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**Department of Defense
Fiscal Year (FY) 2020 President's Budget Estimate Submission**

March 2019



Navy

Justification Book Volume 1 of 1

Shipbuilding and Conversion, Navy

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The estimated cost of this report for the Department of the Navy (DON) is \$107,612.

The estimated total cost for supporting the DON budget justification material is approximately \$1,803,116 for the 2019 fiscal year. This includes \$81,351 in supplies and \$1,721,765 in labor.

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Navy • President's Budget Estimate Submission FY 2020 • Procurement

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Shipbuilding and Conversion, Navy

For expenses necessary for the construction, acquisition, or conversion of vessels as authorized by law, including armor and armament thereof, plant equipment, appliances, and machine tools and installation thereof in public and private plants; reserve plant and Government and contractor-owned equipment layaway; procurement of critical, long lead time components and designs for vessels to be constructed or converted in the future; and expansion of public and private plants, including land necessary therefore, and such lands and interests therein, may be acquired, and construction prosecuted thereon prior to approval of title.

In all: \$23,783,710,000, to remain available for obligation until September 30, 2031: *Provided*, That additional obligations may be incurred after September 30, 2031, for engineering services, tests, evaluations, and other such budgeted work that must be performed in the final stage of ship construction: *Provided further*, That none of the funds provided under this heading for the construction or conversion of any naval vessel to be constructed in shipyards in the United States shall be expended in foreign facilities for the construction of major components of such vessel: *Provided further*, That none of the funds provided under this heading shall be used for the construction of any naval vessel in foreign shipyards.

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Department of the Navy
 FY 2020 President's Budget
 Exhibit P-1 FY 2020 President's Budget
 Total Obligational Authority
 (Dollars in Thousands)

19 Feb 2019

Appropriation -----	FY 2018 (Base + OCO) -----	FY 2019 Base Enacted -----	FY 2019 OCO Enacted -----	FY 2019 Total Enacted -----
Shipbuilding and Conversion, Navy	22,962,873	24,150,087		24,150,087
Total Department of the Navy	22,962,873	24,150,087		24,150,087

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Department of the Navy
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 Total Obligational Authority
 (Dollars in Thousands)

19 Feb 2019

Appropriation -----	FY 2020 Base -----	FY 2020 OCO for Base Requirements -----	FY 2020 OCO for Direct War and Enduring Costs -----	FY 2020 Total OCO -----
Shipbuilding and Conversion, Navy	23,783,710			
Total Department of the Navy	23,783,710			

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Department of the Navy
FY 2020 President's Budget
Exhibit P-1 FY 2020 President's Budget
Total Obligational Authority
(Dollars in Thousands)

19 Feb 2019

Appropriation -----	FY 2020 Total (Base + OCO) -----
Shipbuilding and Conversion, Navy	23,783,710
Total Department of the Navy	23,783,710

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Department of the Navy
 FY 2020 President's Budget
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 Total Obligational Authority
 (Dollars in Thousands)

19 Feb 2019

Appropriation: Shipbuilding and Conversion, Navy

Budget Activity -----	FY 2018 (Base + OCO) -----	FY 2019 Base Enacted -----	FY 2019 OCO Enacted -----	FY 2019 Total Enacted -----
01. Fleet Ballistic Missile Ships		3,173,400		3,173,400
02. Other Warships	16,556,765	17,027,255		17,027,255
03. Amphibious Ships	4,385,127	1,597,100		1,597,100
05. Auxiliaries, Craft, and Prior-Year Program Costs	2,020,981	2,352,332		2,352,332
Total Shipbuilding and Conversion, Navy	22,962,873	24,150,087		24,150,087

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Department of the Navy
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 Total Obligational Authority
 (Dollars in Thousands)

19 Feb 2019

Appropriation: Shipbuilding and Conversion, Navy

Budget Activity -----	FY 2020 Base -----	FY 2020 OCO for Base Requirements -----	FY 2020 OCO for Direct War and Enduring Costs -----	FY 2020 Total OCO -----
01. Fleet Ballistic Missile Ships	1,698,907			
02. Other Warships	19,680,868			
03. Amphibious Ships	247,100			
05. Auxiliaries, Craft, and Prior-Year Program Costs	2,156,835			
Total Shipbuilding and Conversion, Navy	23,783,710			

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Total Obligational Authority
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19 Feb 2019

Appropriation: Shipbuilding and Conversion, Navy

Budget Activity -----	FY 2020 Total (Base + OCO) -----
01. Fleet Ballistic Missile Ships	1,698,907
02. Other Warships	19,680,868
03. Amphibious Ships	247,100
05. Auxiliaries, Craft, and Prior-Year Program Costs	2,156,835
Total Shipbuilding and Conversion, Navy	23,783,710

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Department of the Navy
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Total Obligational Authority
(Dollars in Thousands)

19 Feb 2019

Appropriation: 1611N Shipbuilding and Conversion, Navy

Line	Ident	FY 2018	FY 2019	FY 2019	FY 2019	S
No	Item Nomenclature	(Base + OCO)	Base Enacted	OCO Enacted	Total Enacted	e
----	-----	Quantity Cost	Quantity Cost	Quantity Cost	Quantity Cost	c
----	-----	-----	-----	-----	-----	-
Budget Activity 01: Fleet Ballistic Missile Ships						

Fleet Ballistic Missile Ships						
1	OHIO Replacement Submarine					
	Advance Procurement (CY)		3,173,400		3,173,400	U
	C (FY 2019 for FY 2021) (M)		(3,016,029)		(3,016,029)	
	C (FY 2019 for FY 2024) (M)		(139,101)		(139,101)	
	C (FY 2019 for FY 2026) (M)		(770)		(770)	
	C (FY 2019 for FY 2034) (M)		(17,500)		(17,500)	
	C (FY 2020 for FY 2021) (M)					
	C (FY 2020 for FY 2024) (M)					
	C (FY 2020 for FY 2026) (M)					
	C (FY 2020 for FY 2027) (M)					
	C (FY 2020 for FY 2028) (M)					
	C (FY 2020 for FY 2029) (M)					
	C (FY 2020 for FY 2030) (M)					
	C (FY 2020 for FY 2031) (M)					
	C (FY 2020 for FY 2032) (M)					
	C (FY 2020 for FY 2033) (M)					
	C (FY 2020 for FY 2034) (M)					
Total Fleet Ballistic Missile Ships			3,173,400		3,173,400	

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Appropriation: 1611N Shipbuilding and Conversion, Navy

Line No	Item Nomenclature	Ident Code	FY 2020 Base		FY 2020 OCO for Base Requirements		FY 2020 OCO for Direct War and Enduring Costs		FY 2020 Total OCO		S e c
			Quantity	Cost	Quantity	Cost	Quantity	Cost	Quantity	Cost	
Budget Activity 01: Fleet Ballistic Missile Ships											

Fleet Ballistic Missile Ships											
1	OHIO Replacement Submarine										
	Advance Procurement (CY)			1,698,907							U
	C (FY 2019 for FY 2021) (M)										
	C (FY 2019 for FY 2024) (M)										
	C (FY 2019 for FY 2026) (M)										
	C (FY 2019 for FY 2034) (M)										
	C (FY 2020 for FY 2021) (M)			(1,513,356)							
	C (FY 2020 for FY 2024) (M)			(148,450)							
	C (FY 2020 for FY 2026) (M)			(19,955)							
	C (FY 2020 for FY 2027) (M)			(1,458)							
	C (FY 2020 for FY 2028) (M)			(224)							
	C (FY 2020 for FY 2029) (M)			(224)							
	C (FY 2020 for FY 2030) (M)			(224)							
	C (FY 2020 for FY 2031) (M)			(224)							
	C (FY 2020 for FY 2032) (M)			(224)							
	C (FY 2020 for FY 2033) (M)			(224)							
	C (FY 2020 for FY 2034) (M)			(14,344)							
Total Fleet Ballistic Missile Ships				1,698,907							

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Total Obligational Authority
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Appropriation: 1611N Shipbuilding and Conversion, Navy

Line			FY 2020	
No	Item Nomenclature	Ident	Total	S
----	-----	Code	(Base + OCO)	e
			Quantity Cost	c
		-----	-----	-
Budget Activity 01: Fleet Ballistic Missile Ships				

Fleet Ballistic Missile Ships				
1	OHIO Replacement Submarine			
	Advance Procurement (CY)		1,698,907	U
	C (FY 2019 for FY 2021) (M)			
	C (FY 2019 for FY 2024) (M)			
	C (FY 2019 for FY 2026) (M)			
	C (FY 2019 for FY 2034) (M)			
	C (FY 2020 for FY 2021) (M)		(1,513,356)	
	C (FY 2020 for FY 2024) (M)		(148,450)	
	C (FY 2020 for FY 2026) (M)		(19,955)	
	C (FY 2020 for FY 2027) (M)		(1,458)	
	C (FY 2020 for FY 2028) (M)		(224)	
	C (FY 2020 for FY 2029) (M)		(224)	
	C (FY 2020 for FY 2030) (M)		(224)	
	C (FY 2020 for FY 2031) (M)		(224)	
	C (FY 2020 for FY 2032) (M)		(224)	
	C (FY 2020 for FY 2033) (M)		(224)	
	C (FY 2020 for FY 2034) (M)		(14,344)	

	Total Fleet Ballistic Missile Ships		1,698,907	

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Appropriation: 1611N Shipbuilding and Conversion, Navy

Line No	Item Nomenclature	Ident Code	FY 2018 (Base + OCO) Quantity Cost	FY 2019 Base Enacted Quantity Cost	FY 2019 OCO Enacted Quantity Cost	FY 2019 Total Enacted Quantity Cost	S e c
Budget Activity 02: Other Warships							
Other Warships							
2	Carrier Replacement Program	A	1 (12,335,110)	(618,000)		(618,000)	U
	Less: Advance Procurement (PY)		(-2,233,142)				U
	Less: Subsequent Full Funding (FY)		(-8,532,322)				U
			1,569,646	618,000		618,000	
	Subsequent Full Funding for FY 2013		2,561,058				
	Subsequent Full Funding for FY 2018			955,181		955,181	
	Completion PY Shipbuild for FY 2008		20,000				
3	Virginia Class Submarine	B	2 (5,532,718)	2 (6,500,178)		2 (6,500,178)	U
	Less: Advance Procurement (PY)		(-2,227,403)	(-2,159,502)		(-2,159,502)	U
			3,305,315	4,340,676		4,340,676	
4	Virginia Class Submarine						
	Advance Procurement (CY)		2,145,596	2,796,401		2,796,401	U
	C (FY 2018 for FY 2019) (M)		(783,208)				
	C (FY 2018 for FY 2020) (M)		(1,283,228)				
	C (FY 2018 for FY 2021) (M)		(31,008)				
	C (FY 2018 for FY 2022) (M)		(24,126)				
	C (FY 2018 for FY 2023) (M)		(24,026)				
	C (FY 2019 for FY 2020) (M)			(835,268)		(835,268)	
	C (FY 2019 for FY 2021) (M)			(1,468,403)		(1,468,403)	
	C (FY 2019 for FY 2022) (M)			(246,365)		(246,365)	
	C (FY 2019 for FY 2023) (M)			(246,365)		(246,365)	
	C (FY 2020 for FY 2021) (M)						
	C (FY 2020 for FY 2022) (M)						
	C (FY 2020 for FY 2023) (M)						

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Line No	Item Nomenclature	Ident Code	FY 2020 Base Quantity	FY 2020 Base Cost	FY 2020 OCO for Base Requirements Quantity	FY 2020 OCO for Base Requirements Cost	FY 2020 Direct War and Enduring Costs Quantity	FY 2020 Direct War and Enduring Costs Cost	FY 2020 Total OCO Quantity	FY 2020 Total OCO Cost	Se
Budget Activity 02: Other Warships											
Other Warships											
2	Carrier Replacement Program	A	1	(12,450,695)							U
	Less: Advance Procurement (PY)										U
	Less: Subsequent Full Funding (FY)			(-11,165,695)							U
				1,285,000							
	Subsequent Full Funding for FY 2013										
	Subsequent Full Funding for FY 2018			1,062,000							
	Completion PY Shipbuild for FY 2008										
3	Virginia Class Submarine	B	3	(9,274,442)							U
	Less: Advance Procurement (PY)			(-2,118,496)							U
				7,155,946							
4	Virginia Class Submarine										
	Advance Procurement (CY)			2,769,552							U
	C (FY 2018 for FY 2019) (M)										
	C (FY 2018 for FY 2020) (M)										
	C (FY 2018 for FY 2021) (M)										
	C (FY 2018 for FY 2022) (M)										
	C (FY 2018 for FY 2023) (M)										
	C (FY 2019 for FY 2020) (M)										
	C (FY 2019 for FY 2021) (M)										
	C (FY 2019 for FY 2022) (M)										
	C (FY 2019 for FY 2023) (M)										
	C (FY 2020 for FY 2021) (M)			(912,629)							
	C (FY 2020 for FY 2022) (M)			(1,562,935)							
	C (FY 2020 for FY 2023) (M)			(293,988)							

P-120PB: FY 2020 President's Budget (Published Version), as of February 19, 2019 at 09:32:18

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 Total Obligational Authority
 (Dollars in Thousands)

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Appropriation: 1611N Shipbuilding and Conversion, Navy

Line No	Item Nomenclature	Ident Code	FY 2020 Total (Base + OCO)		S e c e
			Quantity	Cost	

Budget Activity 02: Other Warships					

Other Warships					
2	Carrier Replacement Program	A	1	(12,450,695)	U
	Less: Advance Procurement (PY)				U
	Less: Subsequent Full Funding (FY)			(-11,165,695)	U

				1,285,000	
	Subsequent Full Funding for FY 2013				
	Subsequent Full Funding for FY 2018			1,062,000	
	Completion PY Shipbuild for FY 2008				
3	Virginia Class Submarine	B	3	(9,274,442)	U
	Less: Advance Procurement (PY)			(-2,118,496)	U

				7,155,946	
4	Virginia Class Submarine				
	Advance Procurement (CY)			2,769,552	U
	C (FY 2018 for FY 2019) (M)				
	C (FY 2018 for FY 2020) (M)				
	C (FY 2018 for FY 2021) (M)				
	C (FY 2018 for FY 2022) (M)				
	C (FY 2018 for FY 2023) (M)				
	C (FY 2019 for FY 2020) (M)				
	C (FY 2019 for FY 2021) (M)				
	C (FY 2019 for FY 2022) (M)				
	C (FY 2019 for FY 2023) (M)				
	C (FY 2020 for FY 2021) (M)			(912,629)	
	C (FY 2020 for FY 2022) (M)			(1,562,935)	
	C (FY 2020 for FY 2023) (M)			(293,988)	

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Total Obligational Authority
(Dollars in Thousands)

19 Feb 2019

Appropriation: 1611N Shipbuilding and Conversion, Navy

Line No	Item Nomenclature	Ident Code	FY 2018 (Base + OCO)		FY 2019 Base Enacted		FY 2019 OCO Enacted		FY 2019 Total Enacted		S e c
			Quantity	Cost	Quantity	Cost	Quantity	Cost	Quantity	Cost	
5	CVN Refueling Overhauls	A									U
	Less: Advance Procurement (PY)										U
	Less: Subsequent Full Funding (FY)										U
	Subsequent Full Funding for FY 2016			1,569,669							
6	CVN Refueling Overhauls										
	Advance Procurement (CY)			75,897		425,873			425,873		U
	C (FY 2018 for FY 2021) (M)			(75,897)							
	C (FY 2019 for FY 2021) (M)					(425,873)			(425,873)		
7	DDG 1000	A		216,968		270,965			270,965		U
8	DDG-51	A	2	(3,357,079)	3	(5,289,199)			3	(5,289,199)	U
	Less: Advance Procurement (PY)					(-39,362)			(-39,362)		U
				3,357,079		5,249,837			5,249,837		
	Completion PY Shipbuild for FY 2012			19,436							
	Completion PY Shipbuild for FY 2013			31,941		53,966			53,966		
9	DDG-51										
	Advance Procurement (CY)			90,336		641,928			641,928		U
	C (FY 2018 for FY 2019) (M)			(39,362)							
	C (FY 2018 for FY 2020) (M)			(25,940)							
	C (FY 2018 for FY 2021) (M)			(12,517)							
	C (FY 2018 for FY 2022) (M)			(12,517)							
	C (FY 2019 for FY 2020) (M)					(337,720)			(337,720)		
	C (FY 2019 for FY 2021) (M)					(152,104)			(152,104)		
	C (FY 2019 for FY 2022) (M)					(152,104)			(152,104)		
	C (FY 2020 for FY 2021) (M)										
	C (FY 2020 for FY 2022) (M)										

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(Dollars in Thousands)

19 Feb 2019

Appropriation: 1611N Shipbuilding and Conversion, Navy

Line No	Item Nomenclature	Ident Code	FY 2020 Base Quantity	FY 2020 Base Cost	FY 2020 OCO for Base Requirements Quantity	FY 2020 OCO for Base Requirements Cost	FY 2020 OCO for Direct War and Enduring Costs Quantity	FY 2020 OCO for Direct War and Enduring Costs Cost	FY 2020 Total OCO Quantity	FY 2020 Total OCO Cost	Se
5	CVN Refueling Overhauls	A	1	(5,640,212)							U
	Less: Advance Procurement (PY)			(-749,870)							U
	Less: Subsequent Full Funding (FY)			(-3,760,627)							U
	Less: Prior Year OPN funding			(-481,789)							U
				647,926							
	Subsequent Full Funding for FY 2016										
6	CVN Refueling Overhauls										U
	Advance Procurement (CY)										
	C (FY 2018 for FY 2021) (M)										
	C (FY 2019 for FY 2021) (M)										
7	DDG 1000	A		155,944							U
8	DDG-51	A	3	(5,462,955)							U
	Less: Advance Procurement (PY)			(-363,660)							U
				5,099,295							
	Completion PY Shipbuild for FY 2012										
	Completion PY Shipbuild for FY 2013										
9	DDG-51										U
	Advance Procurement (CY)			224,028							
	C (FY 2018 for FY 2019) (M)										
	C (FY 2018 for FY 2020) (M)										
	C (FY 2018 for FY 2021) (M)										
	C (FY 2018 for FY 2022) (M)										
	C (FY 2019 for FY 2020) (M)										
	C (FY 2019 for FY 2021) (M)										
	C (FY 2019 for FY 2022) (M)										
	C (FY 2020 for FY 2021) (M)			(112,014)							
	C (FY 2020 for FY 2022) (M)			(112,014)							

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Total Obligational Authority
(Dollars in Thousands)

19 Feb 2019

Appropriation: 1611N Shipbuilding and Conversion, Navy

Line			FY 2020	
No	Item Nomenclature	Ident	Total	S
----	-----	Code	(Base + OCO)	e
			Quantity Cost	c
			-----	-
5	CVN Refueling Overhauls	A	1 (5,640,212)	U
	Less: Advance Procurement (PY)		(-749,870)	U
	Less: Subsequent Full Funding (FY)		(-3,760,627)	U
	Less: Prior Year OPN funding		(-481,789)	U

			647,926	
	Subsequent Full Funding for FY 2016			
6	CVN Refueling Overhauls			
	Advance Procurement (CY)			U
	C (FY 2018 for FY 2021) (M)			
	C (FY 2019 for FY 2021) (M)			
7	DDG 1000	A	155,944	U
8	DDG-51	A	3 (5,462,955)	U
	Less: Advance Procurement (PY)		(-363,660)	U

			5,099,295	
	Completion PY Shipbuild for FY 2012			
	Completion PY Shipbuild for FY 2013			
9	DDG-51			
	Advance Procurement (CY)		224,028	U
	C (FY 2018 for FY 2019) (M)			
	C (FY 2018 for FY 2020) (M)			
	C (FY 2018 for FY 2021) (M)			
	C (FY 2018 for FY 2022) (M)			
	C (FY 2019 for FY 2020) (M)			
	C (FY 2019 for FY 2021) (M)			
	C (FY 2019 for FY 2022) (M)			
	C (FY 2020 for FY 2021) (M)		(112,014)	
	C (FY 2020 for FY 2022) (M)		(112,014)	

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Appropriation: 1611N Shipbuilding and Conversion, Navy

Line No	Item Nomenclature	Ident Code	FY 2018 (Base + OCO) Quantity Cost	FY 2019 Base Enacted Quantity Cost	FY 2019 OCO Enacted Quantity Cost	FY 2019 Total Enacted Quantity Cost	S e c
10	Littoral Combat Ship	A	3 1,566,959	3 1,571,244		3 1,571,244	U
	Completion PY Shipbuild for FY 2012		6,394				
	Completion PY Shipbuild for FY 2014		20,471	19,498		19,498	
	Completion PY Shipbuild for FY 2015			83,686		83,686	
11	FFG-Frigate	A					U
	Total Other Warships		16,556,765	17,027,255		17,027,255	
Budget Activity 03: Amphibious Ships							

Amphibious Ships							
12	LPD Flight II	A	1 (1,814,000)				U
	Less: Advance Procurement (PY)		(-14,000)				U
			1,800,000				
13	LPD Flight II						
	Advance Procurement (CY)			350,000		350,000	U
	C (FY 2019 for FY 2020) (M)			(350,000)		(350,000)	
	C (FY 2020 for FY 2021) (M)						
14	Expeditionary Sea Base (ESB)	A	1 635,000	1 647,000		1 647,000	U

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Appropriation: 1611N Shipbuilding and Conversion, Navy

Line No	Item Nomenclature	Ident Code	FY 2020 Base Quantity	FY 2020 Base Cost	FY 2020 OCO for Base Requirements Quantity	FY 2020 OCO for Base Requirements Cost	FY 2020 Direct War and Enduring Costs Quantity	FY 2020 Direct War and Enduring Costs Cost	FY 2020 Total OCO Quantity	FY 2020 Total OCO Cost	Se
10	Littoral Combat Ship	A									U
	Completion PY Shipbuild for FY 2012										
	Completion PY Shipbuild for FY 2014										
	Completion PY Shipbuild for FY 2015										
11	FFG-Frigate	A	1	1,281,177							U
Total Other Warships				19,680,868							
Budget Activity 03: Amphibious Ships											
Amphibious Ships											
12	LPD Flight II	A									U
	Less: Advance Procurement (PY)										U
13	LPD Flight II										
	Advance Procurement (CY)			247,100							U
	C (FY 2019 for FY 2020) (M)										
	C (FY 2020 for FY 2021) (M)			(247,100)							
14	Expeditionary Sea Base (ESB)	A									U

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19 Feb 2019

Appropriation: 1611N Shipbuilding and Conversion, Navy

Line			FY 2020		
No	Item Nomenclature	Ident	Total		S
----	-----	Code	Quantity	Cost	e
			-----	----	-
10	Littoral Combat Ship	A			U
	Completion PY Shipbuild for FY 2012				
	Completion PY Shipbuild for FY 2014				
	Completion PY Shipbuild for FY 2015				
11	FFG-Frigate	A	1	1,281,177	U

	Total Other Warships			19,680,868	
Budget Activity 03: Amphibious Ships					

Amphibious Ships					
12	LPD Flight II	A			U
	Less: Advance Procurement (PY)				U

13	LPD Flight II				
	Advance Procurement (CY)			247,100	U
	C (FY 2019 for FY 2020) (M)				
	C (FY 2020 for FY 2021) (M)			(247,100)	
14	Expeditionary Sea Base (ESB)	A			U

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Total Obligational Authority
(Dollars in Thousands)

19 Feb 2019

Appropriation: 1611N Shipbuilding and Conversion, Navy

Line No	Item Nomenclature	Ident Code	FY 2018 (Base + OCO) Quantity Cost		FY 2019 Base Enacted Quantity Cost		FY 2019 OCO Enacted Quantity Cost		FY 2019 Total Enacted Quantity Cost		S e c
15	LHA Replacement	A									
	Subsequent Full Funding for FY 2017			1,710,927							
	Completion PY Shipbuild for FY 2011				25,100				25,100		
	Completion PY Shipbuild for FY 2012			14,200							
16	LHA Replacement										
	Advance Procurement (CY)				350,000				350,000		U
	C (FY 2019 for FY 2024) (M)				(350,000)				(350,000)		
17	Expeditionary Fast Transport (EPF)	A	1	225,000	1	225,000			1	225,000	U
				-----		-----				-----	
	Total Amphibious Ships			4,385,127		1,597,100				1,597,100	
Budget Activity 05: Auxiliaries, Craft, and Prior-Year Program Costs											

Auxiliaries, Craft and Prior Yr Program Cost											
18	TAO Fleet Oiler	A	1	(534,767)	2	(1,052,172)			2	(1,052,172)	U
	Less: Advance Procurement (PY)			(-73,079)		(-75,068)				(-75,068)	U
	Less: Future Completion of Shipbuilding (FY)			(-3,700)							U
				-----		-----				-----	
				457,988		977,104				977,104	
	Completion PY Shipbuild for FY 2016					15,449				15,449	
19	TAO Fleet Oiler										
	Advance Procurement (CY)			75,068		75,046				75,046	U
	C (FY 2018 for FY 2019) (M)			(75,068)							
	C (FY 2019 for FY 2020) (M)					(75,046)				(75,046)	
	C (FY 2020 for FY 2021) (M)										
20	Towing, Salvage, and Rescue Ship (ATS)	A	1	76,204	1	80,517			1	80,517	U
21	Oceanographic Ships	A	1	180,000							U
22	LCU 1700	A			2	41,520			2	41,520	U

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Department of the Navy
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 Total Obligational Authority
 (Dollars in Thousands)

19 Feb 2019

Appropriation: 1611N Shipbuilding and Conversion, Navy

Line No	Item Nomenclature	Ident Code	FY 2020 Base		FY 2020 OCO for Base Requirements		FY 2020 OCO for Direct War and Enduring Costs		FY 2020 Total OCO		S e c
			Quantity	Cost	Quantity	Cost	Quantity	Cost	Quantity	Cost	
15	LHA Replacement	A									
	Subsequent Full Funding for FY 2017										
	Completion PY Shipbuild for FY 2011										
	Completion PY Shipbuild for FY 2012										
16	LHA Replacement										
	Advance Procurement (CY)										U
	C (FY 2019 for FY 2024) (M)										
17	Expeditionary Fast Transport (EPF)	A									U
	Total Amphibious Ships			247,100							
Budget Activity 05: Auxiliaries, Craft, and Prior-Year Program Costs											

Auxiliaries, Craft and Prior Yr Program Cost											
18	TAO Fleet Oiler	A	2	(1,056,261)							U
	Less: Advance Procurement (PY)			(-75,046)							U
	Less: Future Completion of Shipbuilding (FY)										U
				981,215							
	Completion PY Shipbuild for FY 2016										
19	TAO Fleet Oiler										
	Advance Procurement (CY)			73,000							U
	C (FY 2018 for FY 2019) (M)										
	C (FY 2019 for FY 2020) (M)										
	C (FY 2020 for FY 2021) (M)			(73,000)							
20	Towing, Salvage, and Rescue Ship (ATS)	A	2	150,282							U
21	Oceanographic Ships	A									U
22	LCU 1700	A	4	85,670							U

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Total Obligational Authority
(Dollars in Thousands)

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Appropriation: 1611N Shipbuilding and Conversion, Navy

Line No	Item Nomenclature	Ident Code	FY 2020 Total (Base + OCO) Quantity	Cost	S e c
15	LHA Replacement	A			
	Subsequent Full Funding for FY 2017				
	Completion PY Shipbuild for FY 2011				
	Completion PY Shipbuild for FY 2012				
16	LHA Replacement				
	Advance Procurement (CY)				U
	C (FY 2019 for FY 2024) (M)				
17	Expeditionary Fast Transport (EPF)	A			U
Total Amphibious Ships			247,100		
Budget Activity 05: Auxiliaries, Craft, and Prior-Year Program Costs					

Auxiliaries, Craft and Prior Yr Program Cost					
18	TAO Fleet Oiler	A	2	(1,056,261)	U
	Less: Advance Procurement (PY)			(-75,046)	U
	Less: Future Completion of Shipbuilding (FY)				U
			981,215		
Completion PY Shipbuild for FY 2016					
19	TAO Fleet Oiler				
	Advance Procurement (CY)		73,000		U
	C (FY 2018 for FY 2019) (M)				
	C (FY 2019 for FY 2020) (M)				
	C (FY 2020 for FY 2021) (M)		(73,000)		
20	Towing, Salvage, and Rescue Ship (ATS)	A	2	150,282	U
21	Oceanographic Ships	A			U
22	LCU 1700	A	4	85,670	U

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Department of the Navy
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 Exhibit P-1 FY 2020 President's Budget
 Total Obligational Authority
 (Dollars in Thousands)

19 Feb 2019

Appropriation: 1611N Shipbuilding and Conversion, Navy

Line No	Item Nomenclature	Ident Code	FY 2018 (Base + OCO) Quantity Cost	FY 2019 Base Enacted Quantity Cost	FY 2019 OCO Enacted Quantity Cost	FY 2019 Total Enacted Quantity Cost	S e c
----	-----	----	-----	-----	-----	-----	-
23	Outfitting	A	489,073	550,038		550,038	U
24	Ship to Shore Connector	A	8 524,554	8 507,875		8 507,875	U
	Completion PY Shipbuild for FY 2015		5,100	9,400		9,400	
25	Service Craft	A	62,994	72,062		72,062	U
26	LCAC SLEP	A		1 23,321		1 23,321	U
27	Uscg Icebreakers						
	Advance Procurement (CY)		150,000				U
	C (FY 2018 for FY 2020) (M)		(150,000)				
28	Completion of PY Shipbuilding Programs	A					U
	AUX (MEMO NON ADD)						U
	LCS (MEMO NON ADD)						U
	AFSB (MEMO NON ADD)						U
Total Auxiliaries, Craft, and Prior-Year Program Costs			2,020,981	2,352,332		2,352,332	
Total Shipbuilding and Conversion, Navy			22,962,873	24,150,087		24,150,087	

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 Exhibit P-1 FY 2020 President's Budget
 Total Obligational Authority
 (Dollars in Thousands)

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Appropriation: 1611N Shipbuilding and Conversion, Navy

Line No	Item Nomenclature	Ident Code	FY 2020 Base Quantity	Cost	FY 2020 OCO for Base Requirements Quantity	Cost	FY 2020 OCO for Direct War and Enduring Costs Quantity	Cost	FY 2020 Total OCO Quantity	Cost	S e c
----	-----	-----	-----	----	-----	----	-----	----	-----	----	-
23	Outfitting	A		754,679							U
24	Ship to Shore Connector	A									U
	Completion PY Shipbuild for FY 2015										
25	Service Craft	A		56,289							U
26	LCAC SLEP	A									U
27	Uscg Icebreakers										
	Advance Procurement (CY)										U
	C (FY 2018 for FY 2020) (M)										
28	Completion of PY Shipbuilding Programs	A		55,700							U
	AUX (MEMO NON ADD)			(3,700)							U
	LCS (MEMO NON ADD)			(14,000)							U
	AFSB (MEMO NON ADD)			(38,000)							U

	Total Auxiliaries, Craft, and Prior-Year Program Costs			2,156,835							

	Total Shipbuilding and Conversion, Navy			23,783,710							

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 Total Obligational Authority
 (Dollars in Thousands)

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Appropriation: 1611N Shipbuilding and Conversion, Navy

Line No	Item Nomenclature	Ident Code	FY 2020 Total (Base + OCO) Quantity Cost	S e c
----	-----	-----	-----	----
23	Outfitting	A	754,679	U
24	Ship to Shore Connector	A		U
	Completion PY Shipbuild for FY 2015			
25	Service Craft	A	56,289	U
26	LCAC SLEP	A		U
27	Uscg Icebreakers			
	Advance Procurement (CY)			U
	C (FY 2018 for FY 2020) (M)			
28	Completion of PY Shipbuilding Programs	A	55,700	U
	AUX (MEMO NON ADD)		(3,700)	U
	LCS (MEMO NON ADD)		(14,000)	U
	AFSB (MEMO NON ADD)		(38,000)	U

	Total Auxiliaries, Craft, and Prior-Year Program Costs		2,156,835	

	Total Shipbuilding and Conversion, Navy		23,783,710	

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4	02	01	2013	Virginia Class Submarine, Advance Procurement.....	Volume 1 - 57
5	02	01	2086	CVN Refueling Overhauls.....	Volume 1 - 61
7	02	01	2119	DDG 1000.....	Volume 1 - 99
8	02	01	2122	DDG-51.....	Volume 1 - 123
9	02	01	2122	DDG-51, Advance Procurement.....	Volume 1 - 147
10	02	01	2127	Littoral Combat Ship (LCS).....	Volume 1 - 149
11	02	01	2128	FFG-Frigate.....	Volume 1 - 159

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15	03	01	3041	LHA Replacement.....	Volume 1 - 213
16	03	01	3041	LHA Replacement, Advance Procurement.....	Volume 1 - 241
17	03	01	3043	Expeditionary Fast Transport (EPF).....	Volume 1 - 245
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24	05	01	5112	Ship to Shore Connector.....	Volume 1 - 291
25	05	01	5113	Service Craft.....	Volume 1 - 299
26	05	01	5139	LCAC SLEP.....	Volume 1 - 305
28	05	01	5300	Completion of PY Shpbldg Progr.....	Volume 1 - 309
995	05	01	5092	Moored Training Ship.....	Volume 1 - 313
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Carrier Replacement Program	2001	2	02	01.....	Volume 1 - 13
Completion of PY Shpbldg Progr	5300	28	05	01.....	Volume 1 - 309
DDG 1000	2119	7	02	01.....	Volume 1 - 99
DDG-51	2122	8	02	01.....	Volume 1 - 123
DDG-51, Advance Procurement	2122	9	02	01.....	Volume 1 - 147
Expeditionary Fast Transport (EPF)	3043	17	03	01.....	Volume 1 - 245
Expeditionary Sea Base (ESB)	3039	14	03	01.....	Volume 1 - 205
FFG-Frigate	2128	11	02	01.....	Volume 1 - 159
LCAC SLEP	5139	26	05	01.....	Volume 1 - 305
LCU 1700	5100	22	05	01.....	Volume 1 - 275
LHA Replacement	3041	15	03	01.....	Volume 1 - 213
LHA Replacement, Advance Procurement	3041	16	03	01.....	Volume 1 - 241
LPD Flight II	3010	12	03	01.....	Volume 1 - 185
LPD Flight II, Advance Procurement	3010	13	03	01.....	Volume 1 - 203
LPD-17	3036	991	03	01.....	Volume 1 - 253

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Line Item Title	Line Item Number	Line #	BA	BSA	Page
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Moored Training Ship	5092	995	05	01.....	Volume 1 - 313
Oceanographic Ships	5087	21	05	01.....	Volume 1 - 271
Outfitting	5110	23	05	01.....	Volume 1 - 279
Service Craft	5113	25	05	01.....	Volume 1 - 299
Ship to Shore Connector	5112	24	05	01.....	Volume 1 - 291
TAO Fleet Oiler	5025	18	05	01.....	Volume 1 - 257
TAO Fleet Oiler, Advance Procurement	5025	19	05	01.....	Volume 1 - 265
Towing, Salvage, and Rescue Ship (ATS)	5035	20	05	01.....	Volume 1 - 267
Virginia Class Submarine	2013	3	02	01.....	Volume 1 - 43
Virginia Class Submarine, Advance Procurement	2013	4	02	01.....	Volume 1 - 57
YP Craft Maintenance/ROH/SLEP	5212	996	05	01.....	Volume 1 - 317

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Exhibit P-40, Advance Procurement Budget Line Item Justification: PB 2020 Navy										Date: March 2019		
Appropriation / Budget Activity / Budget Sub Activity: 1611N: Shipbuilding and Conversion, Navy / BA 01: Fleet Ballistic Missile Ships / BSA 1: Fleet Ballistic Missile Ships							P-1 Line Item Number / Title: 1045 / COLUMBIA Class Submarine					
Program Elements for Code B Items: N/A							Other Related Program Elements: 0603595N, 0603570N					
Line Item MDAP/MAIS Code: P444												

Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Gross/Weapon System Cost (\$ in Millions)	773.138	861.853	3,173.400	1,698.907	-	1,698.907	1,074.805	1,136.484	1,794.461	2,092.306	26,402.265	39,007.619
Net Procurement (P-1) (\$ in Millions)	773.138	861.853	3,173.400	1,698.907	-	1,698.907	1,074.805	1,136.484	1,794.461	2,092.306	26,402.265	39,007.619
Total Obligation Authority (\$ in Millions)	773.138	861.853	3,173.400	1,698.907	-	1,698.907	1,074.805	1,136.484	1,794.461	2,092.306	26,402.265	39,007.619

Description:

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Exhibit P-10, Advance Procurement Requirements Analysis (page 1 - Budget Funding Justification): PB 2020 Navy						Date: March 2019				
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 01 / 1				P-1 Line Item Number / Title: 1045 / COLUMBIA Class Submarine						
First System (2020) Award Date: October 2020		First System (2020) Completion Date: October 2027			Interval Between Systems: 0 Months					
Cost Elements		Production Leadtime (Months)	When Required* (Months)	FY 2018 (\$ M)	FY 2019 (\$ M)	FY 2020 (\$ M)	FY 2021 (\$ M)	FY 2022 (\$ M)	FY 2023 (\$ M)	FY 2024 (\$ M)
PLANS										
Lead Ship Design (1)		12-60	Various	741.424	628.670	723.189	-	-	-	-
Supplier Development (2)		12-60	Various	-	127.300	22.400	-	-	-	-
Total: PLANS				741.424	755.970	745.589	-	-	-	-
BASIC CONSTRUCTION (3) - SHIPBUILDER PROCURED LLTM										
SSBN 826		24-42	Various	-	405.133	460.471	-	-	-	-
SSBN 827		24-42	Various	-	-	0.000	-	184.262	365.660	-
SSBN 828		24-42	Various	-	-	0.000	-	-	-	311.155
Total: BASIC CONSTRUCTION (3) - SHIPBUILDER PROCURED LLTM				-	405.133	460.471	-	184.262	365.660	311.155
BASIC CONSTRUCTION (4) - MISSILE TUBE CONTINUOUS PRODUCTION										
SSBN 827		36	Various	59.537	59.671	66.169	-	-	-	-
SSBN 828		36	Various	-	-	19.477	86.288	90.522	-	-
SSBN 829		36	Various	-	-	0.000	-	57.399	112.201	38.288
SSBN 830		36	Various	-	-	0.000	-	-	-	55.899
Total: BASIC CONSTRUCTION (4) - MISSILE TUBE CONTINUOUS PRODUCTION				59.537	59.671	85.646	86.288	147.921	112.201	94.187
BASIC CONSTRUCTION (5) - ADVANCE CONSTRUCTION										
SSBN 826		24-42	Various	28.518	72.100	148.380	-	-	-	-
SSBN 827		24-42	Various	-	-	0.000	2.783	78.260	236.450	-
SSBN 828		24-42	Various	-	-	0.000	-	-	2.851	88.552
SSBN 829		24-42	Various	-	-	0.000	-	-	-	3.000
Total: BASIC CONSTRUCTION (5) - ADVANCE CONSTRUCTION				28.518	72.100	148.380	2.783	78.260	239.301	91.552
BASIC CONSTRUCTION (6) - EOQ IN SUPPORT OF MULTI-PROGRAM PROCUREMENT										
SSBN 827		24-42	Various	-	78.380	61.447	-	-	-	-
SSBN 837 - Production Backup Units		24-42	Various	-	17.500	13.896	12.299	12.198	11.898	13.998
Total: BASIC CONSTRUCTION (6) - EOQ IN SUPPORT OF MULTI-PROGRAM PROCUREMENT				-	95.880	75.343	12.299	12.198	11.898	13.998
BASIC CONSTRUCTION (7) - SHIPYARD MANUFACTURED ITEMS CONTINUOUS PRODUCTION										
SSBN827		12-36	Various	-	1.050	5.808	9.462	12.229	16.145	-

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Exhibit P-10, Advance Procurement Requirements Analysis (page 1 - Budget Funding Justification): PB 2020 Navy						Date: March 2019			
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 01 / 1				P-1 Line Item Number / Title: 1045 / COLUMBIA Class Submarine					
First System (2020) Award Date: October 2020		First System (2020) Completion Date: October 2027			Interval Between Systems: 0 Months				
Cost Elements	Production Leadtime (Months)	When Required* (Months)	FY 2018 (\$ M)	FY 2019 (\$ M)	FY 2020 (\$ M)	FY 2021 (\$ M)	FY 2022 (\$ M)	FY 2023 (\$ M)	FY 2024 (\$ M)
SSBN828	12-36	Various	-	0.770	0.000	4.530	8.210	2.780	16.268
SSBN829	12-36	Various	-	-	0.980	-	4.560	5.860	5.789
SSBN830	12-36	Various	-	-	0.000	0.930	-	5.780	4.000
SSBN831	12-36	Various	-	-	0.000	-	0.930	-	4.610
SSBN832	12-36	Various	-	-	0.000	-	-	1.180	-
SSBN833	12-36	Various	-	-	0.000	-	-	-	0.940
Total: BASIC CONSTRUCTION (7) - SHIPYARD MANUFACTURED ITEMS CONTINUOUS PRODUCTION			-	1.820	6.788	14.922	25.929	31.745	31.607
NUCLEAR PROPULSION PLANT EQUIPMENT (8)									
SSBN 826	30-72	Various	-	1,700.896	0.000	-	-	-	-
SSBN 827 (In support of AC)	30-72	Various	-	-	0.000	952.737	661.262	-	-
SSBN 828 (In Support of AC)	30-72	Various	-	-	0.000	-	-	918.373	636.627
SSBN 829 (In Support of AC)	30-72	Various	-	-	0.000	-	-	-	899.000
Total: NUCLEAR PROPULSION PLANT EQUIPMENT (8)			-	1,700.896	-	952.737	661.262	918.373	1,535.627
HM&E (9)									
SSBN 826 (In support of AC)	24-42	Various	-	26.000	41.948	-	-	-	-
SSBN 827 (In Support of AC)	24-42	Various	-	-	0.000	-	-	51.919	-
Total: HM&E (9)			-	26.000	41.948	-	-	51.919	-
ORDNANCE SWS SHIPBOARD SYSTEMS (10) - LLTM									
SSBN 826 (In Support of AC)	12-28	Various	-	48.300	83.783	-	-	-	-
SSBN 827 (In Support of AC)	12-48	Various	-	-	6.237	1.912	20.623	55.707	-
SSBN 828	12-28	Various	-	-	0.000	-	-	-	3.785
Total: ORDNANCE SWS SHIPBOARD SYSTEMS (10) - LLTM			-	48.300	90.020	1.912	20.623	55.707	3.785
ORDNANCE SWS SHIPBOARD SYSTEMS (11) - ECONOMIC ORDER QUANTITY									
SSBN 826	12-24	Various	-	-	0.224	-	-	-	-
SSBN 827	12-24	Various	-	-	0.478	0.002	0.141	0.035	-
SSBN 828	12-24	Various	-	-	0.478	0.002	0.141	0.054	0.022
SSBN 829	12-24	Various	-	-	0.478	0.002	0.141	0.054	0.022
SSBN 830	12-24	Various	-	-	0.224	0.002	0.141	0.054	0.022

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Exhibit P-10, Advance Procurement Requirements Analysis (page 1 - Budget Funding Justification): PB 2020 Navy						Date: March 2019			
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 01 / 1				P-1 Line Item Number / Title: 1045 / COLUMBIA Class Submarine					
First System (2020) Award Date: October 2020		First System (2020) Completion Date: October 2027			Interval Between Systems: 0 Months				
Cost Elements	Production Leadtime (Months)	When Required* (Months)	FY 2018 (\$ M)	FY 2019 (\$ M)	FY 2020 (\$ M)	FY 2021 (\$ M)	FY 2022 (\$ M)	FY 2023 (\$ M)	FY 2024 (\$ M)
SSBN 831	12-24	Various	-	-	0.224	0.002	0.141	0.054	0.022
SSBN 832	12-24	Various	-	-	0.224	0.002	0.141	0.054	0.022
SSBN 833	12-24	Various	-	-	0.224	0.002	0.141	0.054	0.022
SSBN 834	12-24	Various	-	-	0.224	0.002	0.141	0.054	0.022
SSBN 835	12-24	Various	-	-	0.224	0.002	0.141	0.054	0.022
SSBN 836	12-24	Various	-	-	0.224	0.002	0.141	0.054	0.022
SSBN 837	12-24	Various	-	-	0.224	0.002	0.141	0.054	0.022
Total: ORDNANCE SWS SHIPBOARD SYSTEMS (11) - ECONOMIC ORDER QUANTITY			-	-	3.450	0.022	1.551	0.575	0.220
ORDNANCE SWS SHIPBOARD SYSTEMS (12) - CONTINUOUS PRODUCTION									
SSBN 827	12-24	Various	-	-	0.000	2.034	-	-	-
SSBN 828	12-24	Various	-	-	0.000	1.808	0.224	-	-
SSBN 829	12-24	Various	-	-	0.000	-	2.015	-	-
SSBN 830	12-24	Various	-	-	0.000	-	2.015	-	-
SSBN 831	12-24	Various	-	-	0.000	-	0.224	1.828	-
SSBN 832	12-24	Various	-	-	0.000	-	-	2.056	-
SSBN 833	12-24	Various	-	-	0.000	-	-	2.056	-
SSBN 834	12-24	Various	-	-	0.000	-	-	1.142	1.313
SSBN 835	12-24	Various	-	-	0.000	-	-	-	2.954
SSBN 836	12-24	Various	-	-	0.000	-	-	-	2.954
SSBN 837	12-24	Various	-	-	0.000	-	-	-	2.954
Total: ORDNANCE SWS SHIPBOARD SYSTEMS (12) - CONTINUOUS PRODUCTION			-	-	-	3.842	4.478	7.082	10.175
NFPC EXTERNAL POWER UPGRADE (13)									
-	12	Various	32.374	-	0.000	-	-	-	-
Total: NFPC EXTERNAL POWER UPGRADE (13)			32.374	-	-	-	-	-	-
ELECTRONICS (14)									
SSBN 826	12-24	Various	-	7.630	32.961	-	-	-	-
SSBN 827 (EOQ in support of Multi-Program Procurement)	12-24	Various	-	-	8.311	-	-	-	-
Total: ELECTRONICS (14)			-	7.630	41.272	-	-	-	-

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Exhibit P-10, Advance Procurement Requirements Analysis (page 1 - Budget Funding Justification): PB 2020 Navy							Date: March 2019			
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 01 / 1				P-1 Line Item Number / Title: 1045 / COLUMBIA Class Submarine						
First System (2020) Award Date: October 2020		First System (2020) Completion Date: October 2027			Interval Between Systems: 0 Months					
Cost Elements		Production Leadtime (Months)	When Required* (Months)	FY 2018 (\$ M)	FY 2019 (\$ M)	FY 2020 (\$ M)	FY 2021 (\$ M)	FY 2022 (\$ M)	FY 2023 (\$ M)	FY 2024 (\$ M)
Total Advance Procurement/Obligation Authority				861.853	3,173.400	1,698.907	1,074.805	1,136.484	1,794.461	2,092.306

*Note: "When Required" is the number of months required before ship delivery.

