



## Selected Acquisition Report (SAR)

RCS: DD-A&T(Q&A)823-542



### **LPD 17 San Antonio Class Amphibious Transport Dock (LPD 17)**

As of FY 2011 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**

LPD 17 AMPHIBIOUS TRANSPORT DOCK (LPD 17 CLASS)

**DoD Component**

Navy

## Responsible Office

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**Date**

**Assigned:** August 25, 2009

## References

**SAR Baseline (Development Estimate)**

Defense Acquisition Executive (DAE) Approved Acquisition Program Baseline (APB) dated June 17, 1996

**Approved APB**

DAE Approved Acquisition Program Baseline (APB) dated May 18, 2007

## **Mission and Description**

The LPD 17 Class Amphibious Transport Dock Ship is the functional replacement for the LPD 4, LSD 36, LKA 113, and LST 1179 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.

## Executive Summary

The first two ships (USS SAN ANTONIO (LPD 17) and USS NEW ORLEANS (LPD 18)) of the class have completed their maiden deployments where they were utilized for unexpected missions in addition to their normally anticipated operational requirements. USS MESA VERDE (LPD 19) was transferred to the amphibious ship in-service support program office at the end of June 2009 and is expected to deploy in early 2010. USS GREEN BAY (LPD 20) is in her Post Shakedown Availability (PSA) and will re-demonstrate selected systems to the Navy Board of Inspection and Survey (INSURV) after PSA. USS NEW YORK (LPD 21) was commissioned on November 7, 2009 in New York City and is just beginning her post delivery test and trials phase.

The Program Office has completed a number of significant schedule milestones during this period. Initial Operational Capability (IOC) was achieved in April 2008. Two major Live Fire Test and Evaluation (LFT&E) events were completed – Shock Trials were conducted on USS MESA VERDE (LPD 19) in July 2008; and Total Ship Survivability Testing was completed on LPD 18 in September 2008. Initial Operational Test and Evaluation for the LPD 17 class was completed in December 2008.

In response to lube oil piping issues identified during LPD 17's (USS SAN ANTONIO) initial deployment, the Navy and Northrop Grumman are conducting a thorough review and inspection of piping design, support requirements, construction, and workmanship. Additional pipe hangers have been added to the design and installed on all ships; weld quality assurance has been improved. Further inspections and system reviews will continue into 2010.

LPDs 22-25 are in various stages of construction and continue to show improvement in level of quality and completeness as lessons learned on previous hulls are incorporated in the production process. The baselines for LPDs 22-25 became unachievable due to the lingering effects of Hurricanes Ike and Gustav, material escalation costs, and poor unit execution of the shipyard's outsourcing strategy. The Navy approved an Over Target Baseline (OTB)/Over Target Schedule (OTS) agreeing to new delivery dates for each ship. OTB/OTS reviews were completed the week of June 22, 2009; and some schedule and cost pressure is being seen on the new baselines for LPDs 22 and 24. Additional funding to meet the Navy's portion of the cost increases is included in FY 2011 President's Budget.

The program office continues to focus on product reliability improvements and cost/schedule performance trends. Subsystem reliability and crew/ship supportability issues are being aggressively addressed as the early ships in the class are introduced to the Fleet and operational feedback is received. The new class build plan emphasizing higher pre-outfitting and levels of completion at launch has been developed and is being incorporated into LPDs 22-25. As of December 31, 2009, Northrop Grumman Shipbuilding production efforts on LPDs 22/23/24/25 were 64%, 44%, 45%, and 14% complete, respectively.

Milestone III has been revised to align with the expected completion of all operational/live fire test reporting requirements.

The request for proposal (RFP) for detail design and construction of LPD 26, with an option for LPD 27, was released on May 4, 2009. Long Lead Time Material (LLTM) for LPD 26 has been awarded, and the program office is tracking those procurements to preserve schedule options.

