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Department of Defense
OFFICE OF PREPUBLICATION AND SECURITY REVIEW

LHA 6 AMERICA CLASS AMPHIBIOUS ASSAULT SHIP (LHA 6)

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

Name: CAPT. Cedric McNeal

Date Assigned: July 31, 2020

Address: Program Executive Office, Ships

Amphibious Warfare Program Office

1333 Isaac Hull Avenue

Washington, DC 20376-2101

Phone: 202-781-0940

Email: cedric.j.mcneal.mil@us.navy.mil

Mission and Description

The Amphibious Assault Ship Replacement LHA(R) Program replaces the Tarawa Class (LHA 1) Amphibious Assault Ships and the retiring Wasp Class (LHD 1) Amphibious Assault Class Ships. The LHA(R) will be the key platform in the Expeditionary Strike Group (ESG)/Amphibious Ready Group (ARG) of the future and will provide the Joint Force Commander options to project expeditionary power. The LHA 6 America Class, the first ship of the LHA(R) Program, will embark and support all of the Short Take-off Vertical Landing (STOVL) and Vertical Take-off Landing Marine expeditionary aviation assets in the ESG/ARG, including the MV-22 and the F-35B, the STOVL model of the Joint Strike Fighter. The LHA 6 America Class is an LHD 8 gas turbine variant with enhanced aviation capability. The Flight 0 ships will embark over 1,600 Marines and transport them and their equipment ashore by rotary-wing aircraft when the situation requires. The Flight I ships maintains an aviation centric capability with the addition of a well deck that will accommodate two Landing Craft, Air Cushion. The Flight I ship will embark over 1,400 Marines and transport them and their equipment ashore by rotary-wing or surface connector.

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Executive Summary

Program Highlights Since Last Report

The LHA(R) program had a successful two years since the last SAR (December 2019), with each of the three ships of the LHA(R) Program achieving significant milestones.

LHA Flight 0 is composed of two ships: LHA 6 (USS AMERICA) and LHA 7 (USS TRIPOLI). LHA Flight 1 is currently composed of two ships LHA 8 (BOUGAINVILLE) and LHA 9.

LHA 6 was previously transitioned to the fleet and is currently forward deployed.

LHA 7 completed production and testing at Huntington Ingalls Industries (HII), Ingalls Shipbuilding Division and was delivered to the Navy on February 28, 2020. Immediately after delivery, her Post Delivery Availability period commenced to begin Joint Strike Fighter modifications and to allow crew certification prior to sail away. The ship was administratively commissioned on July 15, 2020, due to the Coronavirus Disease 2019 (COVID-19) pandemic and departed from Pascagoula, Mississippi on July 24, 2020, and arrived at her homeport of San Diego, CA on September 20, 2020. On October 5, 2020, LHA 7 began her Fitting Out Availability and was completed February 2021. Post Shakedown Availability started September 2021 and was completed in December 2021. The Obligation Work Limiting Date was February 28, 2022.

LHA 8 production continues at HII. With Detail Design complete, fabrication has started on 218 of 218 production units, 153 units have been erected, and overall progress is 43% as of December 2021. The projected delivery date for LHA 8 is February 2025.

Actions continued for procurement for LHA 9, the second Flight 1 ship. PB 2021 accelerated procurement of LHA 9 from FY 2024 to FY 2023 and current efforts are to get LHA 9 under contract in FY 2023.

Furthermore, the FY 2019 Defense Appropriations Bill provided \$350M for LHA 9 Advance Procurement, the FY 2020 National Defense Authorization Act provided incremental funding authority, and the FY 2021 Defense Appropriations Bill added another \$500M in FY 2021 for procurement of LHA 9. Since the last SAR submission, the LHA 9 Acquisition Strategy was approved, a Long Lead Time Material (LLTM), Advance Engineering and Planning contract was awarded to HII on April 30, 2020, and LLTM has been placed on contract. Detail Design and Construction Award for LHA 9 is planned for FY 2023.