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Exhibit P-10, Advance Procurement Requirements Analysis (page 2 - Budget Funding Justification): PB 2020 Navy				Date: March 2019			
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 01 / 1				P-1 Line Item Number / Title: 1045 / COLUMBIA Class Submarine			
Cost Elements	FY 2020						
	Production Leadtime <i>(Months)</i>	When Required* <i>(Months)</i>	Unit Cost <i>(\$ M)</i>	Contract Forecast Date	2020 Qty <i>(Each)</i>	For FY	Total Cost Request <i>(\$ M)</i>
PLANS							
Lead Ship Design (1)	12-60	Various	-	Oct 2019	-	2021	723.189
Supplier Development (2)	12-60	Various	-	Oct 2019	-	2021	22.400
Total: PLANS							745.589
BASIC CONSTRUCTION (3) - SHIPBUILDER PROCURED LLTM							
SSBN 826	24-42	Various	-	Oct 2019	-	2021	460.471
SSBN 827	24-42	Various	-		-	2024	0.000
SSBN 828	24-42	Various	-		-	2026	0.000
Total: BASIC CONSTRUCTION (3) - SHIPBUILDER PROCURED LLTM							460.471
BASIC CONSTRUCTION (4) - MISSILE TUBE CONTINUOUS PRODUCTION							
SSBN 827	36	Various	-	Oct 2019	-	2024	66.169
SSBN 828	36	Various	-	Oct 2019	-	2026	19.477
SSBN 829	36	Various	-		-	2027	0.000
SSBN 830	36	Various	-		-	2028	0.000
Total: BASIC CONSTRUCTION (4) - MISSILE TUBE CONTINUOUS PRODUCTION							85.646
BASIC CONSTRUCTION (5) - ADVANCE CONSTRUCTION							
SSBN 826	24-42	Various	-	Oct 2019	-	2021	148.380
SSBN 827	24-42	Various	-		-	2024	0.000
SSBN 828	24-42	Various	-		-	2026	0.000
SSBN 829	24-42	Various	-		-	2027	0.000
Total: BASIC CONSTRUCTION (5) - ADVANCE CONSTRUCTION							148.380
BASIC CONSTRUCTION (6) - EOQ IN SUPPORT OF MULTI-PROGRAM PROCUREMENT							
SSBN 827	24-42	Various	-	Oct 2019	-	2024	61.447
SSBN 837 - Production Backup Units	24-42	Various	-	Oct 2019	-	2035	13.896
Total: BASIC CONSTRUCTION (6) - EOQ IN SUPPORT OF MULTI-PROGRAM PROCUREMENT							75.343
BASIC CONSTRUCTION (7) - SHIPYARD MANUFACTURED ITEMS CONTINUOUS PRODUCTION							
SSBN827	12-36	Various	-	Oct 2019	-	2024	5.808
SSBN828	12-36	Various	-	Oct 2019	-	2026	0.000

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Exhibit P-10, Advance Procurement Requirements Analysis (page 2 - Budget Funding Justification): PB 2020 Navy					Date: March 2019		
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 01 / 1				P-1 Line Item Number / Title: 1045 / COLUMBIA Class Submarine			
Cost Elements	FY 2020						
	Production Leadtime (Months)	When Required* (Months)	Unit Cost (\$ M)	Contract Forecast Date	2020 Qty (Each)	For FY	Total Cost Request (\$ M)
SSBN829	12-36	Various	-	Oct 2019	-	2027	0.980
SSBN830	12-36	Various	-		-	2028	0.000
SSBN831	12-36	Various	-		-	2029	0.000
SSBN832	12-36	Various	-		-	2030	0.000
SSBN833	12-36	Various	-		-	2031	0.000
Total: BASIC CONSTRUCTION (7) - SHIPYARD MANUFACTURED ITEMS CONTINUOUS PRODUCTION							6.788
NUCLEAR PROPULSION PLANT EQUIPMENT (8)							
SSBN 826	30-72	Various	-		-	2021	0.000
SSBN 827 (In support of AC)	30-72	Various	-		-	2024	0.000
SSBN 828 (In Support of AC)	30-72	Various	-		-	2026	0.000
SSBN 829 (In Support of AC)	30-72	Various	-		-	2027	0.000
Total: NUCLEAR PROPULSION PLANT EQUIPMENT (8)							-
HM&E (9)							
SSBN 826 (In support of AC)	24-42	Various	-	Oct 2019	-	2021	41.948
SSBN 827 (In Support of AC)	24-42	Various	-		-	2024	0.000
Total: HM&E (9)							41.948
ORDNANCE SWS SHIPBOARD SYSTEMS (10) - LLTM							
SSBN 826 (In Support of AC)	12-28	Various	-	Oct 2019	-	2021	83.783
SSBN 827 (In Support of AC)	12-48	Various	-	Oct 2019	-	2024	6.237
SSBN 828	12-28	Various	-		-	2026	0.000
Total: ORDNANCE SWS SHIPBOARD SYSTEMS (10) - LLTM							90.020
ORDNANCE SWS SHIPBOARD SYSTEMS (11) - ECONOMIC ORDER QUANTITY							
SSBN 826	12-24	Various	-	Oct 2019	-	2021	0.224
SSBN 827	12-24	Various	-	Oct 2019	-	2024	0.478
SSBN 828	12-24	Various	-	Oct 2019	-	2026	0.478
SSBN 829	12-24	Various	-	Oct 2019	-	2027	0.478
SSBN 830	12-24	Various	-	Oct 2019	-	2028	0.224
SSBN 831	12-24	Various	-	Oct 2019	-	2029	0.224
SSBN 832	12-24	Various	-	Oct 2019	-	2030	0.224

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Exhibit P-10, Advance Procurement Requirements Analysis (page 2 - Budget Funding Justification): PB 2020 Navy					Date: March 2019		
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 01 / 1				P-1 Line Item Number / Title: 1045 / COLUMBIA Class Submarine			
Cost Elements	FY 2020						
	Production Leadtime (Months)	When Required* (Months)	Unit Cost (\$ M)	Contract Forecast Date	2020 Qty (Each)	For FY	Total Cost Request (\$ M)
SSBN 833	12-24	Various	-	Oct 2019	-	2031	0.224
SSBN 834	12-24	Various	-	Oct 2019	-	2032	0.224
SSBN 835	12-24	Various	-	Oct 2019	-	2033	0.224
SSBN 836	12-24	Various	-	Oct 2019	-	2034	0.224
SSBN 837	12-24	Various	-	Oct 2019	-	2035	0.224
Total: ORDNANCE SWS SHIPBOARD SYSTEMS (11) - ECONOMIC ORDER QUANTITY							3.450
ORDNANCE SWS SHIPBOARD SYSTEMS (12) - CONTINUOUS PRODUCTION							
SSBN 827	12-24	Various	-		-	2024	0.000
SSBN 828	12-24	Various	-		-	2026	0.000
SSBN 829	12-24	Various	-		-	2027	0.000
SSBN 830	12-24	Various	-		-	2028	0.000
SSBN 831	12-24	Various	-		-	2029	0.000
SSBN 832	12-24	Various	-		-	2030	0.000
SSBN 833	12-24	Various	-		-	2031	0.000
SSBN 834	12-24	Various	-		-	2032	0.000
SSBN 835	12-24	Various	-		-	2033	0.000
SSBN 836	12-24	Various	-		-	2034	0.000
SSBN 837	12-24	Various	-		-	2035	0.000
Total: ORDNANCE SWS SHIPBOARD SYSTEMS (12) - CONTINUOUS PRODUCTION							-
NFPC EXTERNAL POWER UPGRADE (13)							
-	12	Various	-		-		0.000
Total: NFPC EXTERNAL POWER UPGRADE (13)							-
ELECTRONICS (14)							
SSBN 826	12-24	Various	-	Oct 2019	-	2021	32.961
SSBN 827 (EOQ in support of Multi-Program Procurement)	12-24	Various	-	Oct 2019	-	2024	8.311
Total: ELECTRONICS (14)							41.272
Total Advance Procurement/Obligation Authority							1,698.907
Description:							

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Exhibit P-10, Advance Procurement Requirements Analysis (page 2 - Budget Funding Justification): PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 01 / 1		P-1 Line Item Number / Title: 1045 / COLUMBIA Class Submarine
<p>MISSION: Strategic Deterrence. The COLUMBIA Class Program is an Acquisition Category (ACAT) ID Major Defense Acquisition Program (MDAP) to design, construct, and deliver a replacement for the OHIO Class Fleet Ballistic Missile Submarines (SSBNs), which begin retiring at a rate of one per year beginning in 2027. The mission of the COLUMBIA SSBN is to maintain an appropriate state of readiness to assist in deterring nuclear attack on the United States and its allies. In the event deterrence should fail, the force must be capable of launching missiles against pre-planned or adaptively planned targets. To fulfill this mission COLUMBIA SSBNs must be capable of performing extended strategic deterrent patrols without requiring assistance or replenishment. It does not have a requirement for additional capabilities or other missions unrelated to survivable strategic nuclear deterrence.</p> <p>Armament: Torpedo Tubes Ballistic Missile Tubes</p> <p>Major Electronics: Trident D5 Strategic Weapons System Command, Control, Communications and Intelligence System - Open System Architecture - Twenty-three Subsystems</p> <p>JUSTIFICATION: The FY20 request supports detailed design and procurement of Contractor Furnished Equipment (CFE) and Government Furnished Equipment (GFE) Long Lead Time Material (LLTM). Funding also supports Continuous Production of Missile Tubes, Advance Construction (AC), Economic Order Quantity (EOQ) for Multi-Program Procurement, Continuous Production of Shipyard Manufactured Items, and Supplier Development to reduce COLUMBIA Class construction schedule risk executed in accordance with enhanced acquisition authorities contained within the U.S.C. 2218a. These funds are required in October of 2019 to ensure the COLUMBIA Program meets program schedules and the components will meet contractor in yard need dates to support on time construction start and delivery. Since the PB19 submission, the COLUMBIA Class Program has invested in several initiatives to reduce construction schedule risk and enable cost savings. Multi-Program Procurement aligns CLB funding to coordinate shipbuilder material procurements with VIRGINIA Class and CVN for common components and vendors, to reduce construction schedule risk and strengthen the submarine industrial base through accelerated, level-loaded and optimized material procurement. Continuous Production of Shipyard Manufactured Items reduces schedule risk by ensuring critical material is available to support construction schedules. Supplier Development efforts reduce construction schedule risk and strengthen the submarine industrial base by increasing capability of existing suppliers, increasing capacity where needed, and qualifying vendors in capacity challenged market spaces. FY20 also reflects increased Advance Procurement for GFE Ordnance (the Strategic Weapon System shipboard equipment required for ship construction) and GFE Electronics to meet construction Required In Yard (RIY) dates and achieve EOQ savings, as well as support meeting critical prototype testing schedules.</p> <p>EXECUTION OF FUNDS: In accordance with 10 USC Code 2218a appropriated funds in this line item are transferred and executed out of the National Sea-Based Deterrence Fund.</p> <p>Footnotes:</p> <p>(1) PLANS: COLUMBIA Class Lead Design Yard and program office support for the detail design for the Common Missile Compartment, Strategic Weapons System, Propulsion Plant, and Rest of Ship. The Program is targeting 83% design completion for the entire ship at construction start (October 2020). This design maturity target is necessary to achieve the aggressive 7 year lead ship construction time, which is required to support Strategic Deterrent mission requirements - there is no margin to this first patrol date. Detail design activities also support critical engineering analysis and risk reduction efforts. This line reflects adjustments made based on the award of the Integrated Product and Process Development (IPPD) contract. FY18 Plans increased since the PB19 submission due to the PB2018 Congressional add for increased Naval Foundry and Propeller Center (NFPC) External Power Upgrade requirements; this restores \$14M of FY2017 Plans funds reassigned for emergent NFPC requirements to maintain schedule for critical path COLUMBIA Class propulsor prototype manufacturing demonstrations. FY19 Plans decreased from the PB19 submission due to the FY19 Congressional reduction. FY20 Plans increased to restore prior year funding to support meeting critical prototype testing schedules.</p> <p>(2) SUPPLIER DEVELOPMENT: Since the PB2019 Submission, COLUMBIA Class, via Congressional direction, is targeting Supplier Development to de-risk construction schedules, strengthen submarine industrial base health, ensure on-time delivery of quality components and increase sub-vendors' ability to accept shipbuilder outsourced work. These funds execute supplier improvement and facilitization actions to increase capability of existing suppliers, increase capacity where needed, and qualify new suppliers in market spaces with capacity challenges. Initiatives include developing alternate sources for high-risk suppliers, developing sources for complex parts traditionally built at the shipbuilders that have been identified for strategic outsourcing, performing process and facility improvements with existing sources, and qualifying existing sources for more stringent requirements. Investment in the sub-vendor supplier base is required to promote facilities investment and vendor qualification to ensure adequate industrial capacity, and reduce COLUMBIA Class construction schedule risk.</p>		

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Exhibit P-10, Advance Procurement Requirements Analysis (page 2 - Budget Funding Justification): PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 01 / 1		P-1 Line Item Number / Title: 1045 / COLUMBIA Class Submarine
<p>(3) SHIPYARD LLTM: Funding is required to support long lead time shipbuilder procured material (for example the Weapons Handling, Air Conditioning Unit, Diesel Generator Set, and Reverse Osmosis Unit). These and other components are required early in the construction phase to meet the delivery schedule. Since the PB19 submission, funds for SSBN827 LLTM shifted to EOQ in support of Multi-Program Procurement and funds for SSBN826-828 shifted to Continuous Production of Shipyard Manufactured Items to mitigate construction risk and strengthen the submarine industrial base. SSBN826 LLTM AP increased from FY19 to continue initiatives to strengthen the sub-vendor industrial base through increased LLTM procurements.</p> <p>(4) Continuous Missile Tube Production: COLUMBIA Class is executing Continuous Production of Missile Tubes to reduce schedule risk, improve manufacturing efficiencies, improve vendor learning, maintain critical production skills, and reduce costs by leveraging high-volume procurements. These benefits will increase schedule margin and reduce risk to follow ship deliveries, while also achieving cost reduction savings. Missile Tubes produced for SSBN 826 are funded through RDT&E,N Program Element 0603595N, Project Number 3220.</p> <p>(5) ADVANCE CONSTRUCTION: Advance Construction (AC) efforts are to de-risk construction schedule and improve probability of on-time delivery. AC begins construction activities in key areas to gain schedule margin and reduce controlling path risks. AC key areas include the Bow (Sections 1A and 1B in Supermodule 1 that includes the forward Ballast Tanks and Hemi-head), Stern (Sections 9B and 9C in Supermodule 6 that includes the X-Stern and aft Ballast Tanks and Hemi-Head) and Common Missile Compartment (CMC) adjacent areas contained in Supermodule 2 that include the Missile Compartment Control Module (MCCM). AC will begin on structural fabrication areas that have sufficient design maturity and material availability to begin construction and some outfitting. These areas include MCCM Deck Module Fabrication, Mid-Span Tank complex and Foundation Fabrication, and Missile Compartment Forward Bulkhead and S2C Hull Cylinder Fabrication. AC efforts improve efficiency by smoothing workload at Quonset Point and capture efficiencies. FY20 continues construction efforts associated with the key areas listed above.</p> <p>(6) EOQ and MPMP: Since the PB2019 Submission, COLUMBIA is implementing Multi-Program Procurement as authorized by US Code 10 2218a (NSBDF) subsection (f), to align shipbuilder procured material procurements with COLUMBIA Class funding with funds budgeted for VIRGINIA Class (LI 2013) and CVN (LI 2001) for common components and vendors. Appreciable risk mitigation is provided for COLUMBIA Class construction schedules through acceleration of material procurement, ensuring increased readiness to support construction need dates and through supplier base management and workload leveling. MPMP strengthens the industrial base to improve material availability and avoid construction delays due to late material. COLUMBIA Class Production Backup Units will procure a shipset of critical long lead time material to serve as rolling construction assets throughout COLUMBIA Class construction to be consumed in the event of unforeseen issues from late material or obsolescence to reduce schedule risk and avoid production disruptions from late material, and ensure Required In Yard (RIY) dates are met for compressed shipbuilding schedules. Material not consumed during construction will be consumed on the 12th hull if not used. PBUs also strengthen critical at-risk vendors in the sub-tier industrial base, reducing the risk of future obsolescence issues and production disruptions.</p> <p>(7) SY CONTINUOUS PRODUCTION: Since the PB2019 Submission, COLUMBIA Class is implementing Continuous Production of selected Shipyard Manufactured Items (US Code 10 2218a subsection (i)) to reduce schedule risk, improve manufacturing efficiencies, improve learning, maintain critical production skills, and reduce costs by leveraging high-volume procurements. Continuous production of items with long lead time material requirements which are difficult to manufacture will ensure critical material is available to support construction schedules. These benefits will increase schedule margin and reduce risk to follow ship deliveries, while also achieving cost reduction savings through workforce level loading and minimizing the effects of large variations in demand and procurement efficiencies. Examples of Shipyard Manufactured Items include Spherical Air Flasks, Hull Valves, Logistics Escape Trunks, and Torpedo Tubes.</p> <p>(8) Nuclear Propulsion Plant Equipment AP is required to fund long-lead time propulsion plant equipment, and ensure production capability that supports projected production quantities. To support the COLUMBIA Class' implementation of advanced modular construction methods to drive cost efficiency, reactor plant components must be delivered earlier in the construction process. The component delivery timeline is in line with that of the VIRGINIA Class submarines.</p> <p>(9) Hull Mechanical & Engineering AP is required to align the Propulsor procurement and production schedule with COLUMBIA Class Advance Construction schedule acceleration.</p> <p>(10) Ordnance SWS Shipboard Systems AP is required to fund Long Lead Time Material (LLTM) for the Strategic Weapon System (SWS) shipboard components to meet COLUMBIA (CLB) Class Government Furnished Equipment (GFE) Required-In-Yard (RIY) dates to support construction activities for CLB. AP is required to procure selected SWS Launcher and Fire Control Subsystem components including launch tube assemblies and construction support equipment, launch tube umbilical housings, launcher ejector group and vertical support group equipment, and Fire Control power and network equipment and sub-assemblies. The SWS shipboard components have a lead time of 12-48 months and are required by the shipbuilder early in the construction phase to meet the ship delivery schedule (beginning in September 2020 for SSBN 826 and April 2023 for SSBN 827). This line does not fund any efforts related to the procurement of the TRIDENT II D5 Missile. (Note: SWS components requiring 48 month lead time for SSBN 826 are procured through RDT&E,N Program Element 0603595N, Project Number 3220 in support of lead ship Missile Tube Module prototyping.)</p> <p>Since the PB2019 submission, SWS GFE for SSBN 826 and SSBN 827 has been re-phased to support Advance Construction efforts and the shipbuilder's construction schedule for CLB. SSBN826 Ordnance AP also procures an additional SWS Test Instrumentation (TI) Radio Frequency (RF) Test Set to support the earlier RIY dates and maintain the construction schedule. SSBN 827 GFE RIY dates were accelerated up to 18 months based on construction schedule changes; realignment of GFE Advance Procurement funds to FY20-FY24 supports this delivery timeline.</p>		

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Exhibit P-10, Advance Procurement Requirements Analysis (page 2 - Budget Funding Justification): PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 01 / 1		P-1 Line Item Number / Title: 1045 / COLUMBIA Class Submarine
<p>A delay to these LLTM purchases will impact the U.S. Navy's ability to meet the shipbuilder's RIY dates for tactical hardware resulting in increased schedule risk to construction and ship delivery.</p> <p>(11) Ordnance SWS Shipboard Systems EOQ funding (US Code 10 2218a subsection (f)) is required for large lot procurements of SWS shipboard components to mitigate significant obsolescence, requalification and vendor risk while ensuring SWS homogeneity and consistent SWS system performance across all COLUMBIA Class hulls. Examples include SWS Launcher Subsystem Detonator Power Assembly electronics components and SWS Fire Control Subsystem components such as network switch memory and flash devices, Navigation Timing Interface Module oscillators and display units. This line does not fund any efforts related to the procurement of the TRIDENT II D5 Missile.</p> <p>(12) Ordnance SWS Shipboard Systems Continuous Production (US Code 10 2218a subsection (i)) of SWS Navigation Subsystem, Inertial Navigation Systems and Gyros is being implemented to procure critical components to ensure homogeneity and consistent SWS system performance across the Navigation unit builds, maintain critical production and fabrication skills, eliminate production re-starts and potential re-qualification risk while gaining manufacturing efficiencies and mitigating SWS Navigation Subsystem obsolescence across all COLUMBIA Class hulls during construction. These benefits will reduce schedule risk by ensuring on-time deliveries of SWS Navigation GFE to the shipbuilder, and result in cost savings outside of the FYDP. Follow-on procurements are outside the FYDP. This line does not fund any efforts related to the procurement of the TRIDENT II D5 Missile.</p> <p>(13) Advance Procurement funding is required to support the Naval Foundry and Propeller Center External Power Upgrade. The Naval Foundry and Propeller Center requires upgrades to the private utility provider's infrastructure in order to provide an additional 16.5MW of electrical power to the facility. This requirement is driven by a required 85-ton furnace and six additional large machines required for concurrent COLUMBIA and VIRGINIA Class manufacturing. Initial upgrades are on track to be completed by October 2018 to support critical path COLUMBIA Class propulsor prototype manufacturing demonstrations in early FY19 through FY20. Completion of the remaining elements of the power upgrade will occur in the FY19 aligned to NFPC's phased power needs. FY18 funds increased since the PB19 submission due to the PB19 Congressional add for increased NFPC power upgrade requirements, which is also reflected in Plans to restore Plans funds reassigned for emergent NFPC requirements (\$14M) in FY17. The total estimate for this effort is \$46M, with \$14M executed with FY17 funds.</p> <p>(14) Electronics Equipment AP is required to fund the long-lead time material for the Command and Control System Module (CCSM). AP for the CCSM plays a critical role in early system installation and test in order to maintain the CCSM out of the critical path to ship delivery and minimize risk to ship construction. AP is required to procure selected electronics and associated pre-cable kits, cabling, connector plates and mechanical structures to be installed in this module in accordance with Shipyard Government Furnished Equipment (GFE) Delivery Dates. Pre-cable kits enable shipyard cable runs and platform interface verification prior to electronics installation. Mechanical structures establish footprint unique packaging for efficient electronics installation. This funding enables the COLUMBIA program to procure Long Lead Time Material (LLTM) and shipboard components for the SONAR system, which have lead times of up to 24 months and are required to be delivered to the shipbuilder beginning in May 2021 to meet COLUMBIA Class IPPD contract requirements. Since the PB19 submission, the request for FY20 increased funding for SSBN827 and SSBN826 to align procurements with VIRGINIA Class Block V procurements to achieve cost savings.</p> <p>*Note: "When Required" is the number of months required before ship delivery.</p>		

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Exhibit P-40, Budget Line Item Justification: PB 2020 Navy										Date: March 2019		
Appropriation / Budget Activity / Budget Sub Activity: 1611N: Shipbuilding and Conversion, Navy / BA 02: Other Warships / BSA 1: Other Warships							P-1 Line Item Number / Title: 2001 / Carrier Replacement Program					
ID Code (A=Service Ready, B=Not Service Ready): A			Program Elements for Code B Items: N/A					Other Related Program Elements: N/A				
Line Item MDAP/MAIS Code: 223												
Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity (<i>Units in Each</i>)	2	1	-	1	-	1	-	-	-	-	-	4
Gross/Weapon System Cost (<i>\$ in Millions</i>)	24,411.351	12,335.110	0.000	12,450.695	0.000	12,450.695	0.000	0.000	0.000	0.000	-	49,197.156
Less PY Advance Procurement (<i>\$ in Millions</i>)	7,020.160	2,233.142	-	-	-	-	-	-	-	-	-	9,253.302
Less Cost To Complete (<i>\$ in Millions</i>)	1,394.860	-	-	-	-	-	-	-	-	-	-	1,394.860
Less Subsequent Year Full Funding (<i>\$ in Millions</i>)	12,820.358	8,532.322	-	11,165.695	-	11,165.695	-	-	-	-	-	32,518.375
Net Procurement (P-1) (<i>\$ in Millions</i>)	3,175.973	1,569.646	0.000	1,285.000	0.000	1,285.000	0.000	0.000	0.000	0.000	-	6,030.619
Plus Subsequent Year Full Funding (<i>\$ in Millions</i>)	10,259.300	2,561.058	1,573.181	1,062.000	-	1,062.000	2,644.700	2,323.613	1,929.000	1,718.000	8,447.523	32,518.375
Full Funding TOA (<i>\$ in Millions</i>)	13,435.273	4,130.704	1,573.181	2,347.000	-	2,347.000	2,644.700	2,323.613	1,929.000	1,718.000	8,447.523	38,548.994
Plus CY Advance Procurement (<i>\$ in Millions</i>)	9,253.302	-	-	-	-	-	-	-	-	-	-	9,253.302
Plus Cost To Complete (<i>\$ in Millions</i>)	1,374.860	20.000	-	-	-	-	-	-	-	-	-	1,394.860
Total Obligation Authority (<i>\$ in Millions</i>)	24,063.435	4,150.704	1,573.181	2,347.000	0.000	2,347.000	2,644.700	2,323.613	1,929.000	1,718.000	8,447.523	49,197.156
<i>(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)</i>												
Plus Outfitting and Post Delivery (<i>\$ in Millions</i>)	230.442	92.347	27.097	94.839	-	94.839	20.696	6.631	15.936	16.255	867.807	1,372.050
Total (<i>\$ in Millions</i>)	24,293.877	4,243.051	1,600.278	2,441.839	-	2,441.839	2,665.396	2,330.244	1,944.936	1,734.255	9,315.330	50,569.206
Gross/Weapon System Unit Cost (<i>\$ in Millions</i>)	12,205.676	12,335.110	-	12,450.695	-	12,450.695	-	-	-	-	-	12,299.289

Description:

To provide credible, sustainable, independent forward presence during peacetime without access to land bases; operate as the cornerstone of a joint and/or allied maritime expeditionary force in response to crisis; and carry the war to the enemy through joint multi-mission offensive operations.

The Department is using a two-phase acquisition strategy for constructing and delivery of CVN 79. The Department is employing this two-phase strategy to drive further affordability into the CVN 79 procurement cost and life cycle cost. Completion of the CVN 79 Detail Design and Construction contract will represent preliminary acceptance of CVN 79 from the shipbuilder in June 2022. At that time, CVN 79 will be placed in commission and will have full propulsion, safe navigation, and limited aircraft launch and recovery capability. After this acceptance, the Department will conduct a follow-on Phase II availability which will complete installation of the remaining systems. This Phase II will conclude by September 2024 and upon final acceptance of the ship, delivery of CVN 79 is projected to occur in September 2024.

The FORD Class acquisition strategy has been updated to reflect a two-ship buy for CVN 80 and CVN 81. The benefits of a two-ship buy include level loading of the shipbuilder trades and shops, optimal use of facilities, economic material and equipment procurements, and "design-once, build twice" strategy. These benefits translate into reduced shipbuilder production and engineering hours and lower shipbuilder and GFE material procurement costs. The two-ship buy is a contracting strategy the Navy has previously used effectively in the 1980s to procure NIMITZ Class carriers and achieved significant acquisition cost savings compared to contracting for the ships individually. The CVN 80 and CVN 81 two-ship buy DD&C contract award is planned for January 2019 with delivery of CVN 80 in March of 2028 and CVN 81 in February of 2032.

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Exhibit P-40, Budget Line Item Justification: PB 2020 Navy				Date: March 2019																																																	
Appropriation / Budget Activity / Budget Sub Activity: 1611N: Shipbuilding and Conversion, Navy / BA 02: Other Warships / BSA 1: Other Warships			P-1 Line Item Number / Title: 2001 / Carrier Replacement Program																																																		
ID Code (A=Service Ready, B=Not Service Ready): A		Program Elements for Code B Items: N/A		Other Related Program Elements: N/A																																																	
Line Item MDAP/MAIS Code: 223																																																					
<table style="width: 100%; border: none;"> <tr> <td style="width: 33%; vertical-align: top;"> Characteristics: Length Overall 1092 ft Beam 134 ft Displacement 97,337 TONS Draft 38.7 ft </td> <td style="width: 33%; vertical-align: top;"> Systems: Electronics -SHIP SELF DEFENSE SYSTEM (SSDS) </td> <td style="width: 33%; vertical-align: top;"> Ordnance -ELECTROMAGNETIC AIRCRAFT LAUNCHING SYSTEM (EMALS) -ENTERPRISE AIR SURVEILLANCE RADAR (EASR) -ADVANCED ARRESTING GEAR (AAG) </td> </tr> </table>						Characteristics: Length Overall 1092 ft Beam 134 ft Displacement 97,337 TONS Draft 38.7 ft	Systems: Electronics -SHIP SELF DEFENSE SYSTEM (SSDS)	Ordnance -ELECTROMAGNETIC AIRCRAFT LAUNCHING SYSTEM (EMALS) -ENTERPRISE AIR SURVEILLANCE RADAR (EASR) -ADVANCED ARRESTING GEAR (AAG)																																													
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Design Agent	Huntington Ingalls Industries																																																				
Classification of Cost Estimate: CLASS C BUDGET ESTIMATE																																																					

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Exhibit P-5c, Ship Cost Analysis: PB 2020 Navy					Date: March 2019	
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1			P-1 Line Item Number / Title: 2001 / Carrier Replacement Program			
Cost Categories <small>(†) indicates the presence of a P-8a</small>	FY 2013		FY 2018		FY 2020	
	Qty (Each)	Total Cost (\$ M)	Qty (Each)	Total Cost (\$ M)	Qty (Each)	Total Cost (\$ M)
Plan Costs	1	880.078	1	433.200	1	-
Basic Construction/Conversion		6,871.167		7,776.106		8,110.885
Change Orders		183.945		193.902		152.000
Electronics (†)		237.556		255.943		242.600
Propulsion Equipment		2,034.582		2,524.461		2,887.110
Hull, Mechanical, and Electrical (HM&E) (†)		29.104		26.600		13.600
Ordnance (†)		1,011.627		1,043.798		1,003.000
Other Cost		79.298		81.100		41.500
Total Ship Estimate		11,327.357		12,335.110		12,450.695
Less Advance Procurement FY 2007		52.750		-		-
Less Advance Procurement FY 2008		123.530		-		-
Less Advance Procurement FY 2009		1,210.561		-		-
Less Advance Procurement FY 2010		482.938		-		-
Less Advance Procurement FY 2011		902.473		-		-
Less Advance Procurement FY 2012		554.798		-		-
Less Advance Procurement FY 2016		-		862.358		-
Less Advance Procurement FY 2017		-		1,370.784		-
Less Subsequent Full Funding FY 2014		917.553		-		-
Less Subsequent Full Funding FY 2015		1,219.417		-		-
Less Subsequent Full Funding FY 2016		1,569.543		-		-
Less Subsequent Full Funding FY 2017		1,241.783		-		-
Less Subsequent Full Funding FY 2018		2,561.058		-		-
Less Subsequent Full Funding FY 2019		-		955.181		618.000
Less Subsequent Full Funding FY 2020		-		1,062.000		-
Less Subsequent Full Funding FY 2021		-		1,079.700		1,565.000
Less Subsequent Full Funding FY 2022		-		1,016.613		1,307.000
Less Subsequent Full Funding FY 2023		-		1,169.000		760.000
Less Subsequent Full Funding FY 2024		-		1,051.000		667.000
Less Subsequent Full Funding FY 2025		-		2,198.828		696.000
Less Subsequent Full Funding FY 2026		-		-		5,552.695
Net P-1 Funding		490.953		1,569.646		1,285.000
Remarks: The Less Subsequent Full Funding FY 2026 field shows the funds requested to complete CVN 81. This includes resources beyond FY 2026.						

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Exhibit P-5c, Ship Cost Analysis: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1		P-1 Line Item Number / Title: 2001 / Carrier Replacement Program

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Exhibit P-27, Ship Production Schedule: PB 2020 Navy				Date: March 2019	
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1			P-1 Line Item Number / Title: 2001 / Carrier Replacement Program		
Ship	Shipbuilder	Fiscal Year	Contract Award	Start of Construction	Delivery Date
CVN 79	Huntington Ingalls Industries, Newport News Shipbuilding	2013	Jun 2015	Feb 2011	Sep 2024
CVN 80	Huntington Ingalls Industries, Newport News Shipbuilding	2018	Jan 2019	Jan 2019	Mar 2028
CVN 81	Huntington Ingalls Industries, Newport News Shipbuilding	2020	Jan 2019	Jan 2019	Feb 2032

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Exhibit P-8a, Analysis of Ship Cost Estimates: PB 2020 Navy					Date: March 2019	
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1			P-1 Line Item Number / Title: 2001 / Carrier Replacement Program			
Electronics	FY 2013		FY 2018		FY 2020	
	Qty (Each)	Total Cost (\$ M)	Qty (Each)	Total Cost (\$ M)	Qty (Each)	Total Cost (\$ M)
P-35 Items						
CONSOLIDATED AFLOAT NETWORK AND ENTERPRISE SERVICES (CANES)	1	14.755	1	16.053	1	15.951
AN/USG-2, COOPERATIVE ENGAGEMENT CAPABILITY (CEC)	1	5.838	1	6.110	1	6.071
DIGITAL MODULAR RADIO (DMR) ULTRA HIGH FREQUENCY/ VERY HIGH FREQUENCY LINE OF SIGHT (EHF/VHF LOS) SAT	1	9.523	1	10.904	1	10.835
AN/UPX-29(V), INTERROGATOR FRIEND OR FOE (IFF) W/MK XII	1	6.351	1	6.478	1	6.438
SPN-46, AUTOMATIC CARRIER LANDING SYSTEM	1	9.411	1	9.722	1	9.661
SHIP SELF DEFENSE SYSTEM (SSDS)	1	30.656	1	32.306	1	29.699
AN/TPX-42A(V)14, CARRIER AIR TRAFFIC CONTROL CENTER - DIRECT ALTITUDE AND IDENTIFY READOUT (CATCC-DAIR)	1	6.009	1	6.353	1	6.219
NAVY MULTI-BAND TERMINAL (NMT)	1	5.790	1	6.299	1	6.259
AN/SLQ-32(V)6, SURFACE ELECTRONIC WARFARE IMPROVEMENT PROGRAM (SEWIP) BLOCK 2	1	10.518	1	10.555	1	10.488
AN/SRQ-6/MCS-21, SHIPS SIGNAL EXPLOITATION EQUIPMENT (SSEE)	1	7.559	1	7.765	1	7.716
AN/SRC-61 (V)X HFDAG	1	5.959	1	6.059	1	6.021
P-35 Items Subtotal		112.369		118.604		115.358
Major Items						
AN/USQ-155(V)1 TACTICAL VARIANT SWITCH	1	2.330	1	2.743	1	2.725
INFORMATION ASSURANCE (IA)		1.875		2.031		2.018
AN/URC-141X(V), MULTI-FUNCTION INFORMATION DISTRIBUTION SYSTEM (MIDS)-ON SHIP (MOS)	1	1.540	1	1.586	1	1.576
AN/SLQ-25C DUAL, SURFACE SHIP TORPEDO DEFENSE SYSTEM, NIXIE	1	5.215	1	5.243	1	4.627
SHIPBOARD AIR TRAFFIC CONTROL COMMUNICATIONS (SATCC)	1	2.246	1	2.343	1	2.328
AN/WSN-7(V)3, RING LASER GYRO NAVIGATOR (RLGN)	1	2.569	1	3.121	1	3.102
DISTRIBUTED SYSTEMS DESIGN INTEGRATION SERVICES	1	17.615	1	19.181	1	19.037
C4I INTEGRATION & COORDINATION		7.990		10.119		7.114
DISTRIBUTED COMMON GROUND STATION - NAVY (DCGS-N)	1	2.174	1	2.319	1	2.304
AN/USQ-144K AUTOMATED DIGITAL NETWORK SYSTEM (ADNS)	1	1.209	1	1.315	1	1.307
AN/UYQ-86 COMMON DATA LINK MANAGEMENT SYSTEM (CDLMS) WITH NGC2P	1	1.758	1	1.816	1	1.805
OA-9277 ULTRA HIGH FREQUENCY (UHF) MULTICOUPLER	1	2.050	1	1.966	1	1.954

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Exhibit P-8a, Analysis of Ship Cost Estimates: PB 2020 Navy	Date: March 2019
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Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1	P-1 Line Item Number / Title: 2001 / Carrier Replacement Program
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Electronics	FY 2013		FY 2018		FY 2020	
	Qty (Each)	Total Cost (\$ M)	Qty (Each)	Total Cost (\$ M)	Qty (Each)	Total Cost (\$ M)
ARC-210 CARRIER AIR TRAFFIC CONTROL CENTER (CATCC) - PRIFLY - LANDING SIGNAL OFFICER (LSO) SYSTEM	1	1.533	1	1.668	1	1.657
WARFARE SYSTEM INTEGRATION		22.849		24.858		19.995
COMMERCIAL BROADBAND SATELLITE PROGRAM, FORCE LEVEL VARANT (CBSP-FLV)	2	2.266	2	2.465	2	2.450
AN/SSN-6(V)X BLOCK 4, NAVIGATION SENSOR SYSTEM INTERFACE (NAVSSI)	1	2.534	1	2.757	1	3.208
INTEGRATED STRIKE PLANNING & EXECUTION SYSTEMS (ISP&E)	1	8.222	1	8.246	1	8.194
AN/USQ-123(V), COMMUNICATIONS DATA LINK-SYSTEM (CDL-S)	1	2.388	1	2.480	1	2.464
AN/SPN-41 (V), INSTRUMENT LANDING SYSTEM (ILS)	1	3.870	1	3.897	1	3.873
SHIP SIGNAL EXPLOITATION SPACE (SSES/SI) COMMUNICATIONS	1	3.943	1	4.193	1	4.044
TURNKEY RADIO COMMUNICATIONS SYSTEM (RCS)	1	13.681	1	14.884	1	14.789
AN/USQ-T46X(V)X, BATTLE FORCE TACTICAL TRAINING SYSTEM (BFTT)	1	2.547	1	2.733	1	1.829
Major Items Subtotal		112.404		121.964		112.400
Other Cost Elements						
Other ELECTRONICS		12.783		15.375		14.842
Other Cost Elements Subtotal		12.783		15.375		14.842
Total Electronics		237.556		255.943		242.600

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Exhibit P-8a, Analysis of Ship Cost Estimates: PB 2020 Navy					Date: March 2019	
Appropriation / Budget Activity / Budget Sub Activity:			P-1 Line Item Number / Title:			
1611N / 02 / 1			2001 / Carrier Replacement Program			
Hull, Mechanical, and Electrical (HM&E)	FY 2013		FY 2018		FY 2020	
	Qty (Each)	Total Cost (\$ M)	Qty (Each)	Total Cost (\$ M)	Qty (Each)	Total Cost (\$ M)
Major Items						
HM&E ENGINEERING SERVICES		24.009		20.628		7.666
LIFE RAFTS		1.589		1.900		1.888
SUPSHIP MATERIAL AND GFE		0.780		0.620		0.616
TRUCKS (FORKLIFTS)		0.747		0.825		0.820
Major Items Subtotal		27.125		23.973		10.990
Other Cost Elements						
Other HM&E		1.979		2.627		2.610
Other Cost Elements Subtotal		1.979		2.627		2.610
Total Hull, Mechanical, and Electrical (HM&E)		29.104		26.600		13.600

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Exhibit P-8a, Analysis of Ship Cost Estimates: PB 2020 Navy					Date: March 2019	
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1			P-1 Line Item Number / Title: 2001 / Carrier Replacement Program			
Ordnance	FY 2013		FY 2018		FY 2020	
	Qty (Each)	Total Cost (\$ M)	Qty (Each)	Total Cost (\$ M)	Qty (Each)	Total Cost (\$ M)
P-35 Items						
ELECTROMAGNETIC AIRCRAFT LAUNCHING SYSTEM (EMALS)	1	601.363	1	607.873	1	593.314
ENTERPRISE AIR SURVEILLANCE RADAR (EASR)	1	67.893	1	79.000	1	78.956
ADVANCED ARRESTING GEAR (AAG)	1	232.310	1	251.261	1	229.279
PHALANX BLOCK 1B MK 15 MOD 21 & 22, CLOSE - IN WEAPONS SYSTEM (CIWS)	3	20.583	3	20.959	3	19.286
AN/SQQ-34, CARRIER-TACTICAL SUPPORT CENTER (CV-TSC)	1	4.354	1	4.456	1	4.100
MK29 MOD 5, GUIDED MISSILE LAUNCHING SYSTEM (GMLS)	2	11.597	2	11.995	2	11.919
AVIATION DATA MANAGEMENT AND CONTROL SYSTEM (ADMACS)	1	7.436	1	8.828	1	8.772
MK 49, MOD 3 ROLLING AIRFRAME MISSILE (RAM)	2	16.059	2	16.849	2	15.788
AN/SPQ-9B, ANTI-SHIP MISSILE DEFENSE (ASMD) SURFACE SURVEILLANCE AND TRACKING RADAR	1	12.237	1	13.726	1	13.718
MK-9 TARGET ILLUMINATOR	4	12.584	4	12.661	4	12.828
P-35 Items Subtotal		986.416		1,027.608		987.960
Major Items						
LANDING SIGNAL OFFICER DISPLAY SYSTEM (LSODS)	1	1.927	1	2.112	1	2.098
MORIAH BLOCK 2	1	1.365	1	1.499	1	1.490
LONG RANGE LINEUP SYSTEM (LRLS)	1	0.926	1	0.966	1	0.960
IMPROVED FRESNEL LENS OPTICAL LANDING SYSTEM (IFLOLS)	1	2.073	1	2.272	1	2.257
INTEGRATED LAUNCH AND RECOVERY TELEVISION SYSTEM (ILARTS)	1	4.685	1	5.544	1	5.509
Major Items Subtotal		10.976		12.393		12.314
Other Cost Elements						
DUAL BAND RADAR (DBR) (SPY-3 AND VOLUME SEARCH RADAR (VSR))		10.948		-		-
Other ORDNANCE		3.287		3.797		2.726
Other Cost Elements Subtotal		14.235		3.797		2.726
Total Ordnance		1,011.627		1,043.798		1,003.000
Remarks: The Enterprise Air Surveillance Radar (EASR) is intended to replace Dual Band Radar (DBR) on CVN 79, CVN 80, and CVN 81. The \$10,948K cost on the CVN 79 represents a sunk cost paid for overruns associated with receiving the VSR from the DDG 1000 program and was originally planned for installation on CVN 79.						

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Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy						Date: March 2019	
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1				P-1 Line Item Number / Title: 2001 / Carrier Replacement Program			
Equipment Item: CONSOLIDATED AFLOAT NETWORK AND ENTERPRISE SERVICES (CANES)						PARM Code: PMW 750	
P-35 Category	FY 2013		FY 2018		FY 2020		
	Qty (Each)	Total Cost (\$ M)	Qty (Each)	Total Cost (\$ M)	Qty (Each)	Total Cost (\$ M)	
Major Hardware	1	10.173	1	11.068	1	10.998	
Spares		0.436		0.474		0.471	
System Engineering		2.174		2.365		2.350	
Technical Engineering Services		0.250		0.272		0.270	
Other Costs		1.722		1.874		1.862	
Total	1	14.755	1	16.053	1	15.951	

Description:
 CANES will provide the Navy tactical/non-tactical information environment and infrastructure necessary to enable hosting, extended services reach-back and reach-forward, and relay functions. These capabilities will support real time and non-real time tactical/non-tactical edge connected, connectionless, and ad-hoc voice, video and data information exchange requirements. CANES is the technology replacement for the following existing afloat networks: Combined Enterprise Regional Information Exchange System-Maritime (CENTRIXS-M), limited shipboard Internal Voice (IC), Integrated Shipboard Networking System (ISNS), Sensitive Compartmented Information (SCI) Networks, to include the Top Secret enclave, and Video Information eXchange System (VIXS). CANES will incrementally collapse Unclassified, Secret, Secret-Releasable, and SCI enclaves. CANES Increment 1 is the current POR for CVN 78.

Contract Data:

Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost (\$ M)
FY 2013	CVN 79	TBD	TBD	Oct 2021		1	10.173
FY 2018	CVN 80	TBD	TBD	Apr 2025		1	11.068
FY 2020	CVN 81	TBD	TBD	Mar 2029		1	10.998

Delivery Date:

Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date
FY 2013	CVN 79	Sep 2024	23	12	Oct 2021
FY 2018	CVN 80	Mar 2028	23	12	Apr 2025
FY 2020	CVN 81	Feb 2032	23	12	Mar 2029

Competition/Second Source Initiatives:
 N/A

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Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy						Date: March 2019	
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1				P-1 Line Item Number / Title: 2001 / Carrier Replacement Program			
Equipment Item: AN/USG-2, COOPERATIVE ENGAGEMENT CAPABILITY (CEC)						PARM Code: PEO IWS 6.0	
P-35 Category	FY 2013		FY 2018		FY 2020		
	Qty (Each)	Total Cost (\$ M)	Qty (Each)	Total Cost (\$ M)	Qty (Each)	Total Cost (\$ M)	
Major Hardware	1	2.750	1	2.750	1	2.733	
Spares		0.432		0.470		0.467	
System Engineering		2.017		2.195		2.181	
Technical Engineering Services		0.181		0.197		0.196	
Other Costs		0.458		0.498		0.494	
Total	1	5.838	1	6.110	1	6.071	

Description:
CEC significantly improves battle force air and missile defense capabilities by coordinating battle force air defense sensors into a single, near real-time, composite track picture capable of fire control quality. CEC is a sensor netting system which distributes sensor data from each CEC equipped ship, aircraft, and/or Cooperating Unit (CU), to all other CUs in the battle force through a real-time, line of sight, high data rate sensor and engagement data distribution network. CEC is highly resistant to jamming and provides accurate grid locking between CUs. Each CU independently employs high capacity parallel processing and advanced algorithms to combine all distributed sensor data into a high quality track picture that is the same for all CUs. CEC data is presented as a superset of the best sensor capabilities from each CU, all of which are integrated into a single input to each CU's combat weapons system.

Contract Data:

Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost (\$ M)
FY 2013	CVN 79	RAYTHEON	TBD	Aug 2021		1	2.750
FY 2018	CVN 80	TBD	TBD	Oct 2023		1	2.750
FY 2020	CVN 81	TBD	TBD	Sep 2027		1	2.733

Delivery Date:

Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date
FY 2013	CVN 79	Sep 2024	19	18	Aug 2021
FY 2018	CVN 80	Mar 2028	35	18	Oct 2023
FY 2020	CVN 81	Feb 2032	35	18	Sep 2027

Competition/Second Source Initiatives:
N/A

Remarks:
This system is planned for installation during the CVN 79 Phase II availability. This availability enables use of competition / skilled installation teams, provides for installation of shipboard electronic systems closer to time of the ship's first deployment, and allows for concurrent installation of the combat system and DBR replacement radar suite.

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Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy						Date: March 2019	
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1				P-1 Line Item Number / Title: 2001 / Carrier Replacement Program			
Equipment Item: DIGITAL MODULAR RADIO (DMR) ULTRA HIGH FREQUENCY/VERY HIGH FREQUENCY LINE OF SIGHT (EHF/VHF LOS) SAT						PARM Code: PMW 750	

P-35 Category	FY 2013		FY 2018		FY 2020	
	Qty (Each)	Total Cost (\$ M)	Qty (Each)	Total Cost (\$ M)	Qty (Each)	Total Cost (\$ M)
Major Hardware	1	8.294	1	9.187	1	9.129
Spares		0.050		0.055		0.055
System Engineering		0.490		0.643		0.639
Technical Engineering Services		0.369		0.565		0.561
Other Costs		0.252		0.380		0.378
Ancillary Equipment		0.068		0.074		0.073
Total	1	9.523	1	10.904	1	10.835

Description:
DMR-VHF/UHF LOS/SATCOM is an open architecture system that allows transmission and reception of UHF and VHF RF signals. The DMR replaces many legacy systems, including some crypto, Line Of Sight (LOS) and Satellite Communications (SATCOM) components.

Contract Data:

Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost (\$ M)
FY 2013	CVN 79	GENERAL DYNAMICS	C/FFP	Sep 2014		1	8.294
FY 2018	CVN 80	TBD	TBD	Oct 2023		1	9.187
FY 2020	CVN 81	TBD	TBD	Sep 2027		1	9.129

Delivery Date:

Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date
FY 2013	CVN 79	Sep 2024	35	18	Apr 2020
FY 2018	CVN 80	Mar 2028	35	18	Oct 2023
FY 2020	CVN 81	Feb 2032	35	18	Sep 2027

Competition/Second Source Initiatives:
None

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Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy						Date: March 2019	
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1				P-1 Line Item Number / Title: 2001 / Carrier Replacement Program			
Equipment Item: AN/UPX-29(V), INTERROGATOR FRIEND OR FOE (IFF) W/MK XII						PARM Code: PMA 213	
P-35 Category	FY 2013		FY 2018		FY 2020		
	Qty (Each)	Total Cost (\$ M)	Qty (Each)	Total Cost (\$ M)	Qty (Each)	Total Cost (\$ M)	
Major Hardware	1	5.026	1	5.026	1	4.994	
Ancillary Equipment		0.094		0.102		0.101	
Spares		0.112		0.122		0.121	
System Engineering		0.570		0.620		0.616	
Technical Engineering Services		0.139		0.151		0.150	
Other Costs		0.410		0.457		0.456	
Total	1	6.351	1	6.478	1	6.438	

Description:
 IFF is an approved and fully supported centralized Mark XII Interrogator system. It uses one receiver transmitter that synchronizes video with up to four radar sweeps. It supplies synthetic video (symbology) to, and accepts requests from, as many as 22 remote locations. It provides digital target reporting to the combat systems/weapon systems computer via full scan, sector, and/or pop-up interrogations. It provides instantaneous target reporting at requested range and azimuth through the use of an electronically-steered Antenna Group OE-120/UPX or OE-120A/UPX. It provides electronically evaluated Mode 4 target reporting directly to operators and over the combat systems/weapon system computer interface. It provides full redundancy so identification capabilities are retained in case of main processor, main antenna, or main receiver/transmitter failure.

Contract Data:

Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost (\$ M)
FY 2013	CVN 79	BAE SYSTEMS	C/FFP	May 2016		1	5.026
FY 2018	CVN 80	NOTHROP GRUMMAN-BAE SYSTEMS	SS/FFP	Mar 2023		1	5.026
FY 2020	CVN 81	NOTHROP GRUMMAN-BAE SYSTEMS	SS/FFP	Jan 2027		1	4.994

Delivery Date:

Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date
FY 2013	CVN 79	Sep 2024	19	24	Feb 2021
FY 2018	CVN 80	Mar 2028	36	24	Mar 2023
FY 2020	CVN 81	Feb 2032	37	24	Jan 2027

Competition/Second Source Initiatives:
None

Remarks:
 This system is planned for installation during the CVN 79 Phase II availability. This availability enables use of competition / skilled installation teams, provides for installation of shipboard electronic systems closer to time of the ship's first deployment, and allows for concurrent installation of the combat system and DBR replacement radar suite.

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Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy						Date: March 2019	
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1				P-1 Line Item Number / Title: 2001 / Carrier Replacement Program			
Equipment Item: SPN-46, AUTOMATIC CARRIER LANDING SYSTEM						PARM Code: PMA 213	
P-35 Category	FY 2013		FY 2018		FY 2020		
	Qty <i>(Each)</i>	Total Cost <i>(\$ M)</i>	Qty <i>(Each)</i>	Total Cost <i>(\$ M)</i>	Qty <i>(Each)</i>	Total Cost <i>(\$ M)</i>	
Major Hardware	1	5.870	1	5.870	1	5.833	
System Engineering		1.342		1.460		1.451	
Technical Engineering Services		0.312		0.340		0.338	
Other Costs		1.887		2.052		2.039	
Total	1	9.411	1	9.722	1	9.661	
Description: AN/SPN-46 (V)3 provides Precision Approach Landing System (PALS) used for non-clear weather aircraft landings on board carriers.							
Contract Data:							
Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity <i>(Each)</i>	Unit Cost <i>(\$ M)</i>
FY 2013	CVN 79	NAWCAD	Various	Feb 2021		1	5.870
FY 2018	CVN 80	NAWCAD	Various	Sep 2023		1	5.870
FY 2020	CVN 81	NAWCAD	Various	Jul 2027		1	5.833
Delivery Date:							
Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date		
FY 2013	CVN 79	Sep 2024	19	24	Feb 2021		
FY 2018	CVN 80	Mar 2028	30	24	Sep 2023		
FY 2020	CVN 81	Feb 2032	31	24	Jul 2027		
Competition/Second Source Initiatives: None.							

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Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy						Date: March 2019	
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1				P-1 Line Item Number / Title: 2001 / Carrier Replacement Program			
Equipment Item: SHIP SELF DEFENSE SYSTEM (SSDS)						PARM Code: PEO IWS 10.0	
P-35 Category	FY 2013		FY 2018		FY 2020		
	Qty (Each)	Total Cost (\$ M)	Qty (Each)	Total Cost (\$ M)	Qty (Each)	Total Cost (\$ M)	
Major Hardware	1	11.900	1	11.900	1	10.940	
Technical Data and Documentation		1.430		1.556		1.430	
Spares		0.592		0.644		0.592	
System Engineering		6.863		7.467		6.865	
Technical Engineering Services		0.728		0.792		0.728	
Other Costs		9.143		9.947		9.144	
Total	1	30.656	1	32.306	1	29.699	

Description:
The SSDS MK 2, Mod (x) Common C2 system provides capabilities for multi-mission requirements including Ship Protection against air, surface, and subsurface threats using both own-ship and remote data (Joint Composite Track Number (JCTN) and Joint Data Network (JDN)) in support of the Anti-Air Warfare (AAW) Capstone requirements.

Contract Data:

Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost (\$ M)
FY 2013	CVN 79	TBD	TBD	Feb 2021		1	11.900
FY 2018	CVN 80	TBD	TBD	Dec 2023		1	11.900
FY 2020	CVN 81	TBD	TBD	Nov 2027		1	10.940

Delivery Date:

Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date
FY 2013	CVN 79	Sep 2024	19	24	Feb 2021
FY 2018	CVN 80	Mar 2028	27	24	Dec 2023
FY 2020	CVN 81	Feb 2032	27	24	Nov 2027

Competition/Second Source Initiatives:
None

Remarks:
This system is planned for installation during the CVN 79 Phase II availability. This availability enables use of competition / skilled installation teams, provides for installation of shipboard electronic systems closer to time of the ship's first deployment, and allows for concurrent installation of the combat system and DBR replacement radar suite.

