 | -- | -- | 784.9 | 73.8 | 858.7 |
| 2015 | 30 | 826.3 | -- | -- | 826.3 | 29.4 | 855.7 |
| 2016 | 39 | 1074.9 | -- | -- | 1074.9 | 31.7 | 1106.6 |
| 2017 | 27 | 628.8 | -- | -- | 628.8 | 25.8 | 654.6 |
| Subtotal | 530 | 12948.3 | -- | 332.4 | 13280.7 | 804.4 | 14085.1 |

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 | 433.2 | -- | 2.4 | 435.6 | 38.2 | 473.8 |
| 2007 | 43 | 1032.4 | -- | 12.2 | 1044.6 | 81.3 | 1125.9 |
| 2008 | 53 | 1135.9 | -- | -- | 1135.9 | 54.7 | 1190.6 |
| 2009 | 52 | 1086.2 | -- | -- | 1086.2 | 51.3 | 1137.5 |
| 2010 | 39 | 747.6 | -- | -- | 747.6 | 73.2 | 820.8 |
| 2011 | 49 | 1018.0 | -- | -- | 1018.0 | 97.8 | 1115.8 |
| 2012 | 48 | 1086.1 | -- | -- | 1086.1 | 16.7 | 1102.8 |
| 2013 | 38 | 809.8 | -- | -- | 809.8 | 75.1 | 884.9 |
| 2014 | 28 | 640.0 | -- | -- | 640.0 | 60.2 | 700.2 |
| 2015 | 30 | 661.9 | -- | -- | 661.9 | 23.5 | 685.4 |
| 2016 | 39 | 845.8 | -- | -- | 845.8 | 24.9 | 870.7 |
| 2017 | 27 | 486.0 | -- | -- | 486.0 | 20.0 | 506.0 |
| Subtotal | 530 | 11244.6 | -- | 339.2 | 11583.8 | 707.5 | 12291.3 |

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 | 358.6 |
| 2004 | 16 | 220.1 |
| 2005 | 30 | 670.5 |
| 2006 | 24 | 415.5 |
| 2007 | 43 | 1037.9 |
| 2008 | 53 | 1133.8 |
| 2009 | 52 | 1073.5 |
| 2010 | 39 | 746.7 |
| 2011 | 49 | 1017.9 |
| 2012 | 48 | 1088.5 |
| 2013 | 38 | 786.2 |
| 2014 | 28 | 627.8 |
| 2015 | 30 | 658.7 |
| 2016 | 39 | 845.9 |
| 2017 | 27 | 563.0 |
| Subtotal | 530 | 11244.6 |

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 FY 2003 President's Budget reflected revised Low Rate Initial Production (LRIP) quantities with seven in FY 2003 and 16 in FY 2004 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 |
|----------------------|--------------|----------|----------------|------|
| United Arab Emirates | 6/28/2011 | 16 | 598.7 | |
| Turkey | 7/9/2010 | 6 | 252.0 | |
| Australia | 3/19/2010 | 7 | 249.0 | |

The sale dates above are letter of acceptance (LOA) signature dates. The costs above are for the aircraft only.

The CH-47F aircraft capabilities and operational successes in Operation Iraqi Freedom (OIF) and Operation Enduring Freedom (OEF) 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.

