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# LPD 17 SAN ANTONIO CLASS AMPHIBIOUS TRANSPORT DOCK (LPD 17)

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**December 2021 Selected Acquisition Report (SAR)**



**CLEARED AS AMENDED  
For Open Publication**

May 02, 2022

Department of Defense  
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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:** October 1, 2021

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## Mission and Description

The LPD 17 Flight I San Antonio Class Amphibious Transport Dock Ship (LPD 17) is the functional replacement for the LPD 4 Austin class, LSD 36 Anchorage class, LKA 113 Charleston class, and LST 1179 Newport classes of Amphibious Ships for embarking, transporting and landing elements of a Marine landing force in an assault by helicopters, landing craft, amphibious vehicles, and by a combination of these methods to conduct the primary amphibious warfare mission in order to win the current and future fight.

The LPD 17 Flight II ships are the functional replacement for the LSD 41/49 Class ships.

These ships support amphibious assault, special operations or expeditionary warfare missions and serve as aviation platforms for amphibious warfare. They are agile, versatile, multi-mission platforms that are adaptable with wide ranging utility. Core missions for an independently operating LPD 17 and embarked Marines include: Embassy Reinforcement, Maritime Interception Operations, Non-Combatant Evacuation Operations, Humanitarian Assistance/Disaster Response, Theater Security Cooperation, Tactical Recovery of Aircraft and Personnel, and Limited Amphibious Raids. All of these missions require an LPD 17 with organic aviation capacity, sufficient command and control capability to support all platform and embarked force needs, and sufficient medical capability and capacity required to support the operational force.

## Executive Summary

### *Program Highlights Since Last Report*

The LPD 17 Class has delivered 11 Flight I Ships currently operating as Fleet assets. Collectively they have successfully completed 28 deployments since the program inception in 1994. The final two Flight I Ships are under construction at Huntington Ingalls Industries (Ingalls) in Pascagoula, Mississippi. LPD 28 and LPD 29 are transition ships to phase in design, producibility, and fact-of-life changes as the program moves from LPD Flight I to LPD Flight II baselines. LPD 30 is the first LPD Flight II ship.

FORT LAUDERDALE (LPD 28) is 98.9% complete as of January 2022. Christening was completed August 21, 2021, and Builders Trials was conducted October 12, 2021. Acceptance trials completed January 28, 2022. Upcoming milestones planned for CY 2022 include: Delivery; Post Delivery Test & Trial events, such as Industrial Post Delivery Availability and Post Delivery Availability; Crew Move Aboard, Sail Away, and Commissioning. LPD 28 delivered March 11, 2022.

RICHARD M. McCOOL JR. (LPD 29) is 67.8% complete as of January 2022. LPD 29's launch was achieved on January 4, 2022. The ship's construction has been impacted by Coronavirus Disease 2019 (COVID-19) and the projected delivery date is July 2023.

HARRISBURG (LPD 30) is 17.7% complete as of January 2022. Start of Fabrication was achieved on March 17, 2020. The ship's construction has been impacted by COVID-19 and the projected delivery date is February 2025.

PITTSBURGH (LPD 31) detail design and construction contract was awarded on April 3, 2020. Start of Fabrication is planned for April 2022.

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
September 1990	Joint Requirements Oversight Council Validates LX Mission Needs Statement.
January 1993	Defense Acquisition Board Milestone I Approval.
October 1994	PMS 317 Program Office established.
May 1996	Operational Requirements Document (Rev. 03) Approval.
June 1996	Defense Acquisition Board Milestone II Approval.
December 1996	Lead ship (LPD 17) contract award.
July 2005	Lead ship (LPD 17) delivered.
August 2005	Hurricane Katrina causes significant damage to the Gulf Coast with the shipyards at Avondale, LA and Pascagoula, MS.
January 2006	Lead ship commissioned (LPD 17).
August 2008	First deployment of lead ship (LPD 17).
April 2014	LX(R) Analysis of Alternatives completed.
February 2016	LX(R) Capability Development Document Signed.
April 2018	LPD Flight II Acquisition Decision Memorandum Signed. LX(R) subsumed into the SAN ANTONIO Class Program.
August 2018	Long Lead Time Material contract for first LPD Flight II ship (LPD 30) awarded.
November 2018	Flight II Acquisition Strategy signed.
January 2019	Acquisition Program Baseline revised to add LPD 17 Flight II ships.
March 2019	LPD Flight II lead ship (LPD 30) Detail Design and Construction contract award.