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Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy						Date: March 2019	
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1				P-1 Line Item Number / Title: 2001 / Carrier Replacement Program			
Equipment Item: AN/TPX-42A(V)14, CARRIER AIR TRAFFIC CONTROL CENTER - DIRECT ALTITUDE AND IDENTIFY READOUT (CATCC-DAIR)						PARM Code: PMA 213	

P-35 Category	FY 2013		FY 2018		FY 2020	
	Qty <i>(Each)</i>	Total Cost <i>(\$ M)</i>	Qty <i>(Each)</i>	Total Cost <i>(\$ M)</i>	Qty <i>(Each)</i>	Total Cost <i>(\$ M)</i>
Major Hardware	1	3.244	1	3.244	1	3.176
Spares		0.267		0.291		0.285
System Engineering		1.865		2.029		1.986
Technical Engineering Services		0.056		0.061		0.060
Other Costs		0.577		0.728		0.712
Total	1	6.009	1	6.353	1	6.219

Description:
CATCC-DAIR is an automatic beacon and radar that when integrated with an air traffic control radar, provides numeric and symbolic displays of position, identity, and altitude of aircraft in the terminal airspace on an operator's Plane Position Indicator (PPI) display.

Contract Data:

Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity <i>(Each)</i>	Unit Cost <i>(\$ M)</i>
FY 2013	CVN 79	TBD	TBD	Feb 2021		1	3.244
FY 2018	CVN 80	TBD	TBD	Mar 2023		1	3.244
FY 2020	CVN 81	TBD	TBD	Jan 2027		1	3.176

Delivery Date:

Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date
FY 2013	CVN 79	Sep 2024	19	24	Feb 2021
FY 2018	CVN 80	Mar 2028	36	24	Mar 2023
FY 2020	CVN 81	Feb 2032	37	24	Jan 2027

Competition/Second Source Initiatives:
none

Remarks:
This system is planned for installation during the CVN 79 Phase II availability. This availability enables use of competition/skilled installation teams, provides for installation of shipboard electronic systems closer to time of the ship's first deployment, and allows for concurrent installation of the combat system and DBR replacement radar suite.

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Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy						Date: March 2019	
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1				P-1 Line Item Number / Title: 2001 / Carrier Replacement Program			
Equipment Item: NAVY MULTI-BAND TERMINAL (NMT)						PARM Code: PMW 750	
P-35 Category	FY 2013		FY 2018		FY 2020		
	Qty (Each)	Total Cost (\$ M)	Qty (Each)	Total Cost (\$ M)	Qty (Each)	Total Cost (\$ M)	
Major Hardware	1	5.223	1	5.682	1	5.646	
Ancillary Equipment		0.048		0.052		0.052	
System Engineering		0.090		0.098		0.097	
Technical Engineering Services		0.090		0.098		0.097	
Other Costs		0.339		0.369		0.367	
Total	1	5.790	1	6.299	1	6.259	
Description: The Advanced Extremely High Frequency (AEHF) Navy Multi-band Terminal (NMT) will be used to receive signals from the Advanced EHF satellites which is a follow-on to the DoD's highly secure, highly protected MILSTAR communications satellite system.							
Contract Data:							
Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost (\$ M)
FY 2013	CVN 79	RAYTHEON	C/FFP	Jun 2014		1	5.223
FY 2018	CVN 80	TBD	TBD	Dec 2023		1	5.682
FY 2020	CVN 81	TBD	TBD	Nov 2027		1	5.646
Delivery Date:							
Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date		
FY 2013	CVN 79	Sep 2024	33	18	Jun 2020		
FY 2018	CVN 80	Mar 2028	33	18	Dec 2023		
FY 2020	CVN 81	Feb 2032	33	18	Nov 2027		
Competition/Second Source Initiatives: None							

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Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy						Date: March 2019	
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1				P-1 Line Item Number / Title: 2001 / Carrier Replacement Program			
Equipment Item: AN/SLQ-32(V)6, SURFACE ELECTRONIC WARFARE IMPROVEMENT PROGRAM (SEWIP) BLOCK 2						PARM Code: PEO IWS 2E	

P-35 Category	FY 2013		FY 2018		FY 2020	
	Qty (Each)	Total Cost (\$ M)	Qty (Each)	Total Cost (\$ M)	Qty (Each)	Total Cost (\$ M)
Major Hardware	1	10.100	1	10.100	1	10.036
Ancillary Equipment		0.315		0.343		0.341
System Engineering		0.091		0.099		0.098
Other Costs		0.012		0.013		0.013
Total	1	10.518	1	10.555	1	10.488

Description:
 SEWIP Block 2 is a scalable Electronic Warfare enterprise suite to provide improved Electromagnetic Interference (EMI) mitigation and Combat System Interface capabilities to select new construction ships as well as upgrade current AN/SLQ-32(V)3 and (V)4 Electronic Warfare (EW) suites on existing ships. It provides enhanced shipboard Electronic Warfare (EW) for early detection, analysis, threat warning and protection from anti-ship missiles. SEWIP Block 2 focused on Electronic Support (ES) capability improvements.

Contract Data:

Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost (\$ M)
FY 2013	CVN 79	TBD	TBD	Aug 2021		1	10.100
FY 2018	CVN 80	TBD	TBD	Oct 2024		1	10.100
FY 2020	CVN 81	TBD	TBD	Sep 2028		1	10.036

Delivery Date:

Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date
FY 2013	CVN 79	Sep 2024	19	18	Aug 2021
FY 2018	CVN 80	Mar 2028	23	18	Oct 2024
FY 2020	CVN 81	Feb 2032	23	18	Sep 2028

Competition/Second Source Initiatives:
None

Remarks:
 This system is planned for installation during the CVN 79 Phase II availability. This availability enables use of competition / skilled installation teams, provides for installation of shipboard electronic systems closer to time of the ship's first deployment, and allows for concurrent installation of the combat system and DBR replacement radar suite.

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Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy						Date: March 2019																																
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1				P-1 Line Item Number / Title: 2001 / Carrier Replacement Program																																		
Equipment Item: AN/SRQ-6/MCS-21, SHIPS SIGNAL EXPLOITATION EQUIPMENT (SSEE)						PARM Code: PMW 750																																
P-35 Category	FY 2013		FY 2018		FY 2020																																	
	Qty (Each)	Total Cost (\$ M)	Qty (Each)	Total Cost (\$ M)	Qty (Each)	Total Cost (\$ M)																																
Major Hardware	1	5.214	1	5.214	1	5.181																																
Ancillary Equipment		0.078		0.085		0.084																																
Spares		0.192		0.209		0.208																																
System Engineering		0.827		0.900		0.894																																
Technical Engineering Services		0.176		0.191		0.190																																
Other Costs		1.072		1.166		1.159																																
Total	1	7.559	1	7.765	1	7.716																																
Description: SSEE provided for cryptological signal acquisition, recognition, analysis and geo-location. It replaces Maritime Cryptological System (MCS-21) which replaces the Battle Group Passive Horizon Extension System (BGPHEs).																																						
Contract Data: <table border="1" style="width:100%; border-collapse: collapse; margin-top: 5px;"> <tr> <th>Program Year</th> <th>Hull</th> <th>Prime Contractor</th> <th>Contract Method/Type</th> <th>Award Date</th> <th>New/Option</th> <th>Quantity (Each)</th> <th>Unit Cost (\$ M)</th> </tr> <tr> <td>FY 2013</td> <td>CVN 79</td> <td>TBD</td> <td>TBD</td> <td>Aug 2021</td> <td></td> <td align="center">1</td> <td align="right">5.214</td> </tr> <tr> <td>FY 2018</td> <td>CVN 80</td> <td>TBD</td> <td>TBD</td> <td>Jul 2024</td> <td></td> <td align="center">1</td> <td align="right">5.214</td> </tr> <tr> <td>FY 2020</td> <td>CVN 81</td> <td>TBD</td> <td>TBD</td> <td>Jun 2028</td> <td></td> <td align="center">1</td> <td align="right">5.181</td> </tr> </table>							Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost (\$ M)	FY 2013	CVN 79	TBD	TBD	Aug 2021		1	5.214	FY 2018	CVN 80	TBD	TBD	Jul 2024		1	5.214	FY 2020	CVN 81	TBD	TBD	Jun 2028		1	5.181
Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost (\$ M)																															
FY 2013	CVN 79	TBD	TBD	Aug 2021		1	5.214																															
FY 2018	CVN 80	TBD	TBD	Jul 2024		1	5.214																															
FY 2020	CVN 81	TBD	TBD	Jun 2028		1	5.181																															
Delivery Date: <table border="1" style="width:100%; border-collapse: collapse; margin-top: 5px;"> <tr> <th>Program Year</th> <th>Hull</th> <th>Earliest Ship Delivery Date</th> <th>Months Required Before Delivery</th> <th>Production Leadtime</th> <th>Required Award Date</th> </tr> <tr> <td>FY 2013</td> <td>CVN 79</td> <td>Sep 2024</td> <td align="center">19</td> <td align="center">18</td> <td align="center">Aug 2021</td> </tr> <tr> <td>FY 2018</td> <td>CVN 80</td> <td>Mar 2028</td> <td align="center">26</td> <td align="center">18</td> <td align="center">Jul 2024</td> </tr> <tr> <td>FY 2020</td> <td>CVN 81</td> <td>Feb 2032</td> <td align="center">26</td> <td align="center">18</td> <td align="center">Jun 2028</td> </tr> </table>							Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date	FY 2013	CVN 79	Sep 2024	19	18	Aug 2021	FY 2018	CVN 80	Mar 2028	26	18	Jul 2024	FY 2020	CVN 81	Feb 2032	26	18	Jun 2028								
Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date																																	
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FY 2020	CVN 81	Feb 2032	26	18	Jun 2028																																	
Competition/Second Source Initiatives: None																																						
Remarks: This system is planned for installation during the CVN 79 Phase II availability. This availability enables use of competition / skilled installation teams, provides for installation of shipboard electronic systems closer to time of the ship's first deployment, and allows for concurrent installation of the combat system and DBR replacement radar suite.																																						

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Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy						Date: March 2019	
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1				P-1 Line Item Number / Title: 2001 / Carrier Replacement Program			
Equipment Item: AN/SRC-61 (V)X HFDAG						PARM Code: PMW 170	
P-35 Category	FY 2013		FY 2018		FY 2020		
	Qty (Each)	Total Cost (\$ M)	Qty (Each)	Total Cost (\$ M)	Qty (Each)	Total Cost (\$ M)	
Major Hardware	1	4.816	1	4.816	1	4.786	
Ancillary Equipment		0.048		0.052		0.052	
Spares		0.010		0.011		0.011	
System Engineering		0.199		0.216		0.215	
Technical Engineering Services		0.484		0.527		0.524	
Other Costs		0.402		0.437		0.433	
Total	1	5.959	1	6.059	1	6.021	

Description:
 High Frequency (HF) Distributed Amplifier Group (DAG) is the Navy's Program of Record (POR) HF system and is the follow-on replacement of HF Radio Group (HFRG). HFDAG has a modular architecture and utilizes COTS equipment to the maximum extent possible. It provides Line Of Sight (LOS/Beyond Line of Sight (BLOS) voice and data transmission capabilities to USN Ships. The 16-channel CVN variant greatly improves capabilities from HFRG: (1) increases availability (Ao), (2) provides reprogrammable waveforms, (3) increases the number of waveforms available, (4) provides automatic link establishment (ALE).

Contract Data:

Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost (\$ M)
FY 2013	CVN 79	TBD	TBD	Aug 2021		1	4.816
FY 2018	CVN 80	TBD	TBD	Nov 2023		1	4.816
FY 2020	CVN 81	TBD	TBD	Oct 2027		1	4.786

Delivery Date:

Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date
FY 2013	CVN 79	Sep 2024	19	18	Aug 2021
FY 2018	CVN 80	Mar 2028	34	18	Nov 2023
FY 2020	CVN 81	Feb 2032	34	18	Oct 2027

Competition/Second Source Initiatives:
 N/A

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Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy					Date: March 2019	
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1			P-1 Line Item Number / Title: 2001 / Carrier Replacement Program			
Equipment Item: ELECTROMAGNETIC AIRCRAFT LAUNCHING SYSTEM (EMALS)					PARM Code: PMA 251	

P-35 Category	FY 2013		FY 2018		FY 2020	
	Qty <i>(Each)</i>	Total Cost (\$ M)	Qty <i>(Each)</i>	Total Cost (\$ M)	Qty <i>(Each)</i>	Total Cost (\$ M)
Major Hardware	1	552.719	1	542.163	1	557.474
Technical Data and Documentation		0.491		-		-
Spares		-		28.050		-
System Engineering		19.066		17.507		18.001
Technical Engineering Services		3.015		2.556		2.628
Other Costs		26.072		17.597		15.211
Total	1	601.363	1	607.873	1	593.314

Description:
 EMALS is an advanced technology electrically generated launching system that uses a moving electromagnetic field to propel aircraft to launch speed. EMALS is made up of six primary sub-systems: prime power interface, energy storage, energy distribution, power conversion, launch motor, and launch control subsystem. Benefits over the current C13 steam catapults include reduced weight and volume, greater launching flexibility for future aircraft, improved control, and reduced manning workload requirements.

Contract Data:

Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity <i>(Each)</i>	Unit Cost (\$ M)
FY 2013	CVN 79	GENERAL ATOMICS	SS/FFP	May 2014	New	1	552.719
FY 2018	CVN 80	GENERAL ATOMICS	SS/FFP	Jul 2019	Option	1	542.163
FY 2020	CVN 81	GENERAL ATOMICS	SS/FFP	May 2023	Option	1	557.474

Delivery Date:

Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date
FY 2013	CVN 79	Sep 2024	81	48	Dec 2013
FY 2018	CVN 80	Mar 2028	56	48	Jul 2019
FY 2020	CVN 81	Feb 2032	57	48	May 2023

Competition/Second Source Initiatives:
 None

Remarks:
 The CVN 80 Spares P-35 category includes \$28.05M for CVN 78 Class Interim Spares.

Long Lead Time Materials Undefinitized Contract Action (UCA) awarded May 2014, Undefinitized Production UCA awarded June 2015 for CVN 79, Production UCA definitized December 2016 for CVN 79 with option for CVN 80. CVN 80 option exercised January 2017 EMALS and AAG bundled savings on single production contract for CVN 79 and CVN 80 are reflective of contract negotiations.

The Program is pursuing the addition of CVN 81 to the previously awarded 79/80 contract.

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Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy					Date: March 2019	
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1			P-1 Line Item Number / Title: 2001 / Carrier Replacement Program			
Equipment Item: ENTERPRISE AIR SURVEILLANCE RADAR (EASR)					PARM Code: PEO IWS 2.0	
P-35 Category	FY 2013		FY 2018		FY 2020	
	Qty (Each)	Total Cost (\$ M)	Qty (Each)	Total Cost (\$ M)	Qty (Each)	Total Cost (\$ M)
Major Hardware	1	44.830	1	58.000	1	57.968
Ancillary Equipment		0.003		-		-
Spares		2.178		-		-
System Engineering		2.142		21.000		20.988
Technical Engineering Services		7.670		-		-
Other Costs		11.070		-		-
Total	1	67.893	1	79.000	1	78.956

Description:
 The Enterprise Air Surveillance Radar (EASR) suite will be a modern long-range, three-dimensional (3D) radar used to search, detect and provide space-stabilized, three-coordinate (range, bearing, height) data for air intercept control and designation to a weapon system and Air Traffic Control (ATC) system. The Enterprise Surveillance Suite (ESS), which includes EASR, is intended to replace the functions that Dual Band Radar (DBR) performed on CVN 78, but at a much lower cost.

Contract Data:

Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost (\$ M)
FY 2013	CVN 79	RAYTHEON	C/CPIF	Sep 2019		1	44.830
FY 2018	CVN 80	RAYTHEON	C/CPIF	Feb 2023		1	58.000
FY 2020	CVN 81	RAYTHEON	C/CPIF	Jan 2027		1	57.968

Delivery Date:

Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date
FY 2013	CVN 79	Sep 2024	19	30	Aug 2020
FY 2018	CVN 80	Mar 2028	31	30	Feb 2023
FY 2020	CVN 81	Feb 2032	31	30	Jan 2027

Competition/Second Source Initiatives:
 None

Remarks:
 The hardware configuration for the CVN 79, CVN 80, and CVN 81 (non-rotating) is essentially three times that of a rotating configuration, which is currently planned for the big deck amphibious warfare ships. CVN 79, CVN 80, and CVN 81 will have three phased arrays mounted around the island, while the amphibious warfare ships will use one rotating array. Below deck equipment is also provided at a larger scale with the non-rotating variant of EASR.

This system is planned for installation during the CVN 79 Phase II availability. This availability enables use of competition / skilled installation teams, provides for installation of shipboard electronic systems closer to time of the ship's first deployment, and allows for concurrent installation of the combat system and DBR replacement radar suite.

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Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy						Date: March 2019	
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1				P-1 Line Item Number / Title: 2001 / Carrier Replacement Program			
Equipment Item: ADVANCED ARRESTING GEAR (AAG)						PARM Code: PMA 251	
P-35 Category	FY 2013		FY 2018		FY 2020		
	Qty (Each)	Total Cost (\$ M)	Qty (Each)	Total Cost (\$ M)	Qty (Each)	Total Cost (\$ M)	
Major Hardware	1	206.406	1	199.219	1	204.845	
Spares		-		32.497		1.827	
System Engineering		8.054		4.471		4.597	
Technical Engineering Services		6.904		4.771		4.906	
Other Costs		10.946		10.303		13.104	
Total	1	232.310	1	251.261	1	229.279	

Description:
AAG provides an upgraded ability to recover all existing and projected aircraft carrier based air vehicles. The AAG system will replace the Mark 7 arresting gear system found on the NIMITZ class carriers and will be the aircraft recovery system for the CVN 79, CVN 80, and CVN 81. AAG consists of six primary systems; energy absorption subsystem, energy storage subsystem, dynamic control subsystem, thermal management subsystem, cross deck pendant, and the control subsystem.

Contract Data:

Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost (\$ M)
FY 2013	CVN 79	GENERAL ATOMICS	SS/FFP	May 2014	New	1	206.406
FY 2018	CVN 80	GENERAL ATOMICS	SS/FFP	Nov 2018	Option	1	199.219
FY 2020	CVN 81	GENERAL ATOMICS	SS/FFP	Sep 2022	Option	1	204.845

Delivery Date:

Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date
FY 2013	CVN 79	Sep 2024	73	48	Aug 2014
FY 2018	CVN 80	Mar 2028	64	48	Nov 2018
FY 2020	CVN 81	Feb 2032	65	48	Sep 2022

Competition/Second Source Initiatives:
None

Remarks:
The CVN 80 Spares P-35 category includes \$30.727M for CVN 78 Class Interim Spares and \$1.770M for Initial Installation & Checkout Spares.

Long Lead Time Materials Undefinitized Contract Action (UCA) awarded May 2014, Undefinitized Production UCA awarded June 2015 for CVN 79, Production UCA definitized December 2016 for CVN 79 with option for CVN 80. EMALS and AAG bundled savings on single production contract for CVN 79 and CVN 80 are reflective of contract negotiations.

The Program is pursuing the addition of CVN 81 to the previously awarded 79/80 contract.

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Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy						Date: March 2019	
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1				P-1 Line Item Number / Title: 2001 / Carrier Replacement Program			
Equipment Item: PHALANX BLOCK 1B MK 15 MOD 21 & 22, CLOSE - IN WEAPONS SYSTEM (CIWS)						PARM Code: IWS 3B	
P-35 Category	FY 2013		FY 2018		FY 2020		
	Qty (Each)	Total Cost (\$ M)	Qty (Each)	Total Cost (\$ M)	Qty (Each)	Total Cost (\$ M)	
Major Hardware	3	16.297	3	16.297	3	14.996	
Ancillary Equipment		0.231		0.251		0.231	
Spares		0.278		0.302		0.278	
System Engineering		1.857		2.020		1.858	
Technical Engineering Services		0.628		0.683		0.629	
Other Costs		1.292		1.406		1.294	
Total	3	20.583	3	20.959	3	19.286	

Description:
Phalanx is a high fire rate Close-In Weapon System (CIWS) that automatically acquires, tracks and destroys Anti-Ship cruise missiles, Helos, Aircraft, and all types of Surface threats. The installed version will have one MK-15, Mod 21 and two MK-15 Mod 22 CIWS systems.

Contract Data:

Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost (\$ M)
FY 2013	CVN 79	RAYTHEON	C/FFP	Apr 2021		3	5.432
FY 2018	CVN 80	RAYTHEON	C/FFP	Apr 2024		3	5.432
FY 2020	CVN 81	RAYTHEON	C/FFP	Mar 2028		3	4.999

Delivery Date:

Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date
FY 2013	CVN 79	Sep 2024	19	22	Apr 2021
FY 2018	CVN 80	Mar 2028	25	22	Apr 2024
FY 2020	CVN 81	Feb 2032	25	22	Mar 2028

Competition/Second Source Initiatives:
None

Remarks:
This system is planned for installation during the CVN 79 Phase II availability. This availability enables use of competition / skilled installation teams, provides for installation of shipboard electronic systems closer to time of the ship's first deployment, and allows for concurrent installation of the combat system and DBR replacement radar suite.

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Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy						Date: March 2019	
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1				P-1 Line Item Number / Title: 2001 / Carrier Replacement Program			
Equipment Item: AN/SQQ-34, CARRIER-TACTICAL SUPPORT CENTER (CV-TSC)						PARM Code: PEO IWS 5E	
P-35 Category	FY 2013		FY 2018		FY 2020		
	Qty (Each)	Total Cost (\$ M)	Qty (Each)	Total Cost (\$ M)	Qty (Each)	Total Cost (\$ M)	
Major Hardware	1	3.199	1	3.199	1	3.621	
Spares		0.100		0.109		0.245	
System Engineering		0.350		0.381		0.029	
Technical Engineering Services		0.250		0.272		0.035	
Other Costs		0.455		0.495		0.170	
Total	1	4.354	1	4.456	1	4.100	
Description: CV-TSC provides for carrier organic Anti-submarine Warfare (ASW), Mine Warfare (MIW), Surface Warfare (SUW), and other composite warfare area sensor data processing, tactical command and control, and organic/battle-group aircraft mission support. CV-TSC supports both ship self defense and embarked Destroyer Squadron (DESRON) missions. This system is Open Architecture Computing Environment (OACE), Joint Fires Network (JFN), and FORCEnet compliant, and includes redesign to maximize introduction of expected transformational technologies such as Common Processing System (CPS), Common Display System (CDS), sensor processing in support of the MH-60R helicopter, high speed bandwidth network, Excomm systems, net-centric warfare components, etc.							
Contract Data:							
Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost (\$ M)
FY 2013	CVN 79	TBD	TBD	Aug 2021		1	3.199
FY 2018	CVN 80	TBD	TBD	Feb 2024		1	3.199
FY 2020	CVN 81	TBD	TBD	Jan 2028		1	3.621
Delivery Date:							
Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date		
FY 2013	CVN 79	Sep 2024	19	18	Aug 2021		
FY 2018	CVN 80	Mar 2028	31	18	Feb 2024		
FY 2020	CVN 81	Feb 2032	31	18	Jan 2028		
Competition/Second Source Initiatives: None							
Remarks: This system is planned for installation during the CVN 79 Phase II availability. This availability enables use of competition / skilled installation teams, provides for installation of shipboard electronic systems closer to time of the ship's first deployment, and allows for concurrent installation of the combat system and DBR replacement radar suite.							

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Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy					Date: March 2019	
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1				P-1 Line Item Number / Title: 2001 / Carrier Replacement Program		
Equipment Item: MK29 MOD 5, GUIDED MISSILE LAUNCHING SYSTEM (GMLS)					PARM Code: PEO IWS 3	
P-35 Category	FY 2013		FY 2018		FY 2020	
	Qty (Each)	Total Cost (\$ M)	Qty (Each)	Total Cost (\$ M)	Qty (Each)	Total Cost (\$ M)
Major Hardware	2	7.071	2	7.071	2	7.026
Ancillary Equipment		0.400		0.435		0.432
Spares		0.922		1.003		0.997
System Engineering		0.750		0.816		0.811
Technical Engineering Services		0.710		0.773		0.768
Other Costs		1.744		1.897		1.885
Total	2	11.597	2	11.995	2	11.919

Description:
The MK 29 Mod 5 GMLS is a launcher only configuration integrated with the C2 system and will provide the CVN 79, CVN 80, and CVN 81 with a cost effective means of employing the initial Evolved Sea Sparrow Missile (ESSM) capability. This configuration consist of an open architecture launching system and does not include operator workstations; all workstations and operator interactions necessary for system operation including but not limited to power application to the GMLS and control and safety/status monitoring of loaded cells is assumed to exist at the combat system level.

Contract Data:

Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost (\$ M)
FY 2013	CVN 79	TBD	TBD	Sep 2020		2	3.536
FY 2018	CVN 80	TBD	TBD	Jul 2023		2	3.536
FY 2020	CVN 81	TBD	TBD	Jun 2027		2	3.513

Delivery Date:

Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date
FY 2013	CVN 79	Sep 2024	19	29	Sep 2020
FY 2018	CVN 80	Mar 2028	27	29	Jul 2023
FY 2020	CVN 81	Feb 2032	27	29	Jun 2027

Competition/Second Source Initiatives:
None

Remarks:
This system is planned for installation during the CVN 79 Phase II availability. This availability enables use of competition / skilled installation teams, provides for installation of shipboard electronic systems closer to time of the ship's first deployment, and allows for concurrent installation of the combat system and DBR replacement radar suite.

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Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy						Date: March 2019	
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1				P-1 Line Item Number / Title: 2001 / Carrier Replacement Program			
Equipment Item: AVIATION DATA MANAGEMENT AND CONTROL SYSTEM (ADMACS)						PARM Code: PMA 251	
P-35 Category	FY 2013		FY 2018		FY 2020		
	Qty (Each)	Total Cost (\$ M)	Qty (Each)	Total Cost (\$ M)	Qty (Each)	Total Cost (\$ M)	
Major Hardware	1	3.213	1	5.141	1	5.108	
System Engineering		1.599		0.950		0.944	
Technical Engineering Services		0.401		0.592		0.588	
Other Costs		2.223		2.145		2.132	
Total	1	7.436	1	8.828	1	8.772	
Description: ADMACS is a virtual, seamless, data sharing, knowledge based data system that provides interface for all aviation data systems. It is a tactical real-time information management system maintaining data integrity throughout the ship spaces that manage aircraft launch and recovery operations on board the carrier. ADMACS includes data from launch and recovery equipment, air traffic control, aviation maintenance, landing signaling officer, etc.							
Contract Data:							
Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost (\$ M)
FY 2013	CVN 79	BOWHEAD	C/FFP	Jul 2016	Option	1	3.213
FY 2018	CVN 80	TBD	TBD	Mar 2024		1	5.141
FY 2020	CVN 81	TBD	TBD	Jan 2028		1	5.108
Delivery Date:							
Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date		
FY 2013	CVN 79	Sep 2024	31	12	Feb 2021		
FY 2018	CVN 80	Mar 2028	36	12	Mar 2024		
FY 2020	CVN 81	Feb 2032	37	12	Jan 2028		
Competition/Second Source Initiatives: N/A							

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Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy						Date: March 2019	
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1				P-1 Line Item Number / Title: 2001 / Carrier Replacement Program			
Equipment Item: MK 49, MOD 3 ROLLING AIRFRAME MISSILE (RAM)						PARM Code: PEO IWS 3B	
P-35 Category	FY 2013		FY 2018		FY 2020		
	Qty (Each)	Total Cost (\$ M)	Qty (Each)	Total Cost (\$ M)	Qty (Each)	Total Cost (\$ M)	
Major Hardware	2	7.902	2	7.902	2	7.404	
Ancillary Equipment		1.381		1.503		1.408	
Technical Data and Documentation		0.035		0.038		0.036	
Spares		0.140		0.152		0.142	
System Engineering		2.190		2.383		2.233	
Technical Engineering Services		0.380		0.413		0.387	
Other Costs		4.031		4.458		4.178	
Total	2	16.059	2	16.849	2	15.788	

Description:
The MK 49 Mod 3 Rolling Airframe Missile (RAM) Weapon System is a lightweight, low cost, high power system for anti-ship missile defense against current and evolving threats. The Block 1 upgrade adds the capability of infrared, all-the-way missile guidance while maintaining the original dual-mode (RF/IR) capability. The helos, aircraft, and surface (HAS) upgrade enables the engagement of asymmetric threats. The CVN 78 class system provides refurbished MK 49 Guided Missile Launching Systems upgraded to MK 49 Mod 3.

Contract Data:

Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost (\$ M)
FY 2013	CVN 79	TBD	TBD	May 2021		2	3.951
FY 2018	CVN 80	TBD	TBD	May 2024		2	3.951
FY 2020	CVN 81	TBD	TBD	Apr 2028		2	3.702

Delivery Date:

Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date
FY 2013	CVN 79	Sep 2024	19	21	May 2021
FY 2018	CVN 80	Mar 2028	25	21	May 2024
FY 2020	CVN 81	Feb 2032	25	21	Apr 2028

Competition/Second Source Initiatives:
None

Remarks:
This system is planned for installation during the CVN 79 Phase II availability. This availability enables use of competition / skilled installation teams, provides for installation of shipboard electronic systems closer to time of the ship's first deployment, and allows for concurrent installation of the combat system and DBR replacement radar suite.

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Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy						Date: March 2019	
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1				P-1 Line Item Number / Title: 2001 / Carrier Replacement Program			
Equipment Item: AN/SPQ-9B, ANTI-SHIP MISSILE DEFENSE (ASMD) SURFACE SURVEILLANCE AND TRACKING RADAR						PARM Code: PEO IWS2B	

P-35 Category	FY 2013		FY 2018		FY 2020	
	Qty <i>(Each)</i>	Total Cost <i>(\$ M)</i>	Qty <i>(Each)</i>	Total Cost <i>(\$ M)</i>	Qty <i>(Each)</i>	Total Cost <i>(\$ M)</i>
Major Hardware	1	6.486	1	7.469	1	7.576
Spares		0.450		0.490		0.497
System Engineering		0.980		1.066		1.081
Technical Engineering Services		0.602		0.655		0.664
Other Costs		3.719		4.046		3.900
Total	1	12.237	1	13.726	1	13.718

Description:
 SPQ-9B is a multimode, x-band, narrow beam, pulse Doppler radar that detects and tracks sea-skimming missiles (ASMD) at the horizon in heavy clutter while simultaneously providing detection and tracking of surface targets.

Contract Data:

Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity <i>(Each)</i>	Unit Cost <i>(\$ M)</i>
FY 2013	CVN 79	NGES	SS/FFP	Aug 2021		1	6.486
FY 2018	CVN 80	NGES	SS/FFP	Feb 2024		1	7.469
FY 2020	CVN 81	NGES	SS/FFP	Jan 2028		1	7.576

Delivery Date:

Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date
FY 2013	CVN 79	Sep 2024	19	18	Aug 2021
FY 2018	CVN 80	Mar 2028	31	18	Feb 2024
FY 2020	CVN 81	Feb 2032	31	18	Jan 2028

Competition/Second Source Initiatives:
 None

Remarks:
 This system is planned for installation during the CVN 79 Phase II availability. This availability enables use of competition / skilled installation teams, provides for installation of shipboard electronic systems closer to time of the ship's first deployment, and allows for concurrent installation of the combat system and DBR replacement radar suite.

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Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy						Date: March 2019																																
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1				P-1 Line Item Number / Title: 2001 / Carrier Replacement Program																																		
Equipment Item: MK-9 TARGET ILLUMINATOR						PARM Code: IWS 3D																																
P-35 Category	FY 2013		FY 2018		FY 2020																																	
	Qty (Each)	Total Cost (\$ M)	Qty (Each)	Total Cost (\$ M)	Qty (Each)	Total Cost (\$ M)																																
Major Hardware	4	11.706	4	11.706	4	12.037																																
Spares		0.878		0.955		0.791																																
Total	4	12.584	4	12.661	4	12.828																																
Description: MK-9 is an X-Band Illuminator that provides weapon communication and missile illumination.																																						
Contract Data: <table border="1" style="width:100%; border-collapse: collapse; margin-top: 5px;"> <tr> <th>Program Year</th> <th>Hull</th> <th>Prime Contractor</th> <th>Contract Method/Type</th> <th>Award Date</th> <th>New/Option</th> <th>Quantity (Each)</th> <th>Unit Cost (\$ M)</th> </tr> <tr> <td>FY 2013</td> <td>CVN 79</td> <td>RAYTHEON</td> <td>C/FFP</td> <td>Feb 2021</td> <td></td> <td align="center">4</td> <td align="right">2.927</td> </tr> <tr> <td>FY 2018</td> <td>CVN 80</td> <td>RAYTHEON</td> <td>C/FFP</td> <td>Aug 2023</td> <td></td> <td align="center">4</td> <td align="right">2.927</td> </tr> <tr> <td>FY 2020</td> <td>CVN 81</td> <td>RAYTHEON</td> <td>C/FFP</td> <td>Jul 2027</td> <td></td> <td align="center">4</td> <td align="right">3.009</td> </tr> </table>							Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost (\$ M)	FY 2013	CVN 79	RAYTHEON	C/FFP	Feb 2021		4	2.927	FY 2018	CVN 80	RAYTHEON	C/FFP	Aug 2023		4	2.927	FY 2020	CVN 81	RAYTHEON	C/FFP	Jul 2027		4	3.009
Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost (\$ M)																															
FY 2013	CVN 79	RAYTHEON	C/FFP	Feb 2021		4	2.927																															
FY 2018	CVN 80	RAYTHEON	C/FFP	Aug 2023		4	2.927																															
FY 2020	CVN 81	RAYTHEON	C/FFP	Jul 2027		4	3.009																															
Delivery Date: <table border="1" style="width:100%; border-collapse: collapse; margin-top: 5px;"> <tr> <th>Program Year</th> <th>Hull</th> <th>Earliest Ship Delivery Date</th> <th>Months Required Before Delivery</th> <th>Production Leadtime</th> <th>Required Award Date</th> </tr> <tr> <td>FY 2013</td> <td>CVN 79</td> <td>Sep 2024</td> <td align="center">19</td> <td align="center">24</td> <td align="center">Feb 2021</td> </tr> <tr> <td>FY 2018</td> <td>CVN 80</td> <td>Mar 2028</td> <td align="center">31</td> <td align="center">24</td> <td align="center">Aug 2023</td> </tr> <tr> <td>FY 2020</td> <td>CVN 81</td> <td>Feb 2032</td> <td align="center">31</td> <td align="center">24</td> <td align="center">Jul 2027</td> </tr> </table>							Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date	FY 2013	CVN 79	Sep 2024	19	24	Feb 2021	FY 2018	CVN 80	Mar 2028	31	24	Aug 2023	FY 2020	CVN 81	Feb 2032	31	24	Jul 2027								
Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date																																	
FY 2013	CVN 79	Sep 2024	19	24	Feb 2021																																	
FY 2018	CVN 80	Mar 2028	31	24	Aug 2023																																	
FY 2020	CVN 81	Feb 2032	31	24	Jul 2027																																	
Competition/Second Source Initiatives: None																																						
Remarks: This system is planned for installation during the CVN 79 Phase II availability. This availability enables use of competition / skilled installation teams, provides for installation of shipboard electronic systems closer to time of the ship's first deployment, and allows for concurrent installation of the combat system and DBR replacement radar suite.																																						

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Exhibit P-40, Budget Line Item Justification: PB 2020 Navy										Date: March 2019		
Appropriation / Budget Activity / Budget Sub Activity: 1611N: Shipbuilding and Conversion, Navy / BA 02: Other Warships / BSA 1: Other Warships							P-1 Line Item Number / Title: 2013 / Virginia Class Submarine					
ID Code (A=Service Ready, B=Not Service Ready): A				Program Elements for Code B Items: N/A				Other Related Program Elements: 0604558N, 0604580N, 0204281N				
Line Item MDAP/MAIS Code: 516												
Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity (<i>Units in Each</i>)	26	2	2	3	-	3	2	2	2	2	7	48
Gross/Weapon System Cost (<i>\$ in Millions</i>)	67,761.050	5,532.718	6,500.178	9,274.442	0.000	9,274.442	6,161.822	6,494.076	6,631.890	6,803.748	32,919.000	148,078.924
Less PY Advance Procurement (<i>\$ in Millions</i>)	19,138.295	1,647.040	2,128.891	1,756.902	-	1,756.902	1,840.679	1,888.328	1,958.773	2,316.870	9,785.764	42,461.542
Less Cost To Complete (<i>\$ in Millions</i>)	1,844.685	-	-	-	-	-	-	-	-	-	-	1,844.685
Less Economic Order Quantity (<i>\$ in Millions</i>)	3,209.673	580.363	30.611	361.594	-	361.594	571.361	778.189	778.089	-	1,618.248	7,928.128
Net Procurement (P-1) (<i>\$ in Millions</i>)	43,568.397	3,305.315	4,340.676	7,155.946	0.000	7,155.946	3,749.782	3,827.559	3,895.028	4,486.878	21,514.988	95,844.569
Plus CY Advance Procurement (<i>\$ in Millions</i>)	22,161.629	1,920.596	1,810.941	1,887.588	-	1,887.588	1,945.862	2,140.779	2,185.743	2,021.506	6,386.898	42,461.542
Plus Cost To Complete (<i>\$ in Millions</i>)	1,844.685	-	-	-	-	-	-	-	-	-	-	1,844.685
Plus Economic Order Quantity (<i>\$ in Millions</i>)	3,790.036	225.000	985.460	881.964	-	881.964	427.420	-	-	544.014	1,074.234	7,928.128
Total Obligation Authority (<i>\$ in Millions</i>)	71,364.747	5,450.911	7,137.077	9,925.498	0.000	9,925.498	6,123.064	5,968.338	6,080.771	7,052.398	28,976.120	148,078.924
<i>(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)</i>												
Plus Outfitting and Post Delivery (<i>\$ in Millions</i>)	1,165.538	69.280	104.146	165.567	-	165.567	168.072	166.266	171.690	175.125	2,193.675	4,379.359
Total (<i>\$ in Millions</i>)	72,530.285	5,520.191	7,241.223	10,091.065	-	10,091.065	6,291.136	6,134.604	6,252.461	7,227.523	31,169.795	152,458.283
Gross/Weapon System Unit Cost (<i>\$ in Millions</i>)	2,606.194	2,766.359	3,250.089	3,091.481	-	3,091.481	3,080.911	3,247.038	3,315.945	3,401.874	4,702.714	3,084.978

Description:

MISSION: To seek out and destroy enemy ships across a wide spectrum of tactical scenarios, working both independently and in concert with a battle group/other ships, providing Joint Commanders with early, accurate knowledge of the battlefield on which power may be projected from sea; covert striking power against targets ashore; the capability to establish covertly an expeditionary force on land; and the maritime strength to destroy enemy naval forces and interdict seaborne commerce.

NOTE: The program is currently negotiating the fourth MYP (Block V) contract that will include 10 SSNs (FY19-23) and will incorporate acoustic superiority modifications on all SSNs and VPM on seven SSNs with an option to award a third SSN in FY20. The third FY20 SSN was added during the PB2020 cycle without historical two-year and one-year Advance Procurement (AP) or Economic Order Quantity and thus will require three years to procure long lead time material (LLTM). As a result, the third FY20 SSN will begin construction in FY23. There is EOQ in FY18-21 and FY17-22 AP funding for LLTM for 10 SSNs and detail design (no AP/EOQ included for the third FY20 SSN).

NOTE: Block V SSNs will include significant enhancements. All Block V and future SSNs will include modifications similar to SOUTH DAKOTA Insertion Program (SDIP) efforts performed via RDT&E (PE 0604558N/Prj 1947) which will provide enhanced capability and improved performance. Virginia Payload Module (VPM) will be introduced on the second FY19, second and third FY20, and second FY21 hulls and subsequently fielded on all follow-on Virginia Class submarines. VPM is an 84-foot hull section with four additional payload tubes, each capable of carrying seven Tomahawk cruise missiles or various other payloads. VPM helps mitigate the loss of undersea strike capability with the retirement of the Service's four guided missile submarines (SSGNs) in the mid-2020s. These changes to the baseline require additional funding which is shown in more detail on subsequent pages of these exhibits.

NOTE: The \$225M in FY18 EOQ is the FY18 Congressional Add for Industrial Base Expansion. These funds were distributed to the FY19 thru FY23 SSNs currently under negotiation for the Block V MYP construction contract for 10 SSNs.

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Exhibit P-40, Budget Line Item Justification: PB 2020 Navy						Date: March 2019																																																																																																																																																																																																																																																																							
Appropriation / Budget Activity / Budget Sub Activity: 1611N: Shipbuilding and Conversion, Navy / BA 02: Other Warships / BSA 1: Other Warships				P-1 Line Item Number / Title: 2013 / Virginia Class Submarine																																																																																																																																																																																																																																																																									
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Exhibit P-40, Budget Line Item Justification: PB 2020 Navy				Date: March 2019	
Appropriation / Budget Activity / Budget Sub Activity: 1611N: Shipbuilding and Conversion, Navy / BA 02: Other Warships / BSA 1: Other Warships			P-1 Line Item Number / Title: 2013 / Virginia Class Submarine		
ID Code (A=Service Ready, B=Not Service Ready): A		Program Elements for Code B Items: N/A		Other Related Program Elements: 0604558N, 0604580N, 0204281N	
Line Item MDAP/MAIS Code: 516					
Design Schedule		Start / Issue	Complete / Response	Reissue	Reissue Complete / Response
Request for Proposals		N/A	N/A		
Design Agent		Electric Boat			
Classification of Cost Estimate: C					
<p>Justification: FY20 funds three VIRGINIA Class Submarines (two with VIRGINIA Payload Module (VPM)) incorporating Acoustic Superiority and AP/EOQ for future Block V SSNs.</p> <p>Footnotes: (1) Current Block V delivery dates based on contract proposal and are subject to negotiations.</p>					

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Exhibit P-5c, Ship Cost Analysis: PB 2020 Navy											Date: March 2019					
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1							P-1 Line Item Number / Title: 2013 / Virginia Class Submarine									
Cost Categories <small>^(†) indicates the presence of a P-8a</small>	FY 2013		FY 2014		FY 2015		FY 2016		FY 2017		FY 2018		FY 2019		FY 2020	
	Qty <i>(Each)</i>	Total Cost (\$ M)	Qty <i>(Each)</i>	Total Cost (\$ M)	Qty <i>(Each)</i>	Total Cost (\$ M)	Qty <i>(Each)</i>	Total Cost (\$ M)	Qty <i>(Each)</i>	Total Cost (\$ M)	Qty <i>(Each)</i>	Total Cost (\$ M)	Qty <i>(Each)</i>	Total Cost (\$ M)	Qty <i>(Each)</i>	Total Cost (\$ M)
Plan Costs	2	183.597	2	167.937	2	177.095	2	183.078	2	180.184	2	187.778	2	482.346	3	303.070
Basic Construction/Conversion		3,236.314		3,492.087		3,335.501		3,384.290		3,430.573		3,508.117		4,164.713		6,121.158
Change Orders		92.430		104.021		89.481		91.459		73.043		74.536		83.353		122.870
Electronics ^(†)		499.845		503.718		504.701		514.795		515.852		525.653		536.168		820.335
Technology Insertion		45.500		73.500		28.835		13.535		12.501		18.000		8.500		4.000
Propulsion Equipment		896.000		910.157		970.000		1,025.000		1,032.500		1,051.100		1,046.000		1,624.800
Hull, Mechanical, and Electrical (HM&E) ^(†)		98.876		105.248		106.822		109.920		110.190		112.394		119.028		184.350
Other Cost		51.124		52.658		53.233		54.777		54.058		55.140		60.070		93.859
Total Ship Estimate		5,103.686		5,409.326		5,265.668		5,376.854		5,408.901		5,532.718		6,500.178		9,274.442
Less Advance Procurement FY 2011		932.000		-		-		-		-		-		-		-
Less Advance Procurement FY 2012		473.115		988.246		-		-		-		-		-		-
Less Advance Procurement FY 2013		-		540.376		1,110.000		-		-		-		-		-
Less Advance Procurement FY 2014		-		-		467.014		1,145.000		-		-		-		-
Less Advance Procurement FY 2015		-		-		-		468.536		1,152.500		-		-		-
Less Advance Procurement FY 2016		-		-		-		-		470.788		1,171.100		-		-
Less Advance Procurement FY 2017		-		-		-		-		-		475.940		1,376.294		-
Less Advance Procurement FY 2018		-		-		-		-		-		-		752.597		1,167.999
Less Advance Procurement FY 2019		-		-		-		-		-		-		-		588.903
Less Cost to Complete FY 2014		227.000		-		-		-		-		-		-		-
Less EOQ FY 2009		162.128		-		-		-		-		-		-		-
Less EOQ FY 2010		200.269		-		-		-		-		-		-		-
Less EOQ FY 2011		122.920		-		-		-		-		-		-		-
Less EOQ FY 2014		-		-		158.400		219.380		194.909		169.909		-		-
Less EOQ FY 2015		-		-		-		197.568		251.603		231.618		-		-
Less EOQ FY 2016		-		-		-		-		151.116		178.836		-		-
Less EOQ FY 2018		-		-		-		-		-		-		30.611		115.229

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Exhibit P-5c, Ship Cost Analysis: PB 2020 Navy												Date: March 2019				
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1							P-1 Line Item Number / Title: 2013 / Virginia Class Submarine									
Cost Categories <small>(†) indicates the presence of a P-8a</small>	FY 2013		FY 2014		FY 2015		FY 2016		FY 2017		FY 2018		FY 2019		FY 2020	
	Qty <i>(Each)</i>	Total Cost (\$ M)	Qty <i>(Each)</i>	Total Cost (\$ M)	Qty <i>(Each)</i>	Total Cost (\$ M)	Qty <i>(Each)</i>	Total Cost (\$ M)	Qty <i>(Each)</i>	Total Cost (\$ M)	Qty <i>(Each)</i>	Total Cost (\$ M)	Qty <i>(Each)</i>	Total Cost (\$ M)	Qty <i>(Each)</i>	Total Cost (\$ M)
Less EOQ FY 2019		-		-		-		-		-		-		-		246.365
Net P-1 Funding		2,986.254		3,880.704		3,530.254		3,346.370		3,187.985		3,305.315		4,340.676		7,155.946
Remarks: The Block V MYP contract (FY19-23) incorporates changes for Acoustic Superiority (AS) on all 10 SSNs and Virginia Payload Module (VPM) on seven (on the second FY19, FY20 and FY21 and following ships) with an option to award a third SSN in FY20. The resulting request from FY19 to FY20 other than inflation is primarily driven by ship quantity increase from two to three SSNs. Plans reflects a decrease due to VPM Detail Design funded in FY19 (\$291M). The AP and EOQ details are provided on the P10 exhibits.																

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Exhibit P-27, Ship Production Schedule: PB 2020 Navy	Date: March 2019
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Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1	P-1 Line Item Number / Title: 2013 / Virginia Class Submarine
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Ship	Shipbuilder	Fiscal Year	Contract Award	Start of Construction	Delivery Date
SSN 791	EB/HII-NNS	2013	Dec 2008	Sep 2013	Jun 2019
SSN 792	EB/HII-NNS	2014	Apr 2014	May 2014	Oct 2019
SSN 793	EB/HII-NNS	2014	Apr 2014	Sep 2014	May 2020
SSN 794	EB/HII-NNS	2015	Apr 2014	Apr 2015	Sep 2020
SSN 795	EB/HII-NNS	2015	Apr 2014	Sep 2015	Apr 2021
SSN 796	EB/HII-NNS	2016	Apr 2014	Mar 2016	Aug 2021
SSN 797	EB/HII-NNS	2016	Apr 2014	Sep 2016	Jan 2022
SSN 798	EB/HII-NNS	2017	Apr 2014	Mar 2017	Jun 2022
SSN 799	EB/HII-NNS	2017	Apr 2014	Sep 2017	Dec 2022
SSN 800	EB/HII-NNS	2018	Apr 2014	Mar 2018	Apr 2023
SSN 801	EB/HII-NNS	2018	Apr 2014	Sep 2018	Sep 2023
SSN 802 ⁽¹⁾	EB/HII-NNS	2019	Apr 2019	Mar 2019	Jan 2025
SSN 803	EB/HII-NNS	2019	Apr 2019	Sep 2019	Nov 2025
SSN 804	EB/HII-NNS	2020	Apr 2019	Mar 2020	Jan 2026
SSN 805	EB/HII-NNS	2020	Apr 2019	Sep 2020	Sep 2026
SSN 812	EB/HII-NNS	2020	Apr 2019	Mar 2023	Sep 2029
SSN 806	EB/HII-NNS	2021	Apr 2019	Mar 2021	Jan 2027
SSN 807	EB/HII-NNS	2021	Apr 2019	Sep 2021	Nov 2027
SSN 808	EB/HII-NNS	2022	Apr 2019	Mar 2022	Mar 2028
SSN 809	EB/HII-NNS	2022	Apr 2019	Sep 2022	Sep 2028
SSN 810	EB/HII-NNS	2023	Apr 2019	Jan 2023	Jan 2029
SSN 811	EB/HII-NNS	2023	Apr 2019	May 2023	May 2029
SSN 813	EB/HII-NNS	2024	Dec 2023	Mar 2024	Mar 2030
SSN 814	EB/HII-NNS	2024	Dec 2023	Sep 2024	Sep 2030

Footnotes:

⁽¹⁾ Current Block V delivery dates based on contract proposal and are subject to negotiations.

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Exhibit P-8a, Analysis of Ship Cost Estimates: PB 2020 Navy					Date: March 2019	
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1			P-1 Line Item Number / Title: 2013 / Virginia Class Submarine			
Electronics	FY 2018		FY 2019		FY 2020	
	Qty (Each)	Total Cost (\$ M)	Qty (Each)	Total Cost (\$ M)	Qty (Each)	Total Cost (\$ M)
P-35 Items						
Sonar, Combat Control & Architecture	2	215.816	2	220.132	3	336.803
Electronic Support Measures (ESM)	2	58.954	2	60.134	3	92.005
Photonics Masts	2	39.648	2	40.442	3	61.876
Universal Modular Mast (UMM)	2	22.612	2	23.064	3	35.289
Exterior Communications System (ECS) Recurring	2	53.488	2	54.558	3	83.474
P-35 Items Subtotal		390.518		398.330		609.447
Major Items						
System Level Activities	2	39.692	2	40.486	3	61.944
AN/BPS-16	2	6.086	2	6.208	3	9.498
Navigation	2	6.902	2	7.040	3	10.770
CWITT	2	44.888	2	45.786	3	70.047
Non-Propulsion Electronics System, Systems Engineering and Integration (NPES SE&I)	2	35.130	2	35.832	3	54.825
Major Items Subtotal		132.698		135.352		207.084
Other Cost Elements						
Misc Electronics	0	2.437	0	2.486	0	3.804
Other Cost Elements Subtotal		2.437		2.486		3.804
Total Electronics		525.653		536.168		820.335
Remarks: The FY20 increase in Electronics is driven by additional requirements associated with the quantity increase from two to three SSNs.						

