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UH-60M Black Hawk Helicopter (UH-60M Black Hawk)

As of FY 2021 President's Budget

Defense Acquisition Management
Information Retrieval
(DAMIR)

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Table of Contents

Common Acronyms and Abbreviations for MDAP Programs	3
Program Information	5
Responsible Office	5
References	6
Mission and Description	7
Executive Summary	7
Threshold Breaches	9
Schedule	10
Performance	12
Track to Budget	14
Cost and Funding	14
Charts	24
Risks	26
Low Rate Initial Production	28
Foreign Military Sales	29
Nuclear Costs	30
Unit Cost	31
Cost Variance	34
Contracts	37
Deliveries and Expenditures	38
Operating and Support Cost	39

Common Acronyms and Abbreviations for MDAP Programs

Acq O&M - Acquisition-Related Operations and Maintenance
ACAT - Acquisition Category
ADM - Acquisition Decision Memorandum
APB - Acquisition Program Baseline
APPN - Appropriation
APUC - Average Procurement Unit Cost
\$B - Billions of Dollars
BA - Budget Authority/Budget Activity
Blk - Block
BY - Base Year
CAPE - Cost Assessment and Program Evaluation
CARD - Cost Analysis Requirements Description
CDD - Capability Development Document
CLIN - Contract Line Item Number
CPD - Capability Production Document
CY - Calendar Year
DAB - Defense Acquisition Board
DAE - Defense Acquisition Executive
DAMIR - Defense Acquisition Management Information Retrieval
DoD - Department of Defense
DSN - Defense Switched Network
EMD - Engineering and Manufacturing Development
EVM - Earned Value Management
FOC - Full Operational Capability
FMS - Foreign Military Sales
FRP - Full Rate Production
FY - Fiscal Year
FYDP - Future Years Defense Program
ICE - Independent Cost Estimate
IOC - Initial Operational Capability
Inc - Increment
JROC - Joint Requirements Oversight Council
\$K - Thousands of Dollars
KPP - Key Performance Parameter
LRIP - Low Rate Initial Production
\$M - Millions of Dollars
MDA - Milestone Decision Authority
MDAP - Major Defense Acquisition Program
MILCON - Military Construction
N/A - Not Applicable
O&M - Operations and Maintenance
ORD - Operational Requirements Document
OSD - Office of the Secretary of Defense
O&S - Operating and Support
PAUC - Program Acquisition Unit Cost

PB - President's Budget
PE - Program Element
PEO - Program Executive Officer
PM - Program Manager
POE - Program Office Estimate
RDT&E - Research, Development, Test, and Evaluation
SAR - Selected Acquisition Report
SCP - Service Cost Position
TBD - To Be Determined
TY - Then Year
UCR - Unit Cost Reporting
U.S. - United States
USD(AT&L) - Under Secretary of Defense (Acquisition, Technology and Logistics)
USD(A&S) - Under Secretary of Defense (Acquisition and Sustainment)

Program Information

Program Name

UH-60M Black Hawk Helicopter (UH-60M Black Hawk)

DoD Component

Army

Responsible Office

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Utility Helicopters Project Office
Program Executive Office Aviation
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References

SAR Baseline (Production Estimate)

Defense Acquisition Executive (DAE) Approved Acquisition Program Baseline (APB) dated March 31, 2005

Approved APB

Defense Acquisition Executive (DAE) Approved Acquisition Program Baseline (APB) dated June 20, 2011

Mission and Description

The UH-60M Black Hawk Helicopter (UH-60M Black Hawk) serves as the Army's utility helicopter for the near and midterm force and is in line with the Army's Modernization Strategy, the National Military Strategy, and the National Defense Strategy. The UH-60M Black Hawk is a digital networked platform with greater range and lift to support maneuver Commanders through air assault, general support command and control, and aeromedical evacuation. FRP for this new-build helicopter began in 2007. The UH-60M Black Hawk, with the integrated Medical Evacuation (MEDEVAC) Mission Equipment Package (MEP) kit, provides day/night and adverse weather emergency evacuation of casualties. The integration of the MEDEVAC MEP onto the UH-60M changes the nomenclature to HH-60M.

Executive Summary

Program Highlights Since Last Report

The UH-60M program requirements are stable and funding is adequate to meet cost, schedule, and performance objectives established in the current approved APB. There are no increased risks to the UH-60M program since the last SAR.

A FY 2019 Congressional plus-up provided funding to procure eight additional UH-60M aircraft for the Army National Guard.

Proceeds from the Blackhawk Exchange and Sales Team (BEST) program were reprogrammed as FY 2016 funds in the amount of \$12.849 M, FY 2017 funds in the amount of \$87.186 M, and FY 2018 funds in the amount of \$83.33 M.

The UH-60M program is in FRP and remains on schedule with a total of 1,163 aircraft procured as of December 31, 2019. Included are eight RDT&E aircraft, 1,150 Procurement (849 UH-60M and 301 HH-60M) and five BEST Aircraft. The final UH-60M procurement is planned for FY 2028.

A total of 1048 aircraft were accepted as of December 31, 2019 (eight RDT&E aircraft, 776 UH-60M aircraft, and 264 HH-60M aircraft).

The first lot of the Multi-Year IX contract (Lot 41) was awarded on June 30, 2017, the second lot (Lot 42) was awarded on November 30, 2017, and the third lot (Lot 43) was awarded on December 6, 2018. The first Multi-Year IX delivery occurred on October 12, 2017.

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

History of Significant Developments Since Program Initiation

History of Significant Developments Since Program Initiation	
Date	Significant Development Description
April 2001	Milestone B DAB approved entry into System Development and Demonstration.
November 2002	The UH-60M System Preliminary Design Review was held at Sikorsky in Stratford, Connecticut.
June 2003	The UH-60M System Critical Design Review completed.
September 2003	The Developmental Test Pilot Familiarization Course was completed and the first flight of UH-60M Aircraft 1 was successfully conducted.
August 2004	Limited User Test in the Systems Integration Lab was successfully executed.
March 2005	The Milestone C ADM approved production of up to 40 LRIP aircraft and approval to award an Advance Procurement contract for the first lot of FRP aircraft.
June 2005	An LRIP contract for the UH-60M baseline aircraft was awarded.
November 2006	Initial Operational Test & Evaluation started on October 16, 2006 and was successfully completed four weeks ahead of schedule on November 21, 2006 with the aircraft performing well through all missions.
June 2007	The FRP decision was achieved and the ADM signed authorizing entry into FRP for the Black Hawk Upgrade Program to include both the UH-60M and HH-60M baseline aircraft.
December 2007	The Multi-Year VII production contract was awarded.
November 2008	The 159th Combat Aviation Brigade became the first UH-60M baseline unit deployed to a combat zone.
February 2010	A Configuration Steering Board (CSB) held on October 15, 2009, recommended to the DAE that the UH-60 Modernization Program restructure. The recommendation included three parts: 1) Produce UH-60M baseline aircraft only, 2) Complete Development Testing on Fly-By-Wire aircraft and 3) Migrate selected technologies from the Upgrade development efforts to the baseline configuration. The recommendation was approved in the February 18, 2010 DAE ADM which directed the program to rebaseline with updates to the Acquisition Strategy and Test & Evaluation Master Plan.
May 2010	The Aviation Synchronization Conference Council of Colonels recommended the Army Acquisition Objective increase from 1227 to 1367.
June 2011	The DAE approved the UH-60M Black Hawk APB completing the rebaseline.
July 2012	The eighth Multi-Year/Multi-Service Procurement Contract from FY 2012 through FY 2016 was awarded.
June 2017	The ninth Multi-Year Procurement Contract from FY 2017 through FY 2021 was awarded.

