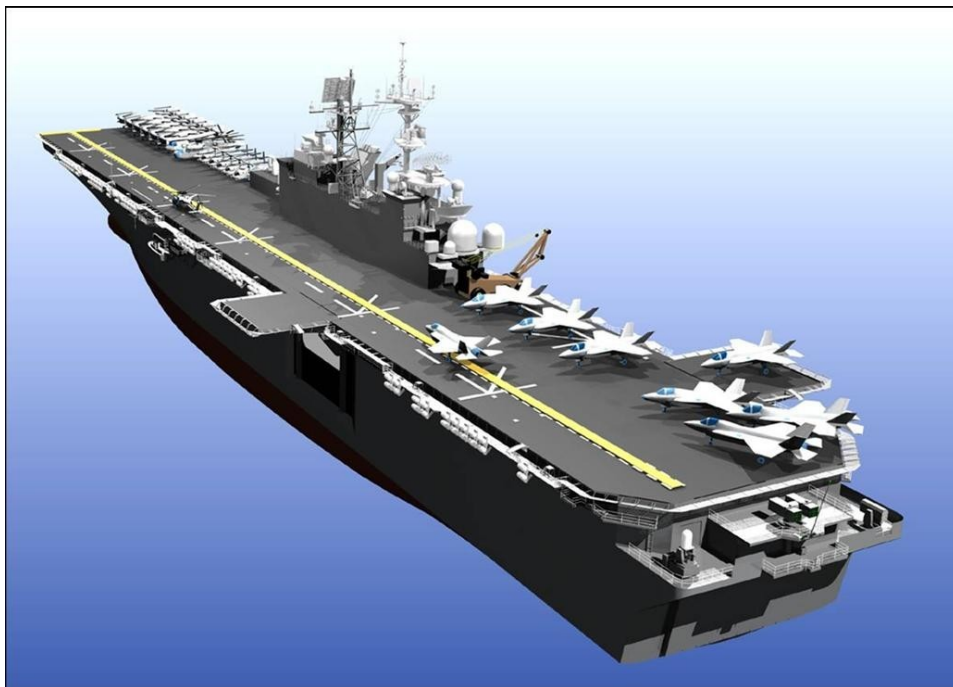




Selected Acquisition Report (SAR)

RCS: DD-A&T(Q&A)823-333



LHA 6 America Class Amphibious Assault Ship (LHA 6)

As of FY 2017 President's Budget

Defense Acquisition Management
Information Retrieval
(DAMIR)

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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)

Program Information

Program Name

LHA 6 America Class Amphibious Assault Ship (LHA 6)

DoD Component

Navy

Responsible Office

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Program Executive Office, Ships
Amphibious Warfare Program Office
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Washington, DC 20376-2101

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References

SAR Baseline (Development Estimate)

Defense Acquisition Executive (DAE) Approved Acquisition Program Baseline (APB) dated January 12, 2006

Approved APB

Defense Acquisition Executive (DAE) Approved Acquisition Program Baseline (APB) dated May 8, 2012

Mission and Description

The LHA Replacement (LHA (R)) Program is planned to replace existing LHA 1 Class Amphibious Assault Ships, which reach the end of their extended service lives between 2011 and 2015.

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 ship will embark over 1,600 Marines and transport them and their equipment ashore by rotary-wing aircraft when the situation requires. The Flight I ship 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.

Executive Summary

The LHA (R) program completed another successful year, with each of the three ships of the LHA (R) Program achieving significant milestones. Delivered to the Navy in April of 2014, the LHA 6 (USS AMERICA) Post Delivery Test and Trial test phase is currently in progress. The test phase has included the completion of signature measurements, Combat System Ship Qualification Trials events, Final Contract Trials, and will resume upon the completion of Post Shakedown Availability (PSA). PSA is currently underway in San Diego, CA. The 50% PSA conference was held on October 7, 2015 and the availability is scheduled to complete in March 2016.

The LHA 7 (TRIPOLI) continued sustained production at Huntington Ingalls Industries (HII), Ingalls Shipbuilding Division in Pascagoula, MS. At the end of 2015, the ship's physical progress was 40% complete. A formal Program Manager's Estimate at Completion (PMEAC) for LHA 7 has commenced, as Earned Value progress for Vessel labor hours has reached 20% complete. The release of the PMEAC is currently forecasted for third quarter FY 2016.