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
March 2001	Mission Need Statement for the LHA(R) program was approved by Joint requirements Oversight Council (JROC).
September 2002	Analysis of Alternatives was completed.
February 2005	CDD was validated by JROC. Subsequent validations/revalidations occurred which added Survivability and Force Protection Key Performance Parameters in December 2005.
January 2006	Milestone B was completed. The ADM was signed, and the LHA 6 contract was awarded in June 2007.

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May 2012	The LHA 7, a repeat of the LHA 6 design configuration with fact of life updates for equipment obsolescence, Detail Design and Construction (DD&C) contract was awarded to HII Ingalls Shipbuilding in May 2012. LHA 7 began sustained production on July 15, 2013, and the Keel Laying Ceremony was held on June 20, 2014. A contract modification was awarded in October 2014 to incorporate flight deck strengthening and other design changes necessary for the F-35B as part of the initial production rather than after delivery as discussed on LHA 6 above. This contract modification included a six-month schedule extension, with a revised delivery date of December 4, 2018.
February 2014	The LHA(R) CDD was updated to include LHA(R) Flight 1 capabilities. These include the reincorporation of the well deck, increased vehicle stowage square footage, provide for a surface connector lift capability, and to increase overall operational flexibility.
April 2014	On April 10, 2014, Huntington Ingalls Industries (HII), successfully delivered the LHA 6 to the Navy, marking the completion of the first ship in the LHA(R) program. The ship completed its post-delivery availability efforts on July 10, 2014 and commenced transit to her homeport of San Diego on July 11, 2014. During the transit, the LHA 6 traveled 15,300 miles on their journey around South America. Port visits included Colombia, Guantanamo Bay, Cuba, Brazil, and Peru. Various exercises and operations with foreign navies helped to bolster cooperative maritime security and partnerships. Additional training evolutions throughout the transit strengthened the crew's readiness and understanding of the ship's systems and capabilities. LHA 6 arrived in San Diego on September 15, 2014, and was commissioned on October 11, 2014, in San Francisco, CA. After completing Fitting Out Availability (FOA), Final Contract Trials and Post Shakedown Availability (PSA) the ship was transferred to the Fleet in March 2016 and achieved IOC.
May 2016	The LHA(R) program's delegation was changed from ACAT ID to ACAT IC.
June 2016	On June 30, 2016, HII was awarded the contract for Planning, Advanced Engineering and Procurement of Long Lead Time Material (LLTM) with option for DD&C. The second increment of Advanced Procurement of LLTM was added to the contract on October 3, 2016. The contract option for the execution of DD&C of LHA 8 was awarded on June 16, 2017.
July 2017	LHA 6 (USS AMERICA) is the first new construction ship with full F-35B capability, Cornerstone and Environmental Effect alterations. She completed her Initial Operational Test and Evaluation in Q4 FY 2017 and deployed as the centerpiece of the AMERICA Amphibious Ready Group/Marine Expeditionary Unit.
February 2020	LHA 7 completed production and testing at HII and the ship was delivered on February 28, 2020.
April 2020	On April 30, 2020, HII was awarded the contract for Planning, Advanced Engineering and Procurement of LLTM for LHA 9.
July 2020	Upon completion of LHA 7's Post Delivery Availability (PDA), the ship was administratively commissioned on July 15, 2020. LHA 7 commenced sail away to her homeport of San Diego on July 24, 2020.
February 2021	LHA 7 began her FOA and was completed February 2021.
August 2021	LHA 7 completed Combat System Ship Qualification Trials and Final Contract Trials, August 2021.
December 2021	LHA 7 completed her Post Delivery Availability December 2021.