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Exhibit P-8a, Analysis of Ship Cost Estimates: PB 2020 Navy	Date: March 2019
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Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1	P-1 Line Item Number / Title: 2013 / Virginia Class Submarine
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Hull, Mechanical, and Electrical (HM&E)	FY 2018		FY 2019		FY 2020	
	Qty (Each)	Total Cost (\$ M)	Qty (Each)	Total Cost (\$ M)	Qty (Each)	Total Cost (\$ M)
P-35 Items						
Propulsor	2	77.876	2	79.434	3	121.533
P-35 Items Subtotal		77.876		79.434		121.533
Major Items						
CSA MK2		3.298		3.364		5.148
Major Items Subtotal		3.298		3.364		5.148
Other Cost Elements						
HM&E Installation and testing		19.502		19.892		30.435
T&E		9.508		14.084		23.784
SUPSHIP responsible material		2.210		2.254		3.450
New Cost Element						
Other Cost Elements Subtotal		31.220		36.230		57.669
Total Hull, Mechanical, and Electrical (HM&E)		112.394		119.028		184.350

Remarks:

The FY20 increase in HM&E is primarily driven by additional requirements associated with the quantity increase from two to three SSNs. Additionally there is an increase to T&E requirements associated with the increase from one VPM in FY19 to two VPM beginning in FY20. A VPM ship adds (4) additional payload tubes compared to Block III/IV. The requirements for Peculiar Support Equipment (PSE) /Special Support Equipment (SSE) delivered with each ship increase from (2) All Up Round Simulators (AURS) and 10 All Up Round Ballast, Grade B (AURBb) to (6) AURS and (34) AURBb. This support equipment is required to be delivered with each ship in order to support testing for the VIRGINIA Payload Tubes when they are not loaded with ordnance.

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Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1 **P-1 Line Item Number / Title:** 2013 / Virginia Class Submarine

Equipment Item: Sonar, Combat Control & Architecture **PARM Code:** N/A

P-35 Category	FY 2018		FY 2019		FY 2020	
	Qty (Each)	Total Cost (\$ M)	Qty (Each)	Total Cost (\$ M)	Qty (Each)	Total Cost (\$ M)
Major Hardware	2	175.984	2	179.504	3	274.643
Technical Engineering Services		3.151		3.214		4.917
Other Costs		36.681		37.414		57.243
Total	2	215.816	2	220.132	3	336.803

Description:

The VIRGINIA Class Command, Control, Communications and Intelligence (C3I) System is the electronics suite which will provide required operational and warfighting capability for the Navy's newest attack submarine. The C3I System includes 15 subsystems (23 if all electronically interfaced subsystems are included) integrated by an overarching Architecture Subsystem. If all electronically interfaced subsystems are included the electronics suite is referred to as the VIRGINIA Class Non-propulsion Electronics System (NPES).

Contract Data:

Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost (\$ M)
FY 2018	SSN 800	Lockheed Martin	C/CPIF	Jan 2018	Option	2	48.892
FY 2019	SSN 802	Lockheed Martin	C/CPIF	Jan 2019	New	2	49.870
FY 2020	SSN 804	Lockheed Martin	C/CPIF	Jan 2020	Option	3	50.867

Delivery Date:

Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date
FY 2018	SSN 800	Apr 2023	26	32	Jun 2018
FY 2019	SSN 802	Jan 2025	26	32	Mar 2020
FY 2020	SSN 804	Jan 2026	26	32	Mar 2021

Competition/Second Source Initiatives:

N/A

Remarks:

The Sonar, Combat Control & Architecture P-35 exhibit includes funding for multiple subsystems, contracts and field activities. However, the unit cost in the contract data section reflects only the major contract, Sonar acoustics processing.

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Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy						Date: March 2019																																
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1				P-1 Line Item Number / Title: 2013 / Virginia Class Submarine																																		
Equipment Item: Electronic Support Measures (ESM)						PARM Code: N/A																																
P-35 Category	FY 2018		FY 2019		FY 2020																																	
	Qty (Each)	Total Cost (\$ M)	Qty (Each)	Total Cost (\$ M)	Qty (Each)	Total Cost (\$ M)																																
Major Hardware	2	44.712	2	45.606	3	69.779																																
Technical Engineering Services		2.504		2.554		3.907																																
Other Costs		11.738		11.974		18.319																																
Total	2	58.954	2	60.134	3	92.005																																
Description: The VIRGINIA Class Command, Control, Communications and Intelligence (C3I) System is the electronics suite which will provide required operational and warfighting capability for the Navy's newest attack submarine. The C3I System includes 15 subsystems (23 if all electronically interfaced subsystems are included) integrated by an overarching Architecture Subsystem. This P-35 covers the procurement requirements for the following: Electronic Support Measures subsystem Prime Contractor Furnished Equipment, and associated Government Furnished Equipment; technical data documentation; spares; systems engineering; technical engineering services; computer program support; system test & evaluation; field engineering services; management support services; shipboard certification efforts; quality assurance and reliability/maintainability assurance; maintenance of technical data; and contractor support services efforts. This system provides the capability to process a variety of electromagnetic signal types over a wide frequency range in support of all applicable submarine mission areas.																																						
Contract Data: <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th>Program Year</th> <th>Hull</th> <th>Prime Contractor</th> <th>Contract Method/Type</th> <th>Award Date</th> <th>New/Option</th> <th>Quantity (Each)</th> <th>Unit Cost (\$ M)</th> </tr> <tr> <td>FY 2018</td> <td>SSN 800</td> <td>Lockheed Martin</td> <td>C/FFP</td> <td>Jan 2016</td> <td>Option</td> <td>2</td> <td>22.356</td> </tr> <tr> <td>FY 2019</td> <td>SSN 802</td> <td>Competitive</td> <td>C/FFP</td> <td>Dec 2019</td> <td>New</td> <td>2</td> <td>22.803</td> </tr> <tr> <td>FY 2020</td> <td>SSN 804</td> <td>Competitive</td> <td>C/FFP</td> <td>Dec 2020</td> <td>Option</td> <td>3</td> <td>23.260</td> </tr> </table>							Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost (\$ M)	FY 2018	SSN 800	Lockheed Martin	C/FFP	Jan 2016	Option	2	22.356	FY 2019	SSN 802	Competitive	C/FFP	Dec 2019	New	2	22.803	FY 2020	SSN 804	Competitive	C/FFP	Dec 2020	Option	3	23.260
Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost (\$ M)																															
FY 2018	SSN 800	Lockheed Martin	C/FFP	Jan 2016	Option	2	22.356																															
FY 2019	SSN 802	Competitive	C/FFP	Dec 2019	New	2	22.803																															
FY 2020	SSN 804	Competitive	C/FFP	Dec 2020	Option	3	23.260																															
Delivery Date: <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th>Program Year</th> <th>Hull</th> <th>Earliest Ship Delivery Date</th> <th>Months Required Before Delivery</th> <th>Production Leadtime</th> <th>Required Award Date</th> </tr> <tr> <td>FY 2018</td> <td>SSN 800</td> <td>Apr 2023</td> <td>26</td> <td>24</td> <td>Feb 2019</td> </tr> <tr> <td>FY 2019</td> <td>SSN 802</td> <td>Jan 2025</td> <td>26</td> <td>24</td> <td>Nov 2020</td> </tr> <tr> <td>FY 2020</td> <td>SSN 804</td> <td>Jan 2026</td> <td>26</td> <td>24</td> <td>Nov 2021</td> </tr> </table>							Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date	FY 2018	SSN 800	Apr 2023	26	24	Feb 2019	FY 2019	SSN 802	Jan 2025	26	24	Nov 2020	FY 2020	SSN 804	Jan 2026	26	24	Nov 2021								
Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date																																	
FY 2018	SSN 800	Apr 2023	26	24	Feb 2019																																	
FY 2019	SSN 802	Jan 2025	26	24	Nov 2020																																	
FY 2020	SSN 804	Jan 2026	26	24	Nov 2021																																	
Competition/Second Source Initiatives: Multi-Functional Modular Mast (MMM) competitive contract was awarded to Lockheed Martin - Mission Systems and Training (LM-MST) in January 2016 for SSNs 794 thru 801. ESM AN/BLQ-10: Full and open competition planned for SSN 802 through SSN 812.																																						

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Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy	Date: March 2019
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Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1	P-1 Line Item Number / Title: 2013 / Virginia Class Submarine
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Equipment Item: Photonics Masts	PARM Code: N/A
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P-35 Category	FY 2018		FY 2019		FY 2020	
	Qty (Each)	Total Cost (\$ M)	Qty (Each)	Total Cost (\$ M)	Qty (Each)	Total Cost (\$ M)
Major Hardware	2	27.410	2	27.958	3	42.775
Technical Engineering Services		1.230		1.256		1.922
Other Costs		11.008		11.228		17.179
Total	2	39.648	2	40.442	3	61.876

Description:

The VIRGINIA Class Command, Control, Communications and Intelligence (C3I) System is the electronics suite which will provide required operational and warfighting capability for the Navy's newest attack submarine. The C3I System includes 15 subsystems (23 if all electronically interfaced subsystems are included) integrated by an overarching Architecture Subsystem. This P-35 covers the procurement requirements for the following: Photonics subsystem Prime Contractor Furnished Equipment; spares; systems engineering; technical engineering services; computer program support; field engineering services; management support services; shipboard certification; maintenance of technical data; and contractor support services efforts. This system consists of two outboard mast/antenna/camera assemblies and the associated inboard processing and display equipment. This system supports visual and infrared (IR) imaging, RF signal communications, early warning and contact direction finding capability.

Contract Data:

Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost (\$ M)
FY 2018	SSN 800	L-3 KEO	C/FFP	Apr 2015	Option	2	13.705
FY 2019	SSN 802	Competitive	C/FFP	Apr 2019	New	2	13.979
FY 2020	SSN 804	Competitive	C/FFP	Apr 2020	Option	3	14.258

Delivery Date:

Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date
FY 2018	SSN 800	Apr 2023	26	24	Feb 2019
FY 2019	SSN 802	Jan 2025	26	24	Nov 2020
FY 2020	SSN 804	Jan 2026	26	24	Nov 2021

Competition/Second Source Initiatives:

Low Profile Photonics Mast (LPPM): Full and Open competition contract awarded in April 2015 for SSNs 794 thru 801. Includes common diploop/Electrical Hull Penetrator (EHP) plan as part of contract to maintain future mast flexibility and antenna assembly and ESM mast components. Type 20 Mast: Full and open competition planned for SSN 802 through SSN 812. Provides vastly increased capabilities and development flexibility for new mast sensors. Includes antennae assembly and ESM mast components.

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Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy					Date: March 2019	
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1			P-1 Line Item Number / Title: 2013 / Virginia Class Submarine			
Equipment Item: Universal Modular Mast (UMM)					PARM Code: N/A	
P-35 Category	FY 2018		FY 2019		FY 2020	
	Qty (Each)	Total Cost (\$ M)	Qty (Each)	Total Cost (\$ M)	Qty (Each)	Total Cost (\$ M)
Major Hardware	2	16.852	2	17.189	3	26.301
Technical Engineering Services		2.795		2.851		4.362
Other Costs		2.965		3.024		4.626
Total	2	22.612	2	23.064	3	35.289

Description:
 The VIRGINIA Class Command, Control, Communications and Intelligence (C3I) System is the electronics suite which will provide required operational and warfighting capability for the Navy's newest attack submarine. The C3I System includes 15 subsystems (23 if all electronically interfaced subsystems are included) integrated by an overarching Architecture Subsystem. This P-35 covers the procurement requirements for the following: Modular Mast Prime Contractor Furnished Equipment; technical data documentation; spares; systems engineering; technical engineering services; management support services; shipboard certification; and maintenance of technical data efforts. This system consists of eight common masts for purposes of housing, raising and lowering antenna and other sensor units.

Contract Data:

Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost (\$ M)
FY 2018	SSN 800	L3-KEO	SS/FP	Apr 2018	Option	2	8.426
FY 2019	SSN 802	L3-KEO	SS/FP	Apr 2019	Option	2	8.595
FY 2020	SSN 804	L3-KEO	SS/FP	Apr 2020	Option	3	8.767

Delivery Date:

Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date
FY 2018	SSN 800	Apr 2023	37	21	Jun 2018
FY 2019	SSN 802	Jan 2025	37	21	Mar 2020
FY 2020	SSN 804	Jan 2026	37	21	Mar 2021

Competition/Second Source Initiatives:
 N/A

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Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy						Date: March 2019	
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1				P-1 Line Item Number / Title: 2013 / Virginia Class Submarine			
Equipment Item: Exterior Communications System (ECS) Recurring						PARM Code: N/A	
P-35 Category	FY 2018		FY 2019		FY 2020		
	Qty (Each)	Total Cost (\$ M)	Qty (Each)	Total Cost (\$ M)	Qty (Each)	Total Cost (\$ M)	
Major Hardware	2	35.879	2	36.597	3	55.994	
Technical Engineering Services		6.083		6.204		9.492	
Other Costs		11.526		11.757		17.988	
Total	2	53.488	2	54.558	3	83.474	

Description:
 The VIRGINIA Class Command, Control, Communications and Intelligence (C3I) System is the electronics suite which will provide required operational and warfighting capability for the Navy's newest attack submarine. The C3I System includes 15 subsystems (23 if all electronically interfaced subsystems are included) integrated by an overarching Architecture Subsystem. Exterior Communications Systems (ECS) is an integration effort with multiple Government-Off-The-Shelf (GOTS) components providing the core ECS capability. The GOTS components of ECS will be provided using existing contracts. For the ECS integration effort, Stanley Associates (North Charleston, SC) is prime for fabrication and production. This P-35 covers the procurement requirements for the following: ECS GOTS equipment; fabrication/production; systems engineering; system test & evaluation; training; data; technical engineering services; spares and repair parts; and program management. This system provides the capability for seamless, transparent, secure connectivity for information exchange between submarine users and the Global Command and Communications System (GCCS)

Contract Data:

Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost (\$ M)
FY 2018	SSN 800	SAIC	C/IDIQ	May 2020	Option	2	17.940
FY 2019	SSN 802	Competitive	C/IDIQ	May 2021	New	2	18.299
FY 2020	SSN 804	Competitive	C/IDIQ	May 2022	Option	3	18.665

Delivery Date:

Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date
FY 2018	SSN 800	Apr 2023	24	9	Jul 2020
FY 2019	SSN 802	Jan 2025	24	9	Apr 2022
FY 2020	SSN 804	Jan 2026	24	9	Apr 2023

Competition/Second Source Initiatives:
 N/A

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Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy						Date: March 2019	
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1				P-1 Line Item Number / Title: 2013 / Virginia Class Submarine			
Equipment Item: Propulsor						PARM Code: N/A	
P-35 Category	FY 2018		FY 2019		FY 2020		
	Qty (Each)	Total Cost (\$ M)	Qty (Each)	Total Cost (\$ M)	Qty (Each)	Total Cost (\$ M)	
Major Hardware	2	67.356	2	68.704	3	105.116	
TECH ENGINEERING SERVICES		10.520		10.730		16.417	
Total	2	77.876	2	79.434	3	121.533	

Description:
The propulsor consists of Ni-Al-bronze blades and a large steel and inconel fabrication piece. The purpose of the propulsor is to generate proper thrust to propel the ship at a rated speed within the approved limits of torque and shaft RPM, while at the same time meeting acoustic and structural requirements. This design is unique to the VIRGINIA Class. The propulsor consists of a large quantity of government supplied material and a contract for the fixed portion construction and assembly.

Contract Data:

Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost (\$ M)
FY 2018	SSN 800	BAE Systems	C/FFP	Apr 2016	Option	2	26.350
FY 2019	SSN 802	BAE Systems	C/FFP	Apr 2016	Option	2	26.888
FY 2020	SSN 804	BAE Systems	C/FFP	Apr 2016	Option	3	27.426

Delivery Date:

Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date
FY 2018	SSN 800	Apr 2023	35	30	Nov 2017
FY 2019	SSN 802	Jan 2025	40	30	Mar 2019
FY 2020	SSN 804	Jan 2026	40	30	Mar 2020

Competition/Second Source Initiatives:
N/A

Remarks:
The BAE Systems contract was awarded in April 2016 for LLTM for SSN 794-799 and Manufacturing and Delivery efforts for SSN 794-803. LLTM for SSN 800-803 to be definitized on a yearly basis. LLTM for SSN 804-813 being procured on a Basic Ordering Agreement (BOA) on a yearly basis with expected first award 2Q19. Manufacturing and Delivery for 804-813 to award on new contract 2Q20.

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Exhibit P-10, Advance Procurement Requirements Analysis (page 1 - Budget Funding Justification): PB 2020 Navy						Date: March 2019				
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1				P-1 Line Item Number / Title: 2013 / Virginia Class Submarine						
First System (2020) Award Date:		First System (2020) Completion Date:			Interval Between Systems: 0 Months					
Cost Elements		Production Leadtime (Months)	When Required* (Months)	FY 2018 (\$ M)	FY 2019 (\$ M)	FY 2020 (\$ M)	FY 2021 (\$ M)	FY 2022 (\$ M)	FY 2023 (\$ M)	FY 2024 (\$ M)
Advance Procurement										
Nuclear Propulsion Plant Equipment ⁽¹⁾		30-72	Various	1,047.000	1,083.600	1,122.000	1,161.000	1,202.000	1,244.000	1,287.479
Electronics Equipment ⁽²⁾		37-43	Various	28.778	29.354	29.940	30.540	31.150	31.774	32.408
NON-Nuclear Propulsion Plant Equipment - Propulsor ⁽³⁾		36	Various	43.962	44.840	45.738	46.653	47.586	48.538	49.508
Long Lead-Time CFE One Year AP ⁽⁴⁾		24-42	Various	589.347	514.709	542.963	542.188	553.556	728.071	568.280
Long Lead-Time CFE Two Year AP (4)		24-42	Various	120.999	138.438	146.947	165.481	306.487	133.360	83.831
VPM Detail Design ⁽⁵⁾		24-36	Various	90.510	-	0.000	-	-	-	-
Total: Advance Procurement				1,920.596	1,810.941	1,887.588	1,945.862	2,140.779	2,185.743	2,021.506
Economic Order of Quantity										
EOQ for FY19 SSNs ⁽⁶⁾		-	Various	30.611	-	0.000	-	-	-	-
EOQ for FY20 SSNs		-	Various	115.229	246.365	0.000	-	-	-	-
EOQ for FY21 SSNs		-	Various	31.008	246.365	293.988	-	-	-	-
EOQ for FY22 SSNs		-	Various	24.126	246.365	293.988	213.710	-	-	-
EOQ for FY23 SSNs		-	Various	24.026	246.365	293.988	213.710	-	-	-
EOQ for FY25 SSNs		-	Various	-	-	0.000	-	-	-	272.007
EOQ for FY26 SSNs		-	Various	-	-	0.000	-	-	-	272.007
Total: Economic Order of Quantity				225.000	985.460	881.964	427.420	-	-	544.014
Total Advance Procurement/Obligation Authority				2,145.596	2,796.401	2,769.552	2,373.282	2,140.779	2,185.743	2,565.520
*Note: "When Required" is the number of months required before ship delivery.										

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Exhibit P-10, Advance Procurement Requirements Analysis (page 2 - Budget Funding Justification): PB 2020 Navy	Date: March 2019
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Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1	P-1 Line Item Number / Title: 2013 / Virginia Class Submarine
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Cost Elements	FY 2020						
	Production Leadtime (Months)	When Required* (Months)	Unit Cost (\$ M)	Contract Forecast Date	2020 Qty (Each)	For FY	Total Cost Request (\$ M)
Advance Procurement							
Nuclear Propulsion Plant Equipment ⁽¹⁾	30-72	Various	-	Oct 2018	-	2022	1,122.000
Electronics Equipment ⁽²⁾	37-43	Various	-	Dec 2018	-	2021	29.940
NON-Nuclear Propulsion Plant Equipment - Propulsor ⁽³⁾	36	Various	-	Dec 2018	-	2021	45.738
Long Lead-Time CFE One Year AP ⁽⁴⁾	24-42	Various	-	Jan 2019	-	2021	542.963
Long Lead-Time CFE Two Year AP ⁽⁴⁾	24-42	Various	-	Jan 2019	-	2022	146.947
<i>Total: Advance Procurement</i>							1,887.588
Economic Order of Quantity							
EOQ for FY19 SSNs ⁽⁶⁾	-	Various	-		-		0.000
EOQ for FY20 SSNs	-	Various	-		-		0.000
EOQ for FY21 SSNs	-	Various	-		-		293.988
EOQ for FY22 SSNs	-	Various	-		-		293.988
EOQ for FY23 SSNs	-	Various	-		-		293.988
EOQ for FY25 SSNs	-	Various	-		-		0.000
EOQ for FY26 SSNs	-	Various	-		-		0.000
<i>Total: Economic Order of Quantity</i>							881.964
Total Advance Procurement/Obligation Authority							2,769.552

Description:

*Note: "When Required" is the number of months required before ship delivery.

Footnotes:

⁽¹⁾ Nuclear Propulsion Plant Equipment AP is required to fund long-lead time propulsion plant equipment, which is the longest lead-time equipment required for construction of nuclear attack submarines, and ensure production capability that supports projected production quantities. To support the VIRGINIA Class' innovative and more efficient modular construction method, reactor plant components must be delivered earlier in the construction process than previous submarine classes. Under the new method, the VIRGINIA Class reactor plant is assembled and tested before being mounted and installed in the hull. Naval Reactors is in the midst of decreasing procurements for reactor plant GFE, primarily a result of fewer aircraft carrier and submarine refuelings. Between FY15 and FY21, production volume at the Program's reactor core vendor will decrease by ~33% or nearly 500,000 manhours and require allocation of overhead across fewer product lines, resulting in increased costs per ship set. This period of higher overhead allocation coincides with the manufacturing periods of the six planned equipment ship sets to be procured using the FY19-21 SCN AP. This burden is reflected in the estimated escalation rate used to derive the required AP funding in those years. Naval Reactors is actively managing and assessing the required reactor core manufacturing capabilities to identify overhead efficiencies and reduce costs.

⁽²⁾ Electronics Equipment AP is required to fund the long-lead time material for the Command and Control System Module (CCSM). AP for the CCSM plays a critical role in early system installation and test in order to keep the CCSM out of the critical path to ship delivery and minimize risk to ship construction. AP is required to procure selected electronics and associated pre-cable kits, cabling, connector plates

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Exhibit P-10, Advance Procurement Requirements Analysis (page 2 - Budget Funding Justification): PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1		P-1 Line Item Number / Title: 2013 / Virginia Class Submarine
<p>and mechanical structures to be installed in this module in accordance with Shipyard Required in Yard Dates (RIYD). Pre-cable kits allow the shipyard to establish cable runs and checkout platform interfaces prior to electronics installation. Mechanical structures establish footprint unique packaging to allow electronics to install efficiently. Additionally, this 1 YR AP is for long lead items such as metal fabrication parts (mechanical structures, chassis, drawer slides, mounting hardware), power supplies and cable connectors, subcontract items (Aft Sonar Receive Unit), and acoustic hull sensors (iRoc Sensors, DT-574 LAB Hydrophone).</p> <p>⁽³⁾ Non-Nuclear Propulsion Plant Equipment Propulsor AP is required to satisfy in-yard need dates for ship delivery. Other prior year non-nuclear propulsion plant equipment has been negotiated as CFE in the Construction Contract.</p> <p>⁽⁴⁾ Long Lead-Time CFE AP is required to fund long lead time contractor furnished material including the Weapons Handling and Reactor Plant Modules and the Main Propulsion Unit (MPU)/Ship Service Turbine Generator (SSTG). Additionally VPM LLTM CFE in FY18 - FY24 required to support the increased material procurement (i.e. electrical, valves, flanges, fittings, pipe, fabricated parts, hardware, and tools, etc.) associated with the increased VPM workload and to maintain anticipated ship construction schedules is included. These and other components are required early in the construction phase to meet the delivery schedule. The one and two year CFE includes essential funding to support the Block V LLTM that is being negotiated into the MYP Construction Contract (not inflation driven due to VPM fluctuation and cadence of vendor base procurements) in combination with the EOQ profile to maximize cost savings and meet in yard need dates of materials.</p> <p>⁽⁵⁾ Virginia Payload Module (VPM) AP is required for Detail Design in FY18 for Block V.</p> <p>⁽⁶⁾ EOQ is for Economic Order Quantity for large lot procurements of shipbuilder material and major Government Furnished Equipment to achieve MYP savings. Examples of shipbuilder large lot procurements include items such as Electrical (cable, wire, fittings, switches, instrumentation, connectors, resistors, etc.); Valves, flanges and fittings, piping; Fabricated Parts (bearings, sound isolation mounts, pipe hanged assemblies, machined parts); Hardware and Tools (fasteners, marine fittings, locks, latches, small tools). Examples of GFE large lot procurements include items such as: Sonar - Large Aperture Bow (LAB) Arrays and associated bottles, Light Weight Wide Aperture Array (LWWAA) Receivers & electronic components (network servers, switches) ECS - High Data Rate (HDR) Antennas, Digital Modular Radios (DMRs) & associated power amplifiers, Navy Multiband Terminals (NMTs), and Multi-function Masts (MFMs) OE-538. ESM - Photonics ESM Performance Improvement (PEPI)-3 systems and Multifunctional Modular Masts (MMMs) Photonics Masts - outboard equipment only, such as Diploops along with complex electronic & mechanical components that are required to manufacture the Photonics masts. The \$225M in FY18 EOQ is the FY18 Congressional Add for Industrial Base Expansion. These funds were distributed as shown to the FY19 thru FY23 SSNs currently under negotiation for the Block V MYP construction contract for 10 SSNs. This funding will support industrial base expansion by placing economic order quantities (EOQ) orders for all 10 Block V ships, targeted towards vendors common with COLUMBIA Class Submarines (CLBs) and FORD Class Carriers (CVNs), a year earlier than planned to allow for a more efficient ramp up. The \$225M in EOQ funding will enable the Navy to send a demand signal to the industrial base for all of Block V, thereby allowing the vendor base to ramp up and plan their workload to deconflict and de-risk schedules across the nuclear shipbuilding enterprise. Moreover, this will help (1) support VCS production as CLB demand increases, (2) stabilize and expand the cross-program industrial base, and (3) lock-in out-year demand.</p>		

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Exhibit P-40, Budget Line Item Justification: PB 2020 Navy										Date: March 2019		
Appropriation / Budget Activity / Budget Sub Activity: 1611N: Shipbuilding and Conversion, Navy / BA 02: Other Warships / BSA 1: Other Warships							P-1 Line Item Number / Title: 2086 / CVN Refueling Overhauls					
ID Code (A=Service Ready, B=Not Service Ready): A			Program Elements for Code B Items: N/A					Other Related Program Elements: N/A				
Line Item MDAP/MAIS Code: N/A												
Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity (<i>Units in Each</i>)	6	-	-	1	-	1	-	-	-	-	1	8
Gross/Weapon System Cost (<i>\$ in Millions</i>)	22,717.771	0.000	0.000	5,640.212	0.000	5,640.212	0.000	0.000	0.000	0.000	6,672.672	35,030.655
Less PY Advance Procurement (<i>\$ in Millions</i>)	5,275.515	-	-	749.870	-	749.870	-	-	-	-	1,528.221	7,553.606
Less Cost To Complete (<i>\$ in Millions</i>)	180.598	-	-	-	-	-	-	-	-	-	-	180.598
Less Subsequent Year Full Funding (<i>\$ in Millions</i>)	10,092.768	-	-	3,760.627	-	3,760.627	-	-	-	-	2,378.658	16,232.053
Less Transfer (<i>\$ in Millions</i>)	128.131	-	-	-	-	-	-	-	-	-	-	128.131
Less Previously Appropriated OPN (<i>\$ in Millions</i>)	-	-	-	481.789	-	481.789	-	-	-	-	568.210	1,049.999
Net Procurement (P-1) (<i>\$ in Millions</i>)	7,040.759	0.000	0.000	647.926	0.000	647.926	0.000	0.000	0.000	0.000	2,197.583	9,886.268
Plus Subsequent Year Full Funding (<i>\$ in Millions</i>)	8,523.099	1,569.669	-	-	-	-	1,875.586	1,885.041	-	-	2,378.658	16,232.053
Full Funding TOA (<i>\$ in Millions</i>)	15,563.858	1,569.669	-	647.926	-	647.926	1,875.586	1,885.041	-	-	4,576.241	26,118.321
Plus CY Advance Procurement (<i>\$ in Millions</i>)	5,523.615	75.897	425.873	-	-	-	-	-	17.826	240.788	1,269.607	7,553.606
Plus Cost To Complete (<i>\$ in Millions</i>)	180.598	-	-	-	-	-	-	-	-	-	-	180.598
Plus Transfer (<i>\$ in Millions</i>)	128.131	-	-	-	-	-	-	-	-	-	-	128.131
Plus Previously Appropriated OPN (<i>\$ in Millions</i>)	1,049.999	-	-	-	-	-	-	-	-	-	-	1,049.999
Total Obligation Authority (<i>\$ in Millions</i>)	22,446.201	1,645.566	425.873	647.926	0.000	647.926	1,875.586	1,885.041	17.826	240.788	5,845.848	35,030.655
<i>(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)</i>												
Plus Outfitting and Post Delivery (<i>\$ in Millions</i>)	102.914	7.701	20.048	31.597	-	31.597	41.490	26.829	20.819	24.074	69.621	345.093
Total (<i>\$ in Millions</i>)	22,549.115	1,653.267	445.921	679.523	-	679.523	1,917.076	1,911.870	38.645	264.862	5,915.469	35,375.748
Gross/Weapon System Unit Cost (<i>\$ in Millions</i>)	3,786.295	-	-	5,640.212	-	5,640.212	-	-	-	-	6,672.672	4,378.832

Description:

To support and operate aircraft to engage in attacks on targets afloat and ashore which threaten our use of the sea and to engage in sustained operations in support of other forces. The refueling of the reactors and repair and upgrade of the main propulsion equipment will provide for reliable operations during its remaining 23 plus years of ship life using only the normal maintenance cycle.

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Exhibit P-40, Budget Line Item Justification: PB 2020 Navy				Date: March 2019	
Appropriation / Budget Activity / Budget Sub Activity: 1611N: Shipbuilding and Conversion, Navy / BA 02: Other Warships / BSA 1: Other Warships			P-1 Line Item Number / Title: 2086 / CVN Refueling Overhauls		
ID Code (A=Service Ready, B=Not Service Ready): A		Program Elements for Code B Items: N/A		Other Related Program Elements: N/A	
Line Item MDAP/MAIS Code: N/A					
Characteristics:		CVN 73	Systems:		
Length Overall		1092 ft	Electronics		
Beam		252 ft	-C4ISR		
Displacement		101,200 LT	-INTEGRATED COMMUNICATION NETWORK (ICAN / DDCN & IVCN)		
Draft		39.96 ft	-SHIP SELF DEFENSE SYSTEM (SSDS) MK2 MOD 1E		
			-ELECTRONIC CONSOLIDATED AUTOMATED SUPPORT SYSTEM (ECASS)		
			-AN/SPN-46 OVERHAUL/UPGRADE		
			-JOINT PRECISION APPROACH AND LANDING SYSTEM (JPALS)		
			-AN/USG-2B - COOPERATIVE ENGAGEMENT CAPABILITY (CEC)		
			-AN/SLQ-59 - ELECTRONIC WARFARE (EW) SYSTEM		
			-AN/SPN-41 REFURBISHMENT		
			-AN/SPN-50(V)1 AIR TRAFFIC CONTROL RADAR		
			-BATTLE FORCE TACTICAL TRAINING (BFTT) SYSTEM		
			-AN/SPN-43C REFURBISHMENT		
			-AN/SLQ-32A(V)4 - ELECTRONIC WARFARE SUITE		
			-NAVAL STRIKE WARFARE PLANNING CENTER (NSWPC)		
			-AN/UPX-29 - IDENTIFICATION FRIEND OR FOE (IFF) INTERROGATOR SET		
			-AN/TPX-42(V)15 UPGRADE		
			-JOINT STRIKE FIGHTER AUTONOMIC LOGISTICS INFORMATION SYSTEM (JSF-ALIS)		
			-MQ-25 - UNMANNED AIRCRAFT SYSTEM (UAS)		
			-AN/SYY-1 AIR TRAFFIC CONTROL SYSTEM		
			Hull, Mechanical, and Electrical (HM&E)		
			-AIRCRAFT ELECTRICAL SERVICE STATION (AESS) INSTALL		
			-FURNITURE (NON PROPULSION PLANT)		
			-LOW PRESSURE AIR PLANT (LPAP)		
			-AUTOMATIC VOLTAGE REGULATOR (AVR)		
			-VSA O2 GENERATOR		
			-PASSIVE COUNTER MEASURE SYSTEM (PCMS)		
			-COMBAT SYSTEMS SUPPORT CENTER (CSSC) RIPOUT/INSTALL		
			-CARRIER INTELLIGENCE CENTER (CVIC) RIPOUT/INSTALL		
			-AFT CREW MESS		
			-LAUNDRY DRYERS (SCD 3186)		
			-MEDICAL AND DENTAL SUITE		
			-NODE ROOM RIPOUT/INSTALL		
			-COMBI-OVENS		
			-ACE PLC CONTROL SYSTEM UPGRADE		
			-DECK EDGE DOOR UPGRADE		
			Ordnance		
			-AVIATION EQUIPMENT & SUPPORT		
			-NATO SEASPARROW SURFACE MISSILE SYSTEM (NSSMS)		
			-AN/SPS-48G - 3D AIR SEARCH RADAR		
			-AN/SPS-49(V)1 OVERHAUL/REFURBISHMENT		
			-AN/SPQ-14 - ADVANCED SENSOR DISTRIBUTION SYSTEM (ASDS)		
			-ENTERPRISE AIR SURVEILLANCE RADAR (EASR)		
			-CIWS/RAM DEFENSE CAPABILITY (CRDC) BLOCK 1		
			-SURFACE ELECTRONIC WARFARE IMPROVEMENT PROGRAM (SEWIP) BLOCK 2		
			-MK 38 MOD 3 GUN SYSTEM		
			-COMBAT DIRECTION CENTER (CDC)/FLAG RIPOUT/INSTALL		
			-AN/SPQ-9B - ANTI-SHIP CRUISE MISSILE DEFENSE RADAR		
			-MK 38 MOD 2 GUN SYSTEM		
			-AN/SQQ-34C - CARRIER TACTICAL SUPPORT CENTER		
			-RAM GUIDED MISSILE LAUNCHING SYSTEM		
			-MK 53 DECOY LAUNCHING SYSTEM (DLS)		
Production Status:		CVN 73	CVN 74		
Contract Award Date		Aug 2017	Jan 2021		
Months to Completion					
a) Award to Delivery		48 months	48 months		
b) Construction Start to Delivery		48 months	48 months		
Delivery Date		Aug 2021	Jan 2025		
Completion Of Fitting Out		Oct 2021	Mar 2025		
Obligation Work Limit Date		Sep 2022	Feb 2026		

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Exhibit P-40, Budget Line Item Justification: PB 2020 Navy				Date: March 2019	
Appropriation / Budget Activity / Budget Sub Activity: 1611N: Shipbuilding and Conversion, Navy / BA 02: Other Warships / BSA 1: Other Warships			P-1 Line Item Number / Title: 2086 / CVN Refueling Overhauls		
ID Code (A=Service Ready, B=Not Service Ready): A		Program Elements for Code B Items: N/A		Other Related Program Elements: N/A	
Line Item MDAP/MAIS Code: N/A					
<u>Design Schedule</u>	<u>Start / Issue</u>	<u>Complete / Response</u>	<u>Reissue</u>	<u>Reissue Complete / Response</u>	
Issue Date for TLR	Jan 2000	Feb 2000	Mar 2000	Apr 2000	
Issue Date for TLS	Jan 2001	Feb 2001	Mar 2001	Apr 2001	
Preliminary Design	Jan 2002	Feb 2002	N/A	N/A	
Contract Design	Jan 2003	Feb 2003	N/A	N/A	
Detail Design	Jan 2004	Feb 2004	N/A	Apr 2004	
Request for Proposals	Jan 2005	Feb 2005	Mar 2005	N/A	
Design Agent	[Design Agent]				
<u>Classification of Cost Estimate:</u> [cost estimate]					
<p>Justification: FY 2020 changes the CVN 74 RCOH request of \$647.926 million from the fifth year of advance procurement to the first year of full funding. There is no change in the amount of funding. The revised CVN 74 RCOH funding profile is four years of advance procurement from FY 2016 to FY 2019 and three years of full funding from FY 2020 to FY 2022, which is similar to CVN 73. Previously appropriated OPN represents reactor power units procured for CVN 74 and CVN 76. Funding is now included with the end cost per Section 1018 of the 2019 National Defense Authorization Act.</p>					

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Exhibit P-5c, Ship Cost Analysis: PB 2020 Navy			Date: March 2019	
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1		P-1 Line Item Number / Title: 2086 / CVN Refueling Overhauls		
Cost Categories <small>(†) indicates the presence of a P-8a</small>	FY 2016		FY 2020	
	Qty <small>(Each)</small>	Total Cost <small>(\$ M)</small>	Qty <small>(Each)</small>	Total Cost <small>(\$ M)</small>
Plan Costs	1	66.131	1	70.271
Basic Construction/Conversion		3,813.413		4,144.579
Electronics (†)		318.978		356.157
Propulsion Equipment		155.895		598.471
Hull, Mechanical, and Electrical (HM&E) (†)		153.141		160.226
Ordnance (†)		121.842		215.438
Other Cost		90.296		95.070
Total Ship Estimate		4,719.696		5,640.212
Less Advance Procurement FY 2012		14.008		-
Less Advance Procurement FY 2013		69.918		-
Less Advance Procurement FY 2014		245.793		-
Less Advance Procurement FY 2015		483.600		-
Less Advance Procurement FY 2016		-		14.951
Less Advance Procurement FY 2017		-		233.149
Less Advance Procurement FY 2018		-		75.897
Less Advance Procurement FY 2019		-		425.873
Less Subsequent Full Funding FY 2017		1,699.120		-
Less Subsequent Full Funding FY 2018		1,569.669		-
Less Subsequent Full Funding FY 2021		-		1,875.586
Less Subsequent Full Funding FY 2022		-		1,885.041
Less Previously Appropriated OPN FY 2004		-		234.028
Less Previously Appropriated OPN FY 2005		-		247.761
Net P-1 Funding		637.588		647.926
Remarks: CVN 74 RCOH Propulsion Equipment increase includes previously appropriated OPN funding for reactor power units. Funding is now included with the end cost per Section 1018 of the 2019 National Defense Authorization Act.				

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LI 2086 - CVN Refueling Overhauls

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Exhibit P-8a, Analysis of Ship Cost Estimates: PB 2020 Navy				Date: March 2019	
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1			P-1 Line Item Number / Title: 2086 / CVN Refueling Overhauls		
Electronics	FY 2016		FY 2020		
	Qty (Each)	Total Cost (\$ M)	Qty (Each)	Total Cost (\$ M)	
P-35 Items					
C4ISR	1	107.433	1	117.082	
INTEGRATED COMMUNICATION NETWORK (ICAN / DDCN & IVCN)	1	56.623	1	65.841	
SHIP SELF DEFENSE SYSTEM (SSDS) MK2 MOD 1E	1	42.272	1	37.177	
ELECTRONIC CONSOLIDATED AUTOMATED SUPPORT SYSTEM (ECASS)	1	36.625	1	36.981	
AN/SPN-46 OVERHAUL/UPGRADE	1	12.851	1	13.030	
JOINT PRECISION APPROACH AND LANDING SYSTEM (JPALS)	1	12.798	1	14.372	
AN/USG-2B - COOPERATIVE ENGAGEMENT CAPABILITY (CEC)	1	11.546	1	10.296	
AN/SLQ-59 - ELECTRONIC WARFARE (EW) SYSTEM	1	6.304	0	-	
AN/SPN-41 REFURBISHMENT	1	5.746	1	5.821	
AN/SPN-50(V)1 AIR TRAFFIC CONTROL RADAR	0	-	1	15.293	
P-35 Items Subtotal		292.198		315.893	
Major Items					
BATTLE FORCE TACTICAL TRAINING (BFTT) SYSTEM	1	7.650	1	4.144	
AN/SPN-43C REFURBISHMENT	1	3.982	0	-	
AN/SLQ-32A(V)4 - ELECTRONIC WARFARE SUITE	1	3.576	0	-	
NAVAL STRIKE WARFARE PLANNING CENTER (NSWPC)	1	3.095	1	3.466	
AN/UPX-29 - IDENTIFICATION FRIEND OR FOE (IFF) INTERROGATOR SET		1.915		2.855	
AN/TPX-42(V)15 UPGRADE	1	1.803	0	-	
JOINT STRIKE FIGHTER AUTONOMIC LOGISTICS INFORMATION SYSTEM (JSF-ALIS)	1	1.667	1	1.826	
MQ-25 - UNMANNED AIRCRAFT SYSTEM (UAS)	0	-	1	21.500	
AN/SYY-1 AIR TRAFFIC CONTROL SYSTEM	0	-	1	4.160	
Major Items Subtotal		23.688		37.951	
Other Cost Elements					
TEST & CERTIFICATIONS, MISC.		3.092		2.313	
Other Cost Elements Subtotal		3.092		2.313	
Total Electronics		318.978		356.157	
Remarks: CVN 74 RCOH Electronics increase from CVN 73 RCOH includes \$21.500M for MQ-25 Unmanned Aircraft System. BATTLE FORCE TACTICAL TRAINING (BFTT) SYSTEM: CVN 73 is the first aircraft carrier to receive the Advance Training Domain (ATD) configuration. The CVN 73 RCOH cost includes funding for nonrecurring engineering (NRE) to implement the ATD configuration on the aircraft carrier, which is not required for CVN 74 RCOH. BFTT moved from a P-35 item to a major item.					

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Exhibit P-8a, Analysis of Ship Cost Estimates: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1		P-1 Line Item Number / Title: 2086 / CVN Refueling Overhauls
<p>AN/SPN-43C REFURBISHMENT: AN/SPN-43C is replaced by AN/SPN-50(V)1 Radar Set for CVN 74 RCOH, which is a P-35 item.</p> <p>AN/SLQ-32A(V)4 - ELECTRONIC WARFARE SUITE: AN/SLQ-32A(V)4 is replaced by SEWIP Block 2 for CVN 74 RCOH, which is an Ordnance P-35 item.</p> <p>AN/UPX-29 - IDENTIFICATION FRIEND OR FOE (IFF) INTERROGATOR SET: CVN 74 RCOH IFF work scope is significantly larger than CVN 73 RCOH. The CVN 74 RCOH IFF equipment room is located on the 08 Level (08-171-1-C) and requires relocation to accommodate the main mast replacement. Onboard CVN 73, the IFF equipment room was located on the 07 Level (07-168-1-C) and was not impacted by the main mast replacement.</p> <p>AN/TPX-42(V)15 UPGRADE: CVN 73 RCOH additional onboard test & evaluation of \$0.006M was identified as necessary to support flight deck certification. The majority of the increased cost was offset by realized savings in achieved efficiencies to the removal effort. CVN 74 RCOH is receiving AN/SYY-1 Air Traffic Control System instead of AN/TPX-42(V)15.</p> <p>AN/SYY-1 AIR TRAFFIC CONTROL SYSTEM: Replaces AN/TPX-42(V)15 Upgrade onboard CVN 74.</p> <p>Other Cost Elements includes six unlisted systems, each under \$1.000M in major hardware requirement. CVN 73 RCOH Test & Certifications costs were reduced by \$3.203M from PB19 as a result of achieved efficiencies gained from lessons learned from the CVN 72 RCOH.</p>		

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Exhibit P-8a, Analysis of Ship Cost Estimates: PB 2020 Navy			Date: March 2019	
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1		P-1 Line Item Number / Title: 2086 / CVN Refueling Overhauls		
Hull, Mechanical, and Electrical (HM&E)	FY 2016		FY 2020	
	Qty <i>(Each)</i>	Total Cost <i>(\$ M)</i>	Qty <i>(Each)</i>	Total Cost <i>(\$ M)</i>
P-35 Items				
AIRCRAFT ELECTRICAL SERVICE STATION (AESS) INSTALL	1	14.452	0	-
FURNITURE (NON PROPULSION PLANT)	1	11.271	1	11.361
LOW PRESSURE AIR PLANT (LPAP)	1	6.363	1	7.008
AUTOMATIC VOLTAGE REGULATOR (AVR)	1	4.340	0	-
VSA O2 GENERATOR	0	-	1	5.183
P-35 Items Subtotal		36.426		23.552
Major Items				
PASSIVE COUNTER MEASURE SYSTEM (PCMS)	1	5.549	1	6.065
COMBAT SYSTEMS SUPPORT CENTER (CSSC) RIPOUT/INSTALL	1	3.851	1	4.313
CARRIER INTELLIGENCE CENTER (CVIC) RIPOUT/INSTALL	1	3.621	1	4.056
AFT CREW MESS	1	3.422	1	3.827
LAUNDRY DRYERS (SCD 3186)	1	2.720	1	3.035
MEDICAL AND DENTAL SUITE	1	2.586	1	2.435
NODE ROOM RIPOUT/INSTALL	1	1.988	1	2.227
COMBI-OVENS	1	1.853	0	-
ACE PLC CONTROL SYSTEM UPGRADE	1	1.785	1	2.000
DECK EDGE DOOR UPGRADE	1	1.735	1	2.066
Major Items Subtotal		29.110		30.024
Other Cost Elements				
ENGINEERING, TEST & CERTIFICATION		60.570		69.081
MISCELLANEOUS GOVERNMENT FURNISHED EQUIPMENT (GFE)		27.035		37.569
Other Cost Elements Subtotal		87.605		106.650
Total Hull, Mechanical, and Electrical (HM&E)		153.141		160.226
Remarks:				
CVN 73 RCOH Major items net increased by \$1.152M from PB19.				
MEDICAL AND DENTAL SUITE: CVN 73 RCOH unit cost of required material procured from the government stock system increased by \$0.230M from PB19.				
COMBI-OVENS: Not required for CVN 74 RCOH.				
DECK EDGE DOOR UPGRADE: Cost estimate based on a FY 2023 install with work extending until the end of the RCOH in FY 2025. These estimates will be refined and matured as we progress towards the start of the RCOH.				

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Exhibit P-8a, Analysis of Ship Cost Estimates: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1		P-1 Line Item Number / Title: 2086 / CVN Refueling Overhauls
ENGINEERING, TEST & CERTIFICATION: CVN 73 RCOH engineering support increased by \$7.687M from PB19 to fund a lean team of subject matter expert engineers to diagnose issues and provide solutions at a lower cost point to mitigate risk of cost and scope creep at the shipyard. CVN 74 RCOH cost increase is attributable to additional engineering and design efforts which includes antenna, enclosure, and structural analysis due to significant introduction of new technology.		
MISCELLANEOUS GOVERNMENT FURNISHED EQUIPMENT (GFE): CVN 73 RCOH includes major item GFE not listed such as Hangar Division Door Upgrade (\$0.990M), Lithium-Ion Battery Shop to Support JSF (\$1.378M), and Weapons and Aircraft Elevators (\$0.750M). The CVN 73 RCOH includes twenty-seven other unlisted systems totaling \$22.917M, each under \$1.000M in major hardware requirement. The CVN 74 RCOH includes twenty other unlisted systems totaling \$28.274M, each under \$1.000M in major hardware requirement.		

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Exhibit P-8a, Analysis of Ship Cost Estimates: PB 2020 Navy				Date: March 2019	
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1			P-1 Line Item Number / Title: 2086 / CVN Refueling Overhauls		
Ordnance	FY 2016		FY 2020		
	Qty (Each)	Total Cost (\$ M)	Qty (Each)	Total Cost (\$ M)	
P-35 Items					
AVIATION EQUIPMENT & SUPPORT	1	47.984	1	46.843	
NATO SEASPARROW SURFACE MISSILE SYSTEM (NSSMS)	1	17.984	1	30.870	
AN/SPS-48G - 3D AIR SEARCH RADAR	1	13.220	0	-	
AN/SPS-49(V)1 OVERHAUL/REFURBISHMENT	1	8.486	0	-	
AN/SPQ-14 - ADVANCED SENSOR DISTRIBUTION SYSTEM (ASDS)	1	3.624	1	3.131	
ENTERPRISE AIR SURVEILLANCE RADAR (EASR)	0	-	1	48.911	
CIWS/RAM DEFENSE CAPABILITY (CRDC) BLOCK 1	0	-	1	22.175	
SURFACE ELECTRONIC WARFARE IMPROVEMENT PROGRAM (SEWIP) BLOCK 2	0	-	1	18.397	
MK 38 MOD 3 GUN SYSTEM	0	-	1	9.071	
P-35 Items Subtotal		91.298		179.398	
Major Items					
COMBAT DIRECTION CENTER (CDC)/FLAG RIPOUT/INSTALL	1	16.524	1	17.020	
AN/SPQ-9B - ANTI-SHIP CRUISE MISSILE DEFENSE RADAR	1	3.624	1	4.472	
MK 38 MOD 2 GUN SYSTEM	1	2.030	0	-	
AN/SQQ-34C - CARRIER TACTICAL SUPPORT CENTER	1	1.287	1	2.485	
RAM GUIDED MISSILE LAUNCHING SYSTEM	1	1.185	1	2.542	
MK 53 DECOY LAUNCHING SYSTEM (DLS)	0	-	1	5.725	
Major Items Subtotal		24.650		32.244	
Other Cost Elements					
TEST & CERTIFICATIONS, MISC		5.894		3.796	
Other Cost Elements Subtotal		5.894		3.796	
Total Ordnance		121.842		215.438	
Remarks:					
CVN 74 RCOH Ordnance increase from CVN 73 RCOH includes \$86.500M for Enterprise Air Surveillance Radar (EASR), CIWS/RAM Defense Capability (CRDC) Block 1, and Surface Electronic Warfare Improvement Program (SEWIP) Block 2.					
CVN 73 RCOH P-35 items net increased by \$8.573M from PB19. The increased cost for NATO Seasparrow Surface Missile System (NSSMS) was partially offset by realized savings from a PMS 312 cost reduction initiative to reduce program management, system engineering, and logistics support.					
CVN 73 RCOH Major items net decreased by \$3.707M from PB19 largely due to the significant reduction in scope and cost for Seat Shop Modifications (JSF CVN)/Pilot Equipment and Helm as the requirement became more clearly defined upon initialization of the RCOH.					
MK 38 MOD 2 GUN SYSTEM: MK 38 Mod 2 Gun System is replaced by MK 38 Mod 3 Gun System for CVN 74 RCOH, which is a P-35 item. CVN 74 MK 38 Mod 3 Gun System is a full (with GFE) install. For MK 38 Mod 2 Gun System, RCOH will install system infrastructure (cable, foundations) to facilitate install during a CIA in 2021. De-scoped GFE hardware procurement and installation to a future availability.					