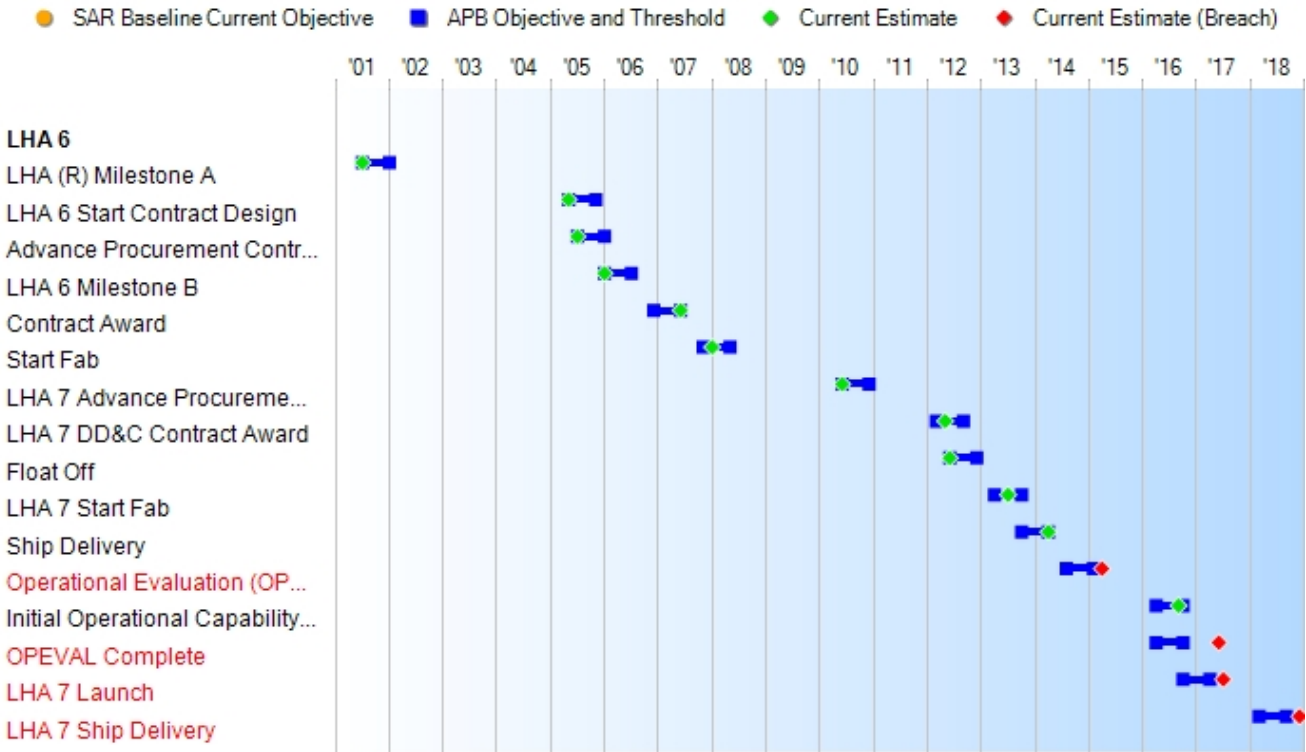
LHA 8, the LHA (R) Flight 1 variant, has completed its contract design phase. Early industry involvement contracts with HII and National Steel and Shipbuilding Company (NASSCO) were initiated in November 2012 to allow industry participation in the design development for LHA 8. The contracts were modified in February 2014 to add Congressional plus-up funding for more in-depth Affordability Design initiatives. The period of performance for these efforts ended in August 2015. In February 2015, contract options were exercised under these base contracts for systems engineering and planning work with a period of performance through May 2016. These FY 2015 Procurement funded efforts are directly in support of the planned FY 2016 Detail Design and Construction (DD&C) contract award. The Request for Proposal for the Planning, Advanced Engineering and Procurement of Long Lead Time Material with option for DD&C was issued to HII and NASSCO in June 2015. Proposals were received on December 18, 2015 and are under evaluation. Contract award is currently planned for third quarter FY 2016.

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

Threshold Breaches

APB Breaches			Explanation of Breach
Schedule		☒	Schedule breaches were previously reported in the December 2014 and June 2015 SARs.
Performance		☐	
Cost	RDT&E	☒	Cost breaches were previously reported in the December 2009 and the December 2010 SARs.
	Procurement	☒	
	MILCON	☐	
	Acq O&M	☒	
O&S Cost		☐	A Program Deviation Report memorandum was issued by Assistant Secretary of the Navy for Research, Development and Acquisition on November 10, 2015 to USD(AT&L) documenting the noted breaches and the current program estimates. These deviations will be integrated into a revised APB in support of the LHA 8 contract award DAB program review in third quarter FY 2016.
Unit Cost	PAUC	☐	
	APUC	☐	
Nunn-McCurdy Breaches			
Current UCR Baseline			
	PAUC	None	
	APUC	None	
Original UCR Baseline			
	PAUC	None	
	APUC	None	

Schedule



Schedule Events				
Events	SAR Baseline Development Estimate	Current APB Development Objective/Threshold		Current Estimate
LHA (R) Milestone A	Jul 2001	Jul 2001	Jan 2002	Jul 2001
LHA 6 Start Contract Design	May 2005	May 2005	Nov 2005	May 2005
Advance Procurement Contract	Jul 2005	Jul 2005	Jan 2006	Jul 2005
LHA 6 Milestone B	Jan 2006	Jan 2006	Jul 2006	Jan 2006
Contract Award	Dec 2006	Dec 2006	Jun 2007	Jun 2007
Start Fab	Nov 2007	Nov 2007	May 2008	Jan 2008
LHA 7 Advance Procurement Contract Award	N/A	Jun 2010	Dec 2010	Jun 2010
LHA 7 DD&C Contract Award	N/A	Mar 2012	Sep 2012	May 2012
Float Off	Aug 2010	Jun 2012	Dec 2012	Jun 2012
LHA 7 Start Fab	N/A	Apr 2013	Oct 2013	Jul 2013
Ship Delivery	Dec 2011	Oct 2013	Apr 2014	Apr 2014
Operational Evaluation (OPEVAL) Start	Aug 2012	Aug 2014	Feb 2015	Apr 2015¹
Initial Operational Capability (IOC)	Sep 2013	Apr 2016	Oct 2016	Sep 2016
OPEVAL Complete	Sep 2013	Apr 2016	Oct 2016	Jun 2017¹
LHA 7 Launch	N/A	Oct 2016	Apr 2017	Jul 2017¹
LHA 7 Ship Delivery	N/A	Mar 2018	Sep 2018	Dec 2018¹