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Schedule

Schedule Events

Schedule Events					
Events	Development APB Objective	Current APB Development Objective/Threshold		Current Estimate/Actual	Deviation
LHA (R) Milestone A	Jul 2001	Jul 2001	Jul 2001	Jul 2001	
LHA 6 Start Contract Design	May 2005	May 2005	May 2005	May 2005	
Advance Procurement Contract	Jul 2005	Jul 2005	Jul 2005	Jul 2005	
LHA 6 Milestone B	Jan 2006	Jan 2006	Jan 2006	Jan 2006	
Contract Award	Dec 2006	Jun 2007	Jun 2007	Jun 2007	
Start Fabrication	Nov 2007	Jan 2008	Jan 2008	Jan 2008	
LHA 7 Advance Procurement Contract Award	N/A	Jun 2010	Jun 2010	Jun 2010	
LHA 7 DD&C Contract Award	N/A	May 2012	May 2012	May 2012	
Float Off	Aug 2010	Jun 2012	Jun 2012	Jun 2012	
LHA 7 Start Fabrication	N/A	Jul 2013	Jul 2013	Jul 2013	
Ship Delivery	Dec 2011	Apr 2014	Apr 2014	Apr 2014	
Flt 1 Contract Design Complete	N/A	Sep 2014	Sep 2014	Sep 2014	
Operational Evaluation (OPEVAL) Start	Aug 2012	Apr 2015	Apr 2015	Apr 2015	
Initial Operational Capability (IOC)	Sep 2013	Mar 2016	Mar 2016	Mar 2016	
LHA 7 Launch	N/A	Jul 2017	Jan 2018	May 2017	
OPEVAL Complete	Sep 2013	Jun 2017	Dec 2017	Dec 2017	
LHA 7 Ship Delivery	N/A	Dec 2018	Jun 2019	Feb 2020	(DEV-1)
LHA 8 Ship Delivery	N/A	Jan 2024	Jul 2024	Feb 2025	(DEV-2)

Schedule Notes:

The LHA 8 Ship Delivery current estimate has changed from January 2024 to February 2025 due to the shipbuilder's projection.

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SHIP	Delivery	Obligation Work Limiting Date
LHA 7	2020-02	2022-02
LHA 8	2025-02	2026-09
LHA 9	2028-12	2030-07

Deviation Explanations:

(DEV-1) The Schedule Breach of the LHA 7 Ship Delivery event was previously reported in December 2019 SAR and is the current actual date of delivery.

(DEV-2) The Schedule Breach is due to the LHA 8 Ship Delivery event. A Program Deviation Report was routed and approved in October 2021. The deviation in LHA 8's ship delivery delay is attributed to three issues: challenges with the Main Reduction Gear vendor resulting in late delivery in yard, COVID-19 related production impacts, and a topside design change to incorporate next generation sensors into the ship's warfare systems baseline.

Significant Schedule Risks

Significant Schedule Risks	
Current Estimate (December 2021)	
1.	Enterprise Air Search Radar (EASR)(also a Technical risk): If EASR and the Combat System (CS) integration is not complete at CS Light Off, then schedule delays may occur impacting trials and delivery dates. MITIGATION: This risk is being mitigated by participation in the Radar System Integration Working Group, site visits between the Navy and the shipbuilder, ongoing efforts at the Surface Combat Systems Center, Wallops Island, and lessons learned from Aircraft Carrier (Nuclear-Powered) and Landing Platform Docks.
2.	LHA(R) Change (also a Technical risk): If LHA(R) is subject to a higher degree of design change than anticipated and/or planned due to design changes from and within Flight 0/1, Flight 0 lessons learned, and Fact of Life obsolescence, then cost may exceed Program Change Order budget, schedules may slip and resultant ship incorporation could impact ship capability at sail away. There are multiple drivers of this including Arrangement Revision, Obsolescence, Flight 0 Lessons, and Emerging Requirements such F-35B integration, cyber security, and program protection. MITIGATION: Early identification of technical changes and identifying most cost-efficient point of incorporation are mitigating this risk.
3.	LHA(R) Shipyard Resources: If the proper labor resources are not available and sequenced properly for LHA(R) platforms in accordance with the approved Performance Measurement Baseline/Integrated Master Schedule, then slips are likely to occur with negative impacts to Shipbuilder's contract cost and schedule. The driver is Shipyard workload, priorities, and resources. MITIGATION: Contract Incentives and Navy/Shipbuilder Program Management Office weekly reviews help to mitigate this risk.