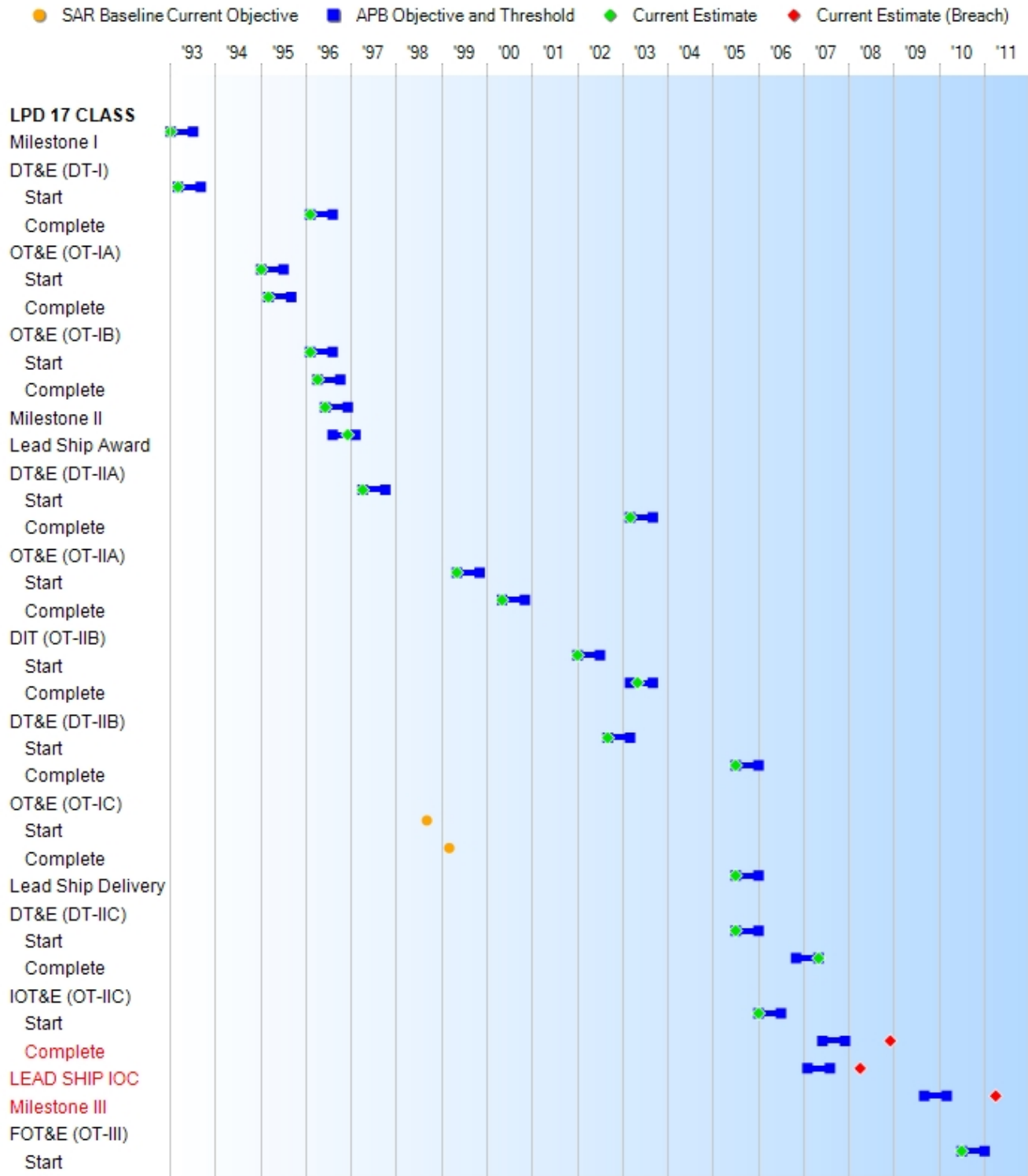
There are no significant software-related issues for the program at this time.

## Threshold Breaches

APB Breaches		Explanation of Breach
<b>Schedule</b>	<input checked="" type="checkbox"/>	Schedule Breach
<b>Performance</b>	<input type="checkbox"/>	Program Deviation Report (PDR) notification of schedule breaches for Initial Operational Capability (IOC) and Initial Operational Test and Evaluation (IOT&E (OT-IIC)) Complete milestones was previously submitted. Milestone III has been revised to align with the expected completion of all operational/live fire test reporting requirements. Acquisition Program Baseline (APB) change request to revise schedule objectives and thresholds is being reviewed by OSD.
<b>Cost</b>	<input type="checkbox"/>	
RDT&E	<input type="checkbox"/>	
Procurement	<input checked="" type="checkbox"/>	
MILCON	<input type="checkbox"/>	
Acq O&M	<input type="checkbox"/>	Cost Breach The FY09 Defense Appropriations Act included incremental funding for the tenth LPD 17 class ship (LPD 26) causing the LPD 17 Program to exceed the total procurement cost threshold. The addition of the eleventh LPD 17 class ship (LPD 27) further increased that deviation. APB change request to revise cost objectives and thresholds is being reviewed by OSD.
<b>O&amp;S Cost</b>	<input type="checkbox"/>	
<b>Unit Cost</b>	<input type="checkbox"/>	
PAUC	<input type="checkbox"/>	
APUC	<input type="checkbox"/>	
Nunn-McCurdy Breaches		
<b>Current UCR Baseline</b>		
PAUC	None	
APUC	None	
<b>Original UCR Baseline</b>		
PAUC	None	
APUC	None	



# Schedule



Schedule Events				
Events	SAR Baseline Development Estimate	Current APB Development Objective/Threshold		Current Estimate
Milestone I	Jan 1993	Jan 1993	Jul 1993	Jan 1993
DT&E (DT-I)				
Start	Mar 1993	Mar 1993	Sep 1993	Mar 1993
Complete	Feb 1996	Feb 1996	Aug 1996	Feb 1996
OT&E (OT-IA)				
Start	Jan 1995	Jan 1995	Jul 1995	Jan 1995
Complete	Mar 1995	Mar 1995	Sep 1995	Mar 1995
OT&E (OT-IB)				
Start	Feb 1996	Feb 1996	Aug 1996	Feb 1996
Complete	Apr 1996	Apr 1996	Oct 1996	Apr 1996
Milestone II	Jun 1996	Jun 1996	Dec 1996	Jun 1996
Lead Ship Award	Aug 1996	Aug 1996	Feb 1997	Dec 1996
DT&E (DT-IIA)				
Start	Sep 1996	Apr 1997	Oct 1997	Apr 1997
Complete	Aug 1998	Mar 2003	Sep 2003	Mar 2003
OT&E (OT-IIA)				
Start	Jun 2003	May 1999	Nov 1999	May 1999
Complete	Sep 2003	May 2000	Nov 2000	May 2000
DIT (OT-IIB)				
Start	N/A	Jan 2002	Jul 2002	Jan 2002
Complete	N/A	Mar 2003	Sep 2003	May 2003
DT&E (DT-IIB)				
Start	Sep 1998	Sep 2002	Mar 2003	Sep 2002
Complete	Jun 2002	Jul 2005	Jan 2006	Jul 2005
OT&E (OT-IC)				
Start	Sep 1998	N/A	N/A	N/A
Complete	Mar 1999	N/A	N/A	N/A
Lead Ship Delivery	Jun 2002	Jul 2005	Jan 2006	Jul 2005
DT&E (DT-IIC)				
Start	Jul 2002	Jul 2005	Jan 2006	Jul 2005
Complete	Jan 2004	Nov 2006	May 2007	May 2007
IOT&E (OT-IIC)				
Start	N/A	Jan 2006	Jul 2006	Jan 2006
Complete	N/A	Jun 2007	Dec 2007	<b>Dec 2008<sup>1</sup></b>
LEAD SHIP IOC	Jan 2004	Feb 2007	Aug 2007	<b>Apr 2008<sup>1</sup></b>