**Schedule**  
*Schedule Events*

Schedule Events					
Events	Development APB Objective	Current APB Development Objective/Threshold		Current Estimate/Actual	Deviation
Milestone I	Jan 1993	Jan 1993	Jan 1993	Jan 1993	
DT&E (DT-I)					
Start	Mar 1993	Mar 1993	Mar 1993	Mar 1993	
Complete	Feb 1996	Feb 1996	Feb 1996	Feb 1996	
OT&E (OT-IA)					
Start	Jan 1995	Jan 1995	Jan 1995	Jan 1995	
Complete	Mar 1995	Mar 1995	Mar 1995	Mar 1995	
OT&E (OT-IB)					
Start	Feb 1996	Feb 1996	Feb 1996	Feb 1996	
Complete	Apr 1996	Apr 1996	Apr 1996	Apr 1996	
Milestone II	Jun 1996	Jun 1996	Jun 1996	Jun 1996	
Lead Ship Award	Aug 1996	Dec 1996	Dec 1996	Dec 1996	
DT&E (DT-IIA)					
Start	Sep 1996	Apr 1997	Apr 1997	Apr 1997	
Complete	Aug 1998	Mar 2003	Mar 2003	Mar 2003	
OT&E (OT-IC)					
Start	Sep 1998	N/A	N/A	N/A	
Complete	Mar 1999	N/A	N/A	N/A	
OT&E (OT-IIA)					
Start	Jun 2003	May 1999	May 1999	May 1999	
Complete	Sep 2003	May 2000	May 2000	May 2000	
DIT (OT-IIB)					
Start	N/A	Jan 2002	Jan 2002	Jan 2002	
Complete	N/A	May 2003	May 2003	May 2003	
DT&E (DT-IIB)					
Start	Sep 1998	Sep 2002	Sep 2002	Sep 2002	
Complete	Jun 2002	Jul 2005	Jul 2005	Jul 2005	
Lead Ship Delivery	Jun 2002	Jul 2005	Jul 2005	Jul 2005	
DT&E (DT-IIC)					
Start	Jul 2002	Jul 2005	Jul 2005	Jul 2005	
Complete	Jan 2004	May 2007	May 2007	May 2007	

IOT&E (OT-IIC)					
Start	N/A	Jan 2006	Jan 2006	Jan 2006	
Complete	N/A	Dec 2008	Dec 2008	Dec 2008	
Milestone III	Aug 2007	N/A	N/A	N/A	
Lead Ship IOC	Jan 2004	Apr 2008	Apr 2008	Apr 2008	
FOT&E (OT-III)					
Start	Jan 2011	Jul 2010	Jul 2010	Jul 2010	
LPD Flight II Lead Ship Contract Award	N/A	Jan 2019	Jul 2019	Mar 2019	
LPD Flight II Lead Ship Start Fabrication	N/A	May 2020	Nov 2020	Mar 2020	
LPD Flight II Lead Ship Delivery	N/A	Feb 2025	Aug 2025	Feb 2025	
LPD Flight II IOC	N/A	Jun 2026	Dec 2026	Jun 2026	

**Acronyms and Abbreviations**

- DIT - Design Integration Testing
- DT - Developmental Test
- DT&E - Developmental Test and Evaluation
- EASR- Enterprise Air Search Radar
- FOT&E - Follow-on Operational Test and Evaluation
- IOT&E - Initial Operational Test and Evaluation
- NGSSR- Next Generation Surface Search Radar
- OT - Operational Test
- OT&E - Operational Test and Evaluation
- OWLD - Obligation Work Limiting Date
- SSDS- Ship Self-Defense System

SHIP	Delivery	Obligation Work Limiting Date (OWLD)
LPD 28	March 2022	September 2023
LPD 29	July 2023	February 2025
LPD 30	February 2025	October 2026
LPD 31	February 2027	August 2028
LPD 32	February 2029	August 2030

**Significant Schedule Risks**

Significant Schedule Risks	
Current Estimate (December 2021)	
1.	Enterprise Air Search Radar (EASR) Integration and Test (also a Technical risk): LPD 29 will be the first ship to test, integrate, and operate the EASR radar. If the EASR system is not fully integrated into the combat system, then it will impact Post Delivery and Developmental Test / Operational Test schedule and cost. MITIGATION: Ensure resources and prioritization for EASR/SSDS integration timeline.
2.	Next Generation Surface Search Radar (NGSSR) Developmental Design Maturation (also a Technical risk): If program objectives to re-use existing mast design locations for SPS-73 (space and weight) are not achieved for