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Performance

Performance Characteristics					Deviation
Development APB Objective	Current APB Development Objective/Threshold		Demonstrated Performance (include Date of Demonstration)	Current Estimate/Actual	
Net Ready					
100% of interfaces; services; policy enforcement controls; and data correctness, availability, and processing requirements in the joint integrated architecture	100% of interfaces; services; policy enforcement controls; and data correctness, availability, and processing requirements in the joint integrated architecture	100% of interfaces; services; policy enforcement controls; and data correctness, availability and processing requirements designated as enterprise level or critical in the joint integrated architecture	LHA 6 has partially met the Net Ready KPP per Joint Interoperability Test Command Certification letter of January 23, 2018. 1/23/2018	LHA 6 has partially met the Net Ready KPP per Joint Interoperability Test Command Certification letter of January 23, 2018.	
Vertical Take Off and Landing land /Launch spots					
9 CH-53E/MV-22	9 CH-53E /MV-22	(T=O) 9 CH-53E/MV-22	9 CH-53E/MV-22 4/14/2017	9 CH-53E/MV-22	
F-35B Capacity					
23 Aircraft	23 Aircraft	20 Aircraft		23 Aircraft	
Aviation Operations					
6 Spots 12 hrs/day (Sustained) 6 Spots 24 hrs/day for six consecutive days (Surge)	6 Spots 10 hrs/day 12 hrs/day of flight quarters to support 10 hrs/day of flight operations	(T=O) 6 Spots 10 hrs/day 12 hrs/day of flight quarters to support 10 hrs/day of flight operations	6 spots 10 hrs/day 12 hrs/day of flight quarters to support 10 hrs/days of flight operations 4/14/2017	6 spots 10 hrs/day 12 hrs/day of flight quarters to support 10 hrs /day of flight operations	
Vehicles Flt 0 (sq. ft.)					
12,000 sq. ft.	12,000 sq. ft.	10,000 sq. ft.	12,055 sq. ft 4/14/2017	12,055 sq. ft	
Vehicles Flt 1 (sq. ft.)					

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Performance Characteristics					Deviation
Development APB Objective	Current APB Development Objective/Threshold		Demonstrated Performance (include Date of Demonstration)	Current Estimate/Actual	
N/A	16,000 sq. ft.	(T=O) 16,000 sq. ft		16,000 sq. ft.	
Total Manpower Flt 0 (includes Ship's Force and all embarked elements such as troops, staffs, detachments, etc.)					
2,891 Persons	2,891 Persons	2,831 Persons	2,891 Persons 4/14/2017	2,891 Persons	
Total Manpower Flt 1 (Includes Ship's Force and all embarked elements: troops, staffs, detachments, etc.)					
N/A	2,666 (1,204 Navy + 1,462 Troop)	(T=O) 2,666 (1,204 Navy + 1,462 Troop)		2,666 (1,204 Navy + 1,462 Troop)	
Cargo (cu. ft.)					
160,000 cu. ft.	160,000 cu. ft.	130,000 cu. ft.	155,153 cu. Ft 4/14/2017	155,153 cu. ft.	
Troop Accommodations Flt 0					
1,686 Persons	1,686 Persons	1,626 Persons	1,686 Persons 4/14/2017	1,686 Persons	
Troop Accommodations Flt 1					
N/A	1,462 Persons	(T=O) 1,462 Persons		1,462 Persons	
Survivability: Navy Survivability Policy for Surface Ships					
Equals threshold, implement recommendations of the NAVSEA USS COLE Survivability Review Group Phase II Analysis Report of Amphibious Ships, April 2003	In addition to threshold, implement recommendations of the NAVSEA COLE Survivability Review Group Phase II Analysis Report of Amphibious Ships, April 2003	Level II per OPNAV- INST 9070.1 of September 23, 1988 (LHA(R)) cargo magazine protection as stated in para. 6.b.17 of the CDD	T-plus some Cole Survivability Review Group mods 4/5/2017	T-plus some Cole Survivability Review Group mods	