(Ch-1)

Milestone III	Aug 2007	Sep 2009	Mar 2010	<b>Apr 2011</b> <sup>1</sup>	(Ch-2)
FOT&E (OT-III)					
Start	Jan 2011	Jul 2010	Jan 2011	Jul 2010	

<sup>1</sup> APB Breach

**Change Explanations**

(Ch-1) Changed from October 2008 to December 2008.  
 OPEVAL was officially completed December 2008.  
 (Ch-2) Changed from September 2009 to April 2011.  
 Milestone III was revised to align with the expected completion of all operational/live fire test reporting requirements.

**Acronyms and Abbreviations**

- DIT - Design Integration Testing
- DT - Developmental Test
- DT&E - Developmental Test and Evaluation
- FOT&E - Follow-on Operational Test and Evaluation
- IOC - Initial Operational Capability
- IOT&E - Initial Operational Test and Evaluation
- OT - Operational Test
- OT&E - Operational Test and Evaluation

## Performance

Performance Characteristics				
SAR Baseline Development Estimate	Current APB Development Objective/Threshold		Demonstrated Performance	Current Estimate
<b>Mobility</b>				
<b>Sustained Speed (Kts)</b>				
23	23	21.5	24	24
<b>Endurance ((NM)(K) @ Kts)</b>				
10/22	10/22	9.5/20	10.6/20	10.6/20
<b>Amphibious Warfare Embarkation (NET)</b>				
<b>Troops</b>				
750	750	650	720	720
<b>Vehicles (Sq Ft)(k)</b>				
25	25	22	24	24
<b>Cargo (Cubic Feet)(k)</b>				
25	25	22	34	34
<b>Bulk Fuel (Gals)(k)</b>				
325	325	250	307	307
<b>LCAC</b>				
2	2	1(+1)	2	2
<b>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	4/2/2
<b>VTOL Maint/Storage (CH-46 or CH-53E or MV-22)</b>				
3/1/1	3/1/1	2/1/1	2/1/1	2/1/1
<b>Ship To Shore Capability (LCAC)</b>				
<b>Sustained Operations (reload 6 LCACs)(mins)</b>				
220	220	285	274	274
<b>Operational Availability (Ao)</b>				
.90	.90	.80	.92	.92

### Requirements Reference

Operational Requirements Document Revision 3

### Change Explanations

None

**Notes**

Demonstrated Performance for Sustained Speed and Vehicles (Sq Ft) reflect performance during LPD 17 Builder's Trials (BT).

Demonstrated Performance for Troops, Cargo (Cubic Feet), LCAC, and VTOL Land/Launch Spots reflect measurements taken during LPD 17 Sail Away Trials.

Demonstrated Performance for Bulk Fuel, VTOL Maint/Storage, Sustained Operations, and Endurance reflect performance during LPD 17 Class IOT&E events.

Demonstrated Performance for Operational Availability reflects performance cited in the LPD 17 class OPEVAL report dated January 2010.

**Acronyms and Abbreviations**

K/k - Thousands

Kts - Knots

LCAC - Landing Craft Air Cushion

NM - Nautical Miles

VTOL - Vertical Take-Off and Landing

### Track to Budget

**RDT&E**

Appn	BA	PE	
Navy	1319	05	0604311N
	<b>Project</b>	<b>Name</b>	
	2283	LPD Development (Shared)	

**Procurement**

Appn	BA	PE	
Navy	1611	03	
	<b>Line Item</b>	<b>Name</b>	
	3036	Shipbuilding and Conversion	
Navy	1611	05	
	<b>Line Item</b>	<b>Name</b>	
	5110	Shipbuilding and Conversion (Shared)	
	5300	Shipbuilding and Conversion (Shared)	

## Cost and Funding

### Cost Summary

Total Acquisition Cost							
Appropriation	BY 1996 \$M			BY 1996 \$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	78.7	111.3	122.4	116.1	77.8	114.0	120.1
Procurement	8939.4	10992.1	12091.3	14233.6 <sup>1</sup>	10684.0	13480.0	18539.1
Flyaway	--	--	--	14233.6	--	--	18539.1
Recurring	--	--	--	14233.6	--	--	18539.1
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	0.0	--	0.0	0.0	0.0	0.0
<b>Total</b>	<b>9018.1</b>	<b>11103.4</b>	<b>N/A</b>	<b>14349.7</b>	<b>10761.8</b>	<b>13594.0</b>	<b>18659.2</b>

<sup>1</sup> APB Breach

Total Quantity			
Quantity	SAR Baseline Development Estimate	Current APB Development	Current Estimate
RDT&E	0	0	0
Procurement	12	9	11
<b>Total</b>	<b>12</b>	<b>9</b>	<b>11</b>

