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Department of Defense
OFFICE OF PREPUBLICATION AND SECURITY REVIEW



VH-92A PRESIDENTIAL HELICOPTER (VH-92A)

December 2021 Selected Acquisition Report (SAR)



DECEMBER 31, 2021
DEPARTMENT OF THE NAVY

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Common Acronyms and Abbreviations

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(A&S) - Under Secretary of Defense (Acquisition and Sustainment)
USD(AT&L) - Under Secretary of Defense (Acquisition, Technology and Logistics)

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Program Manager

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Date Assigned: March 22, 2018

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Mission and Description

The VH-92A Presidential Helicopter (VH-92A) program mission is to provide safe, reliable, and timely transportation for the President, Vice President, Foreign Heads of State, and other official parties as directed by the Director of the White House Military Office. Presidential helicopter transportation requirements are executed by Marine Helicopter Squadron One (HMX-1) and support the President worldwide and the Vice President primarily inside the National Capital Region. Mission tasking encompasses two (2) main types of missions, administrative lift (Mission Tasking 1) and contingency operations (Mission Tasking 2). The VH-92A platform will replace both legacy VH-3D and VH-60N aircraft and is based on Sikorsky's commercial S-92A helicopter. The acquisition strategy for the VH-92A program involves integration of mature government defined mission systems and an executive interior into the existing S-92A air vehicle while maintaining the existing Federal Aviation Administration certification throughout the life cycle of the program. The program has no critical technology elements. Twenty-three aircraft will be procured, of which 21 will be operational aircraft and two will remain test aircraft.

SAR Baseline (Production Estimate)

Assistant Secretary of the Navy (Research, Development & Acquisition) (ASN(RDA)) Approved Acquisition Program Baseline (APB) dated June 07, 2019

Approved APB

ASN(RDA) Approved APB dated April 28, 2021

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Executive Summary

Significant Accomplishments:

Initial Operational Test & Evaluation (IOT&E) completed on April 13, 2021. Engineering and Manufacturing Development (EMD) contract closure began on November 19, 2021 with six (6) aircraft, training devices, initial spares and support equipment delivered to the Government. The United States Marine Corps declared IOC for the VH-92A on December 28, 2021.

The first three LRIP Lot I aircraft were delivered to the Government in late CY 2021. LRIP Lot II Option (6 aircraft, initial spares and support equipment) was awarded on February 19, 2020. LRIP Lot III Option (5 aircraft, initial spares and support equipment) was awarded on February 5, 2021. LRIP Lot III is the final production buy for the program.

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
Mar 2014	The VH-92A program was initiated at a Milestone B Defense Acquisition Board (DAB) review.
May 2014	A Fixed Price Incentive contract was competitively awarded to Sikorsky Aircraft Corporation, with three fixed priced production options.
Aug 2015	The VH-92A program conducted a System Level Preliminary Design Review (PDR).
Jul 2016	The VH-92A program conducted a System Level Critical Design Review (CDR).
Jul 2017	Engineering Development Model (EDM) -1 completed first flight at Stratford, CT.
Jul 2018	EDM-1 was transferred to the government to conduct government-led integrated testing.
May 2019	VH-92A Milestone C Review
Jun 2019	VH-92A Milestone C Acquisition Decision Memorandum (ADM) approval
Jun 2019	LRIP Lot I Exercised
Feb 2020	LRIP Lot II Exercised
Aug 2020	VH-92A IOT&E realignment ADM
Feb 2021	LRIP Lot III Exercised
Apr 2021	VH-92A IOT&E Completed
Apr 2021	A revision to the VH-92A APB was approved to adjust the IOT&E Complete and IOC milestones to align to the VH-92A Transition Plan.
Dec 2021	VH-92A IOC declared by USMC

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Schedule

Schedule Events

Schedule Events					
Events	Production APB Objective	Current APB Production Objective/Threshold		Current Estimate/Actual	Deviation
Material Development Decision	Jun 2010	Jun 2010	Jun 2010	06/07/2010	
Pre-EMD	Mar 2013	Mar 2013	Mar 2013	03/11/2013	
Milestone B	Apr 2014	Apr 2014	Apr 2014	04/17/2014	
Critical Design Review	Jul 2016	Jul 2016	Jul 2016	07/21/2016	
Milestone C	May 2019	May 2019	May 2019	05/30/2019	
IOT&E Complete	Mar 2020	Apr 2021	Apr 2021	04/13/2021	
IOC	Jul 2020	Jun 2021	Dec 2021	12/28/2021	
Full Operational Capability	Jul 2022	Jul 2022	Jan 2023	Jan 2023	

Schedule Notes:

The Initial Operational Test & Evaluation (IOT&E) Complete current estimate has changed from September 2020 to April 2021 to reflect the actual completion date.