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"/>
O&S Cost		<input checked="" type="checkbox"/>
Unit Cost	PAUC	<input type="checkbox"/>
	APUC	<input type="checkbox"/>

Explanation of Breach

The Total O&S Cost Deviation was previously reported in the December 2013 SAR.

Nunn-McCurdy Breaches

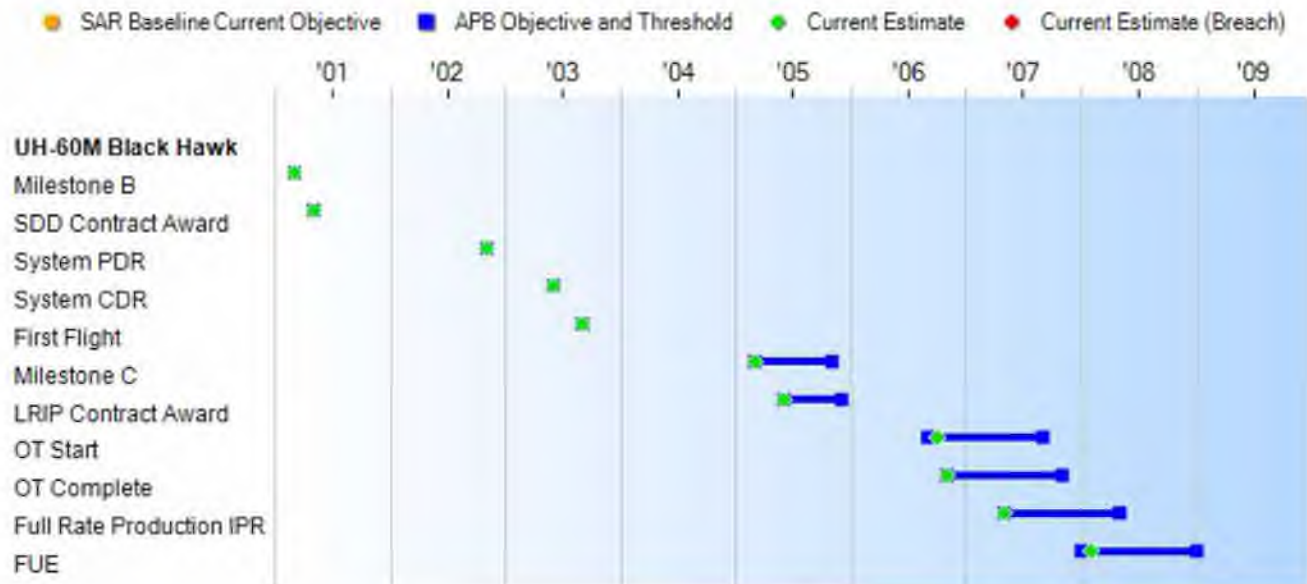
Current UCR Baseline

PAUC	None
APUC	None

Original UCR Baseline

PAUC	None
APUC	None

Schedule



Schedule Events				
Events	SAR Baseline Production Estimate	Current APB Production Objective/Threshold		Current Estimate
Milestone B	Mar 2001	Mar 2001	Mar 2001	Mar 2001
SDD Contract Award	May 2001	May 2001	May 2001	May 2001
System PDR	Nov 2002	Nov 2002	Nov 2002	Nov 2002
System CDR	Jun 2003	Jun 2003	Jun 2003	Jun 2003
First Flight	Sep 2003	Sep 2003	Sep 2003	Sep 2003
Milestone C	Feb 2005	Mar 2005	Nov 2005	Mar 2005
LRIP Contract Award	Mar 2005	Jun 2005	Dec 2005	Jun 2005
OT Start	Sep 2006	Sep 2006	Sep 2007	Oct 2006
OT Complete	Nov 2006	Nov 2006	Nov 2007	Nov 2006
Full Rate Production IPR	May 2007	May 2007	May 2008	May 2007
FUE	Jan 2008	Jan 2008	Jan 2009	Feb 2008

Change Explanations

None

Acronyms and Abbreviations

CDR - Critical Design Review

FUE - First Unit Equipped

IPR - In-Process Review

OT - Operational Test

PDR - Preliminary Design Review

SDD - System Design & Development

Performance

Performance Characteristics				
SAR Baseline Production Estimate	Current APB Production Objective/Threshold		Demonstrated Performance	Current Estimate
Key Performance Parameters (KPPs)				
Interoperability (meet IERs)				
All	N/A	N/A	N/A	N/A
Net-Ready				
All	All	All Critical	All	All
Survivability IR Signature				
N/A	Existing	Existing	Existing	Existing
Aircraft Survivability Equipment				
N/A	Existing	Existing	Existing	Existing
Survivability Fuel Cells				
N/A	14.5mm	7.62mm	7.62mm	7.62mm
Force Protection Armor Plating				
N/A	14.5mm	7.62mm	7.62mm	7.62mm
External Lift Payload				
10,000	10,000	4,500	4,888	4,888
Non-KPPs				
Troop Movement				
Airspeed (Sustained Cruise) (KTAS)				
175	175	145	142.0	145.0
One Engine Inoperative (KTAS)				
100	100	100	TBD	100.0
Combat Radius (w/20 min reserve) (KM)				
500	500	225	225.0	225.6
Vertical Rate of Climb (fpm)				
750	750	500	725	725
Vertical Rate of Climb w/ One Engine Inoperative (fpm)				
200	200	100	TBD	100.0
Internal Lift Capability (290 lbs each)				
11	11	11	11	11
Self-Deploy Range (nautical miles)				

1260	1260	1056	TBD	1071
Ballistic Protection (ground fired armor piercing (mm))				
14.5	14.5	7.62	14.5	14.5
Maintainability (mhrs per flight hr)				
4.6	4.6	5.4	2.3	4.1
Unscheduled mhrs per flight hr				
1.3	1.3	2.1	0.4	1.1
External Lift				
Vertical Rate of Climb (fpm)				
500	500	200	200	200
Combat Radius (w/20 min reserve) (KM)				
275	275	135	135	135

Requirements Reference

ORD dated January 29, 2007

Change Explanations

None

Acronyms and Abbreviations

fpm - feet per minute
 hr - hour
 IER - Information Exchange Requirement
 IR - infrared
 KM - kilometer
 KTAS - Knots True Air Speed
 lbs - pounds
 mhrs - man-hours
 min - minutes
 mm - millimeter
 w/ - with

Track to Budget

RDT&E

Appn	BA	PE
Army	2040	07 0203744A

Project	Name
504	UH-60M Recapitalization/Modifications (Sunk)

Notes

Only UH-60M Black Hawk and UH-60M Upgrade Technologies (RDT&E only) funds are included in this SAR.