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Exhibit P-8a, Analysis of Ship Cost Estimates: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1		P-1 Line Item Number / Title: 2086 / CVN Refueling Overhauls
<p>AN/SQQ-34C - CARRIER TACTICAL SUPPORT CENTER: CVN 74 RCOH is \$1.198M higher than CVN 73 RCOH. CVN 74 RCOH is a full install (with GFE). CVN 73 RCOH GFE was de-scoped to a future availability.</p> <p>RAM GUIDED MISSILE LAUNCHING SYSTEM: CVN 74 RCOH increased by \$1.357M due to procurement of new hardware. CVN 73 RCOH hardware was obtained from decommissioned assets and refurbished. Additional decommissioned hardware assets are not available for CVN 74 RCOH, and all new hardware is required.</p> <p>Other Cost Elements includes six unlisted systems, each under \$1.000M in major hardware requirement. CVN 73 RCOH Test & Certifications costs were reduced by \$2.318M from PB19 as a result of achieved efficiencies gained from lessons learned from the CVN 72 RCOH. Other cost element decreases from CVN 73 RCOH to CVN 74 RCOH due to MK 53 Decoy Launching System becoming a major item and Phalanx MK 15 MOD 22 becoming a P-35 item on the CVN 74. MK 53 Decoy Launching System and Phalanx MK 15 MOD 22 were refurbishment only efforts on the CVN 73. CVN 74 is receiving MK 53 Decoy Launching System with new hardware and Phalanx MK 15 MOD 22 is included within the CIWS/RAM DEFENSE CAPABILITY.</p>		

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Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy	Date: March 2019
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Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1	P-1 Line Item Number / Title: 2086 / CVN Refueling Overhauls
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Equipment Item: C4ISR	PARM Code: SPAWAR PMW 750
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P-35 Category	FY 2016		FY 2020	
	Qty (Each)	Total Cost (\$ M)	Qty (Each)	Total Cost (\$ M)
Major Hardware	1	46.621	1	53.772
Ancillary Equipment		2.383		2.703
Technical Data and Documentation		0.551		0.670
Spares		1.490		1.780
System Engineering		12.488		13.104
Technical Engineering Services		28.289		29.940
Other Costs		15.611		15.113
Total	1	107.433	1	117.082

Description:

Provides an integrated communications infrastructure to support both tactical and non-tactical applications in all warfare and support areas, an improved shipboard RF distribution system and multiband antennas, and capabilities for the control and monitoring of RF assets introducing network automation and provide interoperable communications for joint operations. It will interconnect forces of the Battle Group (BG)/ Amphibious Readiness Group (ARG) and connects the BG/ARG with expeditionary forces and the Commander-in-Chief Command Complex (CCC) ashore crossing all available media including Ultra High Frequency (UHF), Super High Frequency (SHF), Extremely High Frequency (EHF), commercial satellite links, and new medium-to-high data rate HF and UHF line of sight (LOS) links. C4ISR includes RCS, weather, navigational, signal exploitation, and command and control equipment.

Contract Data:

Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost (\$ M)
FY 2016	CVN 73	Various	Various	Various	Various	1	46.621
FY 2020	CVN 74	Various	Various	Various	Various	1	53.772

Delivery Date:

Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date
FY 2016	CVN 73	Aug 2021	0		Various
FY 2020	CVN 74	Jan 2025	0		Various

Competition/Second Source Initiatives:

N/A

Remarks:

CVN 73 RCOH - Comprised of 36 discreetly funded line items. Major hardware net increased by \$0.798M from PB19 to support Communications Data Link System Hybrid Tech Refresh (CDLS TR) after it was determined CDLS Refurbishment costs were considerably higher than the cost to procure. CDLS TR requires upgrade of the entire rack due to multiple commercial-off-the-shelf obsolescence issues. The CDLR TR Video Communications Equipment (VCE) rack is a low cost replacement solution that upgrades to WIN 10 and removes SWAP from the ship by eliminating the VIG rack and replacing the CMG rack with the VCE rack.

Other Costs net increased by \$1.763M from PB19 due to the increase in cost for Consolidated Afloat Network Enterprise Services (CANES) software.

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Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1	P-1 Line Item Number / Title: 2086 / CVN Refueling Overhauls	
Equipment Item: C4ISR		PARM Code: SPAWAR PMW 750
<p>Technical data and documentation, spares, system engineering, and technical engineering costs were reduced \$2.561M from PB19 as a result of achieved efficiencies gained from lessons learned from the CVN 72 RCOH.</p> <p>CVN 74 RCOH - Comprised of 34 discreetly funded line items. Cost estimates based on a FY 2023 install with work extending until the end of the RCOH in FY 2025. These estimates will be refined and matured as we progress towards the start of the RCOH.</p> <p>Major Hardware net increase of \$7.150M from the CVN 73 RCOH primarily due to a \$5.007M increase in Digital Modular Radio hardware cost. Digital Modular Radio hardware cost drivers are two fold; the cost per unit is increasing and the number of units required for CVN 74 RCOH increased from 51 to 66.</p>		

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Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy						Date: March 2019	
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1				P-1 Line Item Number / Title: 2086 / CVN Refueling Overhauls			
Equipment Item: INTEGRATED COMMUNICATION NETWORK (ICAN / DDCN & IVCN)						PARM Code: NAVSEA 05H3, NAVSEA 05Z33	
P-35 Category	FY 2016		FY 2020				
	Qty (Each)	Total Cost (\$ M)	Qty (Each)	Total Cost (\$ M)			
Major Hardware	1	24.035	1	28.242			
Ancillary Equipment		0.015		0.005			
Technical Data and Documentation		1.313		1.865			
Spares		0.556		0.474			
System Engineering		9.180		8.572			
Technical Engineering Services		14.619		17.719			
Other Costs		6.905		8.964			
Total	1	56.623	1	65.841			

Description:
 The Integrated Communication Network consists of the following systems: An Integrated Communications System (ICS) that provides the ship's Internal Command and Control Communications. In addition, ICS provides connectivity to other onboard systems such as Announcing Systems, Sound Powered Circuits, Secure / Non Secure off-ship Communications, Shipboard Air Traffic Control Communications (SATCC) and Hierarchical Yet Dynamically Reprogrammable Architecture (HYDRA). The Machinery Control Monitoring System (MCMS) controls and monitors approximately 3500 machinery signals for various HM&E auxiliary systems (e.g. JP5, firemen, IC/SM panels) for aircraft carriers. It utilizes the Machinery Control Network for signals. The Machinery Control Network (MCN) is the core network that provides communication services and transport for the MCMS system and part of the backbone that rides over the Fiber Optic Cable Plant (FOCP). It consists of five network switches, associated racks, and cabling. The Navigation Critical Distribution System (NAVCRT) is a switched network providing communication services and transport for the NAV Standard Message, which is originated in the NAVSSI (Naval Sensor System Interface) system. The NAVCRIT Distribution consists of three backbone switches and eight I/O controllers to convert digital NAV data for analog outputs. It will use the FOCP to the maximum extent for connectivity. The Ship Control System (SCS) provides control and display of rudder position, Engine and Propeller Order Telegraph functions. SCS provides data for heading, speed, and rudder angles through NAVCRIT Network from NAVSSI. The SCS interfaces to an Electronic Chart Display Information System. Shipboard Multipurpose Copiers includes the acquisition and installation of Class III Copier/Printer (B&W), Class III Color Copier/Printer, Class IV Copier/Printer (B&W) and Class IV Color Copier/Printer. The related equipment is for use on surface vessels in the US Navy as part of the Shipboard Multipurpose Copier Program.

Contract Data:

Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost (\$ M)
FY 2016	CVN 73	Various	Various	Various	Various	1	24.035
FY 2020	CVN 74	Various	Various	Various	Various	1	28.242

Delivery Date:

Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date
FY 2016	CVN 73	Aug 2021	0		Various
FY 2020	CVN 74	Jan 2025	0		Various

Competition/Second Source Initiatives:
N/A

Remarks:

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Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1		P-1 Line Item Number / Title: 2086 / CVN Refueling Overhauls
Equipment Item: INTEGRATED COMMUNICATION NETWORK (ICAN / DDCN & IVCN)		PARM Code: NAVSEA 05H3, NAVSEA 05Z33
CVN 73 RCOH - Overall decrease from PB19 is a result of realized savings from a PMS 312 cost reduction initiative to reduce program management, system engineering, and logistics support.		
CVN 74 RCOH - Cost estimate based on a FY 2023 install with work extending until the end of the RCOH in FY 2025. These estimates will be refined and matured as we progress towards the start of the RCOH.		
Major Hardware net increase of \$4.207M from the CVN 73 RCOH. Hardware cost increase due to procurement of Afloat Multi-Media Production System (AMMPS) and Advanced Damage Control System procurement not accomplished on CVN 73 RCOH.		
Technical Engineering Services net increase of \$3.100M from the CVN 73 RCOH. Technical engineering service estimate is based upon a preliminary scope of work. When Ship Installation Drawings are developed (FY 2019-20) the work scopes will be refined and cost estimates updated.		
Other Costs net increase of \$2.059M from the CVN 73 RCOH. Other cost estimate is based upon a preliminary scope of work. When Ship Installation Drawings are developed (FY 2019-20) the work scopes will be refined and cost estimates updated.		

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Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy						Date: March 2019																									
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1				P-1 Line Item Number / Title: 2086 / CVN Refueling Overhauls																											
Equipment Item: SHIP SELF DEFENSE SYSTEM (SSDS) MK2 MOD 1E						PARM Code: NAVSEA PEO IWS 10																									
P-35 Category	FY 2016		FY 2020																												
	Qty (Each)	Total Cost (\$ M)	Qty (Each)	Total Cost (\$ M)																											
Major Hardware	1	10.020	1	10.972																											
Technical Data and Documentation		0.885		1.189																											
Spares		0.845		0.898																											
System Engineering		7.658		6.361																											
Technical Engineering Services		4.395		4.155																											
Other Costs		18.469		13.602																											
Total	1	42.272	1	37.177																											
Description: The Ship Self Defense System (SSDS) MK2 provides primary support for force/own ship combat systems control and enhanced self-defense capabilities. SSDS is the heart of the Combat System integrating sensors, weapons systems, data links, and command and control elements into a unified Combat System.																															
Contract Data: <table border="1" style="width: 100%; border-collapse: collapse; margin-top: 5px;"> <tr> <th>Program Year</th> <th>Hull</th> <th>Prime Contractor</th> <th>Contract Method/Type</th> <th>Award Date</th> <th>New/Option</th> <th>Quantity (Each)</th> <th>Unit Cost (\$ M)</th> </tr> <tr> <td>FY 2016</td> <td>CVN 73</td> <td>Raytheon/Lockheed Martin</td> <td>C/CPFF</td> <td>Apr 2018</td> <td>Option</td> <td style="text-align: center;">1</td> <td style="text-align: right;">10.020</td> </tr> <tr> <td>FY 2020</td> <td>CVN 74</td> <td>TBD</td> <td>TBD</td> <td>Apr 2020</td> <td></td> <td style="text-align: center;">1</td> <td style="text-align: right;">10.972</td> </tr> </table>								Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost (\$ M)	FY 2016	CVN 73	Raytheon/Lockheed Martin	C/CPFF	Apr 2018	Option	1	10.020	FY 2020	CVN 74	TBD	TBD	Apr 2020		1	10.972
Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost (\$ M)																								
FY 2016	CVN 73	Raytheon/Lockheed Martin	C/CPFF	Apr 2018	Option	1	10.020																								
FY 2020	CVN 74	TBD	TBD	Apr 2020		1	10.972																								
Delivery Date: <table border="1" style="width: 100%; border-collapse: collapse; margin-top: 5px;"> <tr> <th>Program Year</th> <th>Hull</th> <th>Earliest Ship Delivery Date</th> <th>Months Required Before Delivery</th> <th>Production Leadtime</th> <th>Required Award Date</th> </tr> <tr> <td>FY 2016</td> <td>CVN 73</td> <td>Aug 2021</td> <td style="text-align: center;">22</td> <td style="text-align: center;">18</td> <td style="text-align: center;">Apr 2018</td> </tr> <tr> <td>FY 2020</td> <td>CVN 74</td> <td>Jan 2025</td> <td style="text-align: center;">22</td> <td style="text-align: center;">24</td> <td style="text-align: center;">Mar 2021</td> </tr> </table>								Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date	FY 2016	CVN 73	Aug 2021	22	18	Apr 2018	FY 2020	CVN 74	Jan 2025	22	24	Mar 2021						
Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date																										
FY 2016	CVN 73	Aug 2021	22	18	Apr 2018																										
FY 2020	CVN 74	Jan 2025	22	24	Mar 2021																										
Competition/Second Source Initiatives: N/A																															
Remarks: CVN 73 RCOH - Cost savings initiatives to streamline processes, leverage common efforts across multiple platforms, and provide the same services and products at a reduced cost, achieved savings in major hardware, technical data and documentation, and system engineering. Cost savings are realized as efficiency initiatives are achieved during contract negotiations for hardware. CVN 74 RCOH - Cost estimate based on a FY 2023 install with work extending until the end of the RCOH in FY 2025. Cost reduction initiative realized cost savings in system engineering (\$1.297M) and other costs (\$4.867M) related efforts. These estimates will be refined and matured as we progress towards the start of the RCOH. Contract Data is "TBD" as contract award information is unknown at this time.																															

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Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy						Date: March 2019	
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1				P-1 Line Item Number / Title: 2086 / CVN Refueling Overhauls			
Equipment Item: ELECTRONIC CONSOLIDATED AUTOMATED SUPPORT SYSTEM (ECASS)						PARM Code: NAVAIR PMA 260	
P-35 Category	FY 2016		FY 2020				
	Qty (Each)	Total Cost (\$ M)	Qty (Each)	Total Cost (\$ M)			
Major Hardware	1	35.000	1	35.017			
Technical Engineering Services		1.225		1.564			
Other Costs		0.400		0.400			
Total	1	36.625	1	36.981			
Description: The Electronic Consolidated Automated Support System (eCASS) provides repair capability for aircraft instruments, components ("black boxes"), subcomponents (e.g. circuit cards), avionics and missile systems for all current deployable aircraft, F/A-18 ATFLIR (Forward Looking Infrared Receiver) and ALQ-99 (electronic jamming) systems, as well as new and future aircraft such as E-2D and F-35C. The eCASS replaces the obsolete Consolidated Automated Support System (CASS) that formerly provided this support. The eCASS suite provides expeditious, on-site repair capability for more than 1,100 different components, without which parts support for the ship's AIRWING (which routinely operates at great distances from logistics supply points) would be degraded to the point that it would result in increased support costs and negatively affect mission accomplishment, combat readiness, and required sortie generation rates.							
Contract Data:							
Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost (\$ M)
FY 2016	CVN 73	Lockheed Martin	C/CPFF	Oct 2018	New	1	35.000
FY 2020	CVN 74	TBD	TBD	Feb 2022		1	35.017
Delivery Date:							
Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date		
FY 2016	CVN 73	Aug 2021	23	12	Sep 2018		
FY 2020	CVN 74	Jan 2025	23	12	Feb 2022		
Competition/Second Source Initiatives: N/A							
Remarks: CVN 73 RCOH - Contract data is "TBD" due to ongoing solicitation for second full rate production contract actions. CVN 74 RCOH - Contract Data is "TBD" as contract award information is unknown at this time.							

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Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy						Date: March 2019	
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1				P-1 Line Item Number / Title: 2086 / CVN Refueling Overhauls			
Equipment Item: AN/SPN-46 OVERHAUL/UPGRADE						PARM Code: NAVAIR PMA 213	
P-35 Category	FY 2016		FY 2020				
	Qty (Each)	Total Cost (\$ M)	Qty (Each)	Total Cost (\$ M)			
Major Hardware	1	6.661	1	5.768			
System Engineering		0.599		0.666			
Technical Engineering Services		3.360		3.565			
Other Costs		2.231		3.031			
Total	1	12.851	1	13.030			
Description: The AN/SPN-46 Automatic Carrier Landing System (ACLS) is a precision approach landing system (PALS) which provides electronic guidance to carrier-based aircraft and allows them to land in all-weather conditions with no limitations due to low ceiling or restricted visibility. AN/SPN-46 is a fully automated, all-weather approach landing aid for carrier aircraft that enhances safety of flight during recovery, enables the execution of all-weather air combat operations, and is required to achieve full air traffic control certification following RCOH. AN/SPN-46 is required to be removed during the RCOH to prevent damage and allow for major infrastructure recapitalization and reconfiguration of the ship's island, mast, and tower.							
Contract Data:							
Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost (\$ M)
FY 2016	CVN 73	NAWC Aircraft Division	WR	Jan 2015		1	6.661
FY 2020	CVN 74	TBD	TBD	Sep 2019		1	5.768
Delivery Date:							
Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date		
FY 2016	CVN 73	Aug 2021	24	24	Aug 2017		
FY 2020	CVN 74	Jan 2025	28	36	Sep 2019		
Competition/Second Source Initiatives: N/A							
Remarks: CVN 74 RCOH - Contract Data is "TBD" as contract award information is unknown at this time.							

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Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy						Date: March 2019	
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1				P-1 Line Item Number / Title: 2086 / CVN Refueling Overhauls			
Equipment Item: JOINT PRECISION APPROACH AND LANDING SYSTEM (JPALS)						PARM Code: NAVAIR PMA 213	
P-35 Category	FY 2016		FY 2020				
	Qty (Each)	Total Cost (\$ M)	Qty (Each)	Total Cost (\$ M)			
Major Hardware	1	9.380	1	9.921			
Spares		0.909		0.946			
System Engineering		0.204		0.762			
Technical Engineering Services		1.394		1.435			
Other Costs		0.910		1.308			
Total	1	12.797	1	14.372			
Description: The Joint Precision Approach and Landing System (JPALS) is the future precision approach and landing system which will be the primary landing system for the Joint Strike Fighter (F-35B/F-35C), Unmanned Carrier Aviation Air System (MQ-25A), and future aircraft platforms onboard CVNs and LHA/LHD type ships. JPALS is the Navy certified sea-based system to have the capabilities necessary to provide ship range/bearing for JPALS-equipped aircraft operating within 200NM; provide air traffic control surveillance of JPALS-equipped aircraft via secure, two-way data link with the ship; and support auto-land functionality for the F-35C, MQ-25A, and future platforms to CVNs. JPALS is critical for MQ-25A as currently no secondary landing system exists for MQ-25A operations at sea.							
Contract Data:							
Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost (\$ M)
FY 2016	CVN 73	NAWC Aircraft Division		Mar 2019	New	1	9.380
FY 2020	CVN 74	TBD	TBD	Sep 2021		1	9.921
Delivery Date:							
Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date		
FY 2016	CVN 73	Aug 2021	14	15	Mar 2019		
FY 2020	CVN 74	Jan 2025	34	6	Sep 2021		
Competition/Second Source Initiatives: N/A							
Remarks: CVN 73 RCOH - Sea-based JPALS equipment procurement and equipment production support increased from PB19. CVN 74 RCOH - Cost estimate based on a FY 2023 install with work extending until the end of the RCOH in FY 2025. These estimates will be refined and matured as we progress towards the start of the RCOH. Contract Data is "TBD" as contract award information is unknown at this time. Significant difference in Production Lead Time and Months Required Before Delivery due to limited manufacturer capacity of LRIP units and timing for other fleet requirements for JPALS system.							

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Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy						Date: March 2019																									
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1				P-1 Line Item Number / Title: 2086 / CVN Refueling Overhauls																											
Equipment Item: AN/USG-2B - COOPERATIVE ENGAGEMENT CAPABILITY (CEC)						PARM Code: NAVSEA PEO IWS 6.0																									
P-35 Category	FY 2016		FY 2020																												
	Qty (Each)	Total Cost (\$ M)	Qty (Each)	Total Cost (\$ M)																											
Major Hardware	1	3.448	1	4.973																											
Spares		0.338		0.476																											
System Engineering		1.675		0.677																											
Technical Engineering Services		1.962		2.140																											
Other Costs		4.123		2.030																											
Total	1	11.546	1	10.296																											
Description: AN/USG-2B - Cooperative Engagement Capability (CEC) provides Battle Force Anti-Air Warfare (AAW) capability by coordinating all force AAW sensors into a single real time, fire control quality composite track picture. CEC distributes sensor measurement data from each Cooperating Unit (CU) to all other CUs. Each CU has a Data Distribution System (DDS) and a Cooperative Engagement Processor (CEP). The DDS encodes and distributes ownship sensor and engagement data to other CUs, and receives and decodes other CU's data. The CEP processes ownship data and DDS supplied remote sensor and weapon data needed to provide the common air picture.																															
Contract Data: <table border="1" style="width: 100%; border-collapse: collapse; margin-top: 5px;"> <tr> <th>Program Year</th> <th>Hull</th> <th>Prime Contractor</th> <th>Contract Method/Type</th> <th>Award Date</th> <th>New/Option</th> <th>Quantity (Each)</th> <th>Unit Cost (\$ M)</th> </tr> <tr> <td>FY 2016</td> <td>CVN 73</td> <td>Raytheon/Sechan</td> <td>C/FFP</td> <td>Jan 2016</td> <td>Option</td> <td>1</td> <td>3.448</td> </tr> <tr> <td>FY 2020</td> <td>CVN 74</td> <td>TBD</td> <td>TBD</td> <td>Oct 2020</td> <td></td> <td>1</td> <td>4.973</td> </tr> </table>								Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost (\$ M)	FY 2016	CVN 73	Raytheon/Sechan	C/FFP	Jan 2016	Option	1	3.448	FY 2020	CVN 74	TBD	TBD	Oct 2020		1	4.973
Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost (\$ M)																								
FY 2016	CVN 73	Raytheon/Sechan	C/FFP	Jan 2016	Option	1	3.448																								
FY 2020	CVN 74	TBD	TBD	Oct 2020		1	4.973																								
Delivery Date: <table border="1" style="width: 100%; border-collapse: collapse; margin-top: 5px;"> <tr> <th>Program Year</th> <th>Hull</th> <th>Earliest Ship Delivery Date</th> <th>Months Required Before Delivery</th> <th>Production Leadtime</th> <th>Required Award Date</th> </tr> <tr> <td>FY 2016</td> <td>CVN 73</td> <td>Aug 2021</td> <td>34</td> <td>18</td> <td>Apr 2017</td> </tr> <tr> <td>FY 2020</td> <td>CVN 74</td> <td>Jan 2025</td> <td>33</td> <td>18</td> <td>Oct 2020</td> </tr> </table>								Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date	FY 2016	CVN 73	Aug 2021	34	18	Apr 2017	FY 2020	CVN 74	Jan 2025	33	18	Oct 2020						
Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date																										
FY 2016	CVN 73	Aug 2021	34	18	Apr 2017																										
FY 2020	CVN 74	Jan 2025	33	18	Oct 2020																										
Competition/Second Source Initiatives: N/A																															
Remarks: CVN 73 RCOH - Overall decrease from PB19 is a result of realized savings from a PMS 312 cost reduction initiative to reduce program management, system engineering, and logistics support. CVN 74 RCOH - Cost estimate based on a FY 2023 install with work extending until the end of the RCOH in FY 2025. These estimates will be refined and matured as we progress towards the start of the RCOH. Contract Data is "TBD" as contract award information is unknown at this time. Major Hardware net increase of \$1.525M from the CVN 73 RCOH is based upon an initial government estimate. GFE procurement is scheduled for first quarter of FY 2021. The government estimate will be refined based upon the procurement contract.																															

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Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy						Date: March 2019	
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1				P-1 Line Item Number / Title: 2086 / CVN Refueling Overhauls			
Equipment Item: AN/SLQ-59 - ELECTRONIC WARFARE (EW) SYSTEM						PARM Code: NAVSEA PEO IWS 2E	
P-35 Category	FY 2016		FY 2020				
	Qty (Each)	Total Cost (\$ M)	Qty (Each)	Total Cost (\$ M)			
Major Hardware	1	1.500	0	-			
Ancillary Equipment		0.100		-			
Spares		0.045		-			
System Engineering		0.319		-			
Technical Engineering Services		3.890		-			
Other Costs		0.450		-			
Total	1	6.304	0	-			
Description: AN/SLQ-59 - ELECTRONIC WARFARE (EW) SYSTEM is a CNO designated program in response to PACFLT/CJTF519 Urgent Operational Needs Statement (UONS) designed to enhance existing shipboard Surface Electronic Warfare Systems. AN/SLQ-59 provides enhanced shipboard Electronic Support (ES) and Electronic Attack (EA) capabilities.							
Contract Data:							
Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost (\$ M)
FY 2016	CVN 73	Electro Impulse Laboratory, Inc	SS/IDIQ	Nov 2018	Option	1	1.500
Delivery Date:							
Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date		
FY 2016	CVN 73	Aug 2021	18	12	Feb 2019		
Competition/Second Source Initiatives: N/A							
Remarks: CVN 74 RCOH - AN/SLQ-59 was installed onboard CVN 74 prior to the RCOH.							

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Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy						Date: March 2019	
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1				P-1 Line Item Number / Title: 2086 / CVN Refueling Overhauls			
Equipment Item: AN/SPN-41 REFURBISHMENT						PARM Code: NAVAIR PMA 213	
P-35 Category	FY 2016		FY 2020				
	Qty (Each)	Total Cost (\$ M)	Qty (Each)	Total Cost (\$ M)			
Major Hardware	1	3.577	1	3.796			
System Engineering		0.393		0.433			
Technical Engineering Services		1.570		1.331			
Other Costs		0.206		0.261			
Total	1	5.746	1	5.821			
Description: The AN/SPN-41 Aircraft Approach Control Transmitting Set provides all-weather instrument approach guidance from the ship to the aircraft. It is used as the ship's Instrument Landing System (ILS) and Monitor to provide azimuth and elevation alignment information to landing aircraft on final approach to the deck. It also serves as an independent monitor of other shipboard landing systems for the pilot as well as providing a backup landing guidance option. AN/SPN-41 enhances safety of flight during recovery, enables the execution of all-weather air combat operations, and is required to achieve full air traffic control certification following RCOH. AN/SPN-41 is required to be removed during the RCOH to prevent damage and allow for major infrastructure recapitalization and reconfiguration of the ship's island, mast, and tower.							
Contract Data:							
Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost (\$ M)
FY 2016	CVN 73	NAWC Aircraft Division	WR	Jul 2017		1	3.577
FY 2020	CVN 74	TBD	TBD	Dec 2020		1	3.796
Delivery Date:							
Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date		
FY 2016	CVN 73	Aug 2021	25	24	Jul 2017		
FY 2020	CVN 74	Jan 2025	25	24	Dec 2020		
Competition/Second Source Initiatives: N/A							
Remarks: CVN 74 RCOH - Contract Data is "TBD" as contract award information is unknown at this time.							

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Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy						Date: March 2019																	
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1				P-1 Line Item Number / Title: 2086 / CVN Refueling Overhauls																			
Equipment Item: AN/SPN-50(V)1 AIR TRAFFIC CONTROL RADAR						PARM Code: NAVAIR PMA 213																	
P-35 Category	FY 2016		FY 2020																				
	Qty (Each)	Total Cost (\$ M)	Qty (Each)	Total Cost (\$ M)																			
Major Hardware	0	-	1	10.734																			
Technical Data and Documentation		-		0.134																			
Spares		-		1.087																			
System Engineering		-		0.636																			
Technical Engineering Services		-		2.351																			
Other Costs		-		0.351																			
Total	0	-	1	15.293																			
Description: Digital radar system capable of modern radar processing to improve target detection and track in the presence of competing clutter. C-band radar alleviating operational congestion of new shipboard S-band radars and restrictions caused by increasing spectrum encroachment and National Broadband Plan.																							
Contract Data: <table border="1" style="width: 100%; border-collapse: collapse; margin-top: 5px;"> <tr> <th style="text-align: center;">Program Year</th> <th style="text-align: center;">Hull</th> <th style="text-align: center;">Prime Contractor</th> <th style="text-align: center;">Contract Method/Type</th> <th style="text-align: center;">Award Date</th> <th style="text-align: center;">New/Option</th> <th style="text-align: center;">Quantity (Each)</th> <th style="text-align: center;">Unit Cost (\$ M)</th> </tr> <tr> <td style="text-align: center;">FY 2020</td> <td style="text-align: center;">CVN 74</td> <td style="text-align: center;">TBD</td> <td style="text-align: center;">TBD</td> <td style="text-align: center;">May 2021</td> <td></td> <td style="text-align: center;">1</td> <td style="text-align: center;">10.734</td> </tr> </table>								Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost (\$ M)	FY 2020	CVN 74	TBD	TBD	May 2021		1	10.734
Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost (\$ M)																
FY 2020	CVN 74	TBD	TBD	May 2021		1	10.734																
Delivery Date: <table border="1" style="width: 100%; border-collapse: collapse; margin-top: 5px;"> <tr> <th style="text-align: center;">Program Year</th> <th style="text-align: center;">Hull</th> <th style="text-align: center;">Earliest Ship Delivery Date</th> <th style="text-align: center;">Months Required Before Delivery</th> <th style="text-align: center;">Production Leadtime</th> <th style="text-align: center;">Required Award Date</th> </tr> <tr> <td style="text-align: center;">FY 2020</td> <td style="text-align: center;">CVN 74</td> <td style="text-align: center;">Jan 2025</td> <td style="text-align: center;">32</td> <td style="text-align: center;">12</td> <td style="text-align: center;">May 2021</td> </tr> </table>								Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date	FY 2020	CVN 74	Jan 2025	32	12	May 2021				
Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date																		
FY 2020	CVN 74	Jan 2025	32	12	May 2021																		
Competition/Second Source Initiatives: N/A																							
Remarks: AN/SPN-50(V)1 is a new addition to the CVN 74 RCOH program of record, replacing AN/SPN-43C. CVN 74 Contract Data is "TBD" as contract award information is unknown at this time.																							

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Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy						Date: March 2019	
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1				P-1 Line Item Number / Title: 2086 / CVN Refueling Overhauls			
Equipment Item: AIRCRAFT ELECTRICAL SERVICE STATION (AESS) INSTALL						PARM Code: NSWC Philadelphia	
P-35 Category	FY 2016		FY 2020				
	Qty (Each)	Total Cost (\$ M)	Qty (Each)	Total Cost (\$ M)			
Major Hardware	1	6.891	0	-			
System Engineering		0.238		-			
Technical Engineering Services		7.035		-			
Other Costs		0.288		-			
Total	1	14.452	0	-			
Description: Aircraft Electrical Service Station (AESS) supports the F-35 Joint Strike Fighter (JSF) and JUCAS electrical requirements. They require 270VDC electrical power for maintenance and pre-flight operations. This type of power is not currently available on CVN 68 class aircraft carriers. This ship alteration will equip CVN 68 class ships with a dual purpose AESS station providing either: 90KVA of 115VAC, 400Hz, power for the Advanced Hawkeye (E-2D), and all legacy aircraft, or 70KW of 270VDC electrical power for the JSF (F-35) and JUCAS. This upgrade will replace the obsolete components now part of the AESS with a quiet, lightweight, low-cost, dual-purpose system that decreases maintenance costs and improves habitability.							
Contract Data:							
Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost (\$ M)
FY 2016	CVN 73	Various	C/FFP	Jan 2017	New	1	6.891
Delivery Date:							
Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date		
FY 2016	CVN 73	Aug 2021	51	12	May 2016		
Competition/Second Source Initiatives: N/A							
Remarks: CVN 74 RCOH - Aircraft Electrical Service Station (AESS) was installed onboard CVN 74 prior to the RCOH. No further AESS work is required during the RCOH.							

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Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy						Date: March 2019																									
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1				P-1 Line Item Number / Title: 2086 / CVN Refueling Overhauls																											
Equipment Item: FURNITURE (NON PROPULSION PLANT)						PARM Code: NSWC Philadelphia																									
P-35 Category	FY 2016		FY 2020																												
	Qty (Each)	Total Cost (\$ M)	Qty (Each)	Total Cost (\$ M)																											
Major Hardware	1	4.647	1	4.948																											
System Engineering		0.641		-																											
Technical Engineering Services		5.981		6.413																											
Other Costs		0.002		-																											
Total	1	11.271	1	11.361																											
Description: Replaces damaged/worn furniture for 250 spaces. During the RCOH, all furniture is offloaded and evaluated for reuse. Most furniture is stored and reinstalled. However, damaged furniture must be replaced as it cannot be properly secured and poses a personnel risk during high sea states.																															
Contract Data: <table border="1" style="width: 100%; border-collapse: collapse; margin-top: 5px;"> <tr> <th style="text-align: center;">Program Year</th> <th style="text-align: center;">Hull</th> <th style="text-align: center;">Prime Contractor</th> <th style="text-align: center;">Contract Method/Type</th> <th style="text-align: center;">Award Date</th> <th style="text-align: center;">New/Option</th> <th style="text-align: center;">Quantity (Each)</th> <th style="text-align: center;">Unit Cost (\$ M)</th> </tr> <tr> <td style="text-align: center;">FY 2016</td> <td style="text-align: center;">CVN 73</td> <td style="text-align: center;">Tecnico</td> <td style="text-align: center;">C/CPFF</td> <td style="text-align: center;">Dec 2016</td> <td style="text-align: center;">New</td> <td style="text-align: center;">1</td> <td style="text-align: right;">4.647</td> </tr> <tr> <td style="text-align: center;">FY 2020</td> <td style="text-align: center;">CVN 74</td> <td style="text-align: center;">TBD</td> <td style="text-align: center;">TBD</td> <td style="text-align: center;">Apr 2021</td> <td></td> <td style="text-align: center;">1</td> <td style="text-align: right;">4.948</td> </tr> </table>								Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost (\$ M)	FY 2016	CVN 73	Tecnico	C/CPFF	Dec 2016	New	1	4.647	FY 2020	CVN 74	TBD	TBD	Apr 2021		1	4.948
Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost (\$ M)																								
FY 2016	CVN 73	Tecnico	C/CPFF	Dec 2016	New	1	4.647																								
FY 2020	CVN 74	TBD	TBD	Apr 2021		1	4.948																								
Delivery Date: <table border="1" style="width: 100%; border-collapse: collapse; margin-top: 5px;"> <tr> <th style="text-align: center;">Program Year</th> <th style="text-align: center;">Hull</th> <th style="text-align: center;">Earliest Ship Delivery Date</th> <th style="text-align: center;">Months Required Before Delivery</th> <th style="text-align: center;">Production Leadtime</th> <th style="text-align: center;">Required Award Date</th> </tr> <tr> <td style="text-align: center;">FY 2016</td> <td style="text-align: center;">CVN 73</td> <td style="text-align: center;">Aug 2021</td> <td style="text-align: center;">39</td> <td style="text-align: center;">6</td> <td style="text-align: center;">Nov 2017</td> </tr> <tr> <td style="text-align: center;">FY 2020</td> <td style="text-align: center;">CVN 74</td> <td style="text-align: center;">Jan 2025</td> <td style="text-align: center;">39</td> <td style="text-align: center;">6</td> <td style="text-align: center;">Apr 2021</td> </tr> </table>								Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date	FY 2016	CVN 73	Aug 2021	39	6	Nov 2017	FY 2020	CVN 74	Jan 2025	39	6	Apr 2021						
Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date																										
FY 2016	CVN 73	Aug 2021	39	6	Nov 2017																										
FY 2020	CVN 74	Jan 2025	39	6	Apr 2021																										
Competition/Second Source Initiatives: N/A																															
Remarks: CVN 74 RCOH - Contract Data is "TBD" as contract award information is unknown at this time.																															

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Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy						Date: March 2019																									
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1				P-1 Line Item Number / Title: 2086 / CVN Refueling Overhauls																											
Equipment Item: LOW PRESSURE AIR PLANT (LPAP)						PARM Code: NSWC Philadelphia																									
P-35 Category	FY 2016		FY 2020																												
	Qty (Each)	Total Cost (\$ M)	Qty (Each)	Total Cost (\$ M)																											
Major Hardware	1	6.094	1	6.699																											
System Engineering		0.071		0.089																											
Technical Engineering Services		0.085		0.093																											
Other Costs		0.113		0.127																											
Total	1	6.363	1	7.008																											
Description: Remove three Ship Service Air Compressors (SSAC), four Control Air Compressors, and associated dryers from two machinery rooms and two reactor rooms. Install nine MARC 350 Low Pressure Air Plants (LPAPs) to serve both ship service air and control air systems.																															
Contract Data: <table border="1" style="width: 100%; border-collapse: collapse; margin-top: 5px;"> <tr> <th style="text-align: center;">Program Year</th> <th style="text-align: center;">Hull</th> <th style="text-align: center;">Prime Contractor</th> <th style="text-align: center;">Contract Method/Type</th> <th style="text-align: center;">Award Date</th> <th style="text-align: center;">New/Option</th> <th style="text-align: center;">Quantity (Each)</th> <th style="text-align: center;">Unit Cost (\$ M)</th> </tr> <tr> <td style="text-align: center;">FY 2016</td> <td style="text-align: center;">CVN 73</td> <td style="text-align: center;">RIX Industries</td> <td style="text-align: center;">SS/IDIQ</td> <td style="text-align: center;">Feb 2015</td> <td style="text-align: center;">Option</td> <td style="text-align: center;">1</td> <td style="text-align: right;">6.094</td> </tr> <tr> <td style="text-align: center;">FY 2020</td> <td style="text-align: center;">CVN 74</td> <td style="text-align: center;">TBD</td> <td style="text-align: center;">TBD</td> <td style="text-align: center;">Jan 2019</td> <td></td> <td style="text-align: center;">1</td> <td style="text-align: right;">6.699</td> </tr> </table>								Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost (\$ M)	FY 2016	CVN 73	RIX Industries	SS/IDIQ	Feb 2015	Option	1	6.094	FY 2020	CVN 74	TBD	TBD	Jan 2019		1	6.699
Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost (\$ M)																								
FY 2016	CVN 73	RIX Industries	SS/IDIQ	Feb 2015	Option	1	6.094																								
FY 2020	CVN 74	TBD	TBD	Jan 2019		1	6.699																								
Delivery Date: <table border="1" style="width: 100%; border-collapse: collapse; margin-top: 5px;"> <tr> <th style="text-align: center;">Program Year</th> <th style="text-align: center;">Hull</th> <th style="text-align: center;">Earliest Ship Delivery Date</th> <th style="text-align: center;">Months Required Before Delivery</th> <th style="text-align: center;">Production Leadtime</th> <th style="text-align: center;">Required Award Date</th> </tr> <tr> <td style="text-align: center;">FY 2016</td> <td style="text-align: center;">CVN 73</td> <td style="text-align: center;">Aug 2021</td> <td style="text-align: center;">51</td> <td style="text-align: center;">12</td> <td style="text-align: center;">May 2016</td> </tr> <tr> <td style="text-align: center;">FY 2020</td> <td style="text-align: center;">CVN 74</td> <td style="text-align: center;">Jan 2025</td> <td style="text-align: center;">60</td> <td style="text-align: center;">12</td> <td style="text-align: center;">Jan 2019</td> </tr> </table>								Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date	FY 2016	CVN 73	Aug 2021	51	12	May 2016	FY 2020	CVN 74	Jan 2025	60	12	Jan 2019						
Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date																										
FY 2016	CVN 73	Aug 2021	51	12	May 2016																										
FY 2020	CVN 74	Jan 2025	60	12	Jan 2019																										
Competition/Second Source Initiatives: N/A																															
Remarks: CVN 74 RCOH - Cost estimate based on a FY 2023 install with work extending until the end of the RCOH in FY 2025. These estimates will be refined and matured as we progress towards the start of the RCOH. Contract Data is "TBD" as contract award information is unknown at this time.																															

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Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy						Date: March 2019																	
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1				P-1 Line Item Number / Title: 2086 / CVN Refueling Overhauls																			
Equipment Item: AUTOMATIC VOLTAGE REGULATOR (AVR)						PARM Code: NAVSEA PMS 312																	
P-35 Category	FY 2016			FY 2020																			
	Qty (Each)	Total Cost (\$ M)		Qty (Each)	Total Cost (\$ M)																		
Major Hardware	1	4.340		0	-																		
Total	1	4.340		0	-																		
Description: The Turbine Generator Automatic Voltage Regulator is a digital upgrade to the legacy voltage regulator. Its purpose is to regulate output voltage from shipboard turbine generators to meet electrical requirements for all ship systems. This upgrade is required to improve operational safety of the turbine generators and eliminate material shortages due to obsolescence of legacy voltage regulator system components.																							
Contract Data: <table border="1" style="width: 100%; border-collapse: collapse; margin-top: 5px;"> <tr> <th style="text-align: center;">Program Year</th> <th style="text-align: center;">Hull</th> <th style="text-align: center;">Prime Contractor</th> <th style="text-align: center;">Contract Method/Type</th> <th style="text-align: center;">Award Date</th> <th style="text-align: center;">New/Option</th> <th style="text-align: center;">Quantity (Each)</th> <th style="text-align: center;">Unit Cost (\$ M)</th> </tr> <tr> <td style="text-align: center;">FY 2016</td> <td style="text-align: center;">CVN 73</td> <td style="text-align: center;">Northrop Grumman Power/Control Systems</td> <td style="text-align: center;">C/FFP</td> <td style="text-align: center;">Jun 2015</td> <td style="text-align: center;">Option</td> <td style="text-align: center;">1</td> <td style="text-align: center;">4.340</td> </tr> </table>								Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost (\$ M)	FY 2016	CVN 73	Northrop Grumman Power/Control Systems	C/FFP	Jun 2015	Option	1	4.340
Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost (\$ M)																
FY 2016	CVN 73	Northrop Grumman Power/Control Systems	C/FFP	Jun 2015	Option	1	4.340																
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Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date																		
FY 2016	CVN 73	Aug 2021	47	26	Jul 2015																		
Competition/Second Source Initiatives: N/A																							
Remarks: CVN 74 RCOH - Automatic Voltage Regulator was installed onboard CVN 74 prior to the RCOH. No further AVR work is required during the RCOH.																							

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Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy						Date: March 2019																	
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1				P-1 Line Item Number / Title: 2086 / CVN Refueling Overhauls																			
Equipment Item: VSA O2 GENERATOR						PARM Code: NSWC Philadelphia																	
P-35 Category	FY 2016		FY 2020																				
	Qty (Each)	Total Cost (\$ M)	Qty (Each)	Total Cost (\$ M)																			
Major Hardware	0	-	1	3.546																			
Spares		-		0.180																			
System Engineering		-		0.865																			
Technical Engineering Services		-		0.294																			
Other Costs		-		0.298																			
Total	0	-	1	5.183																			
Description: One liquid oxygen generating and storage plant with associated support equipment; one gaseous nitrogen generator with associated storage flasks.																							
Contract Data: <table border="1" style="width: 100%; border-collapse: collapse; margin-top: 5px;"> <tr> <th style="text-align: center;">Program Year</th> <th style="text-align: center;">Hull</th> <th style="text-align: center;">Prime Contractor</th> <th style="text-align: center;">Contract Method/Type</th> <th style="text-align: center;">Award Date</th> <th style="text-align: center;">New/Option</th> <th style="text-align: center;">Quantity (Each)</th> <th style="text-align: center;">Unit Cost (\$ M)</th> </tr> <tr> <td style="text-align: center;">FY 2020</td> <td style="text-align: center;">CVN 74</td> <td style="text-align: center;">TBD</td> <td style="text-align: center;">TBD</td> <td style="text-align: center;">Dec 2019</td> <td></td> <td style="text-align: center;">1</td> <td style="text-align: center;">3.546</td> </tr> </table>								Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost (\$ M)	FY 2020	CVN 74	TBD	TBD	Dec 2019		1	3.546
Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost (\$ M)																
FY 2020	CVN 74	TBD	TBD	Dec 2019		1	3.546																
Delivery Date: <table border="1" style="width: 100%; border-collapse: collapse; margin-top: 5px;"> <tr> <th style="text-align: center;">Program Year</th> <th style="text-align: center;">Hull</th> <th style="text-align: center;">Earliest Ship Delivery Date</th> <th style="text-align: center;">Months Required Before Delivery</th> <th style="text-align: center;">Production Leadtime</th> <th style="text-align: center;">Required Award Date</th> </tr> <tr> <td style="text-align: center;">FY 2020</td> <td style="text-align: center;">CVN 74</td> <td style="text-align: center;">Jan 2025</td> <td style="text-align: center;">49</td> <td style="text-align: center;">12</td> <td style="text-align: center;">Dec 2019</td> </tr> </table>								Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date	FY 2020	CVN 74	Jan 2025	49	12	Dec 2019				
Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date																		
FY 2020	CVN 74	Jan 2025	49	12	Dec 2019																		
Competition/Second Source Initiatives: N/A																							
Remarks: CVN 73 RCOH O2N2 effort only required assessments and repair. CVN 74 RCOH requires new hardware and more work than was executed on the CVN 73 RCOH. Contract Data is "TBD" as contract award information is unknown at this time.																							

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Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy						Date: March 2019	
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1				P-1 Line Item Number / Title: 2086 / CVN Refueling Overhauls			
Equipment Item: AVIATION EQUIPMENT & SUPPORT						PARM Code: NAVAIR PMA 251	
P-35 Category	FY 2016		FY 2020				
	Qty (Each)	Total Cost (\$ M)	Qty (Each)	Total Cost (\$ M)			
Major Hardware	1	28.560	1	30.037			
Ancillary Equipment		-		0.074			
Technical Data and Documentation		-		0.199			
Spares		0.039		0.332			
System Engineering		3.856		3.284			
Technical Engineering Services		10.154		7.356			
Other Costs		5.375		5.561			
Total	1	47.984	1	46.843			
Description: Provides procurement, engineering and logistics support for launch and recovery equipment (includes overhaul/replacement of catapult launch valves and arresting gear engines), ADMACS (Aviation Data Management and Control System Phase II upgrade; includes Cyber Security requirement and future aircraft ready), Moriah Wind System, ILARTS (Integrated Launch and Recovery TV Surveillance System; includes Technical Refresh Service Change to mitigate obsolescence issues), mission pods, Jet Blast Deflectors (includes Service Change to provide side panel cooling to meet JSF requirements), aviation maintenance facility, weapons compatibility, aircraft spotting, aviation servicing facilities, Landing Signal Officer Display System (LSODS; includes ADMACS interfacing and Cyber Security updates), Long Range Lineup System (LRLS), Improved Fresnel Lens Optical Landing System (IFLOLS; includes Phase IV upgrade), Manually Operated Visual Landing Aid System (MOVLAS) and Flight Deck Lighting and Marking and Lighting. All of these systems are required to be repaired, updated, overhauled as required and tested during RCOH to attain final Flight Deck Certification authorizing launch and recovery of USN aircraft.							
Contract Data:							
Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost (\$ M)
FY 2016	CVN 73	Various	Various	Various	Various	1	28.560
FY 2020	CVN 74	Various	Various	Various	Various	1	30.037
Delivery Date:							
Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date		
FY 2016	CVN 73	Aug 2021	0		Various		
FY 2020	CVN 74	Jan 2025	0		Various		
Competition/Second Source Initiatives: N/A							
Remarks: CVN 73 RCOH - Technical Engineering Services cost growth from PB19 due to the increased use of government AITs vice using shipyard install teams. Government install teams are approximately 25% less costly and are an overall cost savings to the program. CVN 74 RCOH - Cost estimate based on a FY 2023 install with work extending until the end of the RCOH in FY 2025. Cost reduction initiatives resulted in cost savings in Technical Engineering Services (\$2.798M) related efforts. These estimates will be refined and matured as we progress towards the start of the RCOH. Contract Data is "TBD" as contract award information is unknown at this time.							

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Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy						Date: March 2019																									
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1				P-1 Line Item Number / Title: 2086 / CVN Refueling Overhauls																											
Equipment Item: NATO SEASPARROW SURFACE MISSILE SYSTEM (NSSMS)						PARM Code: NAVSEA PEO IWS 12																									
P-35 Category	FY 2016		FY 2020																												
	Qty (Each)	Total Cost (\$ M)	Qty (Each)	Total Cost (\$ M)																											
Major Hardware	1	5.284	1	17.062																											
Ancillary Equipment		-		0.050																											
Spares		0.913		1.260																											
System Engineering		0.680		0.861																											
Technical Engineering Services		9.346		9.346																											
Other Costs		1.761		2.291																											
Total	1	17.984	1	30.870																											
Description: The NATO Seasparrow Surface Missile System (NSSMS) is a medium range self defense missile system capable of defeating near/mid-term air/surface threats.																															
Contract Data: <table border="1" style="width: 100%; border-collapse: collapse; margin-top: 5px;"> <tr> <th style="text-align: center;">Program Year</th> <th style="text-align: center;">Hull</th> <th style="text-align: center;">Prime Contractor</th> <th style="text-align: center;">Contract Method/Type</th> <th style="text-align: center;">Award Date</th> <th style="text-align: center;">New/Option</th> <th style="text-align: center;">Quantity (Each)</th> <th style="text-align: center;">Unit Cost (\$ M)</th> </tr> <tr> <td style="text-align: center;">FY 2016</td> <td style="text-align: center;">CVN 73</td> <td style="text-align: center;">NSWC Port Hueneme</td> <td style="text-align: center;">SS/FFP</td> <td style="text-align: center;">Apr 2017</td> <td style="text-align: center;">New</td> <td style="text-align: center;">1</td> <td style="text-align: right;">5.284</td> </tr> <tr> <td style="text-align: center;">FY 2020</td> <td style="text-align: center;">CVN 74</td> <td style="text-align: center;">TBD</td> <td style="text-align: center;">TBD</td> <td style="text-align: center;">Feb 2020</td> <td></td> <td style="text-align: center;">1</td> <td style="text-align: right;">17.062</td> </tr> </table>								Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost (\$ M)	FY 2016	CVN 73	NSWC Port Hueneme	SS/FFP	Apr 2017	New	1	5.284	FY 2020	CVN 74	TBD	TBD	Feb 2020		1	17.062
Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost (\$ M)																								
FY 2016	CVN 73	NSWC Port Hueneme	SS/FFP	Apr 2017	New	1	5.284																								
FY 2020	CVN 74	TBD	TBD	Feb 2020		1	17.062																								
Delivery Date: <table border="1" style="width: 100%; border-collapse: collapse; margin-top: 5px;"> <tr> <th style="text-align: center;">Program Year</th> <th style="text-align: center;">Hull</th> <th style="text-align: center;">Earliest Ship Delivery Date</th> <th style="text-align: center;">Months Required Before Delivery</th> <th style="text-align: center;">Production Leadtime</th> <th style="text-align: center;">Required Award Date</th> </tr> <tr> <td style="text-align: center;">FY 2016</td> <td style="text-align: center;">CVN 73</td> <td style="text-align: center;">Aug 2021</td> <td style="text-align: center;">28</td> <td style="text-align: center;">30</td> <td style="text-align: center;">Apr 2017</td> </tr> <tr> <td style="text-align: center;">FY 2020</td> <td style="text-align: center;">CVN 74</td> <td style="text-align: center;">Jan 2025</td> <td style="text-align: center;">28</td> <td style="text-align: center;">31</td> <td style="text-align: center;">Feb 2020</td> </tr> </table>								Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date	FY 2016	CVN 73	Aug 2021	28	30	Apr 2017	FY 2020	CVN 74	Jan 2025	28	31	Feb 2020						
Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date																										
FY 2016	CVN 73	Aug 2021	28	30	Apr 2017																										
FY 2020	CVN 74	Jan 2025	28	31	Feb 2020																										
Competition/Second Source Initiatives: N/A																															
Remarks: CVN 73 RCOH - Significantly degraded system components revealed upon open and inspection. The high operation tempo of the forward deployed ship caused the system to degrade beyond original expectation. Required refurbishment costs to restore this critical weapon system increased significantly since PB19 to address the degraded components and associated testing. CVN 74 RCOH - Major Hardware net increase of \$11.778M from CVN 73 RCOH. CVN 73 RCOH is limited to refurbishment of the hardware. Spare components are not available to support refurbishment of the CVN 74 RCOH equipment. New hardware buys are required to replace high wear items that have significantly degraded due to age of the system, including a Missile Launcher Upgrade (MLU).																															