¹ APB Breach

Change Explanations

None

Acronyms and Abbreviations

DD&C - Detail Design and Construction

Fab - Fabrication

Performance

Performance Characteristics				
SAR Baseline Development Estimate	Current APB Development Objective/Threshold		Demonstrated Performance	Current Estimate
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	TBD	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
Vertical Take Off and Landing land/launch spots				
9 CH-53E/MV-22	9 CH-53E/MV-22	9 CH-53E/MV-22	TBD	9 CH-53E/MV-22
F-35B capacity				
23 Aircraft	23 Aircraft	20 Aircraft	TBD	23 Aircraft
Aviation operations				
6 Spots 12 hrs/day (Sustained) 6 Spots 24 hrs/day for six consecutive days (Surge)	6 Spots 12 hrs/day (Sustained) 6 Spots 24 hrs/day for six consecutive days (Surge)	6 Spots 12 hrs/day (Sustained) 6 Spots 24 hrs/day for six consecutive days (Surge)	TBD	6 spots 10 hours/day 12 hours/day of flight quarters to support 10 hours/day of flight operations
Vehicle space				
12,000 sq. ft.	12,000 sq. ft.	10,000 sq. ft.	TBD	11,760 sq. ft.
Total manpower (includes ship's force and all embarked elements such as troops, staffs, detachments, etc.)				
2,891 Persons	2,891 Persons	2,891 Persons	TBD	2,831 Persons
Cargo space				
160,000 cu. ft.	160,000 cu. ft.	130,000 cu. ft.	TBD	160,000 cu. ft.
Troop accomodations				
1,686 Persons	1,686 Persons	1,626 Persons	TBD	1,686 Persons
Survivability: Navy Survivability Policy for Surface Ships				
Equals threshold, implement recommendat-	Equals threshold, implement recommendat-	Level II per OPNAV-INST 9070.1 of	TBD	Equals threshold, implement

ions of the NAVSEA USS COLE Survivability Review Group Phase II Analysis Report of Amphibious Ships, April 2003	ions of the NAVSEA COLE Survivability Review Group Phase II Analysis Report of Amphibious Ships, April 2003	September 23, 1988 (LHA(R) cargo magazine protection as stated in para. 6.b.17 of the CDD		recommend-ations of the NAVSEA COLE Survivability Review Group Phase II Analysis Report of Amphibious Ships, April 2003
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	TBD	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 decontaminat-ion stations (two CPS, one casualty, and one conventional) providing a capability of decontamination an avg of ten people per hr per station	Four decontaminat-ion stations (two CPS, one casualty, and one conventional) providing a capability of decontamination an avg of ten people per hr per station	Four decontaminat-ion stations (two CPS, one casualty, and one conventional) providing a capability of decontamination an avg of ten people per hr per station	TBD	Four decontamina-tion stations (two CPS, one casualty, and one conventional) providing a capability of decontamin-ation an avg of ten people per hr per station

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

Requirements Reference

Capability Development Document (CDD) dated December 17, 2009

Change Explanations

None

Acronyms and Abbreviations

avg - average

CBR - Chemical, Biological, and Radiological

cu - cubic

etc. - etcetera

ft. - feet

hrs - hours

INST. - Instruction

NAVSEA - Naval Sea Systems Command

OPNAV - Office of the Chief of Naval Operations

sq. - square

Track to Budget

RDT&E				
Appn		BA	PE	
Navy	1319	04	0603564N	
	Project		Name	
	0408		Ship Preliminary Design & Feasibility Studies/Ship Development (Shared) (Sunk)	
Navy	1319	05	0604567N	
	Project		Name	
	2465		Ship Contract Design/Live Fire T&E	
	9235		Ship Contract Design/Live Fire Test & Evaluation/LHA (R) DESIGN (Shared) (Sunk)	
	9236		Ship Contract Design/Live Fire Test & Evaluation/LHA(R) DESIGN (Shared) (Sunk)	
	9999		Congressional Add (Sunk)	
Procurement				
Appn		BA	PE	
Navy	1611	03	0204411N	
	Line Item		Name	
	3041		LHA Replacement	
	Notes:		LHA Replacement End Cost	
Navy	1611	05	0204411N	
	Line Item		Name	
	5110		Outfitting (Shared)	
	5300		Completion of Prior Year Shipbuilding Programs (Shared) (Sunk)	
	Notes:		Budget realigned to line item 3041 during year of execution.	
Acq O&M				
Appn		BA	PE	
Navy	1804	01	0204411N	
	Project		Name	
	1C6C		LHA(R) TADTAR	