## Cost and Funding

### Funding Summary

Appropriation Summary									
FY 2011 President's Budget / December 2009 SAR (TY\$ M)									
Appropriation	Prior	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	To Complete	Total
RDT&E	116.1	4.0	0.0	0.0	0.0	0.0	0.0	0.0	120.1
Procurement	14935.6	1228.9	79.1	2017.3	136.0	23.7	28.0	90.5	18539.1
MILCON	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Acq O&M	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PB 2011 Total	15051.7	1232.9	79.1	2017.3	136.0	23.7	28.0	90.5	18659.2
PB 2009 Total	13948.6	113.5	106.8	60.7	12.1	0.0	0.0	0.0	14241.7
Delta	1103.1	1119.4	-27.7	1956.6	123.9	23.7	28.0	90.5	4417.5

Quantity Summary										
FY 2011 President's Budget / December 2009 SAR (TY\$ M)										
Quantity	Undistributed	Prior	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	To Complete	Total
Development	0	0	0	0	0	0	0	0	0	0
Production	0	10	0	0	1	0	0	0	0	11
PB 2011 Total	0	10	0	0	1	0	0	0	0	11
PB 2009 Total	0	9	0	0	0	0	0	0	0	9
Delta	0	1	0	0	1	0	0	0	0	2



## 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
1990	--	--	--	--	--	--	0.5
1991	--	--	--	--	--	--	4.9
1992	--	--	--	--	--	--	1.2
1993	--	--	--	--	--	--	10.3
1994	--	--	--	--	--	--	28.0
1995	--	--	--	--	--	--	10.8
1996	--	--	--	--	--	--	9.2
1997	--	--	--	--	--	--	4.3
1998	--	--	--	--	--	--	12.9
1999	--	--	--	--	--	--	1.3
2000	--	--	--	--	--	--	2.3
2001	--	--	--	--	--	--	0.2
2002	--	--	--	--	--	--	0.5
2003	--	--	--	--	--	--	5.6
2004	--	--	--	--	--	--	3.1
2005	--	--	--	--	--	--	7.4
2006	--	--	--	--	--	--	8.5
2007	--	--	--	--	--	--	4.8
2008	--	--	--	--	--	--	0.3
2009	--	--	--	--	--	--	--
2010	--	--	--	--	--	--	4.0
Subtotal	--	--	--	--	--	--	120.1

Annual Funding 1319   RDT&E   Research, Development, Test, and Evaluation, Navy							
Fiscal Year	Quantity	BY 1996 \$M					
		End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program
1990	--	--	--	--	--	--	0.6
1991	--	--	--	--	--	--	5.4
1992	--	--	--	--	--	--	1.3
1993	--	--	--	--	--	--	10.8
1994	--	--	--	--	--	--	28.7
1995	--	--	--	--	--	--	10.9
1996	--	--	--	--	--	--	9.1
1997	--	--	--	--	--	--	4.2
1998	--	--	--	--	--	--	12.5
1999	--	--	--	--	--	--	1.2
2000	--	--	--	--	--	--	2.2
2001	--	--	--	--	--	--	0.2
2002	--	--	--	--	--	--	0.5
2003	--	--	--	--	--	--	5.1
2004	--	--	--	--	--	--	2.7
2005	--	--	--	--	--	--	6.4
2006	--	--	--	--	--	--	7.1
2007	--	--	--	--	--	--	3.9
2008	--	--	--	--	--	--	0.2
2009	--	--	--	--	--	--	--
2010	--	--	--	--	--	--	3.1
Subtotal	--	--	--	--	--	--	116.1

Program funding shown does not include life of type non-acquisition development funds for in-service ship product improvements that are included in the LPD 17 program element budget.

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
1996	1	1051.8	--	--	1051.8	--	1051.8
1997	--	--	--	--	--	--	--
1998	--	96.0	--	--	96.0	--	96.0
1999	1	653.2	--	--	653.2	--	653.2
2000	2	1557.6	--	--	1557.6	--	1557.6
2001	--	593.6	--	--	593.6	--	593.6
2002	--	418.2	--	--	418.2	--	418.2
2003	1	1241.7	--	--	1241.7	--	1241.7
2004	1	1637.4	--	--	1637.4	--	1637.4
2005	1	1314.3	--	--	1314.3	--	1314.3
2006	1	3273.0	--	--	3273.0	--	3273.0
2007	--	469.2	--	--	469.2	--	469.2
2008	1	1599.5	--	--	1599.5	--	1599.5
2009	1	1030.1	--	--	1030.1	--	1030.1
2010	--	1228.9	--	--	1228.9	--	1228.9
2011	--	79.1	--	--	79.1	--	79.1
2012	1	2017.3	--	--	2017.3	--	2017.3
2013	--	136.0	--	--	136.0	--	136.0
2014	--	23.7	--	--	23.7	--	23.7
2015	--	28.0	--	--	28.0	--	28.0
2016	--	90.5	--	--	90.5	--	90.5
<b>Subtotal</b>	<b>11</b>	<b>18539.1</b>	<b>--</b>	<b>--</b>	<b>18539.1</b>	<b>--</b>	<b>18539.1</b>

Annual Funding 1611   Procurement   Shipbuilding and Conversion, Navy							
Fiscal Year	Quantity	BY 1996 \$M					
		End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program
1996	1	1024.8	--	--	1024.8	--	1024.8
1997	--	--	--	--	--	--	--
1998	--	90.1	--	--	90.1	--	90.1
1999	1	603.5	--	--	603.5	--	603.5
2000	2	1403.4	--	--	1403.4	--	1403.4
2001	--	517.0	--	--	517.0	--	517.0
2002	--	362.2	--	--	362.2	--	362.2
2003	1	1016.6	--	--	1016.6	--	1016.6
2004	1	1294.7	--	--	1294.7	--	1294.7
2005	1	997.6	--	--	997.6	--	997.6
2006	1	2407.3	--	--	2407.3	--	2407.3
2007	--	333.0	--	--	333.0	--	333.0
2008	1	1109.8	--	--	1109.8	--	1109.8
2009	1	703.5	--	--	703.5	--	703.5
2010	--	827.7	--	--	827.7	--	827.7
2011	--	52.4	--	--	52.4	--	52.4
2012	1	1315.3	--	--	1315.3	--	1315.3
2013	--	87.2	--	--	87.2	--	87.2
2014	--	14.9	--	--	14.9	--	14.9
2015	--	17.4	--	--	17.4	--	17.4
2016	--	55.2	--	--	55.2	--	55.2
<b>Subtotal</b>	<b>11</b>	<b>14233.6</b>	<b>--</b>	<b>--</b>	<b>14233.6</b>	<b>--</b>	<b>14233.6</b>