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Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy						Date: March 2019	
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1				P-1 Line Item Number / Title: 2086 / CVN Refueling Overhauls			
Equipment Item: AN/SPS-48G - 3D AIR SEARCH RADAR						PARM Code: NAVSEA PEO IWS 2RI	
P-35 Category	FY 2016		FY 2020				
	Qty (Each)	Total Cost (\$ M)	Qty (Each)	Total Cost (\$ M)			
Major Hardware	1	8.500	0	-			
Technical Data and Documentation		0.033		-			
Spares		0.328		-			
System Engineering		0.725		-			
Technical Engineering Services		1.528		-			
Other Costs		2.106		-			
Total	1	13.220	0	-			
Description: AN/SPS-48G (V)1 is a long range three dimensional (3D) radar used to search, detect and provide space-stabilized, three-coordinate (range, bearing, height) data to track airborne contacts.							
Contract Data:							
Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost (\$ M)
FY 2016	CVN 73	Harris	SS/FPIF	Sep 2016	Option	1	8.500
Delivery Date:							
Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date		
FY 2016	CVN 73	Aug 2021	28	18	Oct 2017		
Competition/Second Source Initiatives: N/A							
Remarks: CVN 73 RCOH - Overall decrease from PB19 is a result of realized savings from a PMS 312 cost reduction initiative to reduce program management, system engineering, and logistics support. CVN 74 RCOH - AN/SPS-48G will be replaced by Enterprise Air Surveillance Radar (EASR), enhancing Air Surveillance Radar capability, increasing system availability, and re-baselines sustainment.							

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Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy						Date: March 2019																	
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1				P-1 Line Item Number / Title: 2086 / CVN Refueling Overhauls																			
Equipment Item: AN/SPS-49(V)1 OVERHAUL/REFURBISHMENT						PARM Code: NAVSEA PEO IWS 2RI																	
P-35 Category	FY 2016		FY 2020																				
	Qty (Each)	Total Cost (\$ M)	Qty (Each)	Total Cost (\$ M)																			
Major Hardware	1	3.291	0	-																			
Ancillary Equipment		0.030		-																			
Spares		0.275		-																			
System Engineering		0.657		-																			
Technical Engineering Services		3.657		-																			
Other Costs		0.576		-																			
Total	1	8.486	0	-																			
Description: The AN/SPS-49A(V)1 Radar is a narrow beam, very long range, two dimensional air search radar. This is the primary air search radar for the ship providing early detection of airborne contacts (range, bearing, and altitude).																							
Contract Data: <table border="1" style="width: 100%; border-collapse: collapse; margin-top: 5px;"> <tr> <th style="text-align: center;">Program Year</th> <th style="text-align: center;">Hull</th> <th style="text-align: center;">Prime Contractor</th> <th style="text-align: center;">Contract Method/Type</th> <th style="text-align: center;">Award Date</th> <th style="text-align: center;">New/Option</th> <th style="text-align: center;">Quantity (Each)</th> <th style="text-align: center;">Unit Cost (\$ M)</th> </tr> <tr> <td style="text-align: center;">FY 2016</td> <td style="text-align: center;">CVN 73</td> <td style="text-align: center;">NSWC Crane</td> <td style="text-align: center;">WR</td> <td style="text-align: center;">Apr 2017</td> <td style="text-align: center;">Option</td> <td style="text-align: center;">1</td> <td style="text-align: right;">3.291</td> </tr> </table>								Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost (\$ M)	FY 2016	CVN 73	NSWC Crane	WR	Apr 2017	Option	1	3.291
Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost (\$ M)																
FY 2016	CVN 73	NSWC Crane	WR	Apr 2017	Option	1	3.291																
Delivery Date: <table border="1" style="width: 100%; border-collapse: collapse; margin-top: 5px;"> <tr> <th style="text-align: center;">Program Year</th> <th style="text-align: center;">Hull</th> <th style="text-align: center;">Earliest Ship Delivery Date</th> <th style="text-align: center;">Months Required Before Delivery</th> <th style="text-align: center;">Production Leadtime</th> <th style="text-align: center;">Required Award Date</th> </tr> <tr> <td style="text-align: center;">FY 2016</td> <td style="text-align: center;">CVN 73</td> <td style="text-align: center;">Aug 2021</td> <td style="text-align: center;">22</td> <td style="text-align: center;">30</td> <td style="text-align: center;">Apr 2017</td> </tr> </table>								Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date	FY 2016	CVN 73	Aug 2021	22	30	Apr 2017				
Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date																		
FY 2016	CVN 73	Aug 2021	22	30	Apr 2017																		
Competition/Second Source Initiatives: N/A																							
Remarks: CVN 73 RCOH - Overall decrease from PB19 is a result of realized savings from a PMS 312 cost reduction initiative to reduce program management, system engineering, and logistics support. CVN 74 RCOH - AN/SPS-49A(V)1 will be replaced by Enterprise Air Surveillance Radar (EASR), enhancing Air Surveillance Radar capability, increasing system availability, and re-baselines sustainment.																							

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Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy						Date: March 2019	
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1				P-1 Line Item Number / Title: 2086 / CVN Refueling Overhauls			
Equipment Item: AN/SPQ-14 - ADVANCED SENSOR DISTRIBUTION SYSTEM (ASDS)						PARM Code: NAVSEA PEO IWS 1.0	
P-35 Category	FY 2016		FY 2020				
	Qty (Each)	Total Cost (\$ M)	Qty (Each)	Total Cost (\$ M)			
Major Hardware	1	1.153	1	1.068			
Ancillary Equipment		0.010		0.011			
Spares		0.045		0.075			
System Engineering		0.074		0.115			
Technical Engineering Services		1.191		1.394			
Other Costs		1.151		0.468			
Total	1	3.624	1	3.131			
Description: AN/SPQ-14(V) - Advanced Sensor Distribution System (ASDS) provides the distribution of radar sensor data and video to radar displays on board the ship.							
Contract Data:							
Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost (\$ M)
FY 2016	CVN 73	Lockheed Martin/DRS Technologies	C/FFP	Jan 2018	Option	1	1.153
FY 2020	CVN 74	TBD	TBD	Sep 2021		1	1.068
Delivery Date:							
Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date		
FY 2016	CVN 73	Aug 2021	22	18	Apr 2018		
FY 2020	CVN 74	Jan 2025	22	18	Sep 2021		
Competition/Second Source Initiatives: N/A							
Remarks: CVN 73 RCOH - Overall decrease from PB19 is a result of realized savings from a PMS 312 cost reduction initiative to reduce program management, system engineering, and logistics support. CVN 74 RCOH - Cost estimate based on a FY 2023 install with work extending until the end of the RCOH in FY 2025. These estimates will be refined and matured as we progress towards the start of the RCOH. Contract Data is "TBD" as contract award information is unknown at this time.							

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Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy						Date: March 2019	
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1				P-1 Line Item Number / Title: 2086 / CVN Refueling Overhauls			
Equipment Item: ENTERPRISE AIR SURVEILLANCE RADAR (EASR)						PARM Code: NAVSEA PEO IWS 2RI	
P-35 Category	FY 2016		FY 2020				
	Qty <i>(Each)</i>	Total Cost <i>(\$ M)</i>	Qty <i>(Each)</i>	Total Cost <i>(\$ M)</i>			
Major Hardware	0	-	1	26.103			
Technical Data and Documentation		-		0.005			
Spares		-		0.778			
System Engineering		-		6.606			
Technical Engineering Services		-		9.745			
Other Costs		-		5.674			
Total	0	-	1	48.911			
Description: Enterprise Air Surveillance Radar (EASR) is the next generation S-band air search radar with 3-D search capability supporting: Anti-Air Warfare, Anti-Surface Warfare, Air Traffic Control.							
Contract Data:							
Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity <i>(Each)</i>	Unit Cost <i>(\$ M)</i>
FY 2020	CVN 74	TBD	TBD	Apr 2020		1	26.103
Delivery Date:							
Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date		
FY 2020	CVN 74	Jan 2025	33	24	Apr 2020		
Competition/Second Source Initiatives: N/A							
Remarks: Enterprise Air Surveillance Radar (EASR) is a replacement for the legacy AN/SPS-48 and AN/SPS-49 Air Search Radars that are no longer in production and are experiencing increasing service life obsolescence issues. Contract Data is "TBD" as contract award information is unknown at this time.							

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Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy						Date: March 2019	
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1				P-1 Line Item Number / Title: 2086 / CVN Refueling Overhauls			
Equipment Item: CIWS/RAM DEFENSE CAPABILITY (CRDC) BLOCK 1						PARM Code: NAVSEA PEO IWS 3G	
P-35 Category	FY 2016		FY 2020				
	Qty (Each)	Total Cost (\$ M)	Qty (Each)	Total Cost (\$ M)			
Major Hardware	0	-	1	18.300			
Technical Engineering Services		-		3.483			
Other Costs		-		0.392			
Total	0	-	1	22.175			
Description: Close-In Weapon System (CIWS)/Rolling Airframe Missile (RAM) Defense Capability (CRDC) is a high fire rate gun weapon system that automatically acquires, tracks, and destroys threats. Active radars, supporting platforms, below deck equipment, and interfaces them to CIWS for Quick Reaction Capability (QRC).							
Contract Data:							
Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost (\$ M)
FY 2020	CVN 74	TBD	TBD	Feb 2020		1	18.300
Delivery Date:							
Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date		
FY 2020	CVN 74	Jan 2025	33	26	Feb 2020		
Competition/Second Source Initiatives: N/A							
Remarks: CVN 74 RCOH CIWS/RAM Defense Capability (CRDC) Block 1 is a significant enhancement for CIWS. Contract Data is "TBD" as contract award information is unknown at this time.							

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Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy						Date: March 2019	
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1				P-1 Line Item Number / Title: 2086 / CVN Refueling Overhauls			
Equipment Item: SURFACE ELECTRONIC WARFARE IMPROVEMENT PROGRAM (SEWIP) BLOCK 2						PARM Code: NAVSEA PEO IWS 2E	
P-35 Category	FY 2016		FY 2020				
	Qty (Each)	Total Cost (\$ M)	Qty (Each)	Total Cost (\$ M)			
Major Hardware	0	-	1	10.221			
Technical Data and Documentation		-		0.233			
Spares		-		0.401			
System Engineering		-		0.828			
Technical Engineering Services		-		5.635			
Other Costs		-		1.079			
Total	0	-	1	18.397			
Description: Surface Electronic Warfare Improvement Program (SEWIP) Block 2 detects and classifies special signals not processed by other SLQ-32 receivers. SEWIP Block 2 provides enhanced Electronic Support (ES) capability with improved detection and accuracy to pace evolving threats through an upgraded ES antenna & receiver along with an open combat system interface.							
Contract Data:							
Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost (\$ M)
FY 2020	CVN 74	TBD	TBD	May 2020		1	10.221
Delivery Date:							
Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date		
FY 2020	CVN 74	Jan 2025	32	24	May 2020		
Competition/Second Source Initiatives: N/A							
Remarks: CVN 74 RCOH Surface Electronic Warfare Improvement Program (SEWIP) Block 2 is a significant enhancement from AN/SLQ-32A(V)4 - ELECTRONIC WARFARE SUITE. Contract Data "TBD" as contract award information is unknown at this time.							

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Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy						Date: March 2019	
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1				P-1 Line Item Number / Title: 2086 / CVN Refueling Overhauls			
Equipment Item: MK 38 MOD 3 GUN SYSTEM						PARM Code: NAVSEA PEO IWS 3C	
P-35 Category	FY 2016		FY 2020				
	Qty (Each)	Total Cost (\$ M)	Qty (Each)	Total Cost (\$ M)			
Major Hardware	0	-	1	6.693			
Spares		-		0.097			
Technical Engineering Services		-		2.056			
Other Costs		-		0.225			
Total	0	-	1	9.071			
Description: MK 38 Mod 3 Gun System is a 25mm stabilized gun with auto tracking and day/night capability that is also capable of interfacing with 7.62 mm MK 52 MOD 0 Coaxial gun.							
Contract Data:							
Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost (\$ M)
FY 2020	CVN 74	TBD	TBD	Apr 2020		1	6.693
Delivery Date:							
Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date		
FY 2020	CVN 74	Jan 2025	33	24	Apr 2020		
Competition/Second Source Initiatives: N/A							
Remarks: MK 38 Mod 3 Gun System replaces MK 38 Mod 2 Gun System, which is an Electronics Major item. MK 38 Mod 3 Gun System is a full install (with GFE) and MK 38 Mod 2 Gun System is an infrastructure only install (no GFE). Contract Data is "TBD" as contract award information is unknown at this time.							

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Exhibit P-40, Budget Line Item Justification: PB 2020 Navy **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity: 1611N: Shipbuilding and Conversion, Navy / BA 02: Other Warships / BSA 1: Other Warships	P-1 Line Item Number / Title: 2119 / DDG 1000
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ID Code (A=Service Ready, B=Not Service Ready): A	Program Elements for Code B Items: N/A	Other Related Program Elements: N/A
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Line Item MDAP/MAIS Code: N/A

Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity (<i>Units in Each</i>)	3	-	-	-	-	-	-	-	-	-	-	3
Gross/Weapon System Cost (<i>\$ in Millions</i>)	13,195.453	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	-	13,195.453
Less PY Advance Procurement (<i>\$ in Millions</i>)	1,160.116	-	-	-	-	-	-	-	-	-	-	1,160.116
Less Subsequent Year Full Funding (<i>\$ in Millions</i>)	7,943.472	-	-	-	-	-	-	-	-	-	-	7,943.472
Net Procurement (P-1) (<i>\$ in Millions</i>)	4,091.865	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	-	4,091.865
Plus Subsequent Year Full Funding (<i>\$ in Millions</i>)	7,247.095	216.968	270.965	155.944	-	155.944	50.400	2.100	-	-	-	7,943.472
Full Funding TOA (<i>\$ in Millions</i>)	11,338.960	216.968	270.965	155.944	-	155.944	50.400	2.100	-	-	-	12,035.337
Plus CY Advance Procurement (<i>\$ in Millions</i>)	1,160.116	-	-	-	-	-	-	-	-	-	-	1,160.116
Total Obligation Authority (<i>\$ in Millions</i>)	12,499.076	216.968	270.965	155.944	0.000	155.944	50.400	2.100	0.000	0.000	-	13,195.453
<i>(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)</i>												
Plus Outfitting and Post Delivery (<i>\$ in Millions</i>)	206.638	40.732	44.608	62.992	-	62.992	12.720	18.202	34.391	39.464	-	459.747
Total (<i>\$ in Millions</i>)	12,705.714	257.700	315.573	218.936	-	218.936	63.120	20.302	34.391	39.464	-	13,655.200
Gross/Weapon System Unit Cost (<i>\$ in Millions</i>)	4,398.484	-	-	-	-	-	-	-	-	-	-	4,398.484

Description:

DDG 1000, a multi-mission surface combatant will serve as a versatile asset in the context of future Naval Strategy. Armed with an array of weapons, DDG 1000 will provide the Joint Force Commander with precision strike and volume fires. Designed with sustainable payload, multi-spectral stealth and optimal manning, DDG 1000 will take the fight to the enemy with unprecedented striking power, sustainability, survivability and information dominance. FY20 funding will support continued construction on DDG 1002, Class Services, and GFE / Mission Systems Equipment (MSE) procurement/activation and fund Interim Spares.

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Exhibit P-40, Budget Line Item Justification: PB 2020 Navy				Date: March 2019																																									
Appropriation / Budget Activity / Budget Sub Activity: 1611N: Shipbuilding and Conversion, Navy / BA 02: Other Warships / BSA 1: Other Warships			P-1 Line Item Number / Title: 2119 / DDG 1000																																										
ID Code (A=Service Ready, B=Not Service Ready): A		Program Elements for Code B Items: N/A		Other Related Program Elements: N/A																																									
Line Item MDAP/MAIS Code: N/A																																													
<table style="width: 100%; border: none;"> <tr> <td style="width: 20%;">Characteristics:</td> <td style="width: 15%;">DDG</td> <td style="width: 20%;">Systems:</td> <td style="width: 20%;">Hull, Mechanical, and Electrical (HM&E)</td> <td style="width: 20%;">Ordnance</td> </tr> <tr> <td>Length Overall</td> <td>610 ft</td> <td>Electronics</td> <td></td> <td></td> </tr> <tr> <td>Beam</td> <td>80.7 ft</td> <td>-EXTERIOR COMMUNICATIONS (EXCOMMS)</td> <td></td> <td>-ADVANCED GUN SYSTEM (AGS)</td> </tr> <tr> <td>Displacement</td> <td>15,742 TONS</td> <td>-MULTI FUNCTION RADAR (MFR)</td> <td></td> <td>-CLOSE-IN GUN SYSTEM (CIGS)</td> </tr> <tr> <td>Draft</td> <td>27.6 ft</td> <td>-TOTAL SHIP COMPUTING ENVIRONMENT (TSCE)</td> <td>-MAIN TURBINE GENERATOR (MTG)</td> <td></td> </tr> </table>						Characteristics:	DDG	Systems:	Hull, Mechanical, and Electrical (HM&E)	Ordnance	Length Overall	610 ft	Electronics			Beam	80.7 ft	-EXTERIOR COMMUNICATIONS (EXCOMMS)		-ADVANCED GUN SYSTEM (AGS)	Displacement	15,742 TONS	-MULTI FUNCTION RADAR (MFR)		-CLOSE-IN GUN SYSTEM (CIGS)	Draft	27.6 ft	-TOTAL SHIP COMPUTING ENVIRONMENT (TSCE)	-MAIN TURBINE GENERATOR (MTG)																
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Production Status:	DDG 1000 ⁽¹⁾	DDG 1001 ⁽²⁾	DDG 1002 ⁽³⁾																																										
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Design Schedule	Start / Issue	Complete / Response	Reissue	Reissue Complete / Response																																									
Issue Date for TLR	N/A	N/A																																											
Issue Date for TLS	N/A	N/A																																											
Preliminary Design	N/A	N/A																																											
Contract Design	N/A	N/A																																											
Detail Design	N/A	N/A																																											
Request for Proposals	Jan 2006	Apr 2006																																											
Design Agent	Northrop Grumman Ship Systems																																												
Classification of Cost Estimate: CLASS C BUDGET ESTIMATE																																													
Footnotes: ⁽¹⁾ DDG 1000 HM&E delivery from the shipbuilder was May 2016. The shift in final delivery date from December 2018 to Sept 2019 can be attributed to delays in the completion of the DDG 1000 Combat System Availability. ⁽²⁾ DDG 1001 was re-awarded to BIW in September 2011. DDG 1001 HM&E delivery from the shipbuilder was April 2018. Final Delivery is September 2020. ⁽³⁾ DDG 1002 HM&E contractual delivery from the shipbuilder is March 2020. Final Delivery is September 2022																																													

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Exhibit P-5c, Ship Cost Analysis: PB 2020 Navy			Date: March 2019	
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1		P-1 Line Item Number / Title: 2119 / DDG 1000		
Cost Categories <small>^(†) indicates the presence of a P-8a</small>	FY 2007		FY 2009	
	Qty <i>(Each)</i>	Total Cost <i>(\$ M)</i>	Qty <i>(Each)</i>	Total Cost <i>(\$ M)</i>
Plan Costs	2	1,553.687	1	563.438
Basic Construction/Conversion		3,632.747		1,275.100
Change Orders		320.320		80.328
Electronics ^(†)		2,727.577		1,443.688
Hull, Mechanical, and Electrical (HM&E) ^(†)		242.156		76.848
Ordnance ^(†)		515.811		264.891
Other Cost		366.110		132.752
Total Ship Estimate		9,358.408		3,837.045
Less Advance Procurement FY 2005		304.046		-
Less Advance Procurement FY 2006		706.240		-
Less Advance Procurement FY 2008		-		149.830
Less Subsequent Full Funding FY 2008		3,009.929		-
Less Subsequent Full Funding FY 2010		313.025		1,065.507
Less Subsequent Full Funding FY 2011		107.020		140.062
Less Subsequent Full Funding FY 2012		437.938		70.789
Less Subsequent Full Funding FY 2013		536.503		138.020
Less Subsequent Full Funding FY 2014		230.944		31.349
Less Subsequent Full Funding FY 2015		374.916		85.933
Less Subsequent Full Funding FY 2016		277.761		155.643
Less Subsequent Full Funding FY 2017		198.180		73.576
Less Subsequent Full Funding FY 2018		116.001		100.967
Less Subsequent Full Funding FY 2019		74.623		196.342
Less Subsequent Full Funding FY 2020		83.714		72.230
Less Subsequent Full Funding FY 2021		-		50.400
Less Subsequent Full Funding FY 2022		-		2.100
Net P-1 Funding		2,587.568		1,504.297
Remarks: PB19 to PB20 Changes DDG 1002 Total Ship Computing Environment (TSCE) reflects \$7M reduction as a result of the PB18 congressional mark PB20 has realigned FY20 funding (\$64.5 million), FY21 funding (\$50.4 million), and FY22 funding (\$2.1 million) for the planning and execution of the DDG 1001 and DDG 1002 combat system availability occurring after HM&E delivery and sailaway from the prime shipbuilder Bath Iron Works. This funding was budgeted in the Navy post-delivery account (LI 5110) prior to aligning to DDG 1000 (LI 2119). In addition, (\$53.228 million) was added in FY20 for unfunded emergent requirements that include DDG 1000 combat system availability overrun by 14 months, DDG MTG 1001 replacement, DDG 1002 harmonic filter repair, and costs that run with time to support the class.				

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LI 2119 - DDG 1000
Navy

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Exhibit P-27, Ship Production Schedule: PB 2020 Navy	Date: March 2019
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Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1	P-1 Line Item Number / Title: 2119 / DDG 1000
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Ship	Shipbuilder	Fiscal Year	Contract Award	Start of Construction	Delivery Date
DDG 1000 ⁽¹⁾	BIW	2007	Feb 2008	Feb 2009	Sep 2019
DDG 1001 ⁽²⁾	BIW	2007	Sep 2011	Mar 2010	Sep 2020
DDG 1002 ⁽³⁾	BIW	2009	Sep 2011	Apr 2012	Sep 2022

Footnotes:

⁽¹⁾ DDG 1000 HM&E delivery from the shipbuilder was May 2016. The shift in final delivery date from December 2018 to Sept 2019 can be attributed to delays in the completion of the DDG 1000 Combat System Availability.

⁽²⁾ DDG 1001 was re-awarded to BIW in September 2011. DDG 1001 HM&E delivery from the shipbuilder was April 2018. Final Delivery is September 2020.

⁽³⁾ DDG 1002 HM&E contractual delivery from the shipbuilder is March 2020. Final Delivery is September 2022

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Exhibit P-8a, Analysis of Ship Cost Estimates: PB 2020 Navy			Date: March 2019	
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1		P-1 Line Item Number / Title: 2119 / DDG 1000		
Electronics	FY 2007		FY 2009	
	Qty (Each)	Total Cost (\$ M)	Qty (Each)	Total Cost (\$ M)
P-35 Items				
EXTERIOR COMMUNICATIONS (EXCOMMS)	2	470.348	1	79.962
INTEGRATED UNDERSEA WARFARE (IUSW) SYSTEM	2	216.263	1	105.136
MULTI FUNCTION RADAR (MFR)	2	519.609	1	297.999
COMMON ARRAY POWER SYSTEM (CAPS)	2	97.017	1	16.409
TOTAL SHIP COMPUTING ENVIRONMENT (TSCE)	2	382.591	1	259.191
ELECTRO-OPTICAL / INFRARED (EO/IR)	2	94.411	1	31.452
IDENTIFICATION FRIEND OR FOE (IFF)	2	35.532	1	28.138
COMMON ARRAY COOLING SYSTEM (CACS)	2	20.065	1	0.965
SHIP CONTROL SYSTEM (SCS)	2	111.527	1	117.229
COOPERATIVE ENGAGEMENT CAPABILITY (CEC)	2	16.025	1	7.800
SURFACE ELECTRONIC WARFARE IMPROVEMENT PROGRAM (SEWIP)	2	40.242	1	17.682
VERTICAL LAUNCHING SYSTEM (VLS) MK 57 4-CELL MODULES	40	276.782	20	302.815
P-35 Items Subtotal		2,280.412		1,264.778
Other Cost Elements				
MISSION SYSTEM ENGR INTEGR & TEST (MSEIT)		322.274		132.510
MISSION SYSTEM ACTIVATION		114.891		40.900
SPARES		10.000		5.500
Other Cost Elements Subtotal		447.165		178.910
Total Electronics		2,727.577		1,443.688
Remarks: DDG 1002 Total Ship Computing Environment (TSCE) reflects \$7M reduction as a result of the PB18 congressional mark. Due to schedule delays experienced on DDG 1000 and DDG 1001, Mission Systems Activation (MSA) costs have increased. PB20 includes additional \$15.5M for DDG 1000 Class Interim Spares.				

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Exhibit P-8a, Analysis of Ship Cost Estimates: PB 2020 Navy			Date: March 2019	
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1		P-1 Line Item Number / Title: 2119 / DDG 1000		
Hull, Mechanical, and Electrical (HM&E)	FY 2007		FY 2009	
	Qty (Each)	Total Cost (\$ M)	Qty (Each)	Total Cost (\$ M)
P-35 Items				
MAIN TURBINE GENERATOR (MTG)	4	84.797	2	39.412
P-35 Items Subtotal		84.797		39.412
Major Items				
BATTLE SPARES (MTG)		32.168		-
RIGID HULL INFLATABLE BOAT (RHIB)	4	2.100	2	1.100
Major Items Subtotal		34.268		1.100
Other Cost Elements				
HM&E (NGVLA, Moriah Wind Measurement System (WMS), Aviation Integration)		68.492		12.446
MISSION SYSTEM ACTIVATION		18.781		16.390
INTERIM SPARES		35.818		7.500
Other Cost Elements Subtotal		123.091		36.336
Total Hull, Mechanical, and Electrical (HM&E)		242.156		76.848
Remarks:				
During DDG 1001 Acceptance Trials in December 2017, the #1 Main Turbine Generator (MTG) experienced significant damage to the turbine blades. A full engine change-out was required during the summer of 2018 using a Navy spare. The increase associated with the DDG 1001 MTG is the planning and shipyard costs associated with removal, installation and testing.				
Negotiated savings on interim spare procurements for DDG 1000/1001 since PB-19 have been applied to increases in electronics.				
PB20 includes additional funding for DDG 1002 Interim Spares (\$7.5M)				

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Exhibit P-8a, Analysis of Ship Cost Estimates: PB 2020 Navy			Date: March 2019	
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1		P-1 Line Item Number / Title: 2119 / DDG 1000		
Ordnance	FY 2007		FY 2009	
	Qty (Each)	Total Cost (\$ M)	Qty (Each)	Total Cost (\$ M)
P-35 Items				
ADVANCED GUN SYSTEM (AGS)	4	458.711	2	248.596
CLOSE-IN GUN SYSTEM (CIGS)	4	36.151	2	13.795
P-35 Items Subtotal		494.862		262.391
Major Items				
BATTLE SPARES (AGS)		18.449		-
Major Items Subtotal		18.449		-
Other Cost Elements				
MISSION SYSTEM ACTIVATION		2.500		2.500
Other Cost Elements Subtotal		2.500		2.500
Total Ordnance		515.811		264.891
Remarks: The reduction to the AGS line is associated with the Navy's decision to lay up the guns until an affordable and capable AGS round is developed.				

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Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy						Date: March 2019	
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1				P-1 Line Item Number / Title: 2119 / DDG 1000			
Equipment Item: EXTERIOR COMMUNICATIONS (EXCOMMS)						PARM Code: PEOC4I	
P-35 Category	FY 2007		FY 2009				
	Qty (Each)	Total Cost (\$ M)	Qty (Each)	Total Cost (\$ M)			
Major Hardware	2	195.953	1	20.600			
Technical Support Services		33.947		6.585			
Other / NRE		240.448		52.777			
Total	2	470.348	1	79.962			
Description: EXCOMMs are part of the DDG-1000 C3I Segment and consists of a set of seven (7) external communications elements. The EXCOMM Elements support the DDG-1000 system in achieving its mission by providing communications between DDG-1000 and other land, air, and sea based platforms as well as pier-side communications. These EXCOMM elements provide the voice, data, and video communications between DDG-1000 and the external world at sea as well as when in port. The 7 elements are: Satellite Communications (SATCOMs), Line of Sight (LOS), Common Data Link-Navy (CDL-N), Information Security (INFOSEC), Common Array Element (CAE), Cooperative Engagement Capability (CEC) and Integrated Communications Controller Software (ICCS). Government legacy systems include: Distributed Common Ground System, Navy (DCGS-N), Cooperative Engagement Capability (CEC), Communication Terminals, AN/WSC-6(V)9 Shipboard Terminal, Common Link Integrated Processor (CLIP), Automated Digital Network System (ADNS), Global Broadcast Service (GBS), Communications Data Link System (CDLS), & Naval Modular Automated Communications System (NAVMACS).							
Contract Data:							
Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost (\$ M)
FY 2007	DDG 1000	Raytheon	C/CPIF	May 2008		2	97.977
FY 2009	DDG 1002	Raytheon	C/CPIF	May 2012		1	20.600
Delivery Date:							
Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date		
FY 2007	DDG 1000	Sep 2019	43	26	Dec 2013		
FY 2009	DDG 1002	Sep 2022	43	26	Dec 2016		
Competition/Second Source Initiatives: N/A							

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Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy					Date: March 2019	
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1			P-1 Line Item Number / Title: 2119 / DDG 1000			
Equipment Item: INTEGRATED UNDERSEA WARFARE (IUSW) SYSTEM					PARM Code: IWS 5.0 XR	
P-35 Category	FY 2007		FY 2009			
	Qty (Each)	Total Cost (\$ M)	Qty (Each)	Total Cost (\$ M)		
Major Hardware	2	95.829	1	54.300		
Technical Support Services		11.293		5.639		
Other / NRE		109.141		45.197		
Total	2	216.263	1	105.136		
Description: The IUSW suite supports DDG-1000 in achieving Undersea and Surface Dominance with the capability to detect and track hostile surface vessels, submarines, and moored volume mines. It supports the Sensor Systems Segment in accomplishing its Integrated Air and Surface Dominance (IASD) and Integrated Undersea Dominance (IUSD) objectives by providing the capability to conduct Anti-Submarine Warfare (ASW), Torpedo Defense (TD) and Mine Warfare (MIW) missions. Military Operations Other than War (MOOTW) objectives, such as Search and Rescue (SAR) (locating downed aircraft and vessels in the ocean) are also supported. There are four major subcomponents: Bow Array Component, Towed Array Component, Towed Torpedo Countermeasures Component, as well as software.						
Contract Data:						
Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)
FY 2007	DDG 1000	Raytheon	C/CPIF	May 2008		2
FY 2009	DDG 1002	Raytheon	C/CPIF	Oct 2012		1
Delivery Date:						
Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date	
FY 2007	DDG 1000	Sep 2019	47	18	Apr 2014	
FY 2009	DDG 1002	Sep 2022	46	18	May 2017	
Competition/Second Source Initiatives: N/A						

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Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy				Date: March 2019			
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1			P-1 Line Item Number / Title: 2119 / DDG 1000				
Equipment Item: MULTI FUNCTION RADAR (MFR)				PARM Code: IWS 2.0 SQ			
P-35 Category	FY 2007		FY 2009				
	Qty (Each)	Total Cost (\$ M)	Qty (Each)	Total Cost (\$ M)			
Major Hardware	2	314.313	1	189.573			
Technical Support Services		21.993		11.145			
Other / NRE		183.303		97.281			
Total	2	519.609	1	297.999			
Description: The Multi Function Radar (MFR) element supports the DDG-1000 system in achieving Integrated Air and Surface Dominance with the capability to neutralize hostile surface vessels and aircraft at short ranges. The MFR is comprised of X-Band (AN/SPY-3) arrays integrated through a common signal data processor offering surface and horizon search capabilities and 3-D air search radar capabilities. The X-Band portion also has two navigation modes (high power and lower power) for use in piloting and marine navigation.							
Contract Data:							
Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost (\$ M)
FY 2007	DDG 1000	Raytheon	C/CPIF	Mar 2008		2	157.157
FY 2009	DDG 1002	Raytheon	C/CPIF	Oct 2012		1	189.573
Delivery Date:							
Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date		
FY 2007	DDG 1000	Sep 2019	45	28	Aug 2013		
FY 2009	DDG 1002	Sep 2022	36	28	May 2017		
Competition/Second Source Initiatives: N/A							

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Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy						Date: March 2019	
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1				P-1 Line Item Number / Title: 2119 / DDG 1000			
Equipment Item: COMMON ARRAY POWER SYSTEM (CAPS)						PARM Code: IWS 2.0 SQ	
P-35 Category	FY 2007		FY 2009				
	Qty (Each)	Total Cost (\$ M)	Qty (Each)	Total Cost (\$ M)			
Major Hardware	2	56.185	1	12.624			
Battle Spares		1.000		-			
Technical Support Services		4.490		0.420			
Other / NRE		35.342		3.365			
Total	2	97.017	1	16.409			
Description: The Common Array Power System (CAPS) provides electrical power for the Multi Function Radar (MFR), Identification of Friend or Foe (IFF), EW/Cryptology and External Communications (EXCOMMs) Elements. The CAPS is a distributed power system designed to operate from the ship-supplied medium voltage distribution Integrated Power System's (IPS) 13.8 kV AC power source. The CAPS consists of two Power Distribution Units (PDUs) and four Power Conversion Units (PCUs).							
Contract Data:							
Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost (\$ M)
FY 2007	DDG 1000	Raytheon	C/CPIF	Mar 2008		2	28.093
FY 2009	DDG 1002	Raytheon	C/CPIF	Nov 2012		1	12.624
Delivery Date:							
Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date		
FY 2007	DDG 1000	Sep 2019	48	28	May 2013		
FY 2009	DDG 1002	Sep 2022	35	28	Jun 2017		
Competition/Second Source Initiatives: N/A							

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Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy				Date: March 2019																									
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1			P-1 Line Item Number / Title: 2119 / DDG 1000																										
Equipment Item: TOTAL SHIP COMPUTING ENVIRONMENT (TSCE)				PARM Code: IWS 9.0 XV																									
P-35 Category	FY 2007		FY 2009																										
	Qty (Each)	Total Cost (\$ M)	Qty (Each)	Total Cost (\$ M)																									
Major Hardware	2	196.450	1	147.453																									
Technical Support Services		21.834		10.499																									
Other / NRE		164.307		101.239																									
Total	2	382.591	1	259.191																									
Description: The Total Ship Computing Environment (TSCE) Segment provides all computing resources and associated software to the DDG-1000 System. It is a single computing environment for Ship, Combat and Support Systems. The TSCE provides a common middleware platform upon which all application/functional software can build and execute. The segment applications software, combined with TSCE hardware and software infrastructure represent the majority of the computing resources and associated software for the DDG-1000 System.																													
Contract Data: <table border="1" style="width: 100%; border-collapse: collapse; margin-top: 5px;"> <tr> <th style="text-align: center;">Program Year</th> <th style="text-align: center;">Hull</th> <th style="text-align: center;">Prime Contractor</th> <th style="text-align: center;">Contract Method/Type</th> <th style="text-align: center;">Award Date</th> <th style="text-align: center;">New/Option</th> <th style="text-align: center;">Quantity (Each)</th> <th style="text-align: center;">Unit Cost (\$ M)</th> </tr> <tr> <td style="text-align: center;">FY 2007</td> <td style="text-align: center;">DDG 1000</td> <td style="text-align: center;">Raytheon</td> <td style="text-align: center;">C/CPIF</td> <td style="text-align: center;">May 2008</td> <td></td> <td style="text-align: center;">2</td> <td style="text-align: right;">98.225</td> </tr> <tr> <td style="text-align: center;">FY 2009</td> <td style="text-align: center;">DDG 1002</td> <td style="text-align: center;">Raytheon</td> <td style="text-align: center;">C/CPIF</td> <td style="text-align: center;">Oct 2012</td> <td></td> <td style="text-align: center;">1</td> <td style="text-align: right;">147.453</td> </tr> </table>						Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost (\$ M)	FY 2007	DDG 1000	Raytheon	C/CPIF	May 2008		2	98.225	FY 2009	DDG 1002	Raytheon	C/CPIF	Oct 2012		1	147.453
Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost (\$ M)																						
FY 2007	DDG 1000	Raytheon	C/CPIF	May 2008		2	98.225																						
FY 2009	DDG 1002	Raytheon	C/CPIF	Oct 2012		1	147.453																						
Delivery Date: <table border="1" style="width: 100%; border-collapse: collapse; margin-top: 5px;"> <tr> <th style="text-align: center;">Program Year</th> <th style="text-align: center;">Hull</th> <th style="text-align: center;">Earliest Ship Delivery Date</th> <th style="text-align: center;">Months Required Before Delivery</th> <th style="text-align: center;">Production Leadtime</th> <th style="text-align: center;">Required Award Date</th> </tr> <tr> <td style="text-align: center;">FY 2007</td> <td style="text-align: center;">DDG 1000</td> <td style="text-align: center;">Sep 2019</td> <td style="text-align: center;">48</td> <td style="text-align: center;">21</td> <td style="text-align: center;">Dec 2013</td> </tr> <tr> <td style="text-align: center;">FY 2009</td> <td style="text-align: center;">DDG 1002</td> <td style="text-align: center;">Sep 2022</td> <td style="text-align: center;">43</td> <td style="text-align: center;">21</td> <td style="text-align: center;">May 2017</td> </tr> </table>						Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date	FY 2007	DDG 1000	Sep 2019	48	21	Dec 2013	FY 2009	DDG 1002	Sep 2022	43	21	May 2017						
Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date																								
FY 2007	DDG 1000	Sep 2019	48	21	Dec 2013																								
FY 2009	DDG 1002	Sep 2022	43	21	May 2017																								
Competition/Second Source Initiatives: N/A																													
Remarks: Increased costs have been experienced on the DDG 1000 due to first of class technical issues and schedule delays.																													

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Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy						Date: March 2019	
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1				P-1 Line Item Number / Title: 2119 / DDG 1000			
Equipment Item: ELECTRO-OPTICAL / INFRARED (EO/IR)						PARM Code: IWS 2.0 SJ	
P-35 Category	FY 2007		FY 2009				
	Qty (Each)	Total Cost (\$ M)	Qty (Each)	Total Cost (\$ M)			
Major Hardware	2	33.368	1	12.973			
Technical Support Services		6.900		1.551			
Other / NRE		54.143		16.928			
Total	2	94.411	1	31.452			
Description: The Electro-Optical / Infrared (EO/IR) Sensor Suite Element is composed of both the hardware and software components required to detect and range on specified targets and report track data to C2. The EO/IR sensor suite consists of five (5) gimballed EO sensors located on the cardinal faces of the deckhouse and associated electronics in Electronic Modular Enclosures (EMEs). Also included are Detect and Tracking Software components that provide embedded control and generate tracks for the C2 system and Mine Like Object (MLO) detection algorithm.							
Contract Data:							
Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost (\$ M)
FY 2007	DDG 1000	Raytheon	C/CPIF	May 2008		2	16.684
FY 2009	DDG 1002	Raytheon	C/CPIF	Nov 2012		1	12.973
Delivery Date:							
Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date		
FY 2007	DDG 1000	Sep 2019	47	22	Dec 2013		
FY 2009	DDG 1002	Sep 2022	41	22	Jun 2017		
Competition/Second Source Initiatives: N/A							

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Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy						Date: March 2019	
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1				P-1 Line Item Number / Title: 2119 / DDG 1000			
Equipment Item: IDENTIFICATION FRIEND OR FOE (IFF)						PARM Code: NAVAIR	
P-35 Category	FY 2007		FY 2009				
	Qty (Each)	Total Cost (\$ M)	Qty (Each)	Total Cost (\$ M)			
Major Hardware	2	16.018	1	8.640			
Technical Support Services		2.186		2.163			
Other / NRE		17.328		17.335			
Total	2	35.532	1	28.138			
Description: Identification Friend or Foe (IFF) sensor element supports the DDG-1000 Ship System segment in accomplishing Anti-Air Warfare (AAW) and Anti-Surface Warfare (ASUW) missions. The IFF Sensor Element is a cooperative "challenge and reply" system that assists in the rapid identification, tracking and control of friendly platforms. IFF is comprised of three hardware components to include the Interrogator component, the Transponder component and the Electronically Scanned Antenna (ESA) component, as well as software.							
Contract Data:							
Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost (\$ M)
FY 2007	DDG 1000	Raytheon	C/CPIF	May 2008		2	8.009
FY 2009	DDG 1002	Raytheon	C/CPIF	Dec 2012		1	8.640
Delivery Date:							
Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date		
FY 2007	DDG 1000	Sep 2019	40	29	Dec 2013		
FY 2009	DDG 1002	Sep 2022	33	29	Jul 2017		
Competition/Second Source Initiatives: N/A							

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Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy						Date: March 2019	
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1				P-1 Line Item Number / Title: 2119 / DDG 1000			
Equipment Item: COMMON ARRAY COOLING SYSTEM (CACS)						PARM Code: IWS 2.0 SQ	
P-35 Category	FY 2007		FY 2009				
	Qty (Each)	Total Cost (\$ M)	Qty (Each)	Total Cost (\$ M)			
Major Hardware	2	11.766	1	-			
Battle Spares		1.000		-			
Technical Support Services		0.824		0.107			
Other / NRE		6.475		0.858			
Total	2	20.065	1	0.965			
Description: The Common Array Cooling System (CACS) provides liquid cooling for the Multi Function Radar (MFR) and External Communications (EXCOMMs) arrays. CACS is a distributed cooling system consisting of three Cooling Equipment Units (CEUs). Each CEU operates an independent coolant loop used to transport, monitor and control coolant flow to the DBR and EXCOMMs Equipment. CEUs consist of redundant pumps, a heat exchanger and filtration system. It is designed to provide liquid coolant to the MFR and EXCOMM equipment and dissipate heat to the ship-supplied chilled water.							
Contract Data:							
Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost (\$ M)
FY 2007	DDG 1000	Raytheon	C/CPIF	May 2008		2	5.883
FY 2009	DDG 1002	Raytheon	C/CPIF	Nov 2012		1	0.000
Delivery Date:							
Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date		
FY 2007	DDG 1000	Sep 2019	49	28	Apr 2013		
FY 2009	DDG 1002	Sep 2022	35	28	Jun 2017		
Competition/Second Source Initiatives: N/A							
Remarks: CACS Technical Services are incorporated into DBR Technical Services. DDG 1002 CACS costs are included in the DDG 1002 MFR value.							

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Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy						Date: March 2019	
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1				P-1 Line Item Number / Title: 2119 / DDG 1000			
Equipment Item: SHIP CONTROL SYSTEM (SCS)						PARM Code: SPAWAR	
P-35 Category	FY 2007		FY 2009				
	Qty (Each)	Total Cost (\$ M)	Qty (Each)	Total Cost (\$ M)			
Major Hardware	2	58.000	1	42.801			
Technical Support Services		6.031		8.256			
Other / NRE		47.496		66.172			
Total	2	111.527	1	117.229			
Description: The Flight 1 Ship Control System (SCS) element is a system of hardware and software items that provide hierarchical and integrated ship control by the DDG-1000 crew. The SCS software architecture allows for various levels of automation for monitoring, control, reporting and configuration of SCS equipment and operations to support mission and low manning concepts. From workstation positions on the ship bridge or in the ship mission centers, the SCS coordinates, controls and monitors the navigation, hull, electric plant, machinery plant and damage control functions on the DDG-1000.							
Contract Data:							
Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost (\$ M)
FY 2007	DDG 1000	Raytheon	C/CPIF	May 2008		2	29.000
FY 2009	DDG 1002	Raytheon	C/CPIF	May 2012		1	42.801
Delivery Date:							
Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date		
FY 2007	DDG 1000	Sep 2019	38	31	Dec 2013		
FY 2009	DDG 1002	Sep 2022	38	31	Dec 2016		
Competition/Second Source Initiatives: N/A							

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Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy						Date: March 2019	
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1				P-1 Line Item Number / Title: 2119 / DDG 1000			
Equipment Item: COOPERATIVE ENGAGEMENT CAPABILITY (CEC)						PARM Code: IWS 6.0 XN	
P-35 Category	FY 2007		FY 2009				
	Qty (Each)	Total Cost (\$ M)	Qty (Each)	Total Cost (\$ M)			
Major Hardware	2	12.000	1	6.800			
Technical Support Services		4.025		1.000			
Total	2	16.025	1	7.800			
Description: Cooperative Engagement Capability (CEC) is a sensor network with Integrated Fire Control capability that significantly improves Battle Force air and missile defense capabilities by coordinating measurement data from Battle Force air search sensors on CEC-equipped units into a single, real-time, composite cooperating unit (CU), to all other CUs in the Battle Force through a real-time, line of sight, high data rate sensor and engagement data distribution network. CEC is highly resistant to jamming and provides accurate grid locking (relative spatial positioning) between CUs. Each CU independently employs high capacity, parallel processing and advanced algorithms to combine all distributed sensor data into a high quality track picture which is the same for all CUs. CEC data is presented as a superset of the best air and missile defense sensor capabilities from each CU, all of which are integrated into a single input to each CU's combat weapon system. CEC significantly improves Battle Force defense in depth, including both local and area defense capabilities against current and future air missile threats.							
Contract Data:							
Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost (\$ M)
FY 2007	DDG 1000	Raytheon	C/FPIF	Feb 2007		2	6.000
FY 2009	DDG 1002	Raytheon	C/FPIF	Oct 2013		1	6.800
Delivery Date:							
Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date		
FY 2007	DDG 1000	Sep 2019	34	18	May 2015		
FY 2009	DDG 1002	Sep 2022	34	18	May 2018		
Competition/Second Source Initiatives: N/A							

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Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy						Date: March 2019	
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1				P-1 Line Item Number / Title: 2119 / DDG 1000			
Equipment Item: SURFACE ELECTRONIC WARFARE IMPROVEMENT PROGRAM (SEWIP)						PARM Code: IWS 2.0 SJ	
P-35 Category	FY 2007		FY 2009				
	Qty (Each)	Total Cost (\$ M)	Qty (Each)	Total Cost (\$ M)			
Major Hardware	2	36.214	1	15.906			
Technical Support Services		2.406		0.935			
Other / NRE		1.622		0.841			
Total	2	40.242	1	17.682			
Description: SEWIP provides enhanced Electronic Warfare (EW) capabilities to improve anti-ship missile defense, counter-targeting and counter surveillance capabilities, as well as improved situational awareness to pace the threat, improving detection, accuracy, and mitigation of EMI. The SEWIP Block 2 is an upgraded antenna, receiver and combat system interface for AN/SLQ-32.							
Contract Data:							
Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost (\$ M)
FY 2007	DDG 1000	Lockheed Martin	C/FPIF	Jul 2012		2	18.107
FY 2009	DDG 1002	Lockheed Martin	C/FPIF	Jan 2015		1	15.906
Delivery Date:							
Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date		
FY 2007	DDG 1000	Sep 2019	2	19	Dec 2017		
FY 2009	DDG 1002	Sep 2022	2	16	Mar 2021		
Competition/Second Source Initiatives: N/A							

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Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy				Date: March 2019			
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1			P-1 Line Item Number / Title: 2119 / DDG 1000				
Equipment Item: VERTICAL LAUNCHING SYSTEM (VLS) MK 57 4-CELL MODULES						PARM Code: IWS 3L S8	
P-35 Category	FY 2007		FY 2009				
	Qty (Each)	Total Cost (\$ M)	Qty (Each)	Total Cost (\$ M)			
Major Hardware	40	180.987	20	234.670			
Technical Support Services		9.029		4.231			
Other / NRE		86.766		63.914			
Total	40	276.782	20	302.815			
Description: The MK 57 VLS is a general purpose, operationally unmanned launching system capable of stowing, preparing, and launching missiles in support of DDG-1000 mission areas including: land attack warfare, integrated air and surface dominance, and integrated undersea dominance. The MK57 VLS provides the capability for rapid launch of missiles into a 360-degree hemispherical volume above and about the ship. The canistered missiles are stowed within the launching systems below-deck cells. DDG-1000 will have 80 total cells grouped into 20 four cell modules. Flight 1 missiles to be carried include: Enhanced Sea Sparrow Missile (ESSM), Standard Missile-2 (SM-2) Blk III, Tomahawk Land Attack Missile (TLAM) Blk III/IV, and Vertical Launch Anti-Submarine Rocket (VLA).							
Contract Data:							
Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost (\$ M)
FY 2007	DDG 1000	Raytheon	C/CPIF	May 2008		40	4.525
FY 2009	DDG 1002	Raytheon	C/CPIF	Oct 2012		20	11.734
Delivery Date:							
Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date		
FY 2007	DDG 1000	Sep 2019	40	24	May 2014		
FY 2009	DDG 1002	Sep 2022	40	24	May 2017		
Competition/Second Source Initiatives: N/A							

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Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy						Date: March 2019																									
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1				P-1 Line Item Number / Title: 2119 / DDG 1000																											
Equipment Item: MAIN TURBINE GENERATOR (MTG)						PARM Code: PMS 500 WA																									
P-35 Category	FY 2007		FY 2009																												
	Qty (Each)	Total Cost (\$ M)	Qty (Each)	Total Cost (\$ M)																											
Major Hardware	4	73.262	2	39.412																											
Technical Support Services		6.126		-																											
Other / NRE		5.409		-																											
Total	4	84.797	2	39.412																											
Description: The Main Turbine Generator Set (MTG) shall be capable of being utilized as the prime power source on the DDG-1000 Destroyer for electrical power applications (propulsion, ship services, and combat systems loads). The DDG-1000 baseline includes two MTGs. The minimum output power from each MTG shall be 35.25 MWe. The engine utilizes a Full Authority Digital Control Local Operating Panel (FADC LOCOP) and electric start system. The generator contains redundant automatic voltage regulators (AVR) with automatic changeover.																															
Contract Data: <table border="1" style="width: 100%; border-collapse: collapse; margin-top: 5px;"> <tr> <th style="text-align: center;">Program Year</th> <th style="text-align: center;">Hull</th> <th style="text-align: center;">Prime Contractor</th> <th style="text-align: center;">Contract Method/Type</th> <th style="text-align: center;">Award Date</th> <th style="text-align: center;">New/Option</th> <th style="text-align: center;">Quantity (Each)</th> <th style="text-align: center;">Unit Cost (\$ M)</th> </tr> <tr> <td style="text-align: center;">FY 2007</td> <td style="text-align: center;">DDG 1000</td> <td style="text-align: center;">Rolls-Royce</td> <td style="text-align: center;">C/FFP</td> <td style="text-align: center;">Mar 2007</td> <td style="text-align: center;">New</td> <td style="text-align: center;">4</td> <td style="text-align: right;">18.316</td> </tr> <tr> <td style="text-align: center;">FY 2009</td> <td style="text-align: center;">DDG 1002</td> <td style="text-align: center;">Rolls-Royce</td> <td style="text-align: center;">C/FFP</td> <td style="text-align: center;">Jan 2008</td> <td style="text-align: center;">Option</td> <td style="text-align: center;">2</td> <td style="text-align: right;">19.706</td> </tr> </table>								Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost (\$ M)	FY 2007	DDG 1000	Rolls-Royce	C/FFP	Mar 2007	New	4	18.316	FY 2009	DDG 1002	Rolls-Royce	C/FFP	Jan 2008	Option	2	19.706
Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost (\$ M)																								
FY 2007	DDG 1000	Rolls-Royce	C/FFP	Mar 2007	New	4	18.316																								
FY 2009	DDG 1002	Rolls-Royce	C/FFP	Jan 2008	Option	2	19.706																								
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Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date																										
FY 2007	DDG 1000	Sep 2019	33	24	Dec 2014																										
FY 2009	DDG 1002	Sep 2022	33	24	Dec 2017																										
Competition/Second Source Initiatives: N/A																															
Remarks: During DDG 1001 Acceptance Trials in December 2017, the #1 Main Turbine Generator (MTG) experienced significant damage to the turbine blades. A full engine change out was required during the summer of 2018 using a Navy spare. The increase associated with the DDG 1001 MTG is the planning and shipyard costs associated with removal, installation and testing.																															