The IOC current estimate has changed from January 2021 to December 2021 to reflect the actual completion date.

The Full Operational Capability current estimate has changed from July 2022 to January 2023 to align with the VH-92A transition plan.

Significant Schedule Risks

Significant Schedule Risks	
Current Estimate (December 2021)	
1.	There are no risks identified with this program.

Performance

Performance Characteristics					
Production APB Objective	Current APB Production Objective/Threshold	Demonstrated Performance (include Date of Demonstration)	Current Estimate/Actual	Deviation	
Passenger Seating and Lift Capacity					
(Objective=Threshold) MT-1: 14 passengers MT-2	(Objective=Threshold) MT-1: 14 passengers MT-2	MT-1: 12 passengers MT-2: 14 passengers	MT-1: 12 passengers MT-2: 14 passengers		
Range (Operational Day)					
MT-1 NCR, NCR Return: >100 NM MT-1 CONUS/OCONUS: >200 NM MT-2: >300 NM	MT-1 NCR, NCR Return: >100 NM MT-1 CONUS/OCONUS: >200 NM MT-2: >300 NM	MT-1 NCR, NCR Return: >50 NM MT-1 CONUS/OCONUS: >150 NM MT-2: >250 NM	MT-1 NCR, NCR Return: ≥50 NM MT-1 CONUS/OCONUS: ≥150 NM MT-2: ≥250 NM		
Hover Performance					
HOGE with mission payload and other required equipment (High Hot Day)	HOGE with mission payload and other required equipment (High Hot Day)	HOGE with mission payload and other required equipment (Operational Day)	HOGE with mission payload and other required equipment (Operational Day)		
Transportability					
(Objective=Threshold) MT-2: (1) MT-2 aircraft and all required equipment, personnel (29), and SE necessary to execute deployed maintenance and mission requirements shall be transportable using (1) C-17.	(Objective=Threshold) MT-2: (1) MT-2 aircraft and all required equipment, personnel (29), and SE necessary to execute deployed maintenance and mission requirements shall be transportable using (1) C-17.	MT-2: (1) MT-2 aircraft and all required equipment, personnel (29), and SE necessary to execute deployed maintenance and mission requirements shall be transportable using (1) C-17.	MT-2: (1) MT-2 aircraft and all required equipment, personnel (29), and SE necessary to execute deployed maintenance and mission requirements shall be transportable using (1) C-17.		

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Performance Characteristics					
Production APB Objective	Current APB Production Objective/Threshold		Demonstrated Performance (include Date of Demonstration)	Current Estimate/Actual	Deviation
Landing Zone Suitability					
(Objective=Threshold) Maintain obstacle clearance during all phases of approach, landing, take-off, and departure from the existing White House South Lawn.	(Objective=Threshold) Maintain obstacle clearance during all phases of approach, landing, take-off, and departure from the existing White House South Lawn.	Maintain obstacle clearance during all phases of approach, landing, take-off, and departure from the existing White House South Lawn.		Maintain obstacle clearance during all phases of approach, landing, take-off, and departure from the existing White House South Lawn.	
Sustainment: Materiel Availability - Am, Operational Availability - Ao					
Am ≥ 59% MT-1: Ao ≥ 85% MT-2: Ao ≥ 85%	Am ≥ 59% MT-1: Ao ≥ 85% MT-2: Ao ≥ 85%	Am ≥ 57% MT-1: Ao ≥ 80% MT-2: Ao ≥ 83%		Am ≥ 57% MT-1: Ao ≥ 80% MT-2: Ao ≥ 83%	
Training					
(Objective=Threshold) Reduce the overall time to train for pilots and crew chiefs from current In-Service aircraft time to train utilizing a Systems Approach to Training.	(Objective=Threshold) Reduce the overall time to train for pilots and crew chiefs from current In-Service aircraft time to train utilizing a Systems Approach to Training.	Reduce the overall time to train for pilots and crew chiefs from current In-Service aircraft time to train utilizing a Systems Approach to Training.		Reduce the overall time to train for pilots and crew chiefs from current In-Service aircraft time to train utilizing a Systems Approach to Training.	
Net-Ready					
(Objective=Threshold) Support net-centric military operations Enter and be managed on the network Exchanges information.	(Objective=Threshold) Support net-centric military operations Enter and be managed on the network Exchanges information.	Support net-centric military operations Enter and be managed on the network Exchanges information.		Support net-centric military operations Enter and be managed on the network Exchanges information.	