FY 2013 to 2016 funding is for Outfitting and Post Delivery costs.

Cost Quantity Information 1611   Procurement   Shipbuilding and Conversion, Navy		
Fiscal Year	Quantity	End Item Recurring Flyaway (Aligned With Quantity) BY 1996 \$M
1996	1	1814.7
1997	--	--
1998	--	--
1999	1	1165.5
2000	2	2353.2
2001	--	--
2002	--	--
2003	1	1312.7
2004	1	1220.9
2005	1	1144.0
2006	1	1197.9
2007	--	--
2008	1	1341.7
2009	1	1300.9
2010	--	--
2011	--	--
2012	1	1382.1
2013	--	--
2014	--	--
2015	--	--
2016	--	--
Subtotal	11	14233.6

## Low Rate Initial Production

Item	Initial LRIP Decision	Current Total LRIP
<b>Approval Date</b>	6/17/1996	6/17/1996
<b>Approved Quantity</b>	12	12
<b>Reference</b>	ADM	ADM
<b>Start Year</b>	1996	1996
<b>End Year</b>	2015	2015

12 ship Low Rate Initial Production has been approved for this program per Acquisition Decision Memorandum dated June 17, 1996.

## **Foreign Military Sales**

None

## **Nuclear Costs**

None



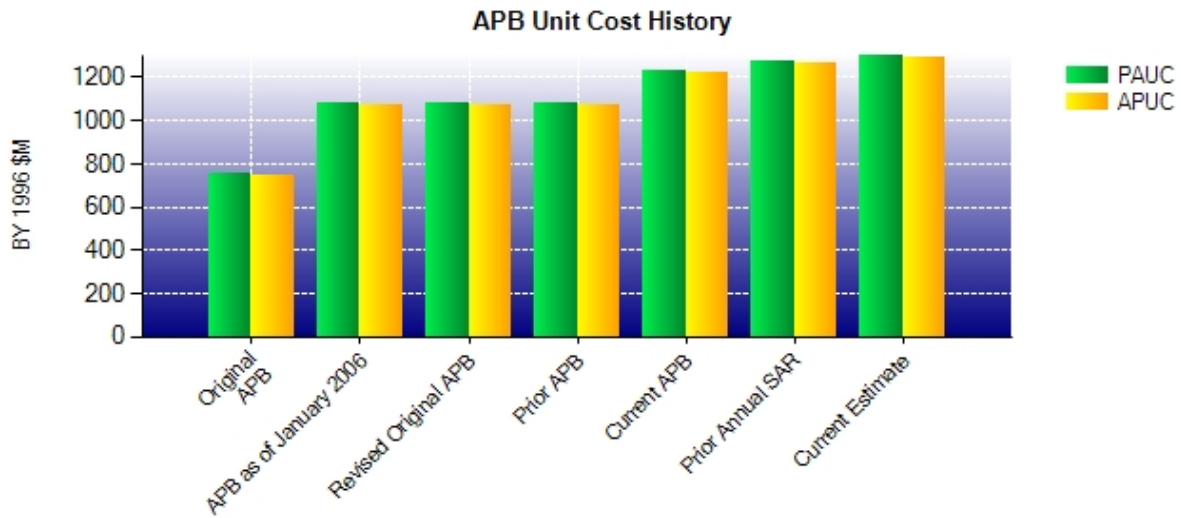
## Unit Cost

### Unit Cost Report

Item	BY 1996 \$M	BY 1996 \$M	% Change
	Current UCR Baseline (May 2007 APB)	Current Estimate (Dec 2009 SAR)	
<b>Program Acquisition Unit Cost</b>			
Cost	11103.4	14349.7	
Quantity	9	11	
Item	1233.711	1304.518	+5.74
<b>Average Procurement Unit Cost</b>			
Cost	10992.1	14233.6	
Quantity	9	11	
Unit Cost	1221.344	1293.964	+5.95

Item	BY 1996 \$M	BY 1996 \$M	% Change
	Revised Original UCR Baseline (Oct 2005 APB)	Current Estimate (Dec 2009 SAR)	
<b>Program Acquisition Unit Cost</b>			
Cost	12955.2	14349.7	
Quantity	12	11	
Unit Cost	1079.600	1304.518	+20.83
<b>Average Procurement Unit Cost</b>			
Cost	12842.4	14233.6	
Quantity	12	11	
Unit Cost	1070.200	1293.964	+20.91

**Unit Cost History**



Item	Date	BY 1996 \$M		TY \$M	
		PAUC	APUC	PAUC	APUC
Original APB	Jun 1996	751.508	744.950	896.817	890.333
APB as of January 2006	Oct 2005	1079.600	1070.200	1283.233	1273.642
Revised Original APB	Oct 2005	1079.600	1070.200	1283.233	1273.642
Prior APB	Oct 2005	1079.600	1070.200	1283.233	1273.642
Current APB	May 2007	1233.711	1221.344	1510.444	1497.778
Prior Annual SAR	Dec 2007	1278.667	1265.767	1582.411	1569.067
Current Estimate	Dec 2009	1304.518	1293.964	1696.291	1685.373