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Performance Characteristics					Deviation
Development APB Objective	Current APB Development Objective/Threshold	Demonstrated Performance (include Date of Demonstration)	Current Estimate/Actual		
Force Protection: Collective Protection System (CPS)					
Expanded CBR protection that provides a toxic-free environment (where it is not necessary to wear protective clothing or masks) for 40% of crew in berthing, messing, sanitary, and battle dressing facilities as well as key operational spaces that can be affordably integrated into ship design	Expanded CBR protection that provides a toxic-free environment (where it is not necessary to wear protective clothing or masks) for 40% of crew in berthing, messing, sanitary, and battle dressing facilities as well as key operational spaces that can be affordably integrated into ship design	CBR protection that provides a toxic free environment (where it is not necessary to wear protective clothing or masks) for 40% of crew in berthing, messing, sanitary, and battle dressing facilities	CBR protection that provides a toxic free environment (where it is not necessary to wear protective clothing or masks) for 40% of crew in berthing, messing, sanitary, and battle dressing facilities 12/8/2017	CBR protection that provides a toxic free environment (where it is not necessary to wear protective clothing or masks) for 40% of crew in berthing, messing, sanitary, and battle dressing facilities	
Force Protection: Decontamination Stations					
Four decontamination stations (two CPS, one casualty, and one conventional) providing a capability of decontamination an avg of ten people per hr per station	Four decontamination stations (two CPS, one casualty, and one conventional) providing a capability of decontamination an avg of ten people per hr per station	(T=O) Four decontamination stations (two CPS, one casualty, and one conventional) providing a capability of decontamination an avg of ten people per hr per station	Four decontamination stations (two CPS, one casualty, and one conventional) providing a capability of decontamination an avg of ten people per hr. per station 2/3/2017	Four decontamination stations (two CPS, one casualty, and one conventional) providing a capability of decontamination an avg of ten people per hr. per station	

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Acronyms and Abbreviations

avg - average

CBR - Chemical, Biological, and Radiological

CPS- Collective Protection System

cu - cubic

etc. - etcetera

Flt - Flight

ft. - feet

hr. - hour

hrs - hours

INST. - Instruction

JITC - Joint Interoperability Test Command

NAVSEA - Naval Sea Systems Command

O - Objective

OPNAV - Office of the Chief of Naval Operations

sq. - square

T - Threshold

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Acquisition Budget Estimate

Total Acquisition Cost

Category	Base Year	Development APB	APB Change 2 (Current) 10/20/2016		Budget Estimate PB 2023		Deviation
		Objective (BY\$)	Objective (BY\$)	Threshold (BY\$)	BY\$	TY\$	
RDT&E	2006	199.9	408.1	448.9	420.94	466.00	
Procurement	2006	2677.5	8025.6	8828.2	10216.13	14357.82	Dev-1
MILCON	2006	0.0	0.0	0.0	0.0	0.0	
Acq. O&M	2006	0.0	1.9	2.1	2.14	2.68	Dev-2
Total		2877.4	8435.6	N/A	10639.22	14826.5	
PAUC	2006	2877.4	2811.9	3093.1	2659.8	3706.6	
APUC	2006	2677.5	2675.2	2942.7	2554.0	3589.5	

Total End Item Quantity

Quantity Category	Current APB Quantity	Current Estimate Quantity
Development	0	0
Procurement	3	4

Quantity Notes:

Current Estimate Quantity was increased to four ships due to funding added for LHA 9 in PB 2019.

Cost Deviations Explanations:

(Dev-1) Cost Breach of Procurement was previously reported in December 2018 SAR.