Cost and Funding

Cost Summary

Total Acquisition Cost							
Appropriation	BY 2006 \$M			BY 2006 \$M	TY \$M		
	SAR Baseline Development Estimate	Current APB Development Objective/Threshold		Current Estimate	SAR Baseline Development Estimate	Current APB Development Objective	Current Estimate
RDT&E	199.9	240.6	264.7	378.9 ¹	197.5	239.9	403.2
Procurement	2677.5	5420.9	5963.0	7952.0 ¹	2896.0	6563.4	10421.9
Flyaway	--	--	--	7952.0	--	--	10421.9
Recurring	--	--	--	7952.0	--	--	10421.9
Non Recurring	--	--	--	0.0	--	--	0.0
Support	--	--	--	0.0	--	--	0.0
Other Support	--	--	--	0.0	--	--	0.0
Initial Spares	--	--	--	0.0	--	--	0.0
MILCON	0.0	0.0	--	0.0	0.0	0.0	0.0
Acq O&M	0.0	1.6	1.8	2.2 ¹	0.0	1.6	2.2
Total	2877.4	5663.1	N/A	8333.1	3093.5	6804.9	10827.3

¹ APB Breach

Confidence Level

Confidence Level of cost estimate for current APB: 50%

The estimate to support this program, like most cost estimates, is built upon a product-oriented work breakdown structure based on historical actual cost information to the maximum extent possible, and, most importantly, based on conservative assumptions that are consistent with actual demonstrated contractor and government performance for a series of acquisition programs in which we have been successful.

It is difficult to calculate mathematically the precise confidence levels associated with life-cycle cost estimates prepared for MDAPs. Based on the rigor in methods used in building estimates, the strong adherence to the collection and use of historical cost information, and the review of applied assumptions, we project that it is about as likely the estimate will prove too low or too high for the program as described.

Total Quantity			
Quantity	SAR Baseline Development Estimate	Current APB Development	Current Estimate
RDT&E	0	0	0
Procurement	1	2	3
Total	1	2	3

Cost and Funding

Funding Summary

Appropriation Summary									
FY 2017 President's Budget / December 2015 SAR (TY\$ M)									
Appropriation	Prior	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	To Complete	Total
RDT&E	354.1	8.5	9.5	8.1	14.6	2.4	6.0	0.0	403.2
Procurement	6542.7	491.7	1638.8	1692.0	39.2	17.5	0.0	0.0	10421.9
MILCON	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Acq O&M	1.0	0.2	0.2	0.2	0.2	0.2	0.2	0.0	2.2
PB 2017 Total	6897.8	500.4	1648.5	1700.3	54.0	20.1	6.2	0.0	10827.3
PB 2016 Total	6902.0	302.4	1547.1	2107.4	54.8	22.8	0.0	0.0	10936.5
Delta	-4.2	198.0	101.4	-407.1	-0.8	-2.7	6.2	0.0	-109.2

Quantity Summary										
FY 2017 President's Budget / December 2015 SAR (TY\$ M)										
Quantity	Undistributed	Prior	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	To Complete	Total
Development	0	0	0	0	0	0	0	0	0	0
Production	0	2	0	1	0	0	0	0	0	3
PB 2017 Total	0	2	0	1	0	0	0	0	0	3
PB 2016 Total	0	2	0	1	0	0	0	0	0	3
Delta	0	0	0	0	0	0	0	0	0	0

Cost and Funding

Annual Funding By Appropriation

Annual Funding								
1319 RDT&E Research, Development, Test, and Evaluation, Navy								
Fiscal Year	Quantity	TY \$M						
		End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program	
2001	--	--	--	--	--	--	--	15.2
2002	--	--	--	--	--	--	--	4.9
2003	--	--	--	--	--	--	--	38.1
2004	--	--	--	--	--	--	--	52.9
2005	--	--	--	--	--	--	--	43.0
2006	--	--	--	--	--	--	--	21.6
2007	--	--	--	--	--	--	--	12.9
2008	--	--	--	--	--	--	--	10.9
2009	--	--	--	--	--	--	--	7.6
2010	--	--	--	--	--	--	--	8.7
2011	--	--	--	--	--	--	--	10.0
2012	--	--	--	--	--	--	--	20.4
2013	--	--	--	--	--	--	--	24.3
2014	--	--	--	--	--	--	--	76.5
2015	--	--	--	--	--	--	--	7.1
2016	--	--	--	--	--	--	--	8.5
2017	--	--	--	--	--	--	--	9.5
2018	--	--	--	--	--	--	--	8.1
2019	--	--	--	--	--	--	--	14.6
2020	--	--	--	--	--	--	--	2.4
2021	--	--	--	--	--	--	--	6.0
Subtotal	--	--	--	--	--	--	--	403.2

Annual Funding								
1319 RDT&E Research, Development, Test, and Evaluation, Navy								
Fiscal Year	Quantity	BY 2006 \$M						
		End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program	
2001	--	--	--	--	--	--	--	16.6
2002	--	--	--	--	--	--	--	5.3
2003	--	--	--	--	--	--	--	40.7
2004	--	--	--	--	--	--	--	55.0
2005	--	--	--	--	--	--	--	43.5
2006	--	--	--	--	--	--	--	21.2
2007	--	--	--	--	--	--	--	12.4
2008	--	--	--	--	--	--	--	10.3
2009	--	--	--	--	--	--	--	7.1
2010	--	--	--	--	--	--	--	8.0
2011	--	--	--	--	--	--	--	8.9
2012	--	--	--	--	--	--	--	17.9
2013	--	--	--	--	--	--	--	21.1
2014	--	--	--	--	--	--	--	65.6
2015	--	--	--	--	--	--	--	6.0
2016	--	--	--	--	--	--	--	7.1
2017	--	--	--	--	--	--	--	7.8
2018	--	--	--	--	--	--	--	6.5
2019	--	--	--	--	--	--	--	11.5
2020	--	--	--	--	--	--	--	1.9
2021	--	--	--	--	--	--	--	4.5
Subtotal	--	--	--	--	--	--	--	378.9