Nuclear Cost

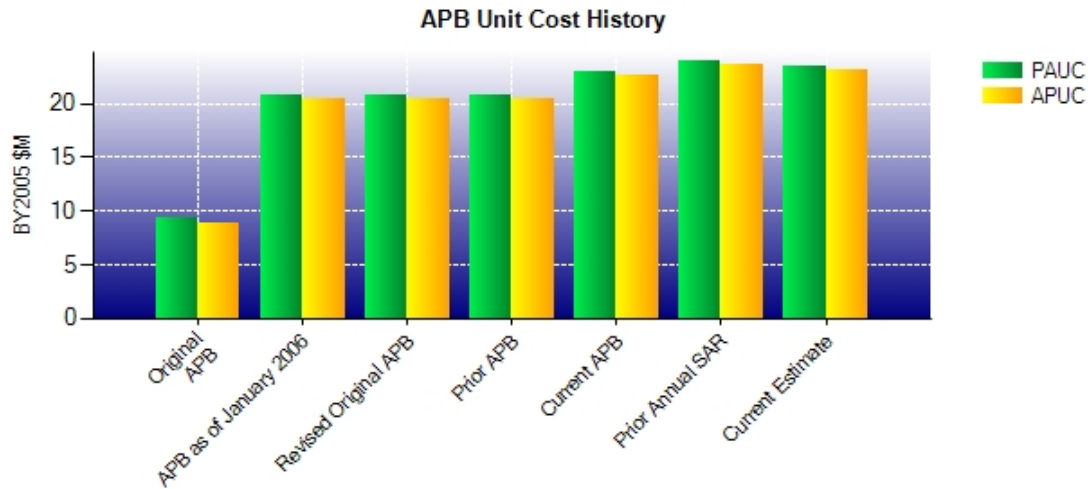
None

Unit Cost**Unit Cost Report**

| | BY2005 \$M | BY2005 \$M | |
|---|--|--|------------------------|
| Unit Cost | Current UCR Baseline (APR 2010 APB) | Current Estimate (DEC 2011 SAR) | BY % Change |
| Program Acquisition Unit Cost (PAUC) | | | |
| Cost | 12052.3 | 12474.6 | |
| Quantity | 525 | 532 | |
| Unit Cost | 22.957 | 23.448 | +2.14 |
| Average Procurement Unit Cost (APUC) | | | |
| Cost | 11869.0 | 12291.3 | |
| Quantity | 523 | 530 | |
| Unit Cost | 22.694 | 23.191 | +2.19 |

| | BY2005 \$M | BY2005 \$M | |
|---|---|--|------------------------|
| Unit Cost | Revised Original UCR Baseline (NOV 2004 APB) | Current Estimate (DEC 2011 SAR) | BY % Change |
| Program Acquisition Unit Cost (PAUC) | | | |
| Cost | 10614.8 | 12474.6 | |
| Quantity | 512 | 532 | |
| Unit Cost | 20.732 | 23.448 | +13.10 |
| Average Procurement Unit Cost (APUC) | | | |
| Cost | 10435.1 | 12291.3 | |
| Quantity | 510 | 530 | |
| Unit Cost | 20.461 | 23.191 | +13.34 |

Unit Cost History



| | Date | BY2005 \$M | | TY \$M | |
|------------------------|----------|------------|--------|--------|--------|
| | | 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 2010 | 23.878 | 23.622 | 27.140 | 26.919 |
| Current Estimate | DEC 2011 | 23.448 | 23.191 | 26.798 | 26.576 |

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 | -0.067 | 0.053 | -0.649 | 0.410 | 3.095 | 0.000 | 0.231 | 3.073 | 26.798 |

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 | -0.066 | 0.063 | -0.651 | 0.410 | 3.105 | 0.000 | 0.232 | 3.093 | 26.576 |

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 | 14256.7 |
| Total Quantity | N/A | 302 | 512 | 532 |
| Prog. Acq. Unit Cost (PAUC) | N/A | 10.316 | 23.725 | 26.798 |

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 | -146.9 | -- | -147.8 |
| Quantity | -- | +502.9 | -- | +502.9 |
| Schedule | -- | -285.6 | -- | -285.6 |
| Engineering | +0.5 | +217.5 | -- | +218.0 |
| Estimating | +1.0 | +1968.3 | -- | +1969.3 |
| Other | -- | -- | -- | -- |
| Support | -- | +34.3 | -- | +34.3 |
| Subtotal | +0.6 | +2290.5 | -- | +2291.1 |
| Current Changes | | | | |
| Economic | -- | +111.9 | -- | +111.9 |
| Quantity | -- | -- | -- | -- |
| Schedule | -- | -59.5 | -- | -59.5 |
| Engineering | -- | -- | -- | -- |
| Estimating | -- | -322.7 | -- | -322.7 |
| Other | -- | -- | -- | -- |
| Support | -- | +88.5 | -- | +88.5 |
| Subtotal | -- | -181.8 | -- | -181.8 |
| Total Changes | +0.6 | +2108.7 | -- | +2109.3 |
| CE - Cost Variance | 171.6 | 14085.1 | -- | 14256.7 |
| CE - Cost & Funding | 171.6 | 14085.1 | -- | 14256.7 |

| Summary Base Year 2005 \$M | | | | |
|-----------------------------------|------------------|-------------|---------------|--------------|
| | RDT&E | Proc | MILCON | Total |
| SAR Baseline (Prod Est) | 179.7 | 10435.1 | -- | 10614.8 |
| Previous Changes | | | | |
| Economic | -- | -- | -- | -- |
| Quantity | -- | +417.0 | -- | +417.0 |
| Schedule | -- | -8.3 | -- | -8.3 |
| Engineering | +0.5 | +176.9 | -- | +177.4 |
| Estimating | +3.1 | +1460.5 | -- | +1463.6 |
| Other | -- | -- | -- | -- |
| Support | -- | +38.6 | -- | +38.6 |
| Subtotal | +3.6 | +2084.7 | -- | +2088.3 |
| Current Changes | | | | |
| Economic | -- | -- | -- | -- |
| Quantity | -- | -- | -- | -- |
| Schedule | -- | -33.7 | -- | -33.7 |
| Engineering | -- | -- | -- | -- |
| Estimating | -- | -269.5 | -- | -269.5 |
| Other | -- | -- | -- | -- |
| Support | -- | +74.7 | -- | +74.7 |
| Subtotal | -- | -228.5 | -- | -228.5 |
| Total Changes | +3.6 | +1856.2 | -- | +1859.8 |
| CE - Cost Variance | 183.3 | 12291.3 | -- | 12474.6 |
| CE - Cost & Funding | 183.3 | 12291.3 | -- | 12474.6 |