**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	
896.817	55.564	-52.844	83.245	0.000	525.209	188.300	0.000	799.474	1696.291

Current SAR Baseline to Current Estimate (TY \$M)									
Initial APUC Development Estimate	Changes								APUC Current Estimate
	Econ	Qty	Sch	Eng	Est	Oth	Spt	Total	
890.333	55.545	-53.432	82.691	0.000	521.936	188.300	0.000	795.040	1685.373

<b>SAR Baseline History</b>				
<b>Item</b>	<b>SAR Planning Estimate</b>	<b>SAR Development Estimate</b>	<b>SAR Production Estimate</b>	<b>Current Estimate</b>
Milestone I	Jan 1993	Jan 1993	N/A	Jan 1993
Milestone II	Jul 1995	Jun 1996	N/A	Jun 1996
Milestone III	Oct 2003	Aug 2007	N/A	Apr 2011
IOC	Oct 2003	Jan 2004	N/A	Apr 2008
Total Cost (TY \$M)	59.1	10761.8	N/A	18659.2
Total Quantity	N/A	12	N/A	11
PAUC	N/A	896.817	N/A	1696.291

## Cost Variance

Summary TY \$M				
Item	RDT&E	Procurement	MILCON	Total
SAR Baseline (Development Estimate)	77.8	10684.0	--	10761.8
Previous Changes				
Economic	+0.2	+460.4	--	+460.6
Quantity	--	-4037.8	--	-4037.8
Schedule	+6.1	+768.1	--	+774.2
Engineering	--	--	--	--
Estimating	+36.0	+4660.4	--	+4696.4
Other	--	+1586.5	--	+1586.5
Support	--	--	--	--
Subtotal	+42.3	+3437.6	--	+3479.9
Current Changes				
Economic	--	+150.6	--	+150.6
Quantity	--	+2559.7	--	+2559.7
Schedule	--	+141.5	--	+141.5
Engineering	--	--	--	--
Estimating	--	+1080.9	--	+1080.9
Other	--	+484.8	--	+484.8
Support	--	--	--	--
Subtotal	--	+4417.5	--	+4417.5
Total Changes	+42.3	+7855.1	--	+7897.4
Current Estimate	120.1	18539.1	--	18659.2

Summary BY 1996 \$M				
Item	RDT&E	Procurement	MILCON	Total
SAR Baseline (Development Estimate)	78.7	8939.4	--	9018.1
Previous Changes				
Economic	--	--	--	--
Quantity	--	-3024.6	--	-3024.6
Schedule	+4.8	+315.7	--	+320.5
Engineering	--	--	--	--
Estimating	+32.6	+3960.4	--	+3993.0
Other	--	+1201.0	--	+1201.0
Support	--	--	--	--
Subtotal	+37.4	+2452.5	--	+2489.9
Current Changes				
Economic	--	--	--	--
Quantity	--	+1699.5	--	+1699.5
Schedule	--	+94.4	--	+94.4
Engineering	--	--	--	--
Estimating	--	+711.2	--	+711.2
Other	--	+336.6	--	+336.6
Support	--	--	--	--
Subtotal	--	+2841.7	--	+2841.7
Total Changes	+37.4	+5294.2	--	+5331.6
Current Estimate	116.1	14233.6	--	14349.7

Previous Estimate: December 2007

Procurement	\$M	
Current Change Explanations	Base Year	Then Year
Revised escalation indices. (Economic)	N/A	+150.6
Additional Post Delivery/Outfitting increases associated with increase in program quantity from 9 to 11 ships. (Quantity)	+90.5	+146.9
Additional full funding increases associated with increase in program quantity from 9 to 11 ships. (Quantity)	+224.2	+337.3
Total Quantity variance resulting from an increase of 2 ships from 9 to 11. (Subtotal)	+2246.7	+3367.2
Quantity variance resulting from an increase of 2 ships from 9 to 11. (Quantity)	(+1384.8)	(+2075.5)
Allocation to Other resulting from Quantity change. (Other) (QR)	(+194.9)	(+292.1)
Allocation to Estimating resulting from Quantity change. (Estimating) (QR)	(+572.6)	(+858.1)
Allocation to Schedule resulting from Quantity change. (Schedule) (QR)	(+94.4)	(+141.5)
Adjustment for current and prior escalation. (Estimating)	-107.8	-148.2
Special Transfer Authority and reprogramming for ship construction on LPD's 21-25. (Estimating)	+53.7	+77.4
Increases to Post Delivery/Outfitting requirements on LPD's 21-25. (Estimating)	+36.2	+54.6
Cost to complete funding for escalation and to fund ships to ceiling on LPD's 22-25. (Estimating)	+112.0	+173.0
Cost to complete funding for contract incentives on LPD 25. (Estimating)	+44.5	+66.0
Hurricane Katrina supplemental funding for ship construction on LPD's 20-24. (Other)	+141.7	+192.7
<b>Procurement Subtotal</b>	<b>+2841.7</b>	<b>+4417.5</b>

(QR) Quantity Related

## Contracts

### Contract Identification

**Appropriation:** Procurement  
**Contract Name:** LPD 22  
**Contractor:** Northrop Grumman Shipbuilding  
**Contractor Location:** New Orleans, LA 70094  
**Contract Number:** N00024-06-C-2222/22  
**Contract Type:** Fixed Price Incentive(Firm Target) (FPIF)  
**Award Date:** June 01, 2006  
**Definitization Date:** June 01, 2006