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Performance Notes:

With Joint Staff (J-4) concurrence and as documented in the Capabilities Development Document (CDD), the Energy KPP required by the Joint Capabilities Integration Development System Manual is not applicable to VH-92A.

Net Ready KPP Products are detailed in the CDD, Appendix A.

The VH-92A program was planned and budgeted to the performance threshold.

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

Demonstrated Performance is Controlled Unclassified Information (CUI) and not provided in this report.

Acronyms

Am - Materiel Availability

Ao - Operational Availability

CONUS - Continental United States

HOG E - Hover out of Ground Effect

MT-1 - Mission Tasking 1 (administrative lift)

MT-2 - Mission Tasking 2 (contingency operations)

NCR - National Capital Region

NM - Nautical Mile

OCONUS - Outside the Continental United States

SE - Support Equipment

Requirements Source: VH-92A CDD Update June 4, 2019

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Acquisition Budget Estimate

Total Acquisition Cost

Category	Base Year	Development APB	Production APB (Current)		Budget Estimate PB 2023		Deviation
		Objective (BY\$)	Objective (BY\$)	Threshold (BY\$)	BY\$	TY\$	
RDT&E	2014	2,606.10	2,463.50	2,709.90	2,515.86	2,731.67	None
Procurement	2014	2,043.60	1,956.60	2,152.30	1,897.02	2,197.80	None
MILCON		-	-	-	-	-	N/A
Acq. O&M		-	-	-	-	-	N/A
Total		4,649.70	4,420.10	4,862.20	4,412.88	4,929.47	
PAUC	2014	202.16	192.18	211.40	191.86	214.32	None
APUC	2014	120.21	115.09	126.61	111.59	129.28	None

Total End Item Quantity

Quantity Category	Current APB Quantity	Current Estimate Quantity
Development	6	6
Procurement	17	17

Budget Notes:

History of Acquisition Cost and Unit Cost since December 2014:

- There have been no significant changes to APUC and PAUC since Milestone B.
- The December 2021 SAR is aligned with the PB 2023 budget submission.

Quantity Notes:

For RDT&E aircraft, the first two aircraft will remain as test and evaluation assets. The remaining four aircraft will transition to operational status.

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Risk and Sensitivity Analysis

Risks and Sensitivity Analysis	
Current Procurement Cost (December 2021)	
1.	FY 2021 was the final procurement year. No risk remaining.
Original Baseline Estimate (April 2014)	
1.	The Cost Assessment and Program Evaluation (CAPE) conducted an Independent Cost Estimate (ICE) for Milestone (MS) B and a memo was provided on March 20, 2014. The CAPE identified the following for risks and sensitivity analysis: CAPE assessed additional risk for Development in air vehicle design, avionics hardware and software development, systems engineering and program management, and system test and evaluation. CAPE assessed additional risk for Procurement in systems engineering and program management, manufacturing labor, and support costs related to ground support and training equipment. CAPE assessed additional risk for O&S in hardware modification cost, depot overhaul, and maintenance costs.
Revised Original Estimate (N/A)	
None	
Admin Baseline Estimate (Month YYYY)	
1.	None

Unit Cost

Current Baseline Compared with Current Estimate

Category (\$M)	Current APB	Current Estimate	% Change	NMC Breach
PAUC				
Cost	4,420.10	4,412.88	-0.16%	None
Quantity	23	23	N/A	N/A
Unit Cost	192.18	191.86	-0.16%	None
APUC				
Cost	1,956.60	1,897.02	-3.05%	None
Quantity	17	17	N/A	N/A
Unit Cost	115.09	111.59	-3.05%	None