Previous Estimate: December 2010

| Procurement | \$M | |
|---|-----------|-----------|
| | Base Year | Then Year |
| Current Change Explanations | | |
| Revised escalation indices. (Economic) | N/A | +111.9 |
| Acceleration of procurement buy profile due to receipt of Overseas Contingency Operations (OCO) and Omnibus reprogramming funds. (Schedule) | 0.0 | -15.1 |
| Additional schedule variance to reflect accelerated procurement of FY 2018 aircraft to earlier years. (Schedule) | -33.7 | -44.4 |
| Revised System Engineering/Program Management estimate. (Estimating) | +19.0 | +24.3 |
| Decreased estimate for aircraft hardware due to updated multiyear strategy. (Estimating) | -253.4 | -306.3 |
| Adjustment for current and prior escalation. (Estimating) | -35.1 | -40.7 |
| Adjustment for current and prior escalation. (Support) | -2.0 | -2.2 |
| Increase in Other Support due to requirement for additional New Equipment Training (NET) classes and obsolescence/concurrency upgrades to training devices. (Support) | +79.2 | +93.5 |
| Decrease in Initial Spares cost due to updated multiyear strategy. (Support) | -2.5 | -2.8 |
| Procurement Subtotal | -228.5 | -181.8 |

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 02, 2003 |
| Definitization Date | December 21, 2004 |

| 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 | 1632.5 | N/A | 59 | 1632.5 | 1632.5 |

Cost And Schedule Variance Explanations

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

Contract Comments

This contract is more than 90% complete; therefore, this is the final report for this contract.

The difference between the initial contract price target and the current contract price target is due to modifications.

The award date was corrected from December 21, 2004, to December 2, 2003, to reflect the actual award date. The definitization date was corrected from December 22, 2005, to December 21, 2004, to reflect the actual definitization date.

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 | August 26, 2008 |

| 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 | 4387.3 | N/A | 215 | 4387.3 | 4387.3 |

Cost And Schedule Variance Explanations

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

Contract Comments

The difference between the initial contract price target and the current contract price target is due to increase in aircraft on contract.

The definitization date has been corrected from December 22, 2010, because it matches the award date on this contract.

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 | July 23, 2007 |
| 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

This contract is more than 90% complete; therefore, this is the final report for this contract.

The difference between the initial contract price target and the current contract price target is due to definitization of the contract.

The award date has been corrected to July 23, 2007, as the previous submission reflected the definitization date.

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 contract is more than 90% complete; therefore, this is the final report for this contract.

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 | 224 | 229 | 530 | 43.21% |
| Total Program Quantities Delivered | 226 | 231 | 532 | 43.42% |

| Expenditures and Appropriations (TY \$M) | | | |
|--|---------|----------------------------|--------|
| Total Acquisition Cost | 14256.7 | Years Appropriated | 18 |
| Expenditures To Date | 6319.1 | Percent Years Appropriated | 78.26% |
| Percent Expended | 44.32% | Appropriated to Date | 9714.8 |
| Total Funding Years | 23 | Percent Appropriated | 68.14% |

The expenditures reported as of January 30, 2012.

Operating and Support Cost

Assumptions And Ground Rules

Data for the CH-47F is based on a January 2012 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. The fielded aircraft quantity has decreased to 306 as more have been withdrawn from the field. Hardware post-production modifications as well as Army Working Capital Fund (AWCF)-funded spares and consumables were not captured in previous SAR O&S costs. The incorporation of these cost elements led to the increase in the CH-47F O&S estimate.

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 2012.

| Costs BY2005 \$K | | | |
|---|-----------------------------|--|-----------------------------|
| Cost Element | CH-47F | | CH-47D |
| | Average Annual Per Aircraft | | Average Annual Per Aircraft |
| Unit-Level Manpower | 409.5 | | 658.8 |
| Unit Operations | 70.1 | | 76.4 |
| Maintenance | 1200.9 | | 1208.8 |
| Sustaining Support | 16.9 | | 471.2 |
| Continuing System Improvements | 182.0 | | 11.4 |
| Indirect Support | 101.1 | | 656.9 |
| Other | 0.0 | | 0.0 |
| Total Unitized Cost (Base Year 2005 \$) | 1980.5 | | 3083.5 |

| Total O&S Costs \$M | CH-47F | CH-47D |
|---------------------|---------|---------|
| Base Year | 17428.3 | 18871.2 |
| Then Year | 23923.7 | 19430.2 |

Life-cycle demilitarization/disposal costs are \$6.502M (BY 2005 \$) and are included in the above estimate.