Procurement

Appn	BA	PE
Army	2031	01 0210101A

Line Item	Name
A05002	Black Hawk UH-60M (MYP)

Army	2031	02 0210101A
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Line Item	Name
AA0492	Black Hawk UH-60M Upgrade/Recap (Sunk)

Notes

The Aircraft Procurement, Army (APA) Line Item AA0492 is shared with other UH-60M Black Hawk modifications. No funds from the AA0492 line are included in this SAR..

The APA Line Item AA0005 is the parent to the APA Line Item A05002.

Acq O&M

Appn	BA	PE
Army	2020	04 0702806A

Subactivity Group	Name
435	Acquisition and Management Support: (Shared) Utility Helicopters

Cost and Funding

Cost Summary

Total Acquisition Cost						
Appropriation	BY 2005 \$M			BY 2005 \$M	TY \$M	
	SAR Baseline Production Estimate	Current APB Production Objective/Threshold		Current Estimate	SAR Baseline Production Estimate	Current APB Production Objective
RDT&E	717.5	761.3	837.4	761.3	739.3	780.4
Procurement	16084.2	21873.7	24061.1	21269.2	20107.8	27314.2
Flyaway	--	--	--	19991.3	--	--
Recurring	--	--	--	19773.3	--	--
Non Recurring	--	--	--	218.0	--	--
Support	--	--	--	1277.9	--	--
Other Support	--	--	--	1077.3	--	--
Initial Spares	--	--	--	200.6	--	--
MILCON	0.0	0.0	0.0	0.0	0.0	0.0
Acq O&M	0.0	0.0	--	110.1	0.0	0.0
Total	16801.7	22635.0	N/A	22140.6	20847.1	28094.6

Cost Notes

A revised POE was not completed for the UH-60M program during CY 2019. The following program risk and mitigation were identified in the estimate:

Black Hawk Multi-Year IX Contract Quantities: Potential fluctuations in yearly aircraft procurement quantities (dropping below 36 aircraft per year contract floor) will break the Multi-Year IX contract and increase the likelihood of a Nunn-McCurdy breach. Breaking the Multi-Year IX contract would negatively affect Army operational readiness and FMS.

Mitigation: The PM is working with the Army to maintain aircraft quantity commitment to those identified in the Multi-Year IX contract.

Total Quantity			
Quantity	SAR Baseline Production Estimate	Current APB Production	Current Estimate
RDT&E	8	8	8
Procurement	1227	1367	1362
Total	1235	1375	1370

Quantity Notes

The H-60M APO is 1,375 aircraft and consists of 1,365 aircraft that will be sustained and 10 test aircraft that are not fielded or sustained. Eight of the 10 test aircraft were procured with RDTE funds and two of the aircraft were procured using a combination of APA and RDTE funding. These two aircraft were taken off the production line and upgraded with RDTE funding resulting in a total of 1,367 procurement aircraft.

The Army Acquisition Executive approved the Blackhawk Exchange and Sales Team (BEST) program that avoids demilitarization and divestiture costs and applies both non-appropriated funding and appropriated funding proceeds received from the divestiture of non-excess, obsolete H-60 aircraft towards the procurement of replacement H-60M aircraft. The authorities and policies to execute and administer the BEST program are provided in section 503, title 40, U.S. Code and Army regulations 725-1.

A total of 13 aircraft have been procured with BEST proceeds. Five (5) of those aircraft were procured using BEST non-appropriated funding and 8 aircraft were procured with BEST appropriated funding via a reprogramming action. The 1,367 procurement aircraft less the five (5) BEST non-appropriated funded aircraft result in the current procurement estimate of 1,362 aircraft. The 13 BEST aircraft were procured in the FYs as follows; FY 2015 two aircraft, FY2016 three aircraft, FY2018 four aircraft and in FY2019 four aircraft.

Cost and Funding

Funding Summary

Appropriation Summary									
FY 2021 President's Budget / December 2019 SAR (TY\$ M)									
Appropriation	Prior	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	To Complete	Total
RDT&E	780.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	780.4
Procurement	18933.9	1498.1	830.4	768.6	773.5	805.0	706.1	2518.0	26833.6
MILCON	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Acq O&M	19.1	15.4	13.9	13.7	14.1	14.4	14.4	52.6	157.6
PB 2021 Total	19733.4	1513.5	844.3	782.3	787.6	819.4	720.5	2570.6	27771.6
PB 2020 Total	19668.8	1506.5	848.1	787.0	792.2	824.2	725.6	2672.6	27825.0
Delta	64.6	7.0	-3.8	-4.7	-4.6	-4.8	-5.1	-102.0	-53.4

Quantity Summary										
FY 2021 President's Budget / December 2019 SAR (TY\$ M)										
Quantity	Undistributed	Prior	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	To Complete	Total
Development	8	0	0	0	0	0	0	0	0	8
Production	0	1056	74	36	24	33	28	24	87	1362
PB 2021 Total	8	1056	74	36	24	33	28	24	87	1370
PB 2020 Total	8	1053	73	36	24	33	28	24	91	1370
Delta	0	3	1	0	0	0	0	0	-4	0

Cost and Funding

Annual Funding By Appropriation

Annual Funding							
2040 RDT&E Research, Development, Test, and Evaluation, Army							
Fiscal Year	Quantity	TY \$M					
		End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program
2000	--	--	--	--	--	--	9.5
2001	--	--	--	--	--	--	28.8
2002	--	--	--	--	--	--	55.9
2003	--	--	--	--	--	--	96.8
2004	--	--	--	--	--	--	144.8
2005	--	--	--	--	--	--	99.8
2006	--	--	--	--	--	--	106.6
2007	--	--	--	--	--	--	117.5
2008	--	--	--	--	--	--	84.9
2009	--	--	--	--	--	--	30.8
2010	--	--	--	--	--	--	5.0
Subtotal	8	--	--	--	--	--	780.4

Annual Funding 2040 RDT&E Research, Development, Test, and Evaluation, Army							
Fiscal Year	Quantity	BY 2005 \$M					
		End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program
2000	--	--	--	--	--	--	10.2
2001	--	--	--	--	--	--	30.5
2002	--	--	--	--	--	--	58.6
2003	--	--	--	--	--	--	99.5
2004	--	--	--	--	--	--	145.4
2005	--	--	--	--	--	--	97.4
2006	--	--	--	--	--	--	101.3
2007	--	--	--	--	--	--	109.0
2008	--	--	--	--	--	--	77.3
2009	--	--	--	--	--	--	27.7
2010	--	--	--	--	--	--	4.4
Subtotal	8	--	--	--	--	--	761.3