Contract Price							
Initial Contract Price (\$M)			Current Contract Price (\$M)			Estimated Price At Completion (\$M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
1097.0	1210.2	1	1099.0	1212.1	1	1212.1	1212.1

Contract Variance		
Item	Cost Variance	Schedule Variance
Cumulative Variances To Date (11/22/2009)	-44.9	-35.0
Previous Cumulative Variances	-17.6	-3.5
Net Change	-27.3	-31.5

### Cost and Schedule Variance Explanations

### General Contract Variance Explanation

The unfavorable net change to the cost variance is primarily due to the additional cost required to add and/or replace labor resources that were lost or transferred after the natural disasters of Hurricane Katrina and Hurricane Gustav. The effects of both of these hurricanes continue to be a major factor to the cost performance. There has also been an indirect cost increase to the program from the effects of Hurricane Ike that impacted affiliates of the shipbuilder. Problems in key trade areas required additional overtime hours to correct. Additional overhead costs and the need to re-purchase material damaged in hurricanes have had a negative affect on cost variance.

The unfavorable net change to the schedule variance is primarily due to the lack of skilled labor resources available after the hurricanes. Resource recruitment is poor in the Gulf Coast region and skilled labor positions had to be refilled with less experienced resources. The effects of Hurricane Gustav and Hurricane Ike also impacted the schedule causing over a full week of zero performance against the shipbuilder's scope of work, months of zero performance by one of his major sub-contractors, and delays from transitioning work from contract support.

**Notes**

LPD 22 ship construction is being performed at Northrop Grumman Shipbuilding Pascagoula Operations. The Program Manager's current estimated price at completion increased by \$8M since the last SAR.

The difference between initial and current contract price is attributed to the February 2007 execution of the Advance Agreement on Recovery of Hurricane Losses between the U.S. Government and Northrop Grumman Corporation.

Over Target Baseline/Over Target Schedule (OTB/OTS) reviews were conducted the week of June 22, 2009. The Navy approved the OTB/OTS, provided additional funding to meet the Navy's portion of the cost increases, and agreed to a new delivery date for LPD 22.



**Contract Identification**

**Appropriation:** Procurement  
**Contract Name:** LPD 23  
**Contractor:** Northrop Grumman Shipbuilding  
**Contractor Location:** New Orleans, LA 70094  
**Contract Number:** N00024-06-C-2222/23  
**Contract Type:** Fixed Price Incentive(Firm Target) (FPIF)  
**Award Date:** June 01, 2006  
**Definitization Date:** June 01, 2006

Contract Price							
Initial Contract Price (\$M)			Current Contract Price (\$M)			Estimated Price At Completion (\$M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
1127.6	1243.5	1	1121.8	1237.2	1	1237.2	1237.2

Contract Variance		
Item	Cost Variance	Schedule Variance
Cumulative Variances To Date (11/22/2009)	-24.9	-13.4
Previous Cumulative Variances	+15.7	+10.7
Net Change	-40.6	-24.1

**Cost and Schedule Variance Explanations**

**General Contract Variance Explanation**

The unfavorable net change to the cost variance is primarily due to the additional cost required to add and/or replace labor resources that were lost or transferred after the natural disasters of Hurricane Katrina and Hurricane Gustav. The effects of both of these hurricanes continue to be a major factor to the cost performance. Additional senior management personnel, whose cost is included in the current baseline, have been assigned to the project to support key trade areas necessary to meet future requirements. There has also been an indirect cost increase to the program from the effects of Hurricane Ike that impacted affiliates of the shipbuilder.

The unfavorable net change to the schedule variance is primarily due to the lack of skilled labor resources available after the hurricanes. Resource recruitment is poor in the Gulf Coast region and skilled labor positions had to be refilled with less experienced resources. The effects of Hurricane Gustav and Hurricane Ike also impacted the schedule causing over a full week of zero performance against the shipbuilder's scope of work, months of zero performance by one of his major sub-contractors, and delays from transitioning work from contract support.

**Notes**

LPD 23 ship construction is being performed at Northrop Grumman Shipbuilding Avondale Operations. The Program Manager's current estimated price at completion increased by \$7M since the last SAR.

The difference between initial and current contract price is due to the incorporation of engineering change proposals.

The increase in the Program Manager's estimated price at completion is due to a shortage of skilled labor resources, higher overhead rates stemming from additional insurance premium costs after Hurricane Katrina and Pension Protection Act impacts, and the increase in direct rates following the 2007 Collective Bargaining Agreement.

Over Target Baseline/Over Target Schedule (OTB/OTS) reviews were conducted the week of June 22, 2009. The Navy approved the OTB/OTS, provided additional funding to meet the Navy's portion of the cost increases, and agreed to a new delivery date for LPD 23.

**Contract Identification**

**Appropriation:** Procurement  
**Contract Name:** LPD 24  
**Contractor:** Northrop Grumman Shipbuilding  
**Contractor Location:** New Orleans, LA 70094  
**Contract Number:** N00024-06-C-2222/24  
**Contract Type:** Fixed Price Incentive(Firm Target) (FPIF)  
**Award Date:** November 06, 2006  
**Definitization Date:** November 06, 2006

Contract Price							
Initial Contract Price (\$M)			Current Contract Price (\$M)			Estimated Price At Completion (\$M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
1184.0	1297.3	1	1174.9	1287.3	1	1287.3	1287.3

Contract Variance		
Item	Cost Variance	Schedule Variance
Cumulative Variances To Date (11/22/2009)	-15.0	-28.6
Previous Cumulative Variances	+13.8	+18.2
Net Change	-28.8	-46.8

**Cost and Schedule Variance Explanations**

**General Contract Variance Explanation**

The unfavorable net change to the cost variance is due to the additional cost required to add and/or replace labor resources that were lost or transferred after the natural disasters of Hurricane Katrina and Hurricane Gustav. The effects of both of these hurricanes continue to be a major factor to the cost performance. Additional cost has also been incurred due to changes in key trade areas which led to additional rework due to the inexperience of new labor resources.