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Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy						Date: March 2019	
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1				P-1 Line Item Number / Title: 2119 / DDG 1000			
Equipment Item: ADVANCED GUN SYSTEM (AGS)						PARM Code: IWS 3C YF	
P-35 Category	FY 2007		FY 2009				
	Qty (Each)	Total Cost (\$ M)	Qty (Each)	Total Cost (\$ M)			
Major Hardware	4	298.654	2	206.747			
Technical Support Services		14.500		3.860			
Other / NRE		145.557		37.989			
Total	4	458.711	2	248.596			
Description: The Advanced Gun System is a fully automated, single barrel, 155mm, vertically loaded, stabilized gun mount that is capable of storing, initializing/programming, loading and firing projectiles and propelling charges. Its primary mission is Land Attack Warfare in support of ground and expeditionary forces beyond the Line of Sight in the DDG-1000 system's littoral engagement area where precise, rapid-response, high-volume, long-range fire support is required. Each DDG-1000 will carry two complete AGS systems - Mount 61 and 62. The above deck configurations are identical but each has a slightly different below deck configuration.							
Contract Data:							
Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost (\$ M)
FY 2007	DDG 1000	BAE	C/CPIF	Apr 2008		4	74.664
FY 2009	DDG 1002	BAE	C/CPIF	Apr 2012		2	103.374
Delivery Date:							
Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date		
FY 2007	DDG 1000	Sep 2019	31	39	Nov 2013		
FY 2009	DDG 1002	Sep 2022	31	39	Nov 2016		
Competition/Second Source Initiatives: N/A							
Remarks: The reduction to the AGS line is associated with the Navy's decision to lay up the guns until an affordable and capable AGS round is developed.							

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Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy						Date: March 2019	
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1				P-1 Line Item Number / Title: 2119 / DDG 1000			
Equipment Item: CLOSE-IN GUN SYSTEM (CIGS)						PARM Code: IWS 3C YF	
P-35 Category	FY 2007		FY 2009				
	Qty (Each)	Total Cost (\$ M)	Qty (Each)	Total Cost (\$ M)			
Major Hardware	4	16.034	2	7.534			
Technical Support Services		7.177		3.381			
Other / NRE		12.940		2.880			
Total	4	36.151	2	13.795			
Description: The Close-In Gun System (CIGS) supports the DDG-1000 system in achieving Integrated Air and Surface Dominance with the capability to neutralize hostile surface vessels and aircraft at short ranges. CIGS also supports the Military Operations Other than War (MOOTW) missions, such as performing maritime interdiction, conducting maritime law enforcement, and supporting hostage rescue. Two (2) CIGS will be mounted on the aft end of the hanger. The CIGS MK 46 MOD 2 GWS is composed of a turret assembly that houses the MK 44 MOD 2 cannon and an advanced Fire Control System that includes a ballistic solution computer, an electro-optical sensor package, and an eye-safe laser range finder. The system uses a forward-looking infrared sensor, a low-light television camera, and eye safe laser range finder with a closed-loop tracking system to optimize accuracy against small, high-speed surface targets. The system can be operated locally from the gun control station inside the turret, remotely from the MK 46 MOD 2 GWS Remote Gun Station Operator (RGSO) panel in the Combat Information Center (CIC), or manually using hand cranks from inside the turret. The 30mm cannon, MK 44 MOD 2, is a single barrel, open bolt, dual feed, electrically powered, chain-driven automatic cannon. The system has a magazine capacity of 424 rounds, a dual-feed capability with a firing rate of 200 rounds per minute, and is capable of selectively switching between ammunition types and firing modes.							
Contract Data:							
Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost (\$ M)
FY 2007	DDG 1000	General Dynamics Land Systems	C/FFP	Jan 2015		4	4.008
FY 2009	DDG 1002	General Dynamics Land Systems	C/FFP	Mar 2016		2	3.767
Delivery Date:							
Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date		
FY 2007	DDG 1000	Sep 2019	6	22	May 2017		
FY 2009	DDG 1002	Sep 2022	6	18	Sep 2020		
Competition/Second Source Initiatives: N/A							

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Exhibit P-40, Budget Line Item Justification: PB 2020 Navy	Date: March 2019
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Appropriation / Budget Activity / Budget Sub Activity: 1611N: Shipbuilding and Conversion, Navy / BA 02: Other Warships / BSA 1: Other Warships	P-1 Line Item Number / Title: 2122 / DDG-51
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ID Code (A=Service Ready, B=Not Service Ready): A	Program Elements for Code B Items: N/A	Other Related Program Elements: N/A
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Line Item MDAP/MAIS Code: N/A

Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity (<i>Units in Each</i>)	77	2	3	3	-	3	2	2	3	3	2	97
Gross/Weapon System Cost (<i>\$ in Millions</i>)	80,651.776	3,357.079	5,289.199	5,462.955	0.000	5,462.955	3,740.843	3,854.254	5,675.392	5,607.774	4,328.900	117,968.172
Less PY Advance Procurement (<i>\$ in Millions</i>)	2,911.519	-	-	-	-	-	-	-	-	-	-	2,911.519
Less Cost To Complete (<i>\$ in Millions</i>)	1,198.862	-	-	-	-	-	-	-	-	-	-	1,198.862
Less Subsequent Year Full Funding (<i>\$ in Millions</i>)	433.000	-	-	-	-	-	-	-	-	-	-	433.000
Less Hurricane (<i>\$ in Millions</i>)	227.100	-	-	-	-	-	-	-	-	-	-	227.100
Less EOQ (<i>\$ in Millions</i>)	421.584	-	39.362	363.660	-	363.660	276.635	276.635	-	168.500	525.900	2,072.276
Less Escalation (<i>\$ in Millions</i>)	48.200	-	-	-	-	-	-	-	-	-	-	48.200
Less Transfer (<i>\$ in Millions</i>)	218.500	-	-	-	-	-	-	-	-	-	-	218.500
Net Procurement (P-1) (<i>\$ in Millions</i>)	75,193.011	3,357.079	5,249.837	5,099.295	0.000	5,099.295	3,464.208	3,577.619	5,675.392	5,439.274	3,803.000	110,858.715
Plus Subsequent Year Full Funding (<i>\$ in Millions</i>)	433.000	-	-	-	-	-	-	-	-	-	-	433.000
Full Funding TOA (<i>\$ in Millions</i>)	75,626.011	3,357.079	5,249.837	5,099.295	-	5,099.295	3,464.208	3,577.619	5,675.392	5,439.274	3,803.000	111,291.715
Plus CY Advance Procurement (<i>\$ in Millions</i>)	3,333.103	-	-	-	-	-	-	-	-	-	-	3,333.103
Plus Cost To Complete (<i>\$ in Millions</i>)	1,050.808	51.377	53.966	-	-	-	19.634	23.077	-	-	-	1,198.862
Plus EOQ (<i>\$ in Millions</i>)	-	90.336	641.928	224.028	-	224.028	-	-	484.400	210.000	-	1,650.692
Plus Escalation (<i>\$ in Millions</i>)	48.200	-	-	-	-	-	-	-	-	-	-	48.200
Plus Transfer (<i>\$ in Millions</i>)	218.500	-	-	-	-	-	-	-	-	-	-	218.500
Plus Hurricane (<i>\$ in Millions</i>)	227.100	-	-	-	-	-	-	-	-	-	-	227.100
Total Obligation Authority (<i>\$ in Millions</i>)	80,503.722	3,498.792	5,945.731	5,323.323	0.000	5,323.323	3,483.842	3,600.696	6,159.792	5,649.274	3,803.000	117,968.172
<i>(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)</i>												
Plus Outfitting and Post Delivery (<i>\$ in Millions</i>)	2,369.602	67.538	73.025	130.924	-	130.924	110.103	115.498	114.818	117.114	-	3,098.622
Total (<i>\$ in Millions</i>)	82,873.324	3,566.330	6,018.756	5,454.247	-	5,454.247	3,593.945	3,716.194	6,274.610	5,766.388	3,803.000	121,066.794
Gross/Weapon System Unit Cost (<i>\$ in Millions</i>)	1,047.426	1,678.540	1,763.066	1,820.985	-	1,820.985	1,870.422	1,927.127	1,891.797	1,869.258	2,164.450	1,216.167

Description:

DDG 51 will be able to operate offensively and defensively, independently or as units of Carrier Strike Groups and Surface Action Groups, in support of Marine Amphibious Task Forces in multi-threat environments that include air, surface and subsurface threats. These ships will respond to Low Intensity Conflict/Coastal and Littoral Offshore Warfare (LIC/CALOW) scenarios as well as open ocean conflict providing or augmenting power projection and forward presence requirements, and escort operations at sea. FY10 and follow ships will provide Ballistic Missile Defense capability. Starting in FY17, DDG 51 Flight III with the Air and Missile Defense Radar (SPY-6) will significantly enhance Integrated Air and Missile Defense capability against current and future threats. Starting in FY22, Surface Electronic Warfare Improvement Program (SEWIP) Block 3 will provide Electronic Attack (EA) capability improvements against current and future threats.

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Exhibit P-40, Budget Line Item Justification: PB 2020 Navy						Date: March 2019	
Appropriation / Budget Activity / Budget Sub Activity: 1611N: Shipbuilding and Conversion, Navy / BA 02: Other Warships / BSA 1: Other Warships				P-1 Line Item Number / Title: 2122 / DDG-51			
ID Code (A=Service Ready, B=Not Service Ready): A		Program Elements for Code B Items: N/A			Other Related Program Elements: N/A		
Line Item MDAP/MAIS Code: N/A							
<p>Note:</p> <p>(1) The FY18-22 acquisition strategy is a 10 ship Multi-year Procurement (MYP) with options. PB20 reflects savings for those 10 ships associated with EOQ procurement and a MYP strategy. Additional ships in FY19, FY20, FY23, FY24 also reflect quantity savings over annual ship prices.</p>							
Characteristics:	FLIGHT IIA	FLIGHT III					
Length Overall	509 ft	509 ft					
Beam	59 ft	59 ft					
Displacement	9217 TONS	9650 TONS					
Draft	-						
Production Status:	DDG 118 ⁽¹⁾	DDG 120	DDG 119	DDG 121	DDG 122	DDG 123	DDG 124
Contract Award Date	Jun 2013	Mar 2014	Jun 2013	Jun 2013	Jun 2013	Jun 2013	Jun 2013
Months to Completion							
a) Award to Delivery	82 months	82 months	76 months	85 months	100 months	97 months	108 months
b) Construction Start to Delivery	56 months	52 months	51 months	51 months	49 months	54 months	47 months
Delivery Date	Apr 2020	Jan 2021	Oct 2019	Jul 2020	Oct 2021	Jul 2021	Jun 2022
Completion Of Fitting Out	Aug 2020	May 2021	Feb 2020	Dec 2020	Feb 2022	Nov 2021	Oct 2022
Obligation Work Limit Date	Jul 2021	Apr 2022	Jan 2021	Nov 2021	Jan 2023	Oct 2022	Sep 2023
Production Status:	DDG 127	DDG 125 ⁽²⁾	DDG 126 ⁽³⁾	DDG 128	DDG 129	DDG 130	DDG 131
Contract Award Date	Sep 2017	Jun 2013	Jun 2013	Sep 2018	Sep 2018	Sep 2018	Sep 2018
Months to Completion							
a) Award to Delivery	62 months	118 months	132 months	73 months	82 months	82 months	91 months
b) Construction Start to Delivery	52 months	59 months	62 months	52 months	50 months	60 months	49 months
Delivery Date	Nov 2022	Apr 2023	Jun 2024	Oct 2024	Jul 2025	Jul 2025	Apr 2026
Completion Of Fitting Out	Mar 2023	Aug 2023	Oct 2024	Feb 2025	Nov 2025	Nov 2025	Aug 2026
Obligation Work Limit Date	Feb 2024	Jul 2024	Sep 2025	Jan 2026	Oct 2026	Oct 2026	Jul 2027
Production Status:	DDG 132	DDG 134	DDG 133	DDG 135 ⁽⁴⁾			
Contract Award Date	Dec 2018	Sep 2018	Sep 2018	Jun 2020			
Months to Completion							
a) Award to Delivery	89 months	98 months	98 months	81 months			
b) Construction Start to Delivery	59 months	55 months	49 months	52 months			
Delivery Date	May 2026	Nov 2026	Nov 2026	Mar 2027			
Completion Of Fitting Out	Sep 2026	Mar 2027	Mar 2027	Aug 2027			
Obligation Work Limit Date	Aug 2027	Feb 2028	Feb 2028	Jul 2028			
Design Schedule	Start / Issue		Complete / Response		Reissue		Reissue Complete / Response
Issue Date for TLR	Jun 1983		N/A				
Issue Date for TLS	N/A		N/A				
Preliminary Design	Mar 1982		Dec 1982				

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Exhibit P-40, Budget Line Item Justification: PB 2020 Navy			Date: March 2019		
Appropriation / Budget Activity / Budget Sub Activity: 1611N: Shipbuilding and Conversion, Navy / BA 02: Other Warships / BSA 1: Other Warships			P-1 Line Item Number / Title: 2122 / DDG-51		
ID Code (A=Service Ready, B=Not Service Ready): A		Program Elements for Code B Items: N/A		Other Related Program Elements: N/A	
Line Item MDAP/MAIS Code: N/A					
<u>Design Schedule</u>	<u>Start / Issue</u>	<u>Complete / Response</u>	<u>Reissue</u>	<u>Reissue Complete / Response</u>	
Contract Design	May 1983	Jun 1984			
Detail Design	N/A	N/A			
Request for Proposals	N/A	N/A			
Design Agent	BIW				
Classification of Cost Estimate: CLASS C BUDGET ESTIMATE					
Footnotes: (1) DDG 118 - DDG 124 reflects actual and contract milestone dates based on ship production progress. (2) DDG 125 reflects actual and contract milestone dates based on ship production progress. (3) DDG 126- DDG 134 reflects contract milestone dates. (4) DDG 135 Reflects notional dates					

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Exhibit P-5c, Ship Cost Analysis: PB 2020 Navy	Date: March 2019
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Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1	P-1 Line Item Number / Title: 2122 / DDG-51
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Cost Categories <small>(†) indicates the presence of a P-8a</small>	FY 2013		FY 2014		FY 2015		FY 2016		FY 2017		FY 2018		FY 2019		FY 2020	
	Qty (Each)	Total Cost (\$ M)	Qty (Each)	Total Cost (\$ M)	Qty (Each)	Total Cost (\$ M)	Qty (Each)	Total Cost (\$ M)	Qty (Each)	Total Cost (\$ M)	Qty (Each)	Total Cost (\$ M)	Qty (Each)	Total Cost (\$ M)	Qty (Each)	Total Cost (\$ M)
Plan Costs	3	67.450	1	74.980	2	68.814	3	204.160	2	81.454	2	72.811	3	74.195	3	75.713
Basic Construction/Conversion		2,188.286		718.189		1,463.210		2,262.084		1,662.382		1,749.226		2,796.814		2,918.944
Change Orders		60.461		21.087		42.133		122.000		41.307		53.196		83.164		85.974
Electronics ^(†)		544.024		226.095		349.746		533.916		346.044		379.000		576.510		607.388
Hull, Mechanical, and Electrical (HM&E) ^(†)		191.246		91.207		159.533		223.907		150.636		161.600		224.300		226.260
Ordnance ^(†)		1,176.955		523.108		838.247		1,469.584		1,008.587		865.400		1,457.000		1,467.208
Other Cost		81.240		76.736		77.775		73.033		73.971		75.846		77.216		81.468
Total Ship Estimate		4,309.662		1,731.402		2,999.458		4,888.684		3,364.381		3,357.079		5,289.199		5,462.955
Less Advance Procurement FY 2012		92.454		-		-		-		-		-		-		-
Less Advance Procurement FY 2015		-		-		-		134.039		-		-		-		-
Less Subsequent Full Funding FY 2017		-		-		-		433.000		-		-		-		-
Less Cost to Complete FY 2014		100.000		-		-		-		-		-		-		-
Less Cost to Complete FY 2018		31.941		-		-		-		-		-		-		-
Less Cost to Complete FY 2019		53.966		-		-		-		-		-		-		-
Less Cost to Complete FY 2021		-		-		19.634		-		-		-		-		-
Less Cost to Complete FY 2022		-		-		23.077		-		-		-		-		-
Less EOQ FY 2013		-		115.838		224.851		108.345		13.677		-		-		-
Less EOQ FY 2014		-		-		69.989		130.650		168.912		-		-		-
Less EOQ FY 2018		-		-		-		-		-		-		39.362		25.940
Less EOQ FY 2019		-		-		-		-		-		-		-		337.720
Net P-1 Funding		4,031.301		1,615.564		2,661.907		4,082.650		3,181.792		3,357.079		5,249.837		5,099.295

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Exhibit P-27, Ship Production Schedule: PB 2020 Navy

Date: March 2019

Appropriation / Budget Activity / Budget Sub Activity:
1611N / 02 / 1P-1 Line Item Number / Title:
2122 / DDG-51

Ship	Shipbuilder	Fiscal Year	Contract Award	Start of Construction	Delivery Date
DDG 118 ⁽¹⁾	Bath Iron Works	2013	Jun 2013	Aug 2015	Apr 2020
DDG 120	Bath Iron Works	2013	Mar 2014	Sep 2016	Jan 2021
DDG 119	Huntington Ingalls Industries	2014	Jun 2013	Jul 2015	Oct 2019
DDG 121	Huntington Ingalls Industries	2015	Jun 2013	Apr 2016	Jul 2020
DDG 122	Bath Iron Works	2015	Jun 2013	Sep 2017	Oct 2021
DDG 123	Huntington Ingalls Industries	2016	Jun 2013	Jan 2017	Jul 2021
DDG 124	Bath Iron Works	2016	Jun 2013	Jul 2018	Jun 2022
DDG 127	Bath Iron Works	2016	Sep 2017	Jul 2018	Nov 2022
DDG 125 ⁽²⁾	Huntington Ingalls Industries	2017	Jun 2013	May 2018	Apr 2023
DDG 126 ⁽³⁾	Bath Iron Works	2017	Jun 2013	Apr 2019	Jun 2024
DDG 128	Huntington Ingalls Industries	2018	Sep 2018	Jun 2020	Oct 2024
DDG 129	Huntington Ingalls Industries	2018	Sep 2018	May 2021	Jul 2025
DDG 130	Bath Iron Works	2019	Sep 2018	Jul 2020	Jul 2025
DDG 131	Huntington Ingalls Industries	2019	Sep 2018	Mar 2022	Apr 2026
DDG 132	Bath Iron Works	2019	Dec 2018	Jun 2021	May 2026
DDG 134	Bath Iron Works	2020	Sep 2018	Apr 2022	Nov 2026
DDG 133	Huntington Ingalls Industries	2020	Sep 2018	Oct 2022	Nov 2026
DDG 135 ⁽⁴⁾	TBD	2020	Jun 2020	Nov 2022	Mar 2027
DDG 136 ⁽⁵⁾	Bath Iron Works	2021	Sep 2018	Jan 2023	Jun 2027
DDG 137	Huntington Ingalls Industries	2021	Sep 2018	May 2023	Sep 2027
DDG 138	Bath Iron Works	2022	Sep 2018	Aug 2023	Dec 2027
DDG 139	Huntington Ingalls Industries	2022	Sep 2018	Mar 2024	Apr 2028
DDG 140 ⁽⁶⁾	TBD	2023	Jun 2023	Jul 2024	Jul 2028
DDG 141	TBD	2023	Jun 2023	Jul 2024	Jul 2028
DDG 142	TBD	2023	Jun 2023	Jan 2025	Jan 2029
DDG 143	TBD	2024	Jun 2023	Jul 2025	Jul 2029
DDG 144	TBD	2024	Jun 2023	Jul 2025	Jul 2029
DDG 145	TBD	2024	Jun 2023	Jan 2026	Jan 2030

Footnotes:

⁽¹⁾ DDG 118 - DDG 124 reflects actual and contract milestone dates based on ship production progress.⁽²⁾ DDG 125 reflects actual and contract milestone dates based on ship production progress.

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Exhibit P-27, Ship Production Schedule: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1		P-1 Line Item Number / Title: 2122 / DDG-51
<p>(3) DDG 126- DDG 134 reflects contract milestone dates.</p> <p>(4) DDG 135 Reflects notional dates</p> <p>(5) DDG 136- DDG 139 reflect contract milestone dates.</p> <p>(6) DDG 140 and follow are notional. Ships reflect notional dates.</p>		

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Exhibit P-8a, Analysis of Ship Cost Estimates: PB 2020 Navy				Date: March 2019		
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1			P-1 Line Item Number / Title: 2122 / DDG-51			
Electronics	FY 2018		FY 2019		FY 2020	
	Qty (Each)	Total Cost (\$ M)	Qty (Each)	Total Cost (\$ M)	Qty (Each)	Total Cost (\$ M)
P-35 Items						
SQQ 89 ASW	2	81.693	3	124.991	3	148.191
AN/SLQ-32 (V)6 SEWIP	2	31.305	3	47.897	3	48.855
USQ 82(V) GEDMS	2	28.232	3	43.196	3	44.060
EXCOMM	2	100.435	3	153.667	3	156.413
AN/UPX 29(V) IFF and TACAN	2	14.552	3	22.265	3	22.710
CEC	2	11.075	3	16.947	3	17.284
P-35 Items Subtotal		267.292		408.963		437.513
Major Items						
NAVIGATION SYSTEM	2	7.866	3	12.035	3	12.274
SLQ 25 NIXIE	2	3.249	3	4.971	3	5.070
SRQ 4 LAMPS III	2	8.699	3	13.310	3	13.575
SSEE/SPECTRAL	2	40.103	3	51.000	3	51.000
MIDS	2	6.769	3	10.356	3	10.563
MK 53 NULKA	2	4.437	3	6.789	3	6.926
TSA ANTENNA	2	3.534	3	5.408	3	5.515
Major Items Subtotal		74.657		103.869		104.923
Other Cost Elements						
MISC. ELECTRONICS	2	37.051	3	63.678	3	64.952
Other Cost Elements Subtotal		37.051		63.678		64.952
Total Electronics		379.000		576.510		607.388
Remarks: FY20 reflects the addition of the Multi-Function Towed Array (MFTA) sensor along with the Handling and Stowage Gear (H&SG) as part of in-line construction of new DDG-51 class ships.						

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Exhibit P-8a, Analysis of Ship Cost Estimates: PB 2020 Navy					Date: March 2019	
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1			P-1 Line Item Number / Title: 2122 / DDG-51			
Hull, Mechanical, and Electrical (HM&E)	FY 2018		FY 2019		FY 2020	
	Qty (Each)	Total Cost (\$ M)	Qty (Each)	Total Cost (\$ M)	Qty (Each)	Total Cost (\$ M)
P-35 Items						
STC 3 IVCS	2	15.227	3	23.298	3	23.765
Main Reduction Gear	2	74.620	3	114.168	3	116.451
P-35 Items Subtotal		89.847		137.466		140.216
Major Items						
Machinery Control System	2	10.622	3	16.251	3	16.576
Integrated Bridge Navigation System	2	9.164	3	14.021	3	14.301
CYBER BDC	2	7.600	3	11.300	3	9.000
Major Items Subtotal		27.386		41.572		39.877
Other Cost Elements						
MISC. HM&E	2	44.367	3	45.262	3	46.167
Other Cost Elements Subtotal		44.367		45.262		46.167
Total Hull, Mechanical, and Electrical (HM&E)		161.600		224.300		226.260
Remarks: FY18 and future years include the introduction of the Boundary Defense Capability (BDC) and cyber Situational Awareness (SA) capability for core H,M&E systems on new construction DDG-51 ships. FY18 and FY19 Cyber BDC includes efforts for cabinet qualifications, Technical Data Package (TDP) updates, and installation support services for implementation in DDG 51 new construction.						

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Exhibit P-8a, Analysis of Ship Cost Estimates: PB 2020 Navy	Date: March 2019
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Appropriation / Budget Activity / Budget Sub Activity:
1611N / 02 / 1

P-1 Line Item Number / Title:
2122 / DDG-51

Ordnance	FY 2018		FY 2019		FY 2020	
	Qty (Each)	Total Cost (\$ M)	Qty (Each)	Total Cost (\$ M)	Qty (Each)	Total Cost (\$ M)
P-35 Items						
AEGIS WEAPON SYSTEM (MK-7)	2	267.267	3	390.356	3	398.163
AN/SPY-6 (AMDR)	1	198.103	3	499.466	3	497.700
VLS MK 41	2	106.748	3	163.190	3	166.454
MK 45 Light Weight Gun (LWG)	2	52.880	3	80.907	3	82.526
MK 37 TOMAHAWK	2	26.003	3	39.785	3	40.580
PHALANX (CIWS)	2	16.901	3	25.859	3	26.376
SPQ-9B Radar	2	19.105	3	29.231	3	29.816
P-35 Items Subtotal		687.007		1,228.794		1,241.615
Major Items						
MK 32 Surface Vessel Torpedo Tubes (SVTT)	2	6.101	3	9.335	3	9.520
ELECTRO-OPTICAL SYSTEM	2	6.456	3	9.878	3	10.075
MK 160 Gun Fire Control System (GFCS)	2	6.714	3	10.272	3	10.477
Major Items Subtotal		19.271		29.485		30.072
Other Cost Elements						
MISC. ORDNANCE	2	159.122	3	198.721	3	195.521
Other Cost Elements Subtotal		159.122		198.721		195.521
Total Ordnance		865.400		1,457.000		1,467.208

Remarks:

\$142 million was removed in FY 18 due to an additional AMDR shipset from the FY 16 ships (not Flight IIA) that was excess to need in FY 16. This shipset will be installed on one of the FY 18 ships.

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Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy						Date: March 2019																																
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1				P-1 Line Item Number / Title: 2122 / DDG-51																																		
Equipment Item: SQQ 89 ASW						PARM Code: N/A																																
P-35 Category	FY 2018		FY 2019		FY 2020																																	
	Qty (Each)	Total Cost (\$ M)	Qty (Each)	Total Cost (\$ M)	Qty (Each)	Total Cost (\$ M)																																
Major Hardware	2	47.373	3	72.480	3	94.629																																
Spares		1.008		1.542		1.573																																
System Engineering		8.460		12.944		13.203																																
Technical Engineering Services		4.913		7.518		7.668																																
Other Costs		19.939		30.507		31.118																																
Total	2	81.693	3	124.991	3	148.191																																
Description: Detect, classify, localize and track submerged submarines under all environmental conditions at long range from ASW ships, using bottom reflected and convergence zone acoustic paths. Starting in FY20, the Multi-Function Towed Array (MFTA) sensor along with the Handling and Stowage Gear (H&SG) is included as part of in-line construction of new DDG-51 class ships.																																						
Contract Data: <table border="1" style="width: 100%; border-collapse: collapse; margin-top: 5px;"> <tr> <th>Program Year</th> <th>Hull</th> <th>Prime Contractor</th> <th>Contract Method/Type</th> <th>Award Date</th> <th>New/Option</th> <th>Quantity (Each)</th> <th>Unit Cost (\$ M)</th> </tr> <tr> <td>FY 2018</td> <td>DDG 128</td> <td>LOCKHEED MARTIN</td> <td>C/FFP</td> <td>Sep 2018</td> <td>Option</td> <td>2</td> <td>23.687</td> </tr> <tr> <td>FY 2019</td> <td>DDG 130</td> <td>LOCKHEED MARTIN</td> <td>C/FFP</td> <td>Mar 2019</td> <td>Option</td> <td>3</td> <td>24.160</td> </tr> <tr> <td>FY 2020</td> <td>DDG 133</td> <td>LOCKHEED MARTIN</td> <td>C/FFP</td> <td>Mar 2020</td> <td>Option</td> <td>3</td> <td>31.543</td> </tr> </table>							Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost (\$ M)	FY 2018	DDG 128	LOCKHEED MARTIN	C/FFP	Sep 2018	Option	2	23.687	FY 2019	DDG 130	LOCKHEED MARTIN	C/FFP	Mar 2019	Option	3	24.160	FY 2020	DDG 133	LOCKHEED MARTIN	C/FFP	Mar 2020	Option	3	31.543
Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost (\$ M)																															
FY 2018	DDG 128	LOCKHEED MARTIN	C/FFP	Sep 2018	Option	2	23.687																															
FY 2019	DDG 130	LOCKHEED MARTIN	C/FFP	Mar 2019	Option	3	24.160																															
FY 2020	DDG 133	LOCKHEED MARTIN	C/FFP	Mar 2020	Option	3	31.543																															
Delivery Date: <table border="1" style="width: 100%; border-collapse: collapse; margin-top: 5px;"> <tr> <th>Program Year</th> <th>Hull</th> <th>Earliest Ship Delivery Date</th> <th>Months Required Before Delivery</th> <th>Production Leadtime</th> <th>Required Award Date</th> </tr> <tr> <td>FY 2018</td> <td>DDG 128</td> <td>Oct 2024</td> <td>26</td> <td>24</td> <td>Aug 2020</td> </tr> <tr> <td>FY 2019</td> <td>DDG 130</td> <td>Jul 2025</td> <td>26</td> <td>24</td> <td>May 2021</td> </tr> <tr> <td>FY 2020</td> <td>DDG 133</td> <td>Nov 2026</td> <td>26</td> <td>24</td> <td>Sep 2022</td> </tr> </table>							Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date	FY 2018	DDG 128	Oct 2024	26	24	Aug 2020	FY 2019	DDG 130	Jul 2025	26	24	May 2021	FY 2020	DDG 133	Nov 2026	26	24	Sep 2022								
Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date																																	
FY 2018	DDG 128	Oct 2024	26	24	Aug 2020																																	
FY 2019	DDG 130	Jul 2025	26	24	May 2021																																	
FY 2020	DDG 133	Nov 2026	26	24	Sep 2022																																	
Competition/Second Source Initiatives: Competitive																																						

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Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy	Date: March 2019
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Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1	P-1 Line Item Number / Title: 2122 / DDG-51
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Equipment Item: AN/SLQ-32 (V)6 SEWIP	PARM Code: N/A
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P-35 Category	FY 2018		FY 2019		FY 2020	
	Qty (Each)	Total Cost (\$ M)	Qty (Each)	Total Cost (\$ M)	Qty (Each)	Total Cost (\$ M)
Major Hardware	2	26.611	3	40.715	3	41.529
Spares		0.757		1.158		1.182
System Engineering		1.836		2.810		2.865
Technical Engineering Services		0.267		0.408		0.417
Other Costs		1.834		2.806		2.862
Total	2	31.305	3	47.897	3	48.855

Description:

SLQ-32(V)6 Surface Electronic Warfare Improvement Program (SEWIP) provides the DDG 51 Class Destroyers with the electronic warfare capability of automatically detecting, sorting, classifying, tracking, engaging and continually displaying emitter and platform densities.

Contract Data:

Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost (\$ M)
FY 2018	DDG 128	LM/GD-AIS	C/FFP	Mar 2018	Option	2	13.306
FY 2019	DDG 130	LM/GD-AIS	C/FFP	Mar 2019	Option	3	13.572
FY 2020	DDG 133	COMPETITIVE	C/FFP	Mar 2020	New	3	13.843

Delivery Date:

Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date
FY 2018	DDG 128	Oct 2024	28	16	Feb 2021
FY 2019	DDG 130	Jul 2025	28	16	Nov 2021
FY 2020	DDG 133	Nov 2026	28	16	Mar 2023

Competition/Second Source Initiatives:

Competitive

UNCLASSIFIED

Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy	Date: March 2019
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Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1	P-1 Line Item Number / Title: 2122 / DDG-51
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Equipment Item: USQ 82(V) GEDMS	PARM Code: N/A
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P-35 Category	FY 2018		FY 2019		FY 2020	
	Qty (Each)	Total Cost (\$ M)	Qty (Each)	Total Cost (\$ M)	Qty (Each)	Total Cost (\$ M)
Major Hardware	2	15.101	3	23.105	3	23.567
Technical Data and Documentation		1.343		2.055		2.096
System Engineering		3.255		4.980		5.081
Technical Engineering Services		0.549		0.840		0.856
Other Costs		7.984		12.216		12.460
Total	2	28.232	3	43.196	3	44.060

Description:

Gigabit Ethernet Data Multiplex System (GEDMS) is the mission critical ship-wide network that transfers data associated with Machinery, Steering, Navigation, Combat, Alarms & Indicating, and Damage Control Systems. It is a general purpose modular data transfer system that provides high speed, reliable and survivable data from source systems to user systems automatically or on demand.

Contract Data:

Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost (\$ M)
FY 2018	DDG 128	BOEING/DRS	C/FFP	Jan 2018	Option	2	7.551
FY 2019	DDG 130	BOEING/DRS	C/FFP	Mar 2019	Option	3	7.702
FY 2020	DDG 133	BOEING/DRS	C/FFP	Mar 2020	Option	3	7.856

Delivery Date:

Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date
FY 2018	DDG 128	Oct 2024	25	16	May 2021
FY 2019	DDG 130	Jul 2025	25	16	Feb 2022
FY 2020	DDG 133	Nov 2026	25	16	Jun 2023

Competition/Second Source Initiatives:

Competitive

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Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy						Date: March 2019	
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1				P-1 Line Item Number / Title: 2122 / DDG-51			
Equipment Item: EXCOMM						PARM Code: N/A	

P-35 Category	FY 2018		FY 2019		FY 2020	
	Qty (Each)	Total Cost (\$ M)	Qty (Each)	Total Cost (\$ M)	Qty (Each)	Total Cost (\$ M)
Major Hardware	2	60.043	3	91.866	3	93.508
Technical Data and Documentation		0.240		0.368		0.375
Spares		0.554		0.848		0.863
System Engineering		6.249		9.561		9.732
Technical Engineering Services		3.647		5.580		5.679
Other Costs		11.808		18.066		18.389
Assembly & Integration		17.894		27.378		27.867
Total	2	100.435	3	153.667	3	156.413

Description:
 The Exterior Communication System (EXCOMM) provides voice, data, teletypewriter (TTY), continuous wave (CW), and other communication services on designated frequencies from VLF to UHF for tactical and record requirements. It includes all external radio communication devices aboard the ship.

Contract Data:

Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost (\$ M)
FY 2018	DDG 128	VARIOUS	Various	Various	Various	2	30.022
FY 2019	DDG 130	VARIOUS	Various	Various	Various	3	30.622
FY 2020	DDG 133	VARIOUS	Various	Various	Various	3	31.169

Delivery Date:

Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date
FY 2018	DDG 128	Oct 2024	15	24	Jul 2021
FY 2019	DDG 130	Jul 2025	15	24	Apr 2022
FY 2020	DDG 133	Nov 2026	15	24	Aug 2023

Competition/Second Source Initiatives:
 Numerous contract arrangements (sole source/competitive)

Remarks:
 There are numerous components and contracts resulting in various award dates.

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Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy						Date: March 2019	
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1				P-1 Line Item Number / Title: 2122 / DDG-51			
Equipment Item: AN/UPX 29(V) IFF and TACAN						PARM Code: N/A	
P-35 Category	FY 2018		FY 2019		FY 2020		
	Qty (Each)	Total Cost (\$ M)	Qty (Each)	Total Cost (\$ M)	Qty (Each)	Total Cost (\$ M)	
Major Hardware	2	12.510	3	19.140	3	19.522	
Spares		0.157		0.240		0.244	
System Engineering		0.758		1.160		1.184	
Technical Engineering Services		0.319		0.489		0.498	
Other Costs		0.808		1.236		1.262	
Total	2	14.552	3	22.265	3	22.710	
Description: The UPX-29 Interrogator System is a centralized Mark XIIA interrogator and target processor. It employs a cooperative challenge and reply technique to positively identify friendly platforms. The system is capable of interrogating Mark XII, Mark XIIA, International Civil Aviation Organization (ICAO), or Federal Aviation Administration (FAA)-compliant IFF transponders using a standard shipboard interrogator set, a target processor, and an Electronically Steerable Antenna (ESA) system. TACAN is a navigational beacon system that provides azimuth, slant range, and station identification information to TACAN equipped aircraft, permitting 24/7, all weather landing operations.							
Contract Data:							
Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost (\$ M)
FY 2018	DDG 128	BAE	SS/FFP	Jan 2019	New	2	6.255
FY 2019	DDG 130	BAE	SS/FFP	Jan 2019	Option	3	6.380
FY 2020	DDG 133	BAE	SS/FFP	Jul 2020	Option	3	6.507
Delivery Date:							
Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date		
FY 2018	DDG 128	Oct 2024	26	24	Aug 2020		
FY 2019	DDG 130	Jul 2025	26	24	May 2021		
FY 2020	DDG 133	Nov 2026	26	24	Sep 2022		
Competition/Second Source Initiatives: N/A							

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Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy						Date: March 2019	
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1				P-1 Line Item Number / Title: 2122 / DDG-51			
Equipment Item: CEC						PARM Code: N/A	
P-35 Category	FY 2018		FY 2019		FY 2020		
	Qty (Each)	Total Cost (\$ M)	Qty (Each)	Total Cost (\$ M)	Qty (Each)	Total Cost (\$ M)	
Major Hardware	2	9.485	3	14.513	3	14.802	
System Engineering		0.486		0.744		0.759	
Technical Engineering Services		0.348		0.533		0.543	
Other Costs		0.756		1.157		1.180	
Total	2	11.075	3	16.947	3	17.284	
Description: Cooperative Engagement Capability (CEC) is a sensor netting system which distributes sensor data from each CEC equipped ship, aircraft, and/or Cooperating Unit (CU), to all other CUs in the battle force through a real-time, line of sight, high data rate sensor and engagement data distribution network.							
Contract Data:							
Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost (\$ M)
FY 2018	DDG 128	DRS	C/FFP	Jul 2018	Option	2	4.743
FY 2019	DDG 130	DRS	C/FFP	Mar 2019	Option	3	4.838
FY 2020	DDG 133	DRS	C/FFP	Mar 2020	Option	3	4.934
Delivery Date:							
Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date		
FY 2018	DDG 128	Oct 2024	25	18	Mar 2021		
FY 2019	DDG 130	Jul 2025	25	18	Dec 2021		
FY 2020	DDG 133	Nov 2026	25	18	Apr 2023		
Competition/Second Source Initiatives: Competitive							

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Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy						Date: March 2019	
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1				P-1 Line Item Number / Title: 2122 / DDG-51			
Equipment Item: STC 3 IVCS						PARM Code: N/A	
P-35 Category	FY 2018		FY 2019		FY 2020		
	Qty <i>(Each)</i>	Total Cost <i>(\$ M)</i>	Qty <i>(Each)</i>	Total Cost <i>(\$ M)</i>	Qty <i>(Each)</i>	Total Cost <i>(\$ M)</i>	
Major Hardware	2	9.798	3	14.991	3	15.292	
Spares		0.529		0.810		0.825	
System Engineering		1.842		2.819		2.874	
Technical Engineering Services		0.470		0.719		0.734	
Other Costs		2.588		3.959		4.040	
Total	2	15.227	3	23.298	3	23.765	
Description: A solid state integrated voice communication system (IVCS) for application with the AEGIS combat system.							
Contract Data:							
Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity <i>(Each)</i>	Unit Cost <i>(\$ M)</i>
FY 2018	DDG 128	DRS	C/FFP	Aug 2018	Option	2	4.899
FY 2019	DDG 130	DRS	C/FFP	Jul 2019	Option	3	4.997
FY 2020	DDG 133	DRS	C/FFP	Jul 2020	Option	3	5.097
Delivery Date:							
Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date		
FY 2018	DDG 128	Oct 2024	31	12	Mar 2021		
FY 2019	DDG 130	Jul 2025	31	12	Dec 2021		
FY 2020	DDG 133	Nov 2026	31	12	Apr 2023		
Competition/Second Source Initiatives: N/A							

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Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy	Date: March 2019
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Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1	P-1 Line Item Number / Title: 2122 / DDG-51
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Equipment Item: Main Reduction Gear	PARM Code: N/A
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P-35 Category	FY 2018		FY 2019		FY 2020	
	Qty (Each)	Total Cost (\$ M)	Qty (Each)	Total Cost (\$ M)	Qty (Each)	Total Cost (\$ M)
Major Hardware	2	68.432	3	108.088	3	110.014
System Engineering		-		-		-
Technical Engineering Services		6.188		6.080		6.437
Total	2	74.620	3	114.168	3	116.451

Description:

The contractor will engineer, manufacture, test and deliver a fully operational DDG 51 Main Reduction Gear (MRG). A DDG 51 Class MRG shipset consists of two gear assemblies. Each reduction gear combines the input of two LM2500 engines to convert the high speed, low torque of the engine to low speed, high torque output suitable to drive the propulsion shafting, and the related support systems and equipment.

Contract Data:

Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost (\$ M)
FY 2018	DDG 128	TIMKEN	C/FFP	May 2018	Option	2	34.216
FY 2019	DDG 130	TIMKEN	C/FFP	Mar 2019	Option	3	36.029
FY 2020	DDG 133	TIMKEN	C/FFP	Mar 2020	Option	3	36.671

Delivery Date:

Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date
FY 2018	DDG 128	Oct 2024	32	32	Jun 2019
FY 2019	DDG 130	Jul 2025	32	32	Mar 2020
FY 2020	DDG 133	Nov 2026	32	32	Jul 2021

Competition/Second Source Initiatives:

Competitive

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Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy					Date: March 2019																																	
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1				P-1 Line Item Number / Title: 2122 / DDG-51																																		
Equipment Item: AEGIS WEAPON SYSTEM (MK-7)					PARM Code: N/A																																	
P-35 Category	FY 2018		FY 2019		FY 2020																																	
	Qty (Each)	Total Cost (\$ M)	Qty (Each)	Total Cost (\$ M)	Qty (Each)	Total Cost (\$ M)																																
Major Hardware	2	156.763	3	227.855	3	232.412																																
System Engineering		1.768		2.705		2.759																																
Technical Engineering Services		1.664		2.546		2.597																																
Other Costs		12.882		13.140		13.402																																
Logistics Support		20.214		30.927		31.546																																
Combat System Integration		73.976		113.183		115.447																																
Total	2	267.267	3	390.356	3	398.163																																
Description: AEGIS is a fast reaction, high firepower, all weather weapon system incorporating a high degree of system availability and effectiveness. It consists of a multi-function phase/plane array radar, high powered illuminators, advanced missile guidance and fully digitized and integrated combat ship control for radar, weapons and command and decision. An Operational Readiness Test System performs continuous on-line assessment and fault detection.																																						
Contract Data: <table border="1" style="width:100%; border-collapse: collapse; margin-top: 5px;"> <tr> <th>Program Year</th> <th>Hull</th> <th>Prime Contractor</th> <th>Contract Method/Type</th> <th>Award Date</th> <th>New/Option</th> <th>Quantity (Each)</th> <th>Unit Cost (\$ M)</th> </tr> <tr> <td>FY 2018</td> <td>DDG 128</td> <td>LM/ RTN/ GD</td> <td>Various</td> <td>Mar 2019</td> <td>New</td> <td align="center">2</td> <td align="right">78.382</td> </tr> <tr> <td>FY 2019</td> <td>DDG 130</td> <td>LM/ RTN/ GD</td> <td>Various</td> <td>Mar 2019</td> <td>Option</td> <td align="center">3</td> <td align="right">75.952</td> </tr> <tr> <td>FY 2020</td> <td>DDG 133</td> <td>LM/ RTN/ GD</td> <td>Various</td> <td>Mar 2019</td> <td>Option</td> <td align="center">3</td> <td align="right">77.471</td> </tr> </table>							Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost (\$ M)	FY 2018	DDG 128	LM/ RTN/ GD	Various	Mar 2019	New	2	78.382	FY 2019	DDG 130	LM/ RTN/ GD	Various	Mar 2019	Option	3	75.952	FY 2020	DDG 133	LM/ RTN/ GD	Various	Mar 2019	Option	3	77.471
Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost (\$ M)																															
FY 2018	DDG 128	LM/ RTN/ GD	Various	Mar 2019	New	2	78.382																															
FY 2019	DDG 130	LM/ RTN/ GD	Various	Mar 2019	Option	3	75.952																															
FY 2020	DDG 133	LM/ RTN/ GD	Various	Mar 2019	Option	3	77.471																															
Delivery Date: <table border="1" style="width:100%; border-collapse: collapse; margin-top: 5px;"> <tr> <th>Program Year</th> <th>Hull</th> <th>Earliest Ship Delivery Date</th> <th>Months Required Before Delivery</th> <th>Production Leadtime</th> <th>Required Award Date</th> </tr> <tr> <td>FY 2018</td> <td>DDG 128</td> <td>Oct 2024</td> <td align="center">20</td> <td align="center">36</td> <td align="center">Feb 2020</td> </tr> <tr> <td>FY 2019</td> <td>DDG 130</td> <td>Jul 2025</td> <td align="center">20</td> <td align="center">36</td> <td align="center">Nov 2020</td> </tr> <tr> <td>FY 2020</td> <td>DDG 133</td> <td>Nov 2026</td> <td align="center">20</td> <td align="center">36</td> <td align="center">Mar 2022</td> </tr> </table>							Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date	FY 2018	DDG 128	Oct 2024	20	36	Feb 2020	FY 2019	DDG 130	Jul 2025	20	36	Nov 2020	FY 2020	DDG 133	Nov 2026	20	36	Mar 2022								
Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date																																	
FY 2018	DDG 128	Oct 2024	20	36	Feb 2020																																	
FY 2019	DDG 130	Jul 2025	20	36	Nov 2020																																	
FY 2020	DDG 133	Nov 2026	20	36	Mar 2022																																	
Competition/Second Source Initiatives: Multiple contract arrangements (sole source/competitive)																																						
Remarks: Contract Data Notes: AWS Antenna and Signal Processors - Contractor: Lockheed Martin AWS Spy Transmitter and Fire Control System Transmitter - Contractor: Raytheon AWS Director/Director Controller - Contractor: General Dynamics																																						

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Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy	Date: March 2019
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Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1	P-1 Line Item Number / Title: 2122 / DDG-51
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Equipment Item: AN/SPY-6 (AMDR)	PARM Code: N/A
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P-35 Category	FY 2018		FY 2019		FY 2020	
	Qty (Each)	Total Cost (\$ M)	Qty (Each)	Total Cost (\$ M)	Qty (Each)	Total Cost (\$ M)
Major Hardware	1	136.552	3	396.955	3	401.643
System Engineering		19.792		30.282		30.888
Technical Engineering Services		15.435		23.616		24.089
Other Costs		16.586		33.714		25.884
Logistics		9.738		14.899		15.196
Total	1	198.103	3	499.466	3	497.700

Description:

The AN/SPY-6 Air and Missile Defense Radar (AMDR) suite consists of an S-Band radar (AMDR-S), an X-band radar (via SPQ-9B starting with DDG 119), and a Radar Suite Controller (RSC). AMDR will provide multi-mission capabilities, simultaneously supporting both long range, exoatmospheric detection, tracking and discrimination of ballistic missiles, as well as Area and Self Defense against air and surface threats.

Contract Data:

Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost (\$ M)
FY 2018	DDG 128	RAYTHEON	C/FPIF	Apr 2018	Option	1	136.552
FY 2019	DDG 130	RAYTHEON	C/FPIF	Mar 2019	Option	3	132.318
FY 2020	DDG 133	RAYTHEON	C/FPIF	Dec 2019	Option	3	133.881

Delivery Date:

Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date
FY 2018	DDG 128	Oct 2024	28	24	Jun 2020
FY 2019	DDG 130	Jul 2025	28	24	Mar 2021
FY 2020	DDG 133	Nov 2026	28	24	Jul 2022

Competition/Second Source Initiatives:

Competitive

Remarks:

\$142 million was removed in FY 18 due to an AMDR shipset purchased for an FY16 ship. AMDR is only applicable to Flight III ships. This shipset was ahead of need in FY16 as all 3 FY16 ships are Flight IIA ships. This shipset will be installed on one of the FY 18 ships.

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Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy	Date: March 2019
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Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1	P-1 Line Item Number / Title: 2122 / DDG-51
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Equipment Item: VLS MK 41	PARM Code: N/A
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P-35 Category	FY 2018		FY 2019		FY 2020	
	Qty (Each)	Total Cost (\$ M)	Qty (Each)	Total Cost (\$ M)	Qty (Each)	Total Cost (\$ M)
Major Hardware	2	68.626	3	104.865	3	107.010
Ancillary Equipment		3.191		4.883		4.976
Technical Data and Documentation		0.564		0.863		0.879
System Engineering		14.174		21.686		22.101
Technical Engineering Services		13.070		19.997		20.381
Other Costs		7.123		10.896		11.107
Total	2	106.748	3	163.190	3	166.454

Description:

The VLS is a Missile Launching System which provides Surface Combatants with a launcher to carry, prepare for launch and fire, Anti-Air Warfare, Strike/Surface Warfare, and Anti-Submarine Warfare weapons. The MK-41 VLS Launchers consist of twelve modules comprised of eight cells each.