Annual Funding 2031 Procurement Aircraft Procurement, Army							
Fiscal Year	Quantity	TY \$M					
		End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program
2004	--	--	13.5	--	13.5	--	13.5
2005	5	82.5	6.1	5.6	94.2	2.8	97.0
2006	17	241.3	7.5	4.5	253.3	15.2	268.5
2007	72	1086.3	85.8	45.4	1217.5	54.4	1271.9
2008	77	1144.4	85.3	63.3	1293.0	61.6	1354.6
2009	66	962.3	92.0	9.0	1063.3	48.2	1111.5
2010	84	1182.5	172.0	4.5	1359.0	124.2	1483.2
2011	99	1512.5	131.4	36.2	1680.1	108.8	1788.9
2012	89	1298.0	174.5	35.9	1508.4	189.1	1697.5
2013	100	1263.9	179.6	3.7	1447.2	130.3	1577.5
2014	70	980.7	171.1	1.2	1153.0	76.0	1229.0
2015	87	1211.2	181.1	3.4	1395.7	72.9	1468.6
2016	107	1432.4	186.0	4.2	1622.6	91.8	1714.4
2017	65	1097.0	185.8	4.4	1287.2	58.6	1345.8
2018	60	911.3	241.9	1.0	1154.2	92.9	1247.1
2019	58	1012.1	168.4	1.3	1181.8	83.1	1264.9
2020	74	1234.5	186.4	3.2	1424.1	74.0	1498.1
2021	36	584.2	175.0	0.7	759.9	70.5	830.4
2022	24	518.8	198.9	10.5	728.2	40.4	768.6
2023	33	524.5	204.8	11.9	741.2	32.3	773.5
2024	28	548.8	209.9	0.6	759.3	45.7	805.0
2025	24	466.8	213.4	0.5	680.7	25.4	706.1
2026	24	514.1	220.4	0.5	735.0	25.3	760.3
2027	32	704.3	233.3	0.7	938.3	22.8	961.1
2028	31	475.5	232.6	0.7	708.8	31.1	739.9
2029	--	--	36.9	--	36.9	19.8	56.7
Subtotal	1362	20989.9	3993.6	252.9	25236.4	1597.2	26833.6

Annual Funding 2031 Procurement Aircraft Procurement, Army							
Fiscal Year	Quantity	BY 2005 \$M					
		End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program
2004	--	--	13.4	--	13.4	--	13.4
2005	5	79.6	5.8	5.4	90.8	2.7	93.5
2006	17	226.6	7.0	4.2	237.8	14.3	252.1
2007	72	999.9	78.9	41.8	1120.6	50.1	1170.7
2008	77	1036.9	77.2	57.4	1171.5	55.8	1227.3
2009	66	859.5	82.2	8.0	949.7	43.1	992.8
2010	84	1038.2	150.9	4.0	1193.1	109.1	1302.2
2011	99	1304.2	113.3	31.2	1448.7	93.8	1542.5
2012	89	1100.6	148.0	30.4	1279.0	160.3	1439.3
2013	100	1052.7	149.6	3.1	1205.4	108.5	1313.9
2014	70	804.4	140.4	1.0	945.8	62.3	1008.1
2015	87	978.2	146.3	2.7	1127.2	58.9	1186.1
2016	107	1141.6	148.4	3.3	1293.3	73.1	1366.4
2017	65	857.0	145.3	3.4	1005.7	45.7	1051.4
2018	60	697.7	185.2	0.8	883.7	71.1	954.8
2019	58	758.3	126.2	1.0	885.5	62.2	947.7
2020	74	907.0	137.0	2.4	1046.4	54.3	1100.7
2021	36	421.2	126.2	0.5	547.9	50.8	598.7
2022	24	366.7	140.6	7.4	514.7	28.6	543.3
2023	33	363.5	141.9	8.2	513.6	22.4	536.0
2024	28	372.8	142.7	0.4	515.9	31.0	546.9
2025	24	310.9	142.2	0.3	453.4	16.9	470.3
2026	24	335.7	144.0	0.3	480.0	16.5	496.5
2027	32	450.9	149.4	0.4	600.7	14.6	615.3
2028	31	298.4	146.0	0.4	444.8	19.6	464.4
2029	--	--	22.7	--	22.7	12.2	34.9
Subtotal	1362	16762.5	3010.8	218.0	19991.3	1277.9	21269.2

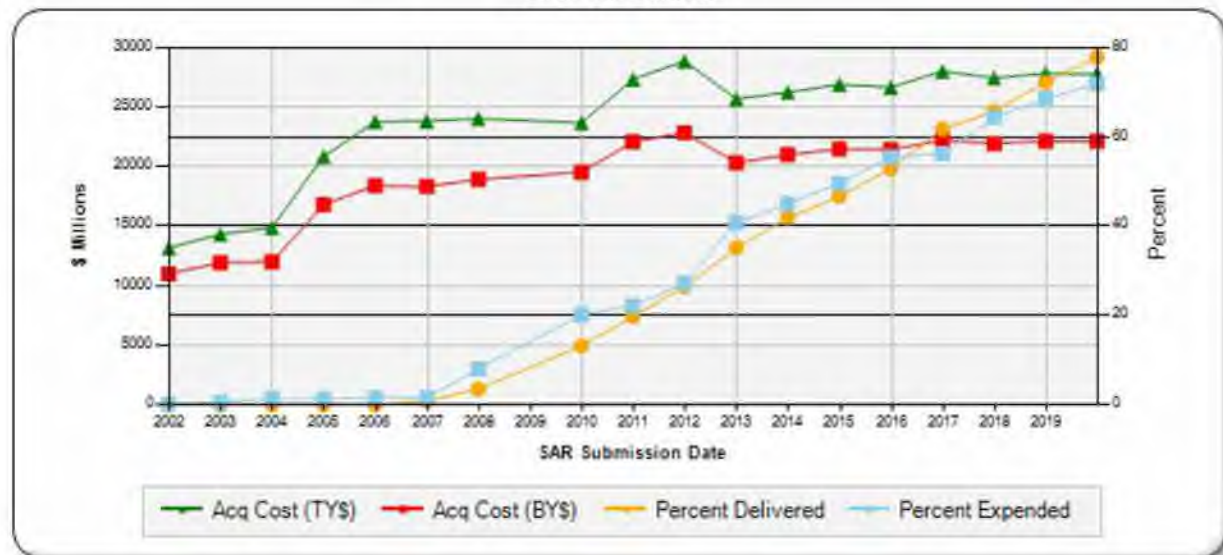
Annual Funding		
2020 Acq O&M Operation and Maintenance, Army		
Fiscal Year	TY \$M	
	Total Program	
2019	19.1	
2020	15.4	
2021	13.9	
2022	13.7	
2023	14.1	
2024	14.4	
2025	14.4	
2026	14.7	
2027	14.9	
2028	15.2	
2029	7.8	
Subtotal	157.6	