<p>NGSSR, then starting with LPD 29 and LPD 30, additional shipbuilder Non-Recurring Engineering (cost) to accommodate the new design and topside design (cost/technical/schedule) may impact antenna (fwd/aft) foundations, structure, and implement necessary conjunctive changes with other systems. MITIGATION: Utilize NGSSR engineering reviews and program milestone reviews to ensure close coordination with all stakeholders.</p>
<p>3. COVID-19 pandemic caused prolonged, significant, and unpredictable labor manning shortages for ships in construction. Onsite vendor services to assist Ingalls with troubleshooting and integrating ship systems had been severely curtailed. Current vendor support is mixed. LPDs in construction continue to experience differing impacts. LPD 28 is sporadically lacking key personnel / system expertise / vendor support. LPD 29 has lacked manning in key crafts, specifically Ingalls Hull Department and Pipe Department, which has led to consumption of all planned schedule float. LPD 30 has not been able to ramp up manning levels per plan and has consistently remained 40-60% below the pre-COVID-19 baseline. If COVID-19 pandemic continues to exacerbate already experienced prolonged, significant, and unpredictable labor manning shortages for ships in construction, then LPD 29, LPD 30 and LPD 31 will realize further schedule delays and shifting delivery dates, as well as associate increased costs. MITIGATION: Schedule re-baselining and impact assessment and efforts are currently on-going.</p>

Performance

Performance Characteristics					
Development APB Objective	Current APB Development Objective/Threshold	Demonstrated Performance (include Date of Demonstration)	Current Estimate/Actual	Deviation	
<b>Mobility Sustained Speed (Kts)</b>					
23	23	21.5	24 5/3/2005	24	
<b>Mobility Endurance ((NM)(K) @ Kts)</b>					
10/22	10/22	9.5/20	10.6/20 12/14/2007	10.6/20	
<b>Amphibious Warfare Embarkation (Net) Troops</b>					
750	750	650	720 12/3/2005	720	
<b>Amphibious Warfare Embarkation (Net) Vehicles (Sq Ft) (k)</b>					
25	25	22	22 5/3/2005	22	
<b>Amphibious Warfare Embarkation (Net) Cargo (Cubic Feet) (k)</b>					
25	25	22	34 12/3/2005	34	
<b>Amphibious Warfare Embarkation (Net) Bulk Fuel (Gals) (k)</b>					
325	325	250	307 12/14/2007	307	
<b>Amphibious Warfare Embarkation (Net) LCAC</b>					
2	2	1(+1)	2 12/3/2005	2	
<b>Amphibious Warfare Embarkation (Net) VTOL Land/Launch Spots (CH-46 or CH-53E or MV-22)</b>					
4/3/2	4/3/2	4/2/2	4/2/2 12/3/2005	4/2/2	
<b>Amphibious Warfare Embarkation (Net) VTOL Maint/Storage (CH-46 or CH-53E or MV-22)</b>					
3/1/1	3/1/1	2/1/1	2/1/1 12/14/2007	2/1/1	
<b>Ship To Shore Capability (LCAC) Sustained Operations (reload 6 LCACs)(mins)</b>					
220	220	285	274	274	

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Performance Characteristics					
Development APB Objective	Current APB Development Objective/Threshold		Demonstrated Performance (include Date of Demonstration)	Current Estimate/Actual	Deviation
			12/7/2007		
<b>Operational Availability (Ao)</b>					
.90	.90	.80	.92 1/29/2010	.92	
<b>LPD Flight II Operational Availability (Ao)</b>					
N/A	.80	(T=O) .80		.80	
<b>LPD Flight II Bulk Fuel (Gallons) (K)</b>					
N/A	310	(T=O) 310		310	
<b>LPD Flight II Troops</b>					
N/A	552	(T=O) 552		552	
<b>LPD Flight II Vehicles (Square Feet) (K)</b>					
N/A	20.88	(T=O) 20.88		20.88	
<b>LPD Flight II Cargo (Cubic Feet) (K)</b>					
N/A	28 (after 0.75 broken stow factor is applied)	(T=O) 28 (after 0.75 broken stow factor is applied)		28 (after 0.75 broken stow factor is applied)	
<b>LPD Flight II LCAC/SSC / LCU Spots</b>					
N/A	2/1	(T=O) 2/1		2/1	
<b>LPD Flight II Aircraft Refueling and Arming</b>					
N/A	Simultaneous refueling and electrical service of four (4) aircraft and rearming/de-arming of two (2) aircraft in any combination of MV-22,	(T=O) Simultaneous refueling and electrical service of four (4) aircraft and re-arming/de-arming of two (2) aircraft in any combination		Simultaneous refueling and electrical service of four (4) aircraft and rearming/de-arming of two (2) aircraft in any combination of MV-22, CH-53, H-1, and H-60	