(Dev-2) Cost Breach of Acq O&M was previously reported in December 2017 SAR.

Risk and Sensitivity Analysis

Risks and Sensitivity Analysis	
Current Baseline Estimate (October 2016)	
1.	The Current Baseline Estimate was updated to include the LHA 8. Costs are inclusive of both Flight 0 (LHA 6 & 7) and Flight 1 (LHA 8) ships.
Original Baseline Estimate (January 2006)	
1.	The Original Baseline Estimate reflects the single Flight 0 ship, LHA 6 only.
Revised Original Estimate (N/A)	
NONE	
Current Procurement Cost (December 2021)	
1.	The Current Procurement Cost remains the Current Baseline Estimate (October 2016). Please see above for details.

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Unit Cost

Current Baseline Compared with Current Estimate

Category (BY\$M)	Current APB	Current Estimate	% Change	NMC Breach
PAUC				
Cost	8435.6	10639.22		
Quantity	3	4		
Unit Cost	2811.9	2659.8	-5.41	
APUC				
Cost	8025.6	10216.13		
Quantity	3	4		
Unit Cost	2675.2	2554.0	-4.53	

Original Baseline Compared with Current Estimate

Category (BY\$M)	Original APB	Current Estimate	% Change	NMC Breach
PAUC				
Cost	2877.4	10639.22		
Quantity	1	4		
Unit Cost	2877.4	2659.8	-7.56	
APUC				
Cost	2677.5	10216.13		
Quantity	1	4		
Unit Cost	2677.5	2554.0	-4.61	

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Contracts

Contract Data (\$TYM)		
Contract Number	N00024-16-C-2427	
Effort Number	1	
Modification Number	A00390	
Award Date	06/30/2016	
Definitization Date	06/30/2016	
Order Number		
CAGE Code/CAGE Legal Name	34293/Huntington Ingalls Incorporated	
Contract Title	LHA 8 Contract EVM	
Contract Address	Access Road Pascagoula MD 39581	
Contracts/Effort Price, Quantity, and Performance (\$M)		
Initial Target Price	Current Target Price	
3,000.7	3011.923	
Initial Ceiling Price	Current Ceiling Price	
3,306.6	3319.02	
Contract's EAC	PM's EAC	
Initial Quantity	Current Quantity	Delivered Quantity
BAC	BCWP	ACWP
BCWS	Cost Variance	Schedule Variance

Contract Notes:

In accordance with Section 830(a)(2) of the FY 2020 National Defense Authorization Act, which requires a SAR to be submitted "in unclassified form without any designation relating to dissemination control" this SAR section has omitted information that is Controlled Unclassified Information (CUI).

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Technologies and Systems Engineering

Significant Technical Risks

Significant Technical Risks	
Current Estimate (December 2021)	
1.	<p>Enterprise Air Search Radar (EASR) (also a Schedule risk): If EASR and the Combat System (CS) integration is not complete at CS Light Off, then warfare systems' performance may impact the ship's readiness to conduct trials, and thus negatively impacting the ship's path to delivery.</p> <p>MITIGATION: This risk is being mitigated by participation in the Radar System Integration Working Group, site visits between the Navy and the shipbuilder, ongoing efforts at the Surface Combat Systems Center, Wallops Island, and lessons learned from Multi-Purpose Aircraft Carrier (Nuclear-Powered) and Landing Platform Docks.</p>
2.	<p>LHA(R) Change (also a Schedule risk): If LHA(R) is subject to a higher degree of design change than anticipated and/or planned due to design changes from and within Flight 0/1, Flight 0 lessons learned, and Fact of Life obsolescence, then cost may exceed Program Change Order budget, schedules may slip, and resultant ship incorporation could impact ship capability at sail away. There are multiple drivers of this including Arrangement Revision, Obsolescence, Flight 0 Lessons, and Emerging Requirements such F-35B integration, cyber security, and program protection.</p> <p>MITIGATION: Early identification of technical changes and identifying most cost-efficient point of incorporation are mitigating this risk.</p>