Annual Funding		
2020 Acq O&M Operation and Maintenance, Army		
Fiscal Year	BY 2005 \$M	
	Total Program	
2019		14.6
2020		11.5
2021		10.2
2022		9.9
2023		10.0
2024		10.0
2025		9.8
2026		9.8
2027		9.7
2028		9.7
2029		4.9
Subtotal		110.1

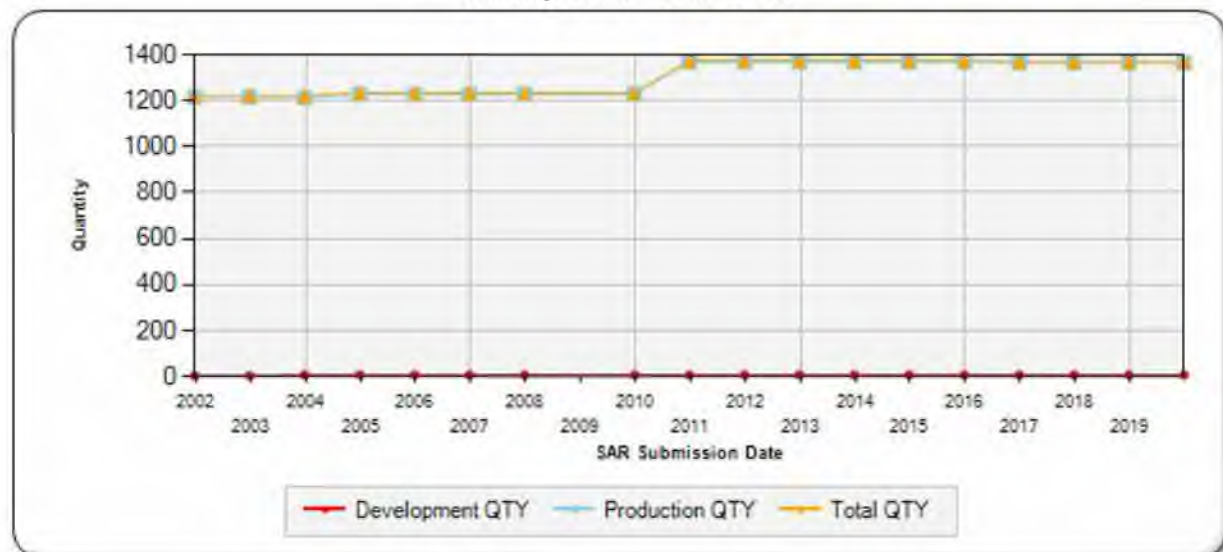
Charts

UH-60M Black Hawk first began SAR reporting in December 2001

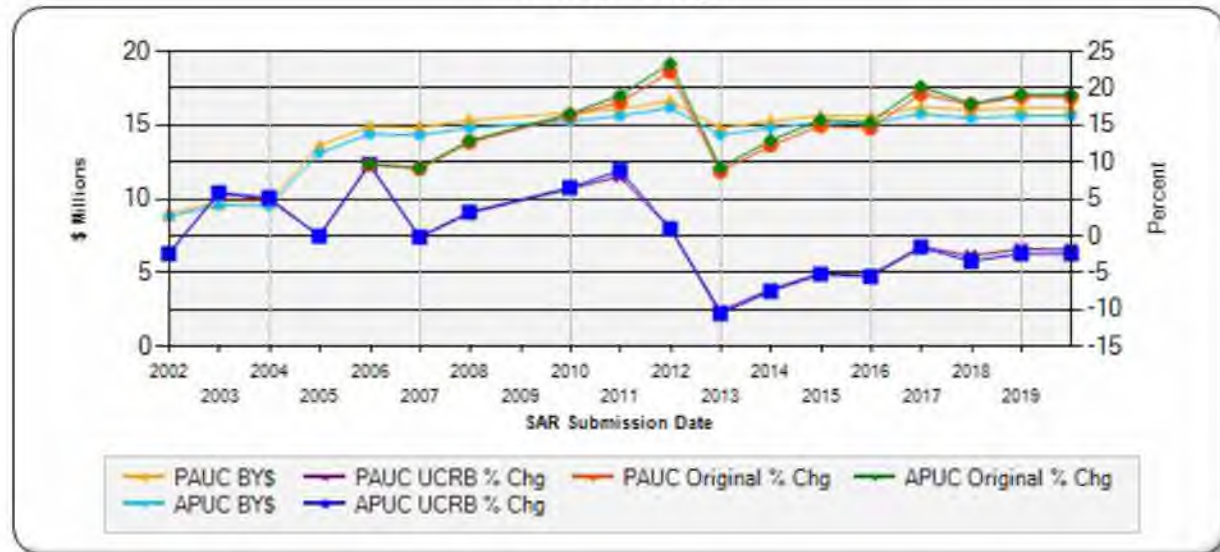
Program Acquisition Cost - UH-60M Black Hawk
Base Year 2005 \$M



Quantity - UH-60M Black Hawk



Unit Cost - UH-60M Black Hawk
Base Year 2005 \$M



Risks

Significant Schedule and Technical Risks

Significant Schedule and Technical Risks	
Full Rate Production (June 2007)	
1.	Development and qualification of the Fly-By-Wire Active Inceptor System (AIS) is on the critical path for the program. This is the first rotorcraft implementation of the AIS. Safety of Flight testing and approval for the AIS has no slack to first flight.
2.	Common Aviation Architecture System is not compliant with current and emerging civil navigation ORD requirements for Global Positioning System terminal and non-precision approaches equivalent to Advisory Circular 90-96a and Technical Standard Order-c129a Class C1 for Precision Area Navigation.
3.	The Full Authority Digital Engine Control (FADEC) flight test design has successfully completed the March 2007 Critical Design Review, is operating very well in the test cell. Software is being provided to Sikorsky for integration to the Flight Control Simulation Integration Laboratory, and is on schedule to support the Upgrade aircraft build and first flight. Temperature restrictions during flight test will not affect the Upgrade flight test schedule. The fully compliant FADEC design is in process. A fit check of the increased volume Engine Electronic Control Unit was conducted the week of April 3, 2007. The design review for the fully compliant FADEC is tentatively scheduled for June 2007. The fully compliant FADEC will be inserted into the Upgrade flight test in February 2008.
Current Estimate (December 2019)	
1.	Potential fluctuations in yearly aircraft procurement quantities (dropping below 36 aircraft per year) could break the Multi-Year IX (MY IX) contract and increases the likelihood of a Nunn-McCurdy breach. Significant reductions in quantities, driven by Aviation Restructuring Initiative or PB perturbations negatively impact unit costs and production flow. Breaking the multi-year would negatively affect FMS and set a bad precedent regarding DoD multi-year contracts. Mitigation: The PM is working with the Department of the Army to maintain aircraft quantity commitment to those identified in the MY IX proposal. The PM is working with Sikorsky to mitigate the impacts and keep MY IX whole should the quantities fluctuate below the required minimums.