Original Baseline Compared with Current Estimate

Category (\$M)	Original APB	Current Estimate	% Change	NMC Breach
PAUC				
Cost	4,649.70	4,412.88	-5.09%	None
Quantity	23	23	N/A	N/A
Unit Cost	202.16	191.86	-5.09%	None
APUC				
Cost	2,043.60	1,897.02	-7.17%	None
Quantity	17	17	N/A	N/A
Unit Cost	120.21	111.59	-7.17%	None

Unit Cost Notes:

The December 2021 SAR is aligned with the PB 2023 budget submission.

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Contracts

Contract Data (\$TYM)		
Contract Number	N00019-14-C-0050	
Effort Number		
Modification Number	P00127	
Award Date	03/10/2022	
Definitization Date	05/07/2014	
Order Number		
CAGE Code/CAGE Legal Name	Sikorsky	
Contract Title	Presidential Helicopter Replacement Program Engineering and Manufacturing Development (EMD)	
Contract Address	6900 Main Street Stratford, CT 06614	
Contracts/Effort Price, Quantity, and Performance (\$M)		
Initial Target Price: \$1244.7	Current Target Price: \$1241.0	
Initial Ceiling Price: \$1326.7	Current Ceiling Price: \$1318.5	
Contract's EAC: \$1254.4	PM's EAC: \$1282.7	
Initial Quantity: 6	Current Quantity: 6	Delivered Quantity: 6
BAC: \$1129.5	BCWP: \$1127.3	ACWP: \$1250.2
BCWS: \$1127.6	Cost Variance: -\$122.9	Schedule Variance: -\$0.2

Contract Notes:

VH-92A EMD is a Fixed Price Incentive Firm Target (FPIF) contract with performance based payments. Contract performance is as of January 30, 2022.

Cost Variance:

The cost variance is driven by design, development, and resolution of deficiencies associated with the Airframe and the Interior Furnishings.

Schedule Variance:

The recovery in schedule variance is due to approaching closure of the effort.

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Contract Data (\$TYM)		
Contract Number	N00019-14-C-0050	
Effort Number		
Modification Number	P00127	
Award Date	03/10/2022	
Definitization Date	06/10/2019	
Order Number		
CAGE Code/CAGE Legal Name	Sikorsky	
Contract Title	Low Rate Initial Production (LRIP)	
Contract Address	6900 Main Street Stratford, CT 06614	
Contracts/Effort Price, Quantity, and Performance (\$M)		
Initial Target Price: \$1491.4	Current Target Price: \$1,606.5	
Initial Ceiling Price: \$1491.4	Current Ceiling Price: \$1,606.5	
Contract's EAC: \$1,606.5	PM's EAC: \$1606.5	
Initial Quantity: 17	Current Quantity: 17	Delivered Quantity: 4
BAC:	BCWP:	ACWP:
N/A	N/A	N/A
BCWS:	Cost Variance:	Schedule Variance:
N/A	N/A	N/A

Contract Notes:

The LRIP efforts are Firm Fixed Price (FFP) and do not have earned value management data. Change in the Initial Contract Price and Quantity was the execution of the LRIP Lots II and Lot III Options. The delta between the initial Contract Price and the Current Contract price is a result of contract modifications for spares, support equipment, Repair of Repairables, and incorporation of configuration updates for production.

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Technologies and Systems Engineering

Significant Technical Risks

Significant Technical Risks	
Current Estimate (December 2021)	
1.	Landing Zone (LZ) Suitability Key System Attribute (KSA) for exhaust damage to the LZ does not meet the requirement 100% of the time. VH-92A exhaust can cause damage to grass with rotors turning under certain ambient conditions. Sikorsky Aircraft Corporation is currently on contract to complete an Increased Range in Blade Pitch Angle (IRBPA) mechanical systems change to resolve exhaust damage, on LZ surfaces, when rotors are turning.
Milestone B (April 2014)	
1.	Reliability of Government defined Commercial off the Shelf equipment could impact supportability.
2.	High altitude electromagnetic pulse (EMP) requirement (KPP) may not be achievable
3.	Weight growth during EMD or post IOC could result in reduced performance.