Performance Characteristics					
Development APB Objective	Current APB Development Objective/Threshold		Demonstrated Performance (include Date of Demonstration)	Current Estimate/Actual	Deviation
	CH-53, H-1, and H-60	of MV-22, CH-53, H-1, and H-60			
<b>LPD Flight II VTOL Land and Launch Spots</b>					
N/A	Two (2) primary and four (4) expanded launch spots	(T=O) Two (2) primary and four (4) expanded launch spots		Two (2) primary and four (4) expanded launch spots	

**Acronyms and Abbreviations**

- Ao - Operational Availability
- BT - Builder's Trials
- Gals - gallons
- IOT&E - Initial Operational Test and Evaluation
- K/k - Thousands
- Kts - Knots
- LCAC - Landing Craft Air Cushion
- mins - minutes
- NM - Nautical Miles
- OPEVAL - Operational Evaluation
- Sq Ft - square feet
- VTOL - Vertical Take-Off and Landing

**Requirements Source:** Operational Requirements Document Revision 3 dated April 8, 1996 and Capability Development Document for Amphibious Ship Replacement Program (LX9R) dated October 17, 2014 (LDP Flight II only).

## Acquisition Budget Estimate

### Total Acquisition Cost

Category	Base Year	Development APB	APB Name (Current) 01/08/2019		Budget Estimate PB 2023		Deviation
		Objective (BY\$)	Objective (BY\$)	Threshold (BY\$)	BY\$	TY\$	
RDT&E	1996	78.7	276.1	303.7	263.8	348.5	
Procurement	1996	8939.4	29073.7	31981.1	28121.4	49872.5	
MILCON	1996	0.0	0.0	0.0	0.0	0.0	
Acq. O&M	1996	0.0	0.0	0.0	0.0	0.0	
<b>Total</b>		<b>9018.1</b>	<b>29349.8</b>	<b>N/A</b>	<b>28385.2</b>	<b>50221.0</b>	
PAUC	1996	751.508	1128.838	1241.722	1091.7	1931.6	
APUC	1996	744.950	1118.219	1230.041	1081.6	1918.2	

### Total End Item Quantity

Quantity Category	Current APB Quantity	Current Estimate Quantity
Development	0	0
Procurement	26	26

#### Quantity Notes:

Program of Record quantity of 26 ships to remain as is pending final results of the Amphibious Force Structure Study previously directed by Secretary of the Navy.

### Risk and Sensitivity Analysis

Risks and Sensitivity Analysis	
<b>Current Procurement Cost (December 2021)</b>	
1.	An Assistant Secretary of the Navy for Research, Development & Acquisition (ASN (RD&A)) Acquisition Decision Memorandum dated April 10, 2018, directed that LX(R) shall be subsumed into the SAN ANTONIO Class Acquisition Category IC Program and managed as LPD Flight II. An Acquisition Program Baseline (APB) update reflecting an increase in the number of ships in the class from 13 to 26 was signed on January 8, 2019.
<b>Original Baseline Estimate (June 1996)</b>	
1.	The original baseline estimate for the program is from the Milestone II development APB decision of June 17, 1996.
<b>Revised Original Estimate (October 2005)</b>	
1.	The revised original baseline estimate for the program is from the restructure APB decision of October 31, 2005.
<b>Current Baseline Estimate (January 2019)</b>	
1.	The current baseline estimate reflects the POE for the APB, approved by the ASN (RD&A) on January 8, 2019.