Risks

Risk and Sensitivity Analysis

Risks and Sensitivity Analysis	
Current Baseline Estimate (June 2011)	
1.	The Configuration Steering Board recommended to the DAE that the UH-60 Modernization Program restructure. The recommendation included three parts: 1) Produce UH-60M baseline aircraft only; 2) Complete Development Testing on Fly-By-Wire aircraft; and 3) Migrate selected technologies from the upgrade development efforts to the baseline configuration. The recommendation was approved by the DAE on February 18, 2010 in a signed ADM. The ADM also directed the Program to be rebaselined with updates to the Acquisition Strategy, Test & Evaluation Master Plan and APB as a result of this restructure. On May 18, 2010, the Aviation Synchronization Conference Council of Colonels recommended the Authorized Acquisition Objective increase from 1227 to 1365. Two additional aircraft were procured in the upgrade configuration and these two aircraft will not be fielded. The increase in quantities resulted in Total Procurement Cost increase over the Threshold value resulting in a Total Procurement Cost programmatic breach. The program went through the process of developing an Army Cost Position to rebaseline the program.
Original Baseline Estimate (February 2002)	
1.	The Milestone B DAB Approved Entry into System Development and Demonstration Phase in April 2001.
Revised Original Estimate (March 2005)	
1.	In December 2004, the Army changed the Acquisition Strategy in favor of UH-60M new build versus recapitalization and realigned procurement funding from modifications (Aircraft Procurement, Army Line Item AA0492) to new build production. The DAB approved the Milestone C on March 15, 2005. The approved APB includes the UH-60M Upgrade program development, integration and qualification and the new build UH/HH-60M aircraft rather than recapitalized aircraft. The UH-60M Upgrade program includes Common Avionics Architecture System, Fly-By-Wire, and Full Authority Digital Engine Control development and integration on the UH-60M aircraft.
Current Procurement Cost (December 2019)	
1.	The UH-60M current estimate is based on the 2011 Army Cost Position and adjusted for fact of life changes. The UH-60M program experienced funding challenges which impacted the quantity of aircraft procured, therefore increasing unit costs and driving cost growth. Given the current and anticipated fiscal environment, there may be continued budgetary pressures on the program. The Black Hawk program signed a five year Multi-Year contract from FY 2017 to FY 2021.

Low Rate Initial Production

Item	Initial LRIP Decision	Current Total LRIP
Approval Date	3/31/2005	3/31/2005
Approved Quantity	40	40
Reference	Milestone C ADM	Milestone C ADM
Start Year	2005	2005
End Year	2007	2007

Notes

The Milestone C ADM dated March 31, 2005, approved up to 40 LRIP aircraft and supported the award an Advance Procurement Contract for the first lot of FRP aircraft.

Foreign Military Sales

Country	Date of Sale	Quantity	Total Cost \$M	Description
Croatia	3/15/2019	2	33.4	Case Number 7L-B-UGK
Latvia	2/22/2019	4	56.0	Case Number LG-B-UDM
Thailand	4/17/2017	4	90.1	Case Number TH-B-UAE
Saudi Arabia	7/5/2016	9	147.4	Case Number SR-B-ZAD
Jordan	6/10/2016	4	52.0	Case Number U6-B-UAA
Jordan	3/12/2016	8	133.0	Case Number U4-B-UXA
Saudi Arabia	9/15/2015	24	698.0	Case Number SI-B-WXZ
Saudi Arabia	9/15/2015	24	733.0	Case Number SI-B-WYA
Jordan	6/19/2015	1	17.2	Case Number JO-B-YAT
Slovakia	4/21/2015	9	170.1	Case Number LO-B-UCI
Tunisia	1/12/2015	8	114.7	Case Number TU-B-USS
Mexico	8/8/2014	7	163.6	Case Number MX-B-UEU
Mexico	7/22/2014	18	462.2	Case Number MX-B-UES
Thailand	9/25/2012	1	31.0	Case Number TH-B-UAE
Thailand	12/26/2011	2	62.3	Case Number TH-B-UAD
Saudi Arabia	11/30/2011	24	638.3	Case Number SI-B-WXP
Sweden	1/14/2011	15	275.7	Case Number SW-B-WAD
Taiwan	11/22/2010	60	1717.7	Case Number TW-B-YZC
Jordan	9/1/2010	2	26.3	Case Number JO-B-WAT
Mexico	8/3/2010	3	83.9	Case Number MX-B-UEJ
United Arab Emirates	12/12/2007	40	825.0	Case Number AE-B-ZUE
Bahrain	9/18/2007	9	151.9	Case Number BA-B-UIR

Notes

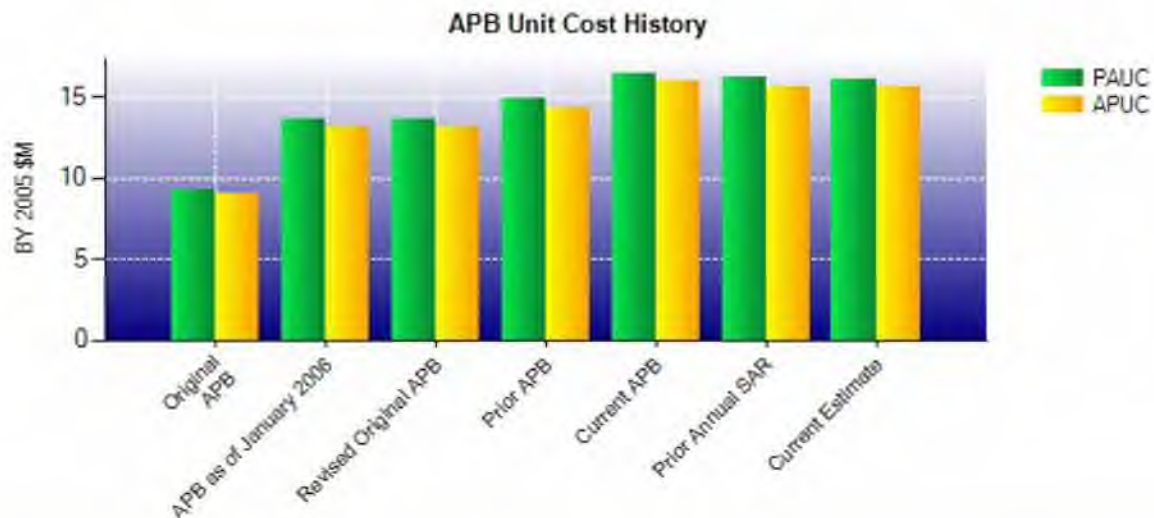
To date all FMS are for the UH-60M Black Hawk configuration of the aircraft. The Total Cost reflects all costs associated with the procurement of the aircraft and other services provided to the specific country to include training and spares.