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Deliveries and Expenditures

Deliveries				
Delivered to Date	Planned to Date	Actual to Date	Total Quantity	Percent Delivered
Development	0	0	0	0.00%
Production	4	2	4	50.00%
Total Program Quantity Delivered	4	2	4	50.00%

Expended and Appropriated (TY \$M)

Total Acquisition Cost:	14826.5
Expended to Date:	9219.8
Percent Expended:	62.18%
Total Funding Years:	28
Years Appropriated:	23
Percent Years Appropriated:	82.14%
Appropriated to Date:	12943.39
Percent Appropriated:	87.30%

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

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Low Rate Initial Production (LRIP)

Item	Initial LRIP Decision	Current Total LRIP
Approval Date		
Approved Quantity		
Reference		
Start Year		
End Year		

LRIP Note:

There is no LRIP for this program.

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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)	20542.0	22596.0	20542.0	38282.5	

Annual O&S Costs BY 2006 \$M

Category (BY\$ Million)	LHA Average Annual Cost Per Ship
Unit-Level Manpower	68.694
Unit Operations	12.102
Maintenance	31.178
Sustaining Support	8.997
Continued System Improvements	9.749
Other	40.464
Total O&S	171.184

Cost Estimate Source: Program Office Estimate dated May 9, 2016

O&S Cost Notes:

- a. Disposal/Demilitarization Cost Estimate and Source of Estimate:
 Date of Estimate: May 9, 2016
 Source of Estimate: Program Office Estimate
 Disposal Total Cost (BY 2006 \$M) 28.6
- b. Sustainment Strategy:
 The LHA(R) sustainment strategy includes the use of commercial shipyards for depot maintenance in concert with Organizational (O) and intermediate (I) level maintenance strategies. Existing shore support and infrastructure will be used to the maximum extent possible. Life cycle cost savings are anticipated from fuel savings realized from the propulsion system and Manpower savings expected from operations and maintenance of the Gas Turbine engines.
- c. For Each Acquired System or System Variant:
 - i. Quantity to Sustain: **3.0**
 - ii. First Operational Fiscal Year: **2017**
 - iii. Final Operational Fiscal Year: **2065**
 - iv. Unit Expected Service Life: **40.0**
- d. Antecedent System(s) O&S Costs:
 The antecedent system designated for the LHA(R) program is LHD 1. LHD 1 Unitized O&S Costs (BY 2006 \$M) reflect the Operating and Support Cost Analysis Model historical average dataset for LHD 1. Visibility and Management of Operating and Support Costs data reflects average O&S return data for active ships (LHD 1-7) between FY 1992 and FY 2016. Open Architecture Retrieval System 3-M data includes the years FY 2001 through FY 2016. Like the LHA(R) program Unitized O&S Costs, antecedent costs reflect a 40-year life cycle. Projected manning includes approximately 24 fewer officer and 55 fewer enlisted personnel than the average historical manning on LHD 1-7. However, FY 2006 Military Pay Rates utilized to estimate Personnel are approximately 12 percent higher than the average LHD 1-7 historical rates, which were inflated to FY 2006. Therefore, Unit Level Personnel costs do not reflect expected savings due to reduction in crew size. If personnel rates were normalized, it would show an approximate

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10 percent savings when compared to the antecedent class. The discrepancy between historical rates and the FY 2006 set could be driven in part by actual crews being manned with lower ranking personnel than that assumed in the baseline estimate. For comparative purposes, the FY 2006 cost per barrel of Diesel Fuel, Marine (DFM) was substituted for the historical average cost of DFM observed in LHD 1 class data. This methodology better aligns LHD 1 historical requirements for Unit Operations with estimated requirements. In line with LHA(R) Maintenance requirements, antecedent Maintenance costs reflect requirements laid out in the Office of the Chief of Naval Operations 4700.

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