**Unit Cost**

*Current Baseline Compared with Current Estimate*

Category (\$M)	Current APB	Current Estimate	% Change	NMC Breach
<b>PAUC</b>				
Cost	29349.8	28385.2	-	-
Quantity	26	26	-	-
Unit Cost	1128.838	1091.740	-3.29%	
<b>APUC</b>				
Cost	29073.7	28121.4	-	-
Quantity	26	26	-	-
Unit Cost	1118.219	1081.594	-3.28%	

*Original Baseline Compared with Current Estimate*

Category (\$M)	Current APB	Current Estimate	% Change	NMC Breach
<b>PAUC</b>				
Cost	12955.2	28385.2	-	-
Quantity	12	26	-	-
Unit Cost	1079.600	1091.740	1.12%	
<b>APUC</b>				
Cost	12842.4	28121.4	-	-
Quantity	12	26	-	-
Unit Cost	1070.200	1081.594	1.06%	

**Contracts**

Contract Data (\$TYM)		
Contract Number	N00024-16-C-2431	
Effort Number	28	
Modification Number	A00246	
Award Date	12/19/2016	
Definitization Date	12/19/2016	
Order Number		
CAGE Code/CAGE Legal Name	34293	
Contract Title	LPD 28	
Contract Address	Access Road Pascagoula MS 39581	
Contracts/Effort Price, Quantity, and Performance (\$M)		
Initial Target Price	Current Target Price	
1434.0	1485.8	
Initial Ceiling Price	Current Ceiling Price	
1573.0	1629.8	
Contract's EAC	PM's EAC	
Initial Quantity	Current Quantity	Delivered Quantity
1	1	1
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).

The Basic Construction Costs category in the budget exhibit includes additional costs required to validate and deliver a fully capable ship to the Navy that are not part of nor included in the shipbuilder contract target price.

Contract Data (\$TYM)		
Contract Number	N00024-16-C-2431	
Effort Number	29	
Modification Number	A00246	
Award Date	02/16/2018	
Definitization Date	02/16/2018	
Order Number		
CAGE Code/CAGE Legal Name	34293	
Contract Title	LPD 29	
Contract Address	Access Road Pascagoula MS 39581	
Contracts/Effort Price, Quantity, and Performance (\$M)		
Initial Target Price	Current Target Price	
1399.0	1413.6	
Initial Ceiling Price	Current Ceiling Price	

1534.0		1550.1	
Contract's EAC		PM's EAC	
Initial Quantity	Current Quantity	Delivered Quantity	
1	1	0	
BAC	BCWP	ACWP	
BCWS	Cost Variance	Schedule Variance	

**Contract Notes:**

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The Basic Construction Costs category in the budget exhibit includes additional costs required to validate and deliver a fully capable ship to the Navy that are not part of nor included in the shipbuilder contract target price.

Contract Data (\$TYM)			
Contract Number	N00024-18-C-2406		
Effort Number	30		
Modification Number	A00170		
Award Date	03/25/2019		
Definitization Date	03/25/2019		
Order Number			
CAGE Code/CAGE Legal Name	34293		
Contract Title	LPD 30		
Contract Address	Access Road Pascagoula MS 39581		
Contracts/Effort Price, Quantity, and Performance (\$M)			
Initial Target Price	Current Target Price		
1435.0	1475.9		
Initial Ceiling Price	Current Ceiling Price		
1577.0	1602.7		
Contract's EAC	PM's EAC		
Initial Quantity	Current Quantity	Delivered Quantity	
1	1	0	
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 CUI.

The Basic Construction Costs category in the budget exhibit includes additional costs required to validate and deliver a fully capable ship to the Navy that are not part of nor included in the shipbuilder contract target price.

Contract Data (\$TYM)		
Contract Number	N00024-18-C-2406	
Effort Number	31	
Modification Number	A00170	
Award Date	04/03/2020	
Definitization Date	04/03/2020	
Order Number		
CAGE Code/CAGE Legal Name	34293	
Contract Title	LPD 30	
Contract Address	Access Road Pascagoula MS 39581	
Contracts/Effort Price, Quantity, and Performance (\$M)		
Initial Target Price	Current Target Price	
1488.7	1490.9	
Initial Ceiling Price	Current Ceiling Price	
1608.7	1621.8	
Contract's EAC	PM's EAC	
Initial Quantity	Current Quantity	Delivered Quantity
1	1	0
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 CUI.

The Basic Construction Costs category in the budget exhibit includes additional costs required to validate and deliver a fully capable ship to the Navy that are not part of nor included in the shipbuilder contract target price.