Nuclear Costs

None

Unit Cost

Current UCR Baseline and Current Estimate (Base-Year Dollars)			
Item	BY 2005 \$M	BY 2005 \$M	% Change
	Current UCR Baseline (Jun 2011 APB)	Current Estimate (Dec 2019 SAR)	
Program Acquisition Unit Cost			
Cost	22635.0	22140.6	
Quantity	1375	1370	
Unit Cost	16.462	16.161	-1.83
Average Procurement Unit Cost			
Cost	21873.7	21269.2	
Quantity	1367	1362	
Unit Cost	16.001	15.616	-2.41
Original UCR Baseline and Current Estimate (Base-Year Dollars)			
Item	BY 2005 \$M	BY 2005 \$M	% Change
	Revised Original UCR Baseline (Mar 2005 APB)	Current Estimate (Dec 2019 SAR)	
Program Acquisition Unit Cost			
Cost	16801.7	22140.6	
Quantity	1235	1370	
Unit Cost	13.605	16.161	+18.79
Average Procurement Unit Cost			
Cost	16084.2	21269.2	
Quantity	1227	1362	
Unit Cost	13.109	15.616	+19.12



APB Unit Cost History					
Item	Date	BY 2005 \$M		TY \$M	
		PAUC	APUC	PAUC	APUC
Original APB	Feb 2002	9.250	9.042	12.008	11.812
APB as of January 2006	Mar 2005	13.605	13.109	16.880	16.388
Revised Original APB	Mar 2005	13.605	13.109	16.880	16.388
Prior APB	Feb 2007	14.872	14.338	18.840	18.319
Current APB	Jun 2011	16.462	16.001	20.432	19.981
Prior Annual SAR	Dec 2018	16.171	15.615	20.310	19.725
Current Estimate	Dec 2019	16.161	15.616	20.271	19.702

SAR Unit Cost History

Initial SAR Baseline to Current SAR Baseline (TY \$M)									
Initial PAUC Development Estimate	Changes								PAUC Production Estimate
	Econ	Qty	Sch	Eng	Est	Oth	Spt	Total	
12.008	-0.325	4.705	-0.262	0.996	-0.326	0.000	0.084	4.872	16.880

Current SAR Baseline to Current Estimate (TY \$M)									
PAUC Production Estimate	Changes								PAUC Current Estimate
	Econ	Qty	Sch	Eng	Est	Oth	Spt	Total	
16.880	-0.239	0.674	1.008	0.478	0.818	0.000	0.652	3.391	20.271

Initial SAR Baseline to Current SAR Baseline (TY \$M)									
Initial APUC Development Estimate	Changes								APUC Production Estimate
	Econ	Qty	Sch	Eng	Est	Oth	Spt	Total	
11.812	-0.324	4.469	-0.287	0.987	-0.354	0.000	0.085	4.576	16.388

Current SAR Baseline to Current Estimate (TY \$M)									
APUC Production Estimate	Changes								APUC Current Estimate
	Econ	Qty	Sch	Eng	Est	Oth	Spt	Total	
16.388	-0.245	0.727	0.994	0.483	0.699	0.000	0.656	3.314	19.702

SAR Baseline History				
Item	SAR Planning Estimate	SAR Development Estimate	SAR Production Estimate	Current Estimate
Milestone A	N/A	N/A	N/A	N/A
Milestone B	N/A	Apr 2001	Mar 2001	Mar 2001
Milestone C	N/A	Mar 2004	Feb 2005	Mar 2005
FUE	N/A	Sep 2006	Jan 2008	Feb 2008
Total Cost (TY \$M)	N/A	14662.0	20847.1	27771.6
Total Quantity	N/A	1221	1235	1370
PAUC	N/A	12.008	16.880	20.271

Cost Variance

Summary TY \$M					
Item	RDT&E	Procurement	MILCON	Acq O&M	Total
SAR Baseline (Production Estimate)	739.3	20107.8	--	--	20847.1
Previous Changes					
Economic	+3.9	-316.1	--	+1.3	-310.9
Quantity	--	+3203.0	--	--	+3203.0
Schedule	+27.5	+1366.4	--	--	+1393.9
Engineering	-2.1	+657.2	--	--	+655.1
Estimating	+11.8	+953.0	--	+178.4	+1143.2
Other	--	--	--	--	--
Support	--	+893.6	--	--	+893.6
Subtotal	+41.1	+6757.1	--	+179.7	+6977.9
Current Changes					
Economic	--	-17.2	--	--	-17.2
Quantity	--	--	--	--	--
Schedule	--	-12.8	--	--	-12.8
Engineering	--	--	--	--	--
Estimating	--	-0.7	--	-22.1	-22.8
Other	--	--	--	--	--
Support	--	-0.6	--	--	-0.6
Subtotal	--	-31.3	--	-22.1	-53.4
Total Changes	+41.1	+6725.8	--	+157.6	+6924.5
Current Estimate	780.4	26833.6	--	157.6	27771.6

Summary BY 2005 \$M					
Item	RDT&E	Procurement	MILCON	Acq O&M	Total
SAR Baseline (Production Estimate)	717.5	16084.2	--	--	16801.7
Previous Changes					
Economic	--	--	--	--	--
Quantity	--	+2272.3	--	--	+2272.3
Schedule	+24.1	+894.8	--	--	+918.9
Engineering	+9.5	+529.3	--	--	+538.8
Estimating	+10.2	+793.2	--	+124.9	+928.3
Other	--	--	--	--	--
Support	--	+694.0	--	--	+694.0
Subtotal	+43.8	+5183.6	--	+124.9	+5352.3
Current Changes					
Economic	--	--	--	--	--
Quantity	--	--	--	--	--
Schedule	--	--	--	--	--
Engineering	--	--	--	--	--
Estimating	--	+1.3	--	-14.8	-13.5
Other	--	--	--	--	--
Support	--	+0.1	--	--	+0.1
Subtotal	--	+1.4	--	-14.8	-13.4
Total Changes	+43.8	+5185.0	--	+110.1	+5338.9
Current Estimate	761.3	21269.2	--	110.1	22140.6

Previous Estimate: December 2018

Procurement	\$M	
Current Change Explanations	Base Year	Then Year
Revised escalation indices. (Economic)	N/A	-17.2
Acceleration of procurement buy profile from FY 2027 - FY 2028 to FY 2018. (Schedule)	0.0	-12.8
Revised estimate due to acceleration of procurement buy profile. (Estimating)	-2.6	-5.3
Adjustment for current and prior escalation. (Estimating)	+3.9	+4.6
Adjustment for current and prior escalation. (Support)	0.0	+0.4
Decrease in Other Support due to acceleration of procurement buy profile. (Support)	-0.1	-0.7
Increase in Initial Spares. (Support)	+0.2	-0.3
Procurement Subtotal	+1.4	-31.3

Acq O&M	\$M	
Current Change Explanations	Base Year	Then Year
Estimate revised to reflect reduction in core civilian support. (Estimating)	-14.8	-22.1
Acq O&M Subtotal	-14.8	-22.1

Contracts

Contract Identification

Appropriation: Procurement
Contract Name: Multi-Year IX
Contractor: Sikorsky Aircraft Corporation
Contractor Location: 6900 Main St
 Stratford, CT 06614
Contract Number: W58RGZ-17-C-0009
Contract Type: Firm Fixed Price (FFP)
Award Date: June 30, 2017
Definitization Date: June 30, 2017

Contract Price							
Initial Contract Price (\$M)			Current Contract Price (\$M)			Estimated Price At Completion (\$M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
3199.2	N/A	217	3985.4	N/A	272	3985.4	3985.4

Target Price Change Explanation

The difference between the Initial Contract Price Target and the Current Contract Price Target is due to purchase of additional aircraft.