The unfavorable net change to the schedule variance was primarily due to the lack of skilled labor resources available after the hurricanes and the required rework due to the inexperienced labor force and competition for skilled resources with ships being built directly ahead of it (LHD 8, LPD 22).

**Notes**

LPD 24 ship construction is being performed at Northrop Grumman Shipbuilding Pascagoula Operations.

The difference between initial and current contract price is due to the incorporation of engineering change proposals.

The Program Manager's current estimated price at completion increased by \$18M since the last SAR. The increase in the Program Manager's estimated price at completion is due to a shortage of skilled labor resources, higher overhead rates stemming from additional insurance premium costs after Hurricane Katrina and Pension Protection Act impacts, and the increase in direct rates following the 2007 Collective Bargaining Agreement.

Over Target Baseline/Over Target Schedule (OTB/OTS) reviews were conducted the week of June 22, 2009. The Navy approved the OTB/OTS, provided additional funding to meet the Navy's portion of the cost increases, and agreed to a new delivery date for LPD 24.

**Contract Identification**

**Appropriation:** Procurement  
**Contract Name:** LPD 25  
**Contractor:** Northrop Grumman Shipbuilding  
**Contractor Location:** New Orleans, LA 70094  
**Contract Number:** N00024-06-C-2222/25  
**Contract Type:** Fixed Price Incentive(Firm Target) (FPIF)  
**Award Date:** December 21, 2007  
**Definitization Date:** December 21, 2007

Contract Price							
Initial Contract Price (\$M)			Current Contract Price (\$M)			Estimated Price At Completion (\$M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
1212.8	1349.9	1	1207.3	1343.8	1	1343.8	1341.9

Contract Variance		
Item	Cost Variance	Schedule Variance
Cumulative Variances To Date (11/22/2009)	-0.9	-23.9
Previous Cumulative Variances	--	--
Net Change	-0.9	-23.9

**Cost and Schedule Variance Explanations**

**General Contract Variance Explanation**

This is the initial report of performance for this contract.

The unfavorable cost variance is primarily being driven by the poor quality of raw material resulting in the need to place additional purchase orders.

The unfavorable schedule variance is primarily driven by aggressive scheduling in hull trade. Furthermore, the poor material quality, which necessitated additional purchase orders, has caused schedule delays in the pipe area.

The reduction in available skilled labor resources on the Gulf Coast has also negatively impacted schedule performance.

**Notes**

LPD 25 ship construction is being performed at Northrop Grumman Shipbuilding Avondale Operations.

The difference between the initial and current contract price is due to the incorporation of engineering change proposals.

Over Target Baseline/Over Target Schedule (OTB/OTS) reviews were conducted the week of June 22, 2009. The Navy approved the OTB/OTS, provided additional funding to meet the Navy's portion of the cost increases, and agreed to a new delivery date for LPD 25.

### Deliveries and Expenditures

Deliveries				
Delivered to Date	Planned to Date	Actual to Date	Total Quantity	Percent Delivered
Development	0	0	0	--
Production	5	5	11	45.45%
Total Program Quantity Delivered	5	5	11	45.45%

Expended and Appropriated (TY \$M)			
Total Acquisition Cost	18659.2	Years Appropriated	21
Expended to Date	11320.7	Percent Years Appropriated	77.78%
Percent Expended	60.67%	Appropriated to Date	16284.6
Total Funding Years	27	Percent Appropriated	87.27%

## Operating and Support Cost

### Assumptions and Ground Rules

The costs include all personnel, equipment, supplies, software and services including support associated with operating, modifying, maintaining, supplying, training and supporting the LPD 17 Program. Cost elements were reviewed and updated to reflect FY09 rates for manpower, material, maintenance, and fuel, as well as the current manning levels for LPD 17 class ships.

Cost estimate sources are Total Ownership Cost (TOC) and Contract Data Requirements List (CDRL). Total O&S costs reflect a service life of forty years per ship.

Depot maintenance costs were updated to reflect current availabilities and mandays.

Date of most recent estimate is November 30, 2009.

Cost Estimate Reference:

None

Sustainment Strategy:

None

Antecedent Information:

None

Unitized O&S Costs BY1996 \$M		
Cost Element	LPD 17 CLASS AVG ANNUAL COST PER LPD CLASS HULL	Antecedent System (Antecedent)
Mission Pay & Allowance	18.300	--
Unit Level Consumption	9.700	--
Intermediate Maintenance	1.200	--
Depot Maintenance	5.900	--
Contractor Support	0.000	--
Sustaining Support	0.300	--
Indirect	0.000	--
Other	4.200	--
<b>Total</b>	<b>39.600</b>	<b>--</b>

Unitized Cost Comments:

None

Item	Total O&S Cost \$M			
	LPD 17 CLASS			Antecedent System (Antecedent)
	Current Development APB Objective/Threshold	Current Estimate		
<b>Base Year</b>	N/A	N/A	17424.0	N/A
<b>Then Year</b>	N/A	N/A	36367.9	N/A

Total O&S Cost Comment

None

**Disposal Estimate Details**

Date of Estimate:

Source of Estimate:

Disposal/Demilitarization Total Cost (BY 1996 \$M):