## Technologies and Systems Engineering

### *Significant Technical Risks*

Significant Technical Risks	
Current Estimate (December 2021)	
1.	Enterprise Air Search Radar (EASR) Integration and Test (also a Schedule risk): LPD 29 will be the first ship to test, integrate, and operate the EASR radar. If the EASR system is not fully integrated into the combat system, then it will impact Post Delivery and Developmental Test / Operational Test schedule and cost. MITIGATION: Ensure resources and prioritization for EASR/SSDS integration timeline.
2.	Next Generation Surface Search Radar (NGSSR) Developmental Design Maturation (also a Schedule risk): If program objectives to re-use existing mast design locations for SPS-73 (space and weight) are not achieved for NGSSR, then starting with LPD 29 and LPD 30, additional shipbuilder Non-Recurring Engineering (cost) to accommodate the new design and topside design (cost/technical/schedule) may impact antenna (fwd/aft) foundations, structure, and implement necessary conjunctive changes with other systems. MITIGATION: Utilize NGSSR engineering reviews and program milestone reviews to ensure close coordination with stakeholders.

### Deliveries and Expenditures

Deliveries				
Delivered to Date	Planned to Date	Actual to Date	Total Quantity	Percent Delivered
Development	0	0	0	0.00%
Production	12	12	26	46.15%
Total Program Quantity Delivered	12	12	26	46.15%

### Expended and Appropriated (TY \$M)

Total Acquisition Cost: 50221.0  
 Expended to Date: 22807.5  
 Percent Expended: 45.41%  
 Total Funding Years: 54  
 Years Appropriated: 34  
 Percent Years Appropriated: 62.96%  
 Appropriated to Date: 28522.7  
 Percent Appropriated: 56.79%

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

## Low Rate Initial Production

Item	Initial LRIP Decision	Current Total LRIP
Approval Date	6/17/1996	4/10/2018
Approved Quantity	12	15
Reference	Milestone II ADM	LPD Flight II ADM
Start Year	1996	1996
End Year	2016	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, which is standard for shipbuilding programs.

## 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)	57876.0	63663.6	53134.0	167379.0	

### Annual O&S Cost Breakdown BY 1996 \$M

Category (BY\$ Million)	LPD
Unit-Level Manpower	16.200
Unit Operations	4.500
Maintenance	11.200
Sustaining Support	1.100
Continued System Improvements	4.100
Other	14.000
Total O&S	51.100

**Cost Estimate Source:** Program Office Estimate dated December 31, 2019

**O&S Cost Notes:**

- a. Disposal/Demilitarization Cost Estimate and Source of Estimate:  
 Date of Estimate: **12/31/2019**  
 Source of Estimate: **Program Office Estimate**  
 Disposal Total Cost (BY 1996 \$M) **132.6**
- b. Sustainment Strategy:  
 Life cycle engineering and support contracts with the shipbuilder and the Integrated Shipboard Electronics contractor, along with In Service Engineering Agent support contracts, are in place to support sustainment efforts. Responsibilities have been divided to leverage strengths; the shipbuilder maintains the planning yard while the in-service program office manages life-cycle maintenance, modernization, and logistics. Phased maintenance and dry dock availabilities are planned on a standard cycle; and continuous maintenance availabilities are conducted in between. This strategy has proven to be effective for the first thirteen ships of the class and will be adopted for the Flight II ships.
- c. For Each Acquired System or System Variant:
  - i. Quantity to Sustain: **26.0**
  - ii. First Operational Fiscal Year: **2005**
  - iii. Final Operational Fiscal Year: **2083**
  - iv. Unit Expected Service Life: **40.0**
- d. Antecedent System(s) O&S Costs:  
 The LPD 17 San Antonio Class Amphibious Transport Dock Ship (LPD 17) is the functional replacement for the LPD 4, LSD 36, LKA 113, and LST 1179 classes of amphibious ships. Of these four ship classes, the LPD 4 class is most analogous to the LPD 17 class in terms of profile, configuration, and crew size; and thus, the LPD 4 class was selected as the antecedent for purposes of O&S cost comparisons. The cost element data for the LPD 4 class was pulled from the Naval VAMOS database for all available years of data. The LPD 4 average annual cost per ship was extended using a quantity of 26 ships and expected service life of 40 years to mirror the LPD 17 Class profile and expected service life. The estimate also incorporated actual LPD 4 commissioning and decommissioning profiles. The average annual costs per LPD 4 class ship were calculated in BY 1996 dollars for each cost element. The cost element estimates for the LPD 4 class were not revised since last year's SAR submission; with the decommissioning

of USS PONCE in 2017, all LPD 4 class ships have been decommissioned. Average crew size for an LPD 4 class ship was 364.