Cost and Schedule Variance Explanations

Cost and Schedule Variance reporting is not required on this (FFP) contract.

Notes

This information includes only the Army portion of the current Multi-Year IX contract.

Deliveries and Expenditures

Deliveries				
Delivered to Date	Planned to Date	Actual to Date	Total Quantity	Percent Delivered
Development	8	8	8	100.00%
Production	1057	1059	1362	77.75%
Total Program Quantity Delivered	1065	1067	1370	77.88%

Expended and Appropriated (TY \$M)			
Total Acquisition Cost	27771.6	Years Appropriated	21
Expended to Date	19960.7	Percent Years Appropriated	70.00%
Percent Expended	71.87%	Appropriated to Date	21246.9
Total Funding Years	30	Percent Appropriated	76.51%

The above data is current as of February 10, 2020.

Notes

The H-60M APO is 1,375 aircraft and consists of 1,365 aircraft that will be sustained and 10 test aircraft that are not fielded or sustained. Eight of the 10 test aircraft were procured with RDTE funds and two of the aircraft were procured using a combination of APA and RDTE funding. These two aircraft were taken off the production line and upgraded with RDTE funding resulting in a total of 1,367 procurement aircraft.

The Army Acquisition Executive approved the Blackhawk Exchange and Sales Team (BEST) program that avoids demilitarization and divestiture costs and applies both non-appropriated funding and appropriated funding proceeds received from the divestiture of non-excess, obsolete H-60 aircraft towards the procurement of replacement H-60M aircraft. The authorities and policies to execute and administer the BEST program are provided in section 503, title 40, U.S. Code and Army regulations 725-1.

A total of 13 aircraft have been procured with BEST proceeds. Five (5) of those aircraft were procured using BEST non-appropriated funding and 8 aircraft were procured with BEST appropriated funding via a reprogramming action. The 1,367 procurement aircraft less the five (5) BEST non-appropriated funded aircraft result in the current procurement estimate of 1,362 aircraft. The 13 BEST aircraft were procured in the FY's as follows; FY 2015 two aircraft, FY 2016 three aircraft, FY2018 four aircraft and in FY 2019 four aircraft.

Operating and Support Cost

Cost Estimate Details

Date of Estimate:	June 30, 2019
Source of Estimate:	POE
Quantity to Sustain:	1365
Unit of Measure:	Aircraft
Service Life per Unit:	25.00 Years
Fiscal Years in Service:	FY 2006 - FY 2053

A total of 1,375 UH-60M aircraft will be procured. The operating and support sustainment cost is based on 1,365 fielded aircraft. The eight RDTE funded prototype aircraft and two procurement/RDTE aircraft in an upgrade configuration will not be fielded or sustained.

Sustainment Strategy

The UH-60M Black Hawk follows the standard Army maintenance model of two-level maintenance -Field Maintenance Level and Sustainment Maintenance Level as defined by TC 3-04.7 (FM 3-04.500), Army Aviation Maintenance regulation. However, the training base will continue as Contractor Logistics Support. Field Maintenance and Sustainment Maintenance comes under the Army national maintenance program (NMP). Field Maintenance is performed by Combat Aviation Brigade (CAB) / Air Cavalry Services (ACS) personnel assigned to flight companies, aviation maintenance companies, and aviation support companies. Sustainment Maintenance is divided and primarily performed by three separate entities: the Original Equipment Manufacturers (OEM) and contractor field service representatives; Army depots located at fixed bases in the continental United States; and by the national maintenance sources of repair.

Antecedent Information

The antecedent system is UH-60L Black Hawk. The total O&S Costs for UH-60L Black Hawk were not reported in the last UH-60L Black Hawk SAR dated December 31, 1999. The information in the O&S Cost Table is based on O&S Management Information Systems (OSMIS) data for the UH-60L Black Hawk (excluding Contingency Operations). Sustaining support costs for the UH-60L Black Hawk aircraft are not included in the table because the costs (software maintenance, system specific base operations, systems engineering/program management and transportation) are not collected in OSMIS. There are 780 UH-60L Black Hawks in the current fleet with an Economic Useful Life expectancy of 25 years.

Annual O&S Costs BY2005 \$K			
Cost Element	UH-60M Black Hawk Average Annual Cost Per Aircraft		UH-60L Black Hawk (Antecedent) Average Annual O&S Cost Per Aircraft
Unit-Level Manpower	426.593		426.000
Unit Operations	54.136		54.000
Maintenance	374.606		285.000
Sustaining Support	1.225		0.000
Continuing System Improvements	6.157		0.000
Indirect Support	215.986		216.000
Other	0.000		0.000
Total	1078.703		981.000

Item	Total O&S Cost \$M			
	UH-60M Black Hawk			UH-60L Black Hawk (Antecedent)
	Current Production APB Objective/Threshold	Current Estimate		
Base Year	17652.5	19417.8	36810.7 ¹	N/A
Then Year	26086.5	N/A	60911.2	N/A

¹ APB O&S Cost Breach

The UH-60M Black Hawk APB dated June 2011 represents O&M costs only and a 20-year service life. The Current Estimate reflects all O&S costs and a 25-year service life. The key difference between the O&M cost and the O&S cost is that O&M costs do not include Military Personnel costs.

Equation to Translate Annual Cost to Total Cost

Average Annual Cost per Aircraft x quantity fielded x Economic Useful Life

\$1.078703M X (1375-10=1365) x 25 years = \$36,810.7 (BY 2005M)

O&S Cost Variance		
Category	BY 2005 \$M	Change Explanations
Prior SAR Total O&S Estimates - Dec 2018 SAR	36810.7	
Programmatic/Planning Factors	0.0	
Cost Estimating Methodology	0.0	
Cost Data Update	0.0	
Labor Rate	0.0	
Energy Rate	0.0	
Technical Input	0.0	
Other	0.0	

Total Changes	0.0
Current Estimate	36810.7

Disposal Estimate Details

Date of Estimate: February 20, 2019
Source of Estimate: POE
Disposal/Demilitarization Total Cost (BY 2005 \$M): 83.0

The U.S. Army Environmental Center developed the disposal cost estimate. The estimate includes effort for pollution prevention, aircraft wash waste, painting/de-painting and Programmatic Environmental, Safety and Occupational Evaluation (PESHE).