Annual Funding 1611 Procurement Shipbuilding and Conversion, Navy							
Fiscal Year	Quantity	TY \$M					
		End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program
2005	--	149.2	--	--	149.2	--	149.2
2006	--	350.1	--	--	350.1	--	350.1
2007	1	1131.1	--	--	1131.1	--	1131.1
2008	--	1365.8	--	--	1365.8	--	1365.8
2009	--	190.7	--	--	190.7	--	190.7
2010	--	169.5	--	--	169.5	--	169.5
2011	1	937.6	--	--	937.6	--	937.6
2012	--	1942.1	--	--	1942.1	--	1942.1
2013	--	173.6	--	--	173.6	--	173.6
2014	--	68.3	--	--	68.3	--	68.3
2015	--	64.7	--	--	64.7	--	64.7
2016	--	491.7	--	--	491.7	--	491.7
2017	1	1638.8	--	--	1638.8	--	1638.8
2018	--	1692.0	--	--	1692.0	--	1692.0
2019	--	39.2	--	--	39.2	--	39.2
2020	--	17.5	--	--	17.5	--	17.5
Subtotal	3	10421.9	--	--	10421.9	--	10421.9

Annual Funding 1611 Procurement Shipbuilding and Conversion, Navy							
Fiscal Year	Quantity	BY 2006 \$M					
		End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program
2005	--	141.6	--	--	141.6	--	141.6
2006	--	321.0	--	--	321.0	--	321.0
2007	1	991.6	--	--	991.6	--	991.6
2008	--	1157.9	--	--	1157.9	--	1157.9
2009	--	156.8	--	--	156.8	--	156.8
2010	--	134.7	--	--	134.7	--	134.7
2011	1	721.4	--	--	721.4	--	721.4
2012	--	1461.4	--	--	1461.4	--	1461.4
2013	--	128.1	--	--	128.1	--	128.1
2014	--	49.5	--	--	49.5	--	49.5
2015	--	46.1	--	--	46.1	--	46.1
2016	--	343.6	--	--	343.6	--	343.6
2017	1	1123.6	--	--	1123.6	--	1123.6
2018	--	1137.6	--	--	1137.6	--	1137.6
2019	--	25.8	--	--	25.8	--	25.8
2020	--	11.3	--	--	11.3	--	11.3
Subtotal	3	7952.0	--	--	7952.0	--	7952.0

Cost Quantity Information 1611 Procurement Shipbuilding and Conversion, Navy		
Fiscal Year	Quantity	End Item Recurring Flyaway (Aligned With Quantity) BY 2006 \$M
2005	--	--
2006	--	--
2007	1	2836.8
2008	--	--
2009	--	--
2010	--	--
2011	1	2520.1
2012	--	--
2013	--	--
2014	--	--
2015	--	--
2016	--	--
2017	1	2595.1
2018	--	--
2019	--	--
2020	--	--
Subtotal	3	7952.0

Annual Funding		
1804 Acq O&M Operation and Maintenance, Navy		
Fiscal Year	TY \$M	
	Total Program	
2010		0.2
2011		0.2
2012		0.2
2013		0.1
2014		0.1
2015		0.2
2016		0.2
2017		0.2
2018		0.2
2019		0.2
2020		0.2
2021		0.2
Subtotal		2.2

Annual Funding 1804 Acq O&M Operation and Maintenance, Navy	
Fiscal Year	BY 2006 \$M
	Total Program
2010	0.2
2011	0.2
2012	0.2
2013	0.1
2014	0.1
2015	0.2
2016	0.2
2017	0.2
2018	0.2
2019	0.2
2020	0.2
2021	0.2
Subtotal	2.2

Low Rate Initial Production

Item	Initial LRIP Decision	Current Total LRIP
Approval Date	2/14/2006	5/8/2012
Approved Quantity	1	2
Reference	LHA(R)/LHA 6 Milestone B ADM	LHA(R)/LHA 6/LHA 7 Milestone B ADM
Start Year	2007	2007
End Year	2013	2018

The Current Total LRIP Quantity is more than 10% of the total production quantity due to the ADM dated February 14, 2006, which approved one ship, which is standard for shipbuilding programs.

An additional ADM authorized a second ship on May 8, 2012.