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Deliveries and Expenditures

Deliveries				
Delivered to Date	Planned to Date	Actual to Date	Total Quantity	Percent Delivered
Development	6	6	6	100.00%
Production	4	4	17	23.53%
Total Program Quantity Delivered	10	10	23	43.48%

Expended and Appropriated (TY \$M)

Total Acquisition Cost: 4929.47
 Expended to Date: 3721.2
 Percent Expended: 75.49%
 Total Funding Years: 21
 Years Appropriated: 13
 Percent Years Appropriated: 61.9%
 Appropriated to Date: 4636.4
 Percent Appropriated: 94.05%

The above data is current as of April 18, 2022.

Deliveries and Expenditures Notes:

The December 2021 SAR is aligned with the PB 2023 budget submission.

Low Rate Initial Production

Item	Initial LRIP Decision	Current Total LRIP
Approval Date	4/17/2014	6/7/2019
Approved Quantity	12	17
Reference	Milestone B ADM	Milestone C ADM
Start Year	2019	2019
End Year	2021	2021

Rationale if Current Total LRIP Quantity exceeds 10% of the total Procurement quantities:

The Current Total LRIP Quantity is more than 10% of the total production quantity due to the low quantity requirement, all aircraft are designated LRIP aircraft as documented in the Milestone C ADM.

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Operating and Support Costs

Total Program O&S Cost Compared with Baseline

	Current APB Objective (BY\$)	Current APB Threshold (BY\$)	Current Estimate (BY\$)	Current Estimate (TY\$)	Deviation
Total O&S (\$Millions)	8691.02	9560.12	8729.91	16527.97	N/A

O&S Cost Breakdown

Category (BY\$ Million)	VH-92A
Unit-Level Manpower	1359.44
Unit Operations	468.53
Maintenance	3112.34
Sustaining Support	1325.73
Continued System Improvements	1905.96
Other	557.91
Total O&S	8729.91

Cost Estimate Source: POE dated March 16, 2022

O&S Cost Notes:

The O&S Cost Estimate is the draft SAR21 submission.

Aircraft Attrition: 1 aircraft over the life of the program

Pipeline Factor: 19% of Total Aircraft Inventory (TAI)

Squadrons: Marine Helicopter Squadron One (HMX-1) Helicopters per (active) squadron: 16

Steady State Monthly Flight Hours per Helicopter (TAI): 24.0

Steady State Monthly Flight Hours per Helicopter (Primary Authorized Aircraft (PAA)): 31.5

Total TAI Helicopter Years: 830

Total PAA Helicopter Years: 647

Total program acquisition quantity of 23 aircraft is comprised of two test aircraft and 21 operational aircraft. The quantity to sustain encompasses the 21 operational aircraft.

- a. Disposal/Demilitarization Cost Estimate and Source of Estimate:
 - i. \$4.20M BY 2014
 - ii. \$11.10M TY
 - iii. The disposal estimate was refined at Milestone C to reflect the current demilitarization plan.
- b. Sustainment Strategy:
 - i. The VH-92 program will utilize Organizational, limited Intermediate and Depot level maintenance capabilities. Contractor maintenance will be employed as support for depot level repairables. Aircraft rework will be performed via an organic depot level Integrated Maintenance Program. During sustainment, some in-service engineering support will be provided by the contractor.
- c. For Each Acquired System or System Variant:
 - i. Quantity to Sustain: 21
 - ii. First Operational Fiscal Year: 2022
 - iii. Final Operational Fiscal Year: 2063
 - iv. Unit Expected Service Life: 40 Years
- d. Antecedent System(s) O&S Costs:

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- i. The antecedent system is VH-3D/VH-60N. The Antecedent VH-3D/VH-60N data is representative of FY 2013 to FY 2015 average of Naval Visibility and Management of Operating and Support Cost (VAMOSOC) reported cost data adjusted to reflect VH-92A Planned Flight Hour Utilization and the VH-92A manning. Total Antecedent O&S Costs = Average annual antecedent O&S Cost per aircraft * total aircraft operating years = \$12.69M * 830 = \$10,535.24M BY 2014

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