Foreign Military Sales

None

Nuclear Costs

None

Unit Cost

Unit Cost Report

Item	BY 2006 \$M	BY 2006 \$M	% Change
	Current UCR Baseline (May 2012 APB)	Current Estimate (Dec 2015 SAR)	

Program Acquisition Unit Cost

Cost	5663.1	8333.1	
Quantity	2	3	
Unit Cost	2831.550	2777.700	-1.90

Average Procurement Unit Cost

Cost	5420.9	7952.0	
Quantity	2	3	
Unit Cost	2710.450	2650.667	-2.21

Item	BY 2006 \$M	BY 2006 \$M	% Change
	Original UCR Baseline (Jan 2006 APB)	Current Estimate (Dec 2015 SAR)	

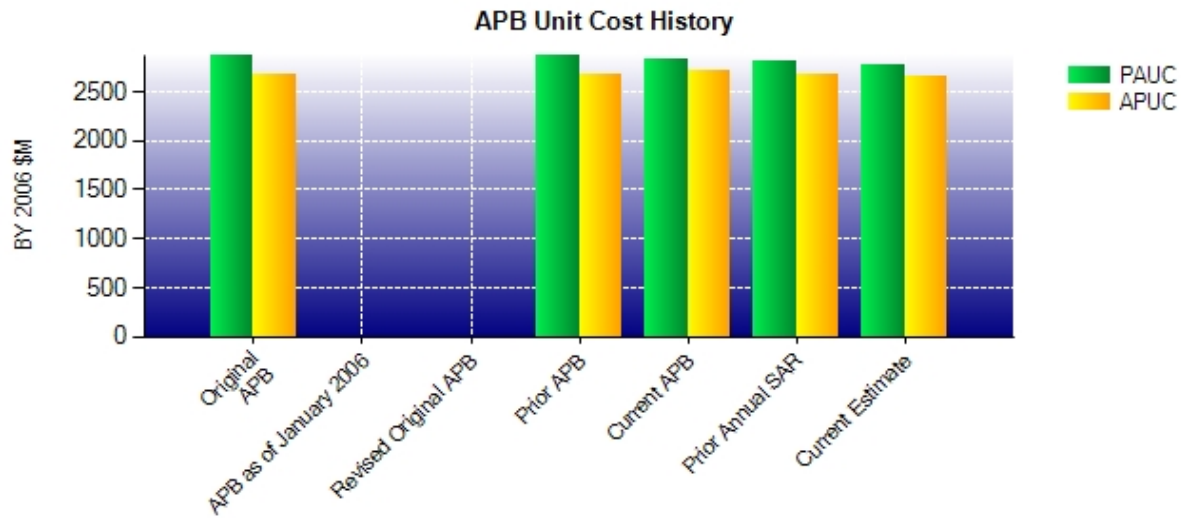
Program Acquisition Unit Cost

Cost	2877.4	8333.1	
Quantity	1	3	
Unit Cost	2877.400	2777.700	-3.46

Average Procurement Unit Cost

Cost	2677.5	7952.0	
Quantity	1	3	
Unit Cost	2677.500	2650.667	-1.00

Unit Cost History



Item	Date	BY 2006 \$M		TY \$M	
		PAUC	APUC	PAUC	APUC
Original APB	Jan 2006	2877.400	2677.500	3093.500	2896.000
APB as of January 2006	N/A	N/A	N/A	N/A	N/A
Revised Original APB	N/A	N/A	N/A	N/A	N/A
Prior APB	Jan 2006	2877.400	2677.500	3093.500	2896.000
Current APB	May 2012	2831.550	2710.450	3402.450	3281.700
Prior Annual SAR	Dec 2014	2802.733	2676.533	3645.500	3511.367
Current Estimate	Dec 2015	2777.700	2650.667	3609.100	3473.967

SAR Unit Cost History

Current SAR Baseline to Current Estimate (TY \$M)										
Initial PAUC Development Estimate	Changes								PAUC Current Estimate	
	Econ	Qty	Sch	Eng	Est	Oth	Spt	Total		
3093.500	271.200	566.567	3.133	19.500	-435.467	90.667	0.000	515.600	3609.100	

Current SAR Baseline to Current Estimate (TY \$M)										
Initial APUC Development Estimate	Changes								APUC Current Estimate	
	Econ	Qty	Sch	Eng	Est	Oth	Spt	Total		
2896.000	271.500	698.234	3.133	0.000	-485.567	90.667	0.000	577.967	3473.967	

SAR Baseline History				
Item	SAR Planning Estimate	SAR Development Estimate	SAR Production Estimate	Current Estimate
Milestone A	N/A	Jul 2001	N/A	Jul 2001
Milestone B	N/A	Jan 2006	N/A	Jan 2006
Milestone C	N/A	N/A	N/A	N/A
IOC	N/A	Sep 2013	N/A	Sep 2016
Total Cost (TY \$M)	N/A	3093.5	N/A	10827.3
Total Quantity	N/A	1	N/A	3
PAUC	N/A	3093.500	N/A	3609.100

Cost Variance

Summary TY \$M					
Item	RDT&E	Procurement	MILCON	Acq O&M	Total
SAR Baseline (Development Estimate)	197.5	2896.0	--	--	3093.5
Previous Changes					
Economic	-0.5	+802.4	--	--	+801.9
Quantity	--	+7886.7	--	--	+7886.7
Schedule	--	+17.4	--	--	+17.4
Engineering	+58.5	--	--	--	+58.5
Estimating	+144.9	-1340.4	--	+2.0	-1193.5
Other	--	+272.0	--	--	+272.0
Support	--	--	--	--	--
Subtotal	+202.9	+7638.1	--	+2.0	+7843.0
Current Changes					
Economic	-0.4	+12.1	--	--	+11.7
Quantity	--	--	--	--	--
Schedule	--	-8.0	--	--	-8.0
Engineering	--	--	--	--	--
Estimating	+3.2	-116.3	--	+0.2	-112.9
Other	--	--	--	--	--
Support	--	--	--	--	--
Subtotal	+2.8	-112.2	--	+0.2	-109.2
Total Changes	+205.7	+7525.9	--	+2.2	+7733.8
CE - Cost Variance	403.2	10421.9	--	2.2	10827.3
CE - Cost & Funding	403.2	10421.9	--	2.2	10827.3

Summary BY 2006 \$M					
Item	RDT&E	Procurement	MILCON	Acq O&M	Total
SAR Baseline (Development Estimate)	199.9	2677.5	--	--	2877.4
Previous Changes					
Economic	--	--	--	--	--
Quantity	--	+6142.3	--	--	+6142.3
Schedule	--	-33.3	--	--	-33.3
Engineering	+49.5	--	--	--	+49.5
Estimating	+127.2	-1006.6	--	+2.0	-877.4
Other	--	+249.7	--	--	+249.7
Support	--	--	--	--	--
Subtotal	+176.7	+5352.1	--	+2.0	+5530.8
Current Changes					
Economic	--	--	--	--	--
Quantity	--	--	--	--	--
Schedule	--	--	--	--	--
Engineering	--	--	--	--	--
Estimating	+2.3	-77.6	--	+0.2	-75.1
Other	--	--	--	--	--
Support	--	--	--	--	--
Subtotal	+2.3	-77.6	--	+0.2	-75.1
Total Changes	+179.0	+5274.5	--	+2.2	+5455.7
CE - Cost Variance	378.9	7952.0	--	2.2	8333.1
CE - Cost & Funding	378.9	7952.0	--	2.2	8333.1

Previous Estimate: June 2015

RDT&E		\$M	
Current Change Explanations		Base Year	Then Year
Revised escalation indices. (Economic)		N/A	-0.4
Revised estimate to reflect execution year realignments and Navy Working Capital Fund (NWCF) rate adjustments. (Estimating)		+2.0	+2.9
Adjustment for current and prior escalation. (Estimating)		+0.3	+0.3
RDT&E Subtotal		+2.3	+2.8

Procurement		\$M	
Current Change Explanations		Base Year	Then Year
Revised escalation indices. (Economic)		N/A	+12.1
Revised phasing of LHA 8 funding from FY 2018 to FY 2016 to support advance procurement lead time requirement. (Schedule)		0.0	-8.0
Revised estimate for LHA 8 procurement cost due to Service reductions. (Estimating)		-62.5	-94.7
Revised estimate for NWCF rate adjustments. (Estimating)		+2.6	+3.8
Revised estimate for inflation rates on Non-pay and Non Fuel Purchases. (Estimating)		-12.3	-18.0
Revised estimate for LHA (R) Outfitting and Post Delivery requirements. (Estimating)		-1.3	-2.0
Adjustment for current and prior escalation. (Estimating)		-4.1	-5.4
Procurement Subtotal		-77.6	-112.2

Acq O&M		\$M	
Current Change Explanations		Base Year	Then Year
LHA 8 acquisition requirement refinement for FY 2021. (Estimating)		+0.2	+0.2
Acq O&M Subtotal		+0.2	+0.2

Contracts

Contract Identification	
Appropriation:	Procurement
Contract Name:	LHA 7 Detail Design & Construction Contract (DD&C)
Contractor:	Huntington Ingalls Incorporated
Contractor Location:	1000 Access Road Pascagoula, MS 39567
Contract Number:	N00024-10-C-2229
Contract Type:	Fixed Price Incentive(Firm Target) (FPIF)
Award Date:	June 30, 2010
Definitization Date:	May 31, 2012

Contract Price							
Initial Contract Price (\$M)			Current Contract Price (\$M)			Estimated Price At Completion (\$M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
2355.0	2664.9	1	2450.4	2772.4	1	2599.8	2450.4

Target Price Change Explanation	
The difference between the Initial Contract Price Target and the Current Contract Price Target is due to the addition of scope for the incorporation of Flight Deck Strengthening and the Joint Strike Fighter modifications. Additional change is the result of expenses related to Pension Protection Act Harmonization and Katrina Depreciation settlements, and various engineering change proposals.	

Contract Variance		
Item	Cost Variance	Schedule Variance
Cumulative Variances To Date (1/24/2016)	-107.2	-2.3
Previous Cumulative Variances	-71.7	+7.5
Net Change	-35.5	-9.8

Cost and Schedule Variance Explanations	
The unfavorable net change in the cost variance is due to continued labor inefficiencies in Hull departments. Additional variance is attributed to high indirect costs in General and Administrative (G&A) and Overhead accounts, well above what was established in the performance measurement baseline.	

The unfavorable net change in the schedule variance is due to milestone payments for material items being achieved later than what was baselined.

Notes
The LHA 7 Advance Procurement Contract and Long Lead Time Material CLIN has been subsumed by the LHA 7 DD&C contract. The Program Manager Estimated Price at Completion (PMEAC) reflects the Current Target Price of the contract. A formal PMEAC for LHA 7 has commenced, as Earned Value progress for Vessel labor hours has reached 20% complete.

Deliveries and Expenditures

Deliveries				
Delivered to Date	Planned to Date	Actual to Date	Total Quantity	Percent Delivered
Development	0	0	0	--
Production	1	1	3	33.33%
Total Program Quantity Delivered	1	1	3	33.33%

Expended and Appropriated (TY \$M)			
Total Acquisition Cost	10827.3	Years Appropriated	16
Expended to Date	4916.8	Percent Years Appropriated	76.19%
Percent Expended	45.41%	Appropriated to Date	7398.2
Total Funding Years	21	Percent Appropriated	68.33%

The above data is current as of February 09, 2016.

Total expenditures are representative of LHA 6 and LHA 7.

Operating and Support Cost

Cost Estimate Details

Date of Estimate:	April 02, 2012
Source of Estimate:	POE
Quantity to Sustain:	2
Unit of Measure:	Ship
Service Life per Unit:	40.00 Years
Fiscal Years in Service:	FY 2017 - FY 2062

Two ships currently in production, the LHA 6 and LHA 7, will be sustained over a 40 year life cycle. Sustainment requirements for a planned third ship, the LHA 8, will be included upon competition of the Program Life Cycle Cost Estimate, third quarter FY 2016. O&S costs for LHA 8 will be included in the next SAR.

The intent is to estimate the normal costs of operating and supporting the ship in typical peacetime operations. Additional costs that might be incurred under wartime operating scenarios are not included. Potential costs of currently unplanned and unknown future upgrades or configuration changes are assumed to occur in the same proportion as modernization work that has occurred on the LHD 1 ship classes. Operating & Support Cost Analysis Model (OSCAM) builds the O&S costs by month, and the results show the estimated cost by year based on the Operational Tempo (OPTEMPO) and maintenance cycle. In order to obtain a per year estimate, the total O&S cost as reported by OSCAM (without disposal costs included) is divided by the 40 year life expectancy. Nominal OPTEMPO is assumed to be 2700 hours steaming underway and 1200 hours steaming not underway, based on the fuel burn rates and time profiles provided by the LHA 6 design team (in section 6.0 of the CARD).

Sustainment Strategy

The LHA 6 sustainment strategy includes the use of commercial shipyards for depot maintenance in concert with Organizational and Intermediate 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.

Antecedent Information

The antecedent system designated for LHA 6 is LHD 1. LHD 1 Unitized O&S Costs (BY 2006 \$M) were developed in 2013 and also reflect the Operating and Support Cost Analysis Model (OSCAM) historical average dataset for LHD 1. Visibility and Management of Operating and Support Costs data reflects average O&S return data for active ships (LHD1-7) between FY 1992 and FY 2011. Open Architectural Retrieval System Open Architectural Retrieval System 3-M data includes the years FY 2001 through FY 2011. Like the LHA 6 and LHA 7 Unitized O&S Costs, antecedent costs reflect a 40 year life cycle.

Projected manning on LHA 6 and LHA 7 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 LHA (R) Flight 0 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, the LHA 6 and LHA 7 would show an approximate 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 LHA 6 and LHA 7 baseline.

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 for the LHA 6 and LHA 7.

In line with LHA 6 and LHA 7 Maintenance requirements, antecedent Maintenance costs reflect requirements laid out in the Office of the Chief of Naval Operations 4700 (2011).

The scope of LHD 1 Indirect Support costs, which were first mandated in the OSD, CAPE O&S Cost Estimating Guide (published October 2007), align with LHA 6 and LHA 7 requirements but reflect a larger average historical crew size than that projected for the LHA 6 and LHA 7.

Annual O&S Costs BY2006 \$M		
Cost Element	LHA 6 Average Annual Cost Per Ship	LHD 1 (Antecedent) Average Annual Cost Per Ship
Unit-Level Manpower	65.684	63.895
Unit Operations	11.953	18.246
Maintenance	27.936	33.525
Sustaining Support	4.440	4.873
Continuing System Improvements	7.692	7.376
Indirect Support	27.247	31.094
Other	0.000	0.000
Total	144.952	159.009

Item	Total O&S Cost \$M			
	LHA 6		LHD 1 (Antecedent)	
	Current Development APB Objective/Threshold	Current Estimate		
Base Year	12095.2	13304.7	11596.3	12720.7
Then Year	24951.0	N/A	23788.5	N/A

Equation to Translate Annual Cost to Total Cost

Total O&S Cost = 2 Ships x 40 Service Life x Unitized LHA 6 Cost or LHD 1 Antecedent Cost

O&S Cost Variance		
Category	BY 2006 \$M	Change Explanations
Prior SAR Total O&S Estimates - Jun 2015 SAR	11596.3	
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	11596.3	

Disposal Estimate Details

Date of Estimate: April 02, 2012
Source of Estimate: POE
Disposal/Demilitarization Total Cost (BY 2006 \$M): Total costs for disposal of all Ship are 19.8

The CG class of ship was determined by the Naval Sea Systems Command (NAVSEA) Inactive Ships Program Office (PMS 333) as most comparable to the LHA 7 out of those vessels historically disposed of by NAVSEA. The decision to use the CG class of ships was based upon the comparison of warship compartmentalization, hazardous materials to remove and hull weight, influenced by scrap metal commodity prices.