Contract Data:

Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost (\$ M)
FY 2018	DDG 128	COMPETITIVE	C/FFP	Jun 2019	New	2	34.313
FY 2019	DDG 130	COMPETITIVE	C/FFP	Jun 2019	New	3	34.955
FY 2020	DDG 133	COMPETITIVE	C/FFP	Jun 2019	New	3	35.670

Delivery Date:

Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date
FY 2018	DDG 128	Oct 2024	19	24	Mar 2021
FY 2019	DDG 130	Jul 2025	19	24	Dec 2021
FY 2020	DDG 133	Nov 2026	19	24	Apr 2023

Competition/Second Source Initiatives:

Competitive

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Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy						Date: March 2019	
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1				P-1 Line Item Number / Title: 2122 / DDG-51			
Equipment Item: MK 45 Light Weight Gun (LWG)						PARM Code: N/A	
P-35 Category	FY 2018		FY 2019		FY 2020		
	Qty (Each)	Total Cost (\$ M)	Qty (Each)	Total Cost (\$ M)	Qty (Each)	Total Cost (\$ M)	
Major Hardware	2	39.148	3	59.897	3	61.095	
Spares		0.334		0.510		0.521	
System Engineering		4.731		7.239		7.383	
Technical Engineering Services		2.540		3.887		3.965	
Other Costs		6.127		9.374		9.562	
Total	2	52.880	3	80.907	3	82.526	

Description:
The 5" 62 caliber MK 45 Mod 4 Gun is a digitized high energy system with the capability to automatically select, load and fire different types of 5"/62 caliber projectiles.

Contract Data:

Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost (\$ M)
FY 2018	DDG 128	BAE AD/MCNALLY	Various	Mar 2019	Option	2	19.574
FY 2019	DDG 130	BAE AD/MCNALLY	Various	Mar 2020	Option	3	19.966
FY 2020	DDG 133	BAE AD/MCNALLY	Various	Mar 2021	Option	3	20.365

Delivery Date:

Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date
FY 2018	DDG 128	Oct 2024	25	24	Sep 2020
FY 2019	DDG 130	Jul 2025	25	24	Jun 2021
FY 2020	DDG 133	Nov 2026	25	24	Oct 2022

Competition/Second Source Initiatives:
Sole Source

Remarks:
Contract Data notes:
Gun Mount contract: BAE Armament Division - Sole Source
Lower Hoist contract: McNally - Sole Source

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Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy	Date: March 2019
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Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1	P-1 Line Item Number / Title: 2122 / DDG-51
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Equipment Item: MK 37 TOMAHAWK	PARM Code: N/A
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P-35 Category	FY 2018		FY 2019		FY 2020	
	Qty (Each)	Total Cost (\$ M)	Qty (Each)	Total Cost (\$ M)	Qty (Each)	Total Cost (\$ M)
Major Hardware	2	8.940	3	13.679	3	13.950
Spares		1.454		2.225		2.270
System Engineering		4.523		6.920		7.059
Technical Engineering Services		4.296		6.573		6.705
Other Costs		6.790		10.388		10.596
Total	2	26.003	3	39.785	3	40.580

Description:

The Tactical Tomahawk Weapon Control System (TTWCS) is an open system architecture of work stations, processors, printers, fiber optic Local Area Network (LAN) and the Navy Standard Mass Measurement storage device which provides target data management, engagement planning, weapon selection and initiation and launch functions for the TOMAHAWK cruise missile.

Contract Data:

Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost (\$ M)
FY 2018	DDG 128	NSWC PT HUENEME	WR	Apr 2019	Various	2	4.470
FY 2019	DDG 130	NSWC PT HUENEME	WR	Apr 2020	Various	3	4.560
FY 2020	DDG 133	NSWC PT HUENEME	WR	Apr 2021	Various	3	4.650

Delivery Date:

Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date
FY 2018	DDG 128	Oct 2024	31	12	Mar 2021
FY 2019	DDG 130	Jul 2025	31	12	Dec 2021
FY 2020	DDG 133	Nov 2026	31	12	Apr 2023

Competition/Second Source Initiatives:

Navy construction

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Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy	Date: March 2019
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Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1	P-1 Line Item Number / Title: 2122 / DDG-51
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Equipment Item: PHALANX (CIWS)	PARM Code: N/A
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P-35 Category	FY 2018		FY 2019		FY 2020	
	Qty (Each)	Total Cost (\$ M)	Qty (Each)	Total Cost (\$ M)	Qty (Each)	Total Cost (\$ M)
Major Hardware	2	12.524	3	19.161	3	19.547
System Engineering		0.847		1.296		1.321
Technical Engineering Services		1.516		2.319		2.366
Other Costs		2.014		3.083		3.142
Total	2	16.901	3	25.859	3	26.376

Description:

Phalanx Close-In Weapon System (CIWS) provides fast reaction terminal defense against anti-ship missiles, aircraft, helicopters, low-slow flyers (e.g. unmanned aerial vehicles) and surface threats. The system is an automatic, self-contained unit consisting of search/track radar, threat evaluation and fire control subsystem, and a 20 mm M61A1 Gatling gun subsystem all mounted in a single structure requiring a minimum of integration with other ship systems.

Contract Data:

Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost (\$ M)
FY 2018	DDG 128	RAYTHEON	SS/FFP	Sep 2018	Option	2	6.262
FY 2019	DDG 130	RAYTHEON	SS/FFP	Apr 2019	New	3	6.387
FY 2020	DDG 133	RAYTHEON	SS/FFP	Apr 2020	Option	3	6.516

Delivery Date:

Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date
FY 2018	DDG 128	Oct 2024	21	24	Jan 2021
FY 2019	DDG 130	Jul 2025	21	24	Oct 2021
FY 2020	DDG 133	Nov 2026	21	24	Feb 2023

Competition/Second Source Initiatives:

Sole Source

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Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy						Date: March 2019	
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1				P-1 Line Item Number / Title: 2122 / DDG-51			
Equipment Item: SPQ-9B Radar						PARM Code: N/A	

P-35 Category	FY 2018		FY 2019		FY 2020	
	Qty (Each)	Total Cost (\$ M)	Qty (Each)	Total Cost (\$ M)	Qty (Each)	Total Cost (\$ M)
Major Hardware	2	16.162	3	24.728	3	25.223
Spares		0.212		0.324		0.332
System Engineering		0.843		1.290		1.315
Technical Engineering Services		0.896		1.371		1.398
Other Costs		0.992		1.518		1.548
Total	2	19.105	3	29.231	3	29.816

Description:
The AN/SPQ-9B Radar detects and tracks low flying Anti-Ship Missile targets in heavy clutter. The mission of the AN/SPQ-9B includes the capability to detect and classify periscopes with the completion and incorporation of a Periscope Detection and Discrimination (PDD) capability designed to operate concurrently with the AN/SPY-6 capability.

Contract Data:

Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost (\$ M)
FY 2018	DDG 128	DRS	C/FFP	Jul 2018	New	2	8.081
FY 2019	DDG 130	DRS	C/FFP	Mar 2019	Option	3	8.243
FY 2020	DDG 133	DRS	C/FFP	Mar 2020	Option	3	8.408

Delivery Date:

Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date
FY 2018	DDG 128	Oct 2024	26	30	Feb 2020
FY 2019	DDG 130	Jul 2025	26	30	Nov 2020
FY 2020	DDG 133	Nov 2026	26	30	Mar 2022

Competition/Second Source Initiatives:
Competitive

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Exhibit P-10, Advance Procurement Requirements Analysis (page 1 - Budget Funding Justification): PB 2020 Navy							Date: March 2019		
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1				P-1 Line Item Number / Title: 2122 / DDG-51					
First System (2020) Award Date: January 2018		First System (2020) Completion Date: July 2024			Interval Between Systems: 12 Months				
Cost Elements	Production Leadtime (Months)	When Required* (Months)	FY 2018 (\$ M)	FY 2019 (\$ M)	FY 2020 (\$ M)	FY 2021 (\$ M)	FY 2022 (\$ M)	FY 2023 (\$ M)	FY 2024 (\$ M)
SHIP CONSTRUCTION EOQ									
SHIP Construction EOQ FY19 Ships	Various	Various	12.501	-	0.000	-	-	-	-
SHIP Construction EOQ FY20 Ships	Various	Various	12.500	324.157	0.000	-	-	-	-
SHIP Construction EOQ FY21 Ships	Various	Various	12.517	111.492	112.014	-	-	-	-
SHIP Construction EOQ FY22 Ships	Various	Various	12.517	111.492	112.014	-	-	-	-
SHIP Construction EOQ FY23 Ships	-	-	-	-	0.000	-	-	-	-
SHIP Construction EOQ FY24 Ships	Various	Various	-	-	0.000	-	-	140.500	-
SHIP Construction EOQ FY25 Ships	Various	Various	-	-	0.000	-	-	102.700	70.000
SHIP Construction EOQ FY26 Ships	Various	Various	-	-	0.000	-	-	64.600	70.000
SHIP Construction EOQ FY27 Ships	Various	Various	-	-	0.000	-	-	64.600	70.000
<i>Total: SHIP CONSTRUCTION EOQ</i>			<i>50.035</i>	<i>547.141</i>	<i>224.028</i>	<i>-</i>	<i>-</i>	<i>372.400</i>	<i>210.000</i>
VLS Advanced Procurement									
VLS EOQ FY19 Ships	-	-	26.861	-	0.000	-	-	-	-
VLS EOQ FY20 Ships	-	-	13.440	13.563	0.000	-	-	-	-
VLS EOQ FY21 Ships	-	-	-	40.612	0.000	-	-	-	-
VLS EOQ FY22 Ships	-	-	-	40.612	0.000	-	-	-	-
VLS EOQ FY23 Ships	-	-	-	-	0.000	-	-	-	-
VLS EOQ FY24 Ships	-	-	-	-	0.000	-	-	28.000	-
VLS EOQ FY25 Ships	-	-	-	-	0.000	-	-	28.000	-
VLS EOQ FY26 Ships	-	-	-	-	0.000	-	-	28.000	-
VLS EOQ FY27 Ships	-	-	-	-	0.000	-	-	28.000	-
<i>Total: VLS Advanced Procurement</i>			<i>40.301</i>	<i>94.787</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>112.000</i>	<i>-</i>
Total Advance Procurement/Obligation Authority			90.336	641.928	224.028	-	-	484.400	210.000
<p>*Note: "When Required" is the number of months required before ship delivery.</p>									

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Exhibit P-10, Advance Procurement Requirements Analysis (page 2 - Budget Funding Justification): PB 2020 Navy	Date: March 2019
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Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1	P-1 Line Item Number / Title: 2122 / DDG-51
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Cost Elements	FY 2020						
	Production Leadtime <i>(Months)</i>	When Required* <i>(Months)</i>	Unit Cost <i>(\$ M)</i>	Contract Forecast Date	2020 Qty <i>(Each)</i>	For FY	Total Cost Request <i>(\$ M)</i>
SHIP CONSTRUCTION EOQ							
SHIP Construction EOQ FY19 Ships	Various	Various	-		-		0.000
SHIP Construction EOQ FY20 Ships	Various	Various	-		-		0.000
SHIP Construction EOQ FY21 Ships	Various	Various	-	Mar 2020	-	2021	112.014
SHIP Construction EOQ FY22 Ships	Various	Various	-	Mar 2020	-	2022	112.014
SHIP Construction EOQ FY23 Ships	-	-	-		-		0.000
SHIP Construction EOQ FY24 Ships	Various	Various	-		-		0.000
SHIP Construction EOQ FY25 Ships	Various	Various	-		-		0.000
SHIP Construction EOQ FY26 Ships	Various	Various	-		-		0.000
SHIP Construction EOQ FY27 Ships	Various	Various	-		-		0.000
Total: SHIP CONSTRUCTION EOQ							224.028
VLS Advanced Procurement							
VLS EOQ FY19 Ships	-	-	-		-		0.000
VLS EOQ FY20 Ships	-	-	-		-		0.000
VLS EOQ FY21 Ships	-	-	-		-		0.000
VLS EOQ FY22 Ships	-	-	-		-		0.000
VLS EOQ FY23 Ships	-	-	-		-		0.000
VLS EOQ FY24 Ships	-	-	-		-		0.000
VLS EOQ FY25 Ships	-	-	-		-		0.000
VLS EOQ FY26 Ships	-	-	-		-		0.000
VLS EOQ FY27 Ships	-	-	-		-		0.000
Total: VLS Advanced Procurement							-
Total Advance Procurement/Obligation Authority							224.028

Description:
 AP is required for shipbuilder Economic Order Quantity procurements for material items to achieve savings under the FY18-22 MYP and FY23-27 planned/projected MYP contracts and for VLS procurements. Reflects FY19 Congressional Addition of \$250.0 million for FY20 third ship.

*Note: "When Required" is the number of months required before ship delivery.

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Exhibit P-40, Budget Line Item Justification: PB 2020 Navy										Date: March 2019		
Appropriation / Budget Activity / Budget Sub Activity: 1611N: Shipbuilding and Conversion, Navy / BA 02: Other Warships / BSA 1: Other Warships							P-1 Line Item Number / Title: 2127 / Littoral Combat Ship (LCS)					
ID Code (A=Service Ready, B=Not Service Ready): A			Program Elements for Code B Items: N/A				Other Related Program Elements: N/A					
Line Item MDAP/MAIS Code: N/A												
Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity (<i>Units in Each</i>)	27	3	3	-	-	-	-	-	-	-	-	33
Gross/Weapon System Cost (<i>\$ in Millions</i>)	13,661.184	1,566.971	1,571.244	0.000	0.000	0.000	0.000	0.000	0.000	0.000	-	16,799.399
Less PY Advance Procurement (<i>\$ in Millions</i>)	158.900	-	-	-	-	-	-	-	-	-	-	158.900
Less Cost To Complete (<i>\$ in Millions</i>)	456.146	-	-	-	-	-	-	-	-	-	-	456.146
Net Procurement (P-1) (<i>\$ in Millions</i>)	13,046.138	1,566.971	1,571.244	0.000	0.000	0.000	0.000	0.000	0.000	0.000	-	16,184.353
Full Funding TOA (<i>\$ in Millions</i>)	13,046.138	1,566.971	1,571.244	-	-	-	-	-	-	-	-	16,184.353
Plus CY Advance Procurement (<i>\$ in Millions</i>)	158.900	-	-	-	-	-	-	-	-	-	-	158.900
Plus Cost To Complete (<i>\$ in Millions</i>)	245.719	26.853	103.184	14.000	-	14.000	24.860	-	41.530	-	-	456.146
Total Obligation Authority (<i>\$ in Millions</i>)	13,450.757	1,593.824	1,674.428	14.000	0.000	14.000	24.860	0.000	41.530	0.000	-	16,799.399
<i>(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)</i>												
Plus Outfitting and Post Delivery (<i>\$ in Millions</i>)	603.853	137.040	154.539	159.247	-	159.247	130.345	134.359	134.057	136.738	22.922	1,613.100
Total (<i>\$ in Millions</i>)	14,054.610	1,730.864	1,828.967	173.247	-	173.247	155.205	134.359	175.587	136.738	22.922	18,412.499
Gross/Weapon System Unit Cost (<i>\$ in Millions</i>)	505.970	522.324	523.748	-	-	-	-	-	-	-	-	509.073

Description:
Provides for the design, construction, integration, and testing of the Littoral Combat Ship (LCS) including ordnance, government furnished equipment (GFE), plans and change order costs.

LCS: Operates with focused-mission packages that deploy manned and unmanned vehicles to execute a variety of missions, including anti-submarine warfare (ASW), surface warfare (SUW), and mine countermeasures (MCM). LCS also possesses inherent capabilities, regardless of the mission package installed, including intelligence, surveillance, and reconnaissance (ISR), anti-terrorism/force protection (AT/FP), air warfare self-defense, joint littoral mobility, and logistic support for movement of personnel and supplies. LCS SUW ships will also include maritime interdiction/interception operations (MIO). This relatively small, shallow-draft, high-speed surface combatant complements the U.S. Navy's Surface Fleet by operating in environments where it is impossible or undesirable to employ larger deeper-draft, multi-mission ships. LCS can deploy independently to overseas littoral regions or remain on station for extended periods of time either with a battle group or through a forward-basing arrangement. LCS will operate with Carrier Strike Groups, Surface Action Groups, or independently as dictated by the mission and environment. Additionally, LCS can operate cooperatively with the U.S. Coast Guard and Allies.

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Exhibit P-40, Budget Line Item Justification: PB 2020 Navy						Date: March 2019		
Appropriation / Budget Activity / Budget Sub Activity: 1611N: Shipbuilding and Conversion, Navy / BA 02: Other Warships / BSA 1: Other Warships				P-1 Line Item Number / Title: 2127 / Littoral Combat Ship (LCS)				
ID Code (A=Service Ready, B=Not Service Ready): A			Program Elements for Code B Items: N/A			Other Related Program Elements: N/A		
Line Item MDAP/MAIS Code: N/A								
Characteristics:	LM	AUSTAL	Systems:					
Length Overall	115.3m	127.6m	Electronics		Ordnance			
Beam	17.5m	31.6m	-NAVY MULTIBAND TERMINAL (NMT)		-SEARAM			
Displacement	3089 mt	2842 mt						
Draft	4.3m	4.4m						
Production Status:	LCS 17	LCS 20	LCS 19	LCS 22	LCS 21	LCS 24	LCS 23	
Contract Award Date	Mar 2014	Mar 2014	Mar 2014	Mar 2015	Mar 2015	Mar 2015	Nov 2015	
Months to Completion								
a) Award to Delivery	64 months	64 months	71 months	53 months	67 months	61 months	67 months	
b) Construction Start to Delivery	47 months	41 months	42 months	32 months	44 months	33 months	45 months	
Delivery Date	Jul 2019	Jul 2019	Feb 2020	Aug 2019	Oct 2020	Apr 2020	Jun 2021	
Completion Of Fitting Out	Apr 2020	Feb 2020	Oct 2020	Jun 2020	Aug 2021	Jan 2021	Feb 2022	
Obligation Work Limit Date	Mar 2021	Nov 2020	Sep 2021	May 2021	Jul 2022	Dec 2021	Jan 2023	
Production Status:	LCS 26	LCS 25	LCS 28	LCS 27	LCS 30	LCS 32	LCS 29	
Contract Award Date	Mar 2016	Mar 2016	Jun 2017	Oct 2017	Oct 2017	Sep 2018	Sep 2018	
Months to Completion								
a) Award to Delivery	56 months	71 months	55 months	60 months	60 months	60 months	60 months	
b) Construction Start to Delivery	34 months	48 months	39 months	47 months	41 months	46 months	45 months	
Delivery Date	Nov 2020	Feb 2022	Jan 2022	Oct 2022	Oct 2022	Sep 2023	Sep 2023	
Completion Of Fitting Out	Aug 2021	Oct 2022	Oct 2022	Jun 2023	Jul 2023	Jun 2024	Jun 2024	
Obligation Work Limit Date	Jul 2022	Sep 2023	Sep 2023	May 2024	Jun 2024	May 2025	May 2025	
Production Status:	LCS 34	LCS 36	LCS 38	LCS 31				
Contract Award Date	Sep 2018	Dec 2018	Dec 2018	Jan 2019				
Months to Completion								
a) Award to Delivery	60 months	60 months	66 months	60 months				
b) Construction Start to Delivery	43 months	43 months	43 months	43 months				
Delivery Date	Sep 2023	Dec 2023	Jun 2024	Jan 2024				
Completion Of Fitting Out	Jun 2024	Sep 2024	Mar 2025	Oct 2024				
Obligation Work Limit Date	May 2025	Aug 2025	Feb 2026	Sep 2025				
Design Schedule			Start / Issue	Complete / Response	Reissue	Reissue Complete / Response		
Issue Date for TLR			N/A	N/A				
Issue Date for TLS			N/A	N/A				
Preliminary Design			Jul 2003	Dec 2003				
Contract Design			May 2004	Dec 2004				
Detail Design			Dec 2004	Jun 2007				
Request for Proposals			N/A	Jan 2010				

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Exhibit P-40, Budget Line Item Justification: PB 2020 Navy			Date: March 2019	
Appropriation / Budget Activity / Budget Sub Activity: 1611N: Shipbuilding and Conversion, Navy / BA 02: Other Warships / BSA 1: Other Warships		P-1 Line Item Number / Title: 2127 / Littoral Combat Ship (LCS)		
ID Code (A=Service Ready, B=Not Service Ready): A	Program Elements for Code B Items: N/A		Other Related Program Elements: N/A	
Line Item MDAP/MAIS Code: N/A				
<u>Design Schedule</u> Design Agent	<u>Start / Issue</u> LOCKHEED MARTIN - AUSTAL	<u>Complete / Response</u>	<u>Reissue</u>	<u>Reissue Complete / Response</u>
<u>Classification of Cost Estimate:</u> CLASS C				

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Exhibit P-5c, Ship Cost Analysis: PB 2020 Navy	Date: March 2019
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Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1	P-1 Line Item Number / Title: 2127 / Littoral Combat Ship (LCS)
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Cost Categories <small>(†) indicates the presence of a P-8a</small>	FY 2013		FY 2014		FY 2015		FY 2016		FY 2017		FY 2018		FY 2019	
	Qty (Each)	Total Cost (\$ M)	Qty (Each)	Total Cost (\$ M)	Qty (Each)	Total Cost (\$ M)	Qty (Each)	Total Cost (\$ M)	Qty (Each)	Total Cost (\$ M)	Qty (Each)	Total Cost (\$ M)	Qty (Each)	Total Cost (\$ M)
Plan Costs	4	81.025	4	84.706	3	121.263	3	87.490	3	86.300	3	33.486	3	51.801
Basic Construction/Conversion		1,516.349		1,508.307		1,189.579		1,171.567		1,333.684		1,343.222		1,325.938
Change Orders		64.438		72.896		47.383		33.998		24.000		26.196		26.157
Electronics ^(†)		44.513		45.962		40.831		43.819		46.183		47.014		47.954
Hull, Mechanical, and Electrical (HM&E) ^(†)		14.078		14.318		11.041		11.228		11.419		11.625		11.858
Ordnance ^(†)		33.996		37.759		29.169		29.665		30.169		30.712		31.326
Other Cost		67.038		69.035		71.469		72.684		73.467		74.716		76.210
Total Ship Estimate		1,821.437		1,832.983		1,510.735		1,450.451		1,605.222		1,566.971		1,571.244
Less Advance Procurement FY 2015		-		-		-		80.000		-		-		-
Less Cost to Complete FY 2017		82.400		-		-		-		-		-		-
Less Cost to Complete FY 2018		-		20.471		-		-		-		-		-
Less Cost to Complete FY 2019		-		19.498		83.686		-		-		-		-
Less Cost to Complete FY 2020		-		-		-		14.000		-		-		-
Less Cost to Complete FY 2021		-		-		-		24.860		-		-		-
Less Cost to Complete FY 2023		-		-		-		-		41.530		-		-
Net P-1 Funding		1,739.037		1,793.014		1,427.049		1,331.591		1,563.692		1,566.971		1,571.244

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Exhibit P-27, Ship Production Schedule: PB 2020 Navy	Date: March 2019
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Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1	P-1 Line Item Number / Title: 2127 / Littoral Combat Ship (LCS)
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Ship	Shipbuilder	Fiscal Year	Contract Award	Start of Construction	Delivery Date
LCS 17	LOCKHEED MARTIN	2014	Mar 2014	Aug 2015	Jul 2019
LCS 20	AUSTAL	2014	Mar 2014	Feb 2016	Jul 2019
LCS 19	LOCKHEED MARTIN	2014	Mar 2014	Aug 2016	Feb 2020
LCS 22	AUSTAL	2015	Mar 2015	Dec 2016	Aug 2019
LCS 21	LOCKHEED MARTIN	2015	Mar 2015	Feb 2017	Oct 2020
LCS 24	AUSTAL	2015	Mar 2015	Jul 2017	Apr 2020
LCS 23	LOCKHEED MARTIN	2016	Nov 2015	Sep 2017	Jun 2021
LCS 26	AUSTAL	2016	Mar 2016	Jan 2018	Nov 2020
LCS 25	LOCKHEED MARTIN	2016	Mar 2016	Feb 2018	Feb 2022
LCS 28	AUSTAL	2017	Jun 2017	Oct 2018	Jan 2022
LCS 27	LOCKHEED MARTIN	2017	Oct 2017	Nov 2018	Oct 2022
LCS 30	AUSTAL	2017	Oct 2017	May 2019	Oct 2022
LCS 32	AUSTAL	2018	Sep 2018	Nov 2019	Sep 2023
LCS 29	LOCKHEED MARTIN	2018	Sep 2018	Dec 2019	Sep 2023
LCS 34	AUSTAL	2018	Sep 2018	Feb 2020	Sep 2023
LCS 36	AUSTAL	2019	Dec 2018	May 2020	Dec 2023
LCS 38	AUSTAL	2019	Dec 2018	Nov 2020	Jun 2024
LCS 31	LOCKHEED MARTIN	2019	Jan 2019	Jun 2020	Jan 2024

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Exhibit P-8a, Analysis of Ship Cost Estimates: PB 2020 Navy			Date: March 2019	
Appropriation / Budget Activity / Budget Sub Activity:		P-1 Line Item Number / Title:		
1611N / 02 / 1		2127 / Littoral Combat Ship (LCS)		
Electronics	FY 2018		FY 2019	
	Qty (Each)	Total Cost (\$ M)	Qty (Each)	Total Cost (\$ M)
P-35 Items				
NAVY MULTIBAND TERMINAL (NMT)	3	12.425	3	12.636
P-35 Items Subtotal		12.425		12.636
Major Items				
AN/URC-141 (C) MIDS ON SHIP (MOS)	3	8.406	3	8.549
MULTI-VEHICLE COMMUNICATION SYSTEM (MVCS)	3	5.595	3	5.690
AN/USQ-172(V)5 GLOBAL COMMAND AND CONTROL SYSTEM - MARITIME (GCCS-M)	3	2.302	3	2.341
COMMON DATA LINK MANAGEMENT SYSTEM (CDLMS) Link-11 (C2P)	1	1.241	1	1.266
AN/USQ-144J(V)2 AUTOMATED DIGITAL NETWORK SYSTEM (ADNS)	3	1.974	3	2.008
ELECTRONIC KEY MANAGEMENT SYSTEM (EKMS)/CRYPTO SYSTEM	3	1.842	3	1.873
DS- LOGISTICS MAINTENANCE AUTOMATED INFO SYSTEM - BAR CODE SUPPLY (BCS) NAVY TACTICAL COMMAND SPT SY	3	1.285	3	1.307
Major Items Subtotal		22.645		23.034
Other Cost Elements				
OTHER ELECTRONICS	0	11.944	0	12.284
Other Cost Elements Subtotal		11.944		12.284
Total Electronics		47.014		47.954

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Exhibit P-8a, Analysis of Ship Cost Estimates: PB 2020 Navy			Date: March 2019	
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1		P-1 Line Item Number / Title: 2127 / Littoral Combat Ship (LCS)		
Hull, Mechanical, and Electrical (HM&E)	FY 2018		FY 2019	
	Qty (Each)	Total Cost (\$ M)	Qty (Each)	Total Cost (\$ M)
Major Items				
VISUAL LANDING AIDS (VLA)	3	7.059	3	7.179
AN/SRC-59 SHIPWIDE INTERIOR WIRELESS COMMUNICATION SYSTEM (SIWCS)	3	1.855	3	1.887
TRASH DISPOSAL - SMALL PULPER	3	0.535	3	0.544
JOINT BIOLOGICAL POINT DETECTION SYSTEM (JBPDS)	3	0.480	3	0.488
Major Items Subtotal		9.929		10.098
Other Cost Elements				
OTHER HM&E	0	1.696	0	1.760
Other Cost Elements Subtotal		1.696		1.760
Total Hull, Mechanical, and Electrical (HM&E)		11.625		11.858

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Exhibit P-8a, Analysis of Ship Cost Estimates: PB 2020 Navy			Date: March 2019	
Appropriation / Budget Activity / Budget Sub Activity:		P-1 Line Item Number / Title:		
1611N / 02 / 1		2127 / Littoral Combat Ship (LCS)		
Ordnance	FY 2018		FY 2019	
	Qty (Each)	Total Cost (\$ M)	Qty (Each)	Total Cost (\$ M)
P-35 Items				
SEARAM	3	28.511	3	28.996
P-35 Items Subtotal		28.511		28.996
Major Items				
ORDNANCE HANDLING EQUIPMENT	2	1.390	2	1.413
SMALL ARMS, MACHINE GUNS	3	0.811	3	0.917
Major Items Subtotal		2.201		2.330
Total Ordnance		30.712		31.326

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Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy						Date: March 2019	
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1				P-1 Line Item Number / Title: 2127 / Littoral Combat Ship (LCS)			
Equipment Item: NAVY MULTIBAND TERMINAL (NMT)						PARM Code: PMW170	
P-35 Category	FY 2018		FY 2019				
	Qty (Each)	Total Cost (\$ M)	Qty (Each)	Total Cost (\$ M)			
Major Hardware	3	10.945	3	11.131			
System Engineering		0.197		0.200			
Engr/ILS/Mgmt Spt		0.246		0.250			
Technical Support Services		0.854		0.869			
Program Management		0.183		0.186			
Total	3	12.425	3	12.636			
Description: Navy Multiband Terminal (NMT) radio provides joint interoperable high capability voice, data, and video communications for combatants and Flag-capable ships. It provides the required global connectivity among Fleet units, joint forces, allied and NATO forces, and Naval C4I commands.							
Contract Data:							
Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost (\$ M)
FY 2018	LCS 29	RAYTHEON	SS/FFP	Dec 2017	Option	3	3.648
FY 2019	LCS 36	RAYTHEON	SS/FFP	TBD	Option	3	3.710
Delivery Date:							
Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date		
FY 2018	LCS 29	Sep 2023	21	14	Oct 2020		
FY 2019	LCS 36	Dec 2023	21	14	Jan 2021		
Competition/Second Source Initiatives: N/A							

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Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy						Date: March 2019																									
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1				P-1 Line Item Number / Title: 2127 / Littoral Combat Ship (LCS)																											
Equipment Item: SEARAM						PARM Code: IWS11																									
P-35 Category	FY 2018		FY 2019																												
	Qty <i>(Each)</i>	Total Cost <i>(\$ M)</i>	Qty <i>(Each)</i>	Total Cost <i>(\$ M)</i>																											
Major Hardware	3	24.173	3	24.584																											
Technical Data and Documentation		0.151		0.154																											
System Engineering		1.063		1.081																											
Technical Engineering Services		1.512		1.538																											
Software		0.150		0.153																											
Test & Evaluation		0.910		0.925																											
Program Management		0.552		0.561																											
Total	3	28.511	3	28.996																											
Description: SeaRAM is an Anti-Ship Missile Defense System and is an evolved Close-In Weapon System (CIWS) composed of key attributes of both the existing Phalanx CIWS and the RAM . SeaRAM is designed to extend the battle space of the CIWS and enable the ship to effectively engage multiple targets.																															
Contract Data: <table border="1" style="width:100%; border-collapse: collapse; margin-top: 5px;"> <tr> <th style="text-align: center;">Program Year</th> <th style="text-align: center;">Hull</th> <th style="text-align: center;">Prime Contractor</th> <th style="text-align: center;">Contract Method/Type</th> <th style="text-align: center;">Award Date</th> <th style="text-align: center;">New/Option</th> <th style="text-align: center;">Quantity <i>(Each)</i></th> <th style="text-align: center;">Unit Cost <i>(\$ M)</i></th> </tr> <tr> <td align="center">FY 2018</td> <td align="center">LCS 29</td> <td align="center">RAYTHEON</td> <td align="center">SS/FFP</td> <td align="center">Sep 2018</td> <td align="center">New</td> <td align="center">3</td> <td align="right">8.058</td> </tr> <tr> <td align="center">FY 2019</td> <td align="center">LCS 36</td> <td align="center">RAYTHEON</td> <td align="center">SS/FFP</td> <td align="center">TBD</td> <td align="center">Option</td> <td align="center">3</td> <td align="right">8.195</td> </tr> </table>								Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity <i>(Each)</i>	Unit Cost <i>(\$ M)</i>	FY 2018	LCS 29	RAYTHEON	SS/FFP	Sep 2018	New	3	8.058	FY 2019	LCS 36	RAYTHEON	SS/FFP	TBD	Option	3	8.195
Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity <i>(Each)</i>	Unit Cost <i>(\$ M)</i>																								
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FY 2019	LCS 36	RAYTHEON	SS/FFP	TBD	Option	3	8.195																								
Delivery Date: <table border="1" style="width:100%; border-collapse: collapse; margin-top: 5px;"> <tr> <th style="text-align: center;">Program Year</th> <th style="text-align: center;">Hull</th> <th style="text-align: center;">Earliest Ship Delivery Date</th> <th style="text-align: center;">Months Required Before Delivery</th> <th style="text-align: center;">Production Leadtime</th> <th style="text-align: center;">Required Award Date</th> </tr> <tr> <td align="center">FY 2018</td> <td align="center">LCS 29</td> <td align="center">Sep 2023</td> <td align="center">13</td> <td align="center">22</td> <td align="center">Oct 2020</td> </tr> <tr> <td align="center">FY 2019</td> <td align="center">LCS 36</td> <td align="center">Dec 2023</td> <td align="center">13</td> <td align="center">22</td> <td align="center">Jan 2021</td> </tr> </table>								Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date	FY 2018	LCS 29	Sep 2023	13	22	Oct 2020	FY 2019	LCS 36	Dec 2023	13	22	Jan 2021						
Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date																										
FY 2018	LCS 29	Sep 2023	13	22	Oct 2020																										
FY 2019	LCS 36	Dec 2023	13	22	Jan 2021																										
Competition/Second Source Initiatives: N/A																															
Remarks: N/A																															

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Exhibit P-40, Budget Line Item Justification: PB 2020 Navy										Date: March 2019		
Appropriation / Budget Activity / Budget Sub Activity: 1611N: Shipbuilding and Conversion, Navy / BA 02: Other Warships / BSA 1: Other Warships							P-1 Line Item Number / Title: 2128 / FFG-Frigate					
ID Code (A=Service Ready, B=Not Service Ready): A				Program Elements for Code B Items: N/A				Other Related Program Elements: N/A				
Line Item MDAP/MAIS Code: N/A												
Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity (<i>Units in Each</i>)	-	-	-	1	-	1	2	2	2	2	11	20
Gross/Weapon System Cost (<i>\$ in Millions</i>)	0.000	0.000	0.000	1,281.177	0.000	1,281.177	2,057.027	1,750.434	1,792.095	1,827.937	11,761.465	20,470.135
Less PY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (<i>\$ in Millions</i>)	0.000	0.000	0.000	1,281.177	0.000	1,281.177	2,057.027	1,750.434	1,792.095	1,827.937	11,761.465	20,470.135
Plus CY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority (<i>\$ in Millions</i>)	0.000	0.000	0.000	1,281.177	0.000	1,281.177	2,057.027	1,750.434	1,792.095	1,827.937	11,761.465	20,470.135
<i>(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)</i>												
Plus Outfitting and Post Delivery (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	0.000
Total (<i>\$ in Millions</i>)	-	-	-	1,281.177	-	1,281.177	2,057.027	1,750.434	1,792.095	1,827.937	11,761.465	20,470.135
Gross/Weapon System Unit Cost (<i>\$ in Millions</i>)	-	-	-	1,281.177	-	1,281.177	1,028.514	875.217	896.048	913.969	1,069.224	1,023.507

Description:

The Guided Missile Frigate (FFG(X)) is a more lethal and survivable multi-mission small surface combatant. In FY14, the Navy established the requirements for a lethal and survivable small surface combatant ship (designated as Frigate (FF)), above that of Littoral Combat Ship (LCS), to meet future missions. Based upon the Navy's 2016 Force Structure Assessment resulting in validation of the need for 52 small surface combatants and the need to address increasingly complex threats in the global maritime environment, the Navy reassessed the capabilities required to ensure the Frigate paces future threats. The updated assessment was completed to support establishment of top-level FFG(X) requirements in Summer 2017 and resulted in a Navy approved Capability Development Document (CDD). The CDD is scheduled for JROC-Validation in 2nd Qtr 2019. With FFG(X), the Navy desires to maximize the small surface combatant capabilities in the anti-surface warfare (SUW), anti-submarine warfare (ASW), electromagnetic maneuver warfare (EMW), air warfare (AW) mission areas, and survivability while keeping the ship affordable and as a part of a "high-low" mix of surface ships. The FFG(X) program will continue to refine the cost estimates to support a FY 2020 Detail Design and Construction (DD&C) contract award.

Funds were realigned from Littoral Combat Ship (SCN Line Item 2127) to Frigate (SCN Line Item 2128) beginning in FY 2020.

Characteristics: **TBD**

Length Overall -

Beam -

Displacement -

Draft -

Production Status:

Contract Award Date Jul 2020

Months to Completion

a) Award to Delivery 72 months

b) Construction Start to Delivery 48 months

Delivery Date Jul 2026

Completion Of Fitting Out Oct 2026

Obligation Work Limit Date Sep 2027

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Exhibit P-40, Budget Line Item Justification: PB 2020 Navy			Date: March 2019	
Appropriation / Budget Activity / Budget Sub Activity: 1611N: Shipbuilding and Conversion, Navy / BA 02: Other Warships / BSA 1: Other Warships		P-1 Line Item Number / Title: 2128 / FFG-Frigate		
ID Code (A=Service Ready, B=Not Service Ready): A	Program Elements for Code B Items: N/A		Other Related Program Elements: N/A	
Line Item MDAP/MAIS Code: N/A				
<u>Design Schedule</u> Issue Date for TLR Issue Date for TLS Preliminary Design Contract Design Detail Design Request for Proposals Design Agent	<u>Start / Issue</u> Feb 2017 N/A N/A Feb 2018 Jul 2020 Jul 2019	<u>Complete / Response</u> Oct 2017 N/A N/A May 2019 N/A N/A	<u>Reissue</u>	<u>Reissue Complete / Response</u>
<u>Classification of Cost Estimate:</u>				

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Exhibit P-5c, Ship Cost Analysis: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1		P-1 Line Item Number / Title: 2128 / FFG-Frigate
Cost Categories (†) indicates the presence of a P-8a	FY 2020	
	Qty (Each)	Total Cost (\$ M)
Plan Costs	1	143.476
Basic Construction/Conversion		714.705
Change Orders		30.465
Electronics (†)		279.725
Hull, Mechanical, and Electrical (HM&E) (†)		20.965
Ordnance (†)		43.384
Other Cost		48.457
Total Ship Estimate		1,281.177
Net P-1 Funding		1,281.177

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Exhibit P-27, Ship Production Schedule: PB 2020 Navy				Date: March 2019	
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1			P-1 Line Item Number / Title: 2128 / FFG-Frigate		
Ship	Shipbuilder	Fiscal Year	Contract Award	Start of Construction	Delivery Date
FFG 1	TBD	2020	Jul 2020	Jul 2022	Jul 2026
FFG 2	TBD	2021	Apr 2021	Jan 2023	Jan 2027
FFG 3	TBD	2021	Apr 2021	Jun 2023	Jun 2027
FFG 4	TBD	2022	Apr 2022	Nov 2023	Oct 2027
FFG 5	TBD	2022	Apr 2022	Apr 2024	Mar 2028
FFG 6	TBD	2023	Apr 2023	Oct 2024	Aug 2028
FFG 7	TBD	2023	Apr 2023	Apr 2025	Feb 2029
FFG 8	TBD	2024	Apr 2024	Oct 2025	Jul 2029
FFG 9	TBD	2024	Apr 2024	Apr 2026	Jan 2030

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Exhibit P-8a, Analysis of Ship Cost Estimates: PB 2020 Navy		Date: March 2019	
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1		P-1 Line Item Number / Title: 2128 / FFG-Frigate	
Electronics	FY 2020		
	Qty (Each)	Total Cost (\$ M)	
P-35 Items			
Enterprise Air Surveillance Radar (EASR)	1	60.876	
Frigate Weapon System (FWS)	1	51.530	
Anti-Submarine Warfare (ASW) Combat Suite	1	48.834	
Surface Electronic Warfare Improvement Program (SEWIP) BLK II (SLQ-32(V)6)	1	13.589	
Tactical COMINT System- Spectral	1	11.872	
Cooperative Engagement Capability (CEC)	1	11.095	
External Communication Suite	1	7.396	
Identification Friend or Foe (IFF) UPX-29	1	6.499	
Network Tactical Common Data Link (NTCDL) Variant B	1	5.770	
Consolidated Afloat Network Enterprise System (CANES)	1	5.282	
NIXIE AN/SLQ-25E	1	4.523	
Navy Advanced Extremely High Frequency (AEHF) Multiband Terminal (NMT)(AN/WSC-9(V)1))	1	4.522	
Situation Awareness EO/IR	1	4.487	
Inertial Navigation System (INS) AN/WSN-7(V)1	1	3.841	
P-35 Items Subtotal		240.116	
Major Items			
Next Generation Surface Search Radar (NGSSR)	2	3.134	
Commercial Broadband Satellite Program	1	2.112	
OA-9277A	1	2.104	
Moriah Wind System (MWS) (AN/SMQ-13)	1	1.864	
Major Items Subtotal		9.214	
Other Cost Elements			
Other Electronics	1	30.395	
Other Cost Elements Subtotal		30.395	
Total Electronics		279.725	
Remarks: Other Electronics include C4I System Innovation Facility (C-SIF) / Technical Integration Facility (TIF), Advanced Training Domain (ATD), Navy Electronic Chart Display Information System (ECDIS), Tactical Variant Switch (TVS) (AN/USQ-155(V)), Antennas, and various other systems.			

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Exhibit P-8a, Analysis of Ship Cost Estimates: PB 2020 Navy		Date: March 2019	
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1		P-1 Line Item Number / Title: 2128 / FFG-Frigate	
Hull, Mechanical, and Electrical (HM&E)		FY 2020	
		Qty (Each)	Total Cost (\$ M)
P-35 Items			
Aircraft Ship Integrated Securing and Traversing System (ASIST)		1	8.361
Internal Communication (IC) Voice		1	3.275
P-35 Items Subtotal			11.636
Major Items			
Advanced Flight Deck Lighting System (AFDLS)		1	2.301
Shipwide Interior Wireless Communication System (SIWCS)		1	1.881
Unclassified Video System (UVS)		1	1.623
Major Items Subtotal			5.805
Other Cost Elements			
Other HM&E		1	3.524
Other Cost Elements Subtotal			3.524
Total Hull, Mechanical, and Electrical (HM&E)			20.965
Remarks: Other HM&E includes 7M Rigid Hull Inflatable Boat (RHIB), Horizon Reference Set (HRS), Enhanced Maritime Biological Detection (EMBD), Plastic Shredder, and other systems.			

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Exhibit P-8a, Analysis of Ship Cost Estimates: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1		P-1 Line Item Number / Title: 2128 / FFG-Frigate
Ordnance	FY 2020	
	Qty (Each)	Total Cost (\$ M)
P-35 Items		
MK 48 Gun Weapon System (GWS)	1	14.838
Rolling Airframe Missile (RAM) Guided Missile Launching System- 21 Cell	1	12.004
MK 41 Vertical Launch System (VLS)- 32 Cell	1	11.519
P-35 Items Subtotal		38.361
Major Items		
Over-The-Horizon Missile Launcher (OTH)- 8 Canister	1	2.950
MK 53 Decoy Launching System (DLS) (Nulka)- 4 Launcher	1	1.523
Major Items Subtotal		4.473
Other Cost Elements		
Other Ordnance	1	0.550
Other Cost Elements Subtotal		0.550
Total Ordnance		43.384
Remarks: Other Ordnance includes Portable Ordnance Handling Equipment (POHE) and Machine Gun Mounts		

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Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy						Date: March 2019	
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1				P-1 Line Item Number / Title: 2128 / FFG-Frigate			
Equipment Item: Enterprise Air Surveillance Radar (EASR)						PARM Code: PEO IWS 2A	
P-35 Category				FY 2020			
				Qty (Each)	Total Cost (\$ M)		
Major Hardware				1	45.786		
System Engineering					2.121		
Technical Engineering Services					2.180		
Other Costs					10.789		
Total				1	60.876		
Description: Enterprise Air Surveillance Radar (EASR) is the next generation S-band air search radar with 3-D search capability supporting Air Warfare (AW) for self- and local area defense; Surface Warfare (SUW) for Fast Attack Craft (FAC), Fast Inshore Attack Craft (FIAC); Asymmetric / Force Protection; Electromagnetic Maneuver Warfare.							
Contract Data:							
Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost (\$ M)
FY 2020	FFG 1	Raytheon	C/FPIS	TBD		1	45.786
Delivery Date:							
Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date		
FY 2020	FFG 1	Jul 2026	40	28	Nov 2020		
Competition/Second Source Initiatives: N/A							
Remarks: Both FFG(X) and CVN (starting at CVN 79) will have fixed faced 9-RMA EASRs, however the software integration to the Frigate Weapon System (FWS) will be different.							

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Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy						Date: March 2019	
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1				P-1 Line Item Number / Title: 2128 / FFG-Frigate			
Equipment Item: Frigate Weapon System (FWS)						PARM Code: PEO IWS 8.0	
P-35 Category				FY 2020			
				Qty (Each)	Total Cost (\$ M)		
Major Hardware				1	13.190		
System Engineering					2.632		
Technical Engineering Services					1.138		
Other Costs					34.570		
Total				1	51.530		
Description: The Frigate Weapon System (FWS) is an integrated combat management system that provides doctrine, management, control, and display functionality for FFG(X) Combat System (FCS) missions as well as command and control functionality for the entire combat system. The FWS comprises: Command and Decision (C&D) System, Combat System Computing Infrastructure (CSCI), Shipboard Gridlock System/ Automatic Correlation (SGS/AC), Aegis Display System (ADS), Weapons Control System (WCS), Operational Readiness Training System (ORTS), Mission Planner (MP), Vehicle Control Domain (VCD), and resource management for the Enterprise Air Surveillance Radar.							
Contract Data:							
Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost (\$ M)
FY 2020	FFG 1	TBD	C/FFP	TBD		1	13.190
Delivery Date:							
Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date		
FY 2020	FFG 1	Jul 2026	40	29	Oct 2020		
Competition/Second Source Initiatives: FWS will be procured under the competitive combat system contract run by IWS 1.0 with award in FY 2021.							
Remarks: Other costs represent the system integration and test for the entire combat system. FWS is an AEGIS Common Source Library (CSL) derived command and control system for the Frigate Combat System (FCS). The change to FWS from CMS occurred in unison with the move from FF to FFG.							

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Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy						Date: March 2019	
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1				P-1 Line Item Number / Title: 2128 / FFG-Frigate			
Equipment Item: Anti-Submarine Warfare (ASW) Combat Suite						PARM Code: PEO IWS 5.0	
P-35 Category				FY 2020			
				Qty (Each)	Total Cost (\$ M)		
Major Hardware				1	31.301		
System Engineering					7.417		
Technical Engineering Services					2.990		
Other Costs					7.126		
Total				1	48.834		
Description: The Anti-Submarine Warfare (ASW) Combat Suite provides surface warships with an integrated undersea/anti-submarine warfare detection, localization, classification, and targeting ability. It includes AN/ SQQ-89, Undersea Warfare Decision Support System (USW-DSS), Multi Function Towed Array (MFTA), expendable bathythermograph (XBT) launcher LM-48, and the fathometer.							
Contract Data:							
Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost (\$ M)
FY 2020	FFG 1	Various	Various	Various		1	31.301
Delivery Date:							
Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date		
FY 2020	FFG 1	Jul 2026	40	24	Mar 2021		
Competition/Second Source Initiatives: N/A							
Remarks: Variable Depth Sonar (VDS) was moved to CFE equipment & option provided to use low-band hull array. This results in a decrease in the ASW Combat Suite.							

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Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy						Date: March 2019	
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1				P-1 Line Item Number / Title: 2128 / FFG-Frigate			
Equipment Item: Surface Electronic Warfare Improvement Program (SEWIP) BLK II (SLQ-32(V)6)						PARM Code: PEO IWS 2E	
P-35 Category				FY 2020			
				Qty (Each)		Total Cost (\$ M)	
Major Hardware				1		10.309	
System Engineering						0.966	
Technical Engineering Services						0.108	
Other Costs						2.206	
Total				1		13.589	
Description: The AN/SLQ-32 SEWIP Block II is a scalable Electronic Warfare enterprise suite to provide Electromagnetic Interference (EMI) mitigation and combat system interface capabilities. It provides enhanced shipboard Electronic Warfare (EW) for early detection, analysis, threat warning and protection from anti-ship missiles.							
Contract Data:							
Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost (\$ M)
FY 2020	FFG 1	Various	Various	Mar 2021	Various	1	10.309
Delivery Date:							
Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date		
FY 2020	FFG 1	Jul 2026	40	18	Sep 2021		
Competition/Second Source Initiatives: N/A							

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Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy						Date: March 2019	
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1				P-1 Line Item Number / Title: 2128 / FFG-Frigate			
Equipment Item: Tactical COMINT System- Spectral						PARM Code: PMW 120	
P-35 Category				FY 2020			
				Qty (Each)	Total Cost (\$ M)		
Major Hardware				1	9.885		
System Engineering					0.477		
Technical Engineering Services					0.678		
Other Costs					0.832		
Total				1	11.872		
Description: Spectral is the next generation information warfare weapons system, enhancing Ship Signals Exploitation System (SSES) capabilities that detects, classifies, and tracks SOI (Signals of Interest) used in the Tasking, Collection, Processing, Exploitation and Dissemination (TCPED) process. Spectral is scalable, mission configurable, modular, and remotable, rapidly responding to new threats and/or capabilities. A integrated capability enables data sharing with other systems to support electromagnetic maneuver warfare (EMW/Integrated fires (IF)).							
Contract Data:							
Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost (\$ M)
FY 2020	FFG 1	TBD	TBD	TBD		1	9.885
Delivery Date:							
Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date		
FY 2020	FFG 1	Jul 2026	40	18	Mar 2021		
Competition/Second Source Initiatives: N/A							

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Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy						Date: March 2019	
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1				P-1 Line Item Number / Title: 2128 / FFG-Frigate			
Equipment Item: Cooperative Engagement Capability (CEC)						PARM Code: PEO IWS 6.0	
P-35 Category				FY 2020			
				Qty (Each)		Total Cost (\$ M)	
Major Hardware				1		8.631	
System Engineering						0.640	
Technical Engineering Services						0.646	
Other Costs						1.178	
Total				1		11.095	
Description: The Cooperative Engagement Capability (CEC) AN/USG-2B system provides real time integration of fire control quality sensor data into a single composite data source, which can be used by multiple CEC ships and airborne units for direct and remote missile engagements. CEC significantly improves battle force Anti-Air Warfare (AAW) capability by coordinating all force AAW sensors into a single real time, fire control quality composite track picture.							
Contract Data:							
Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost (\$ M)
FY 2020	FFG 1	TBD	Various	Various		1	8.631
Delivery Date:							
Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date		
FY 2020	FFG 1	Jul 2026	40	18	Sep 2021		
Competition/Second Source Initiatives: N/A							

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Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy						Date: March 2019	
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1				P-1 Line Item Number / Title: 2128 / FFG-Frigate			
Equipment Item: External Communication Suite						PARM Code: PMW 760	
P-35 Category				FY 2020			
				Qty (Each)		Total Cost (\$ M)	
Major Hardware				1		6.345	
System Engineering						0.178	
Technical Engineering Services						0.517	
Other Costs						0.356	
Total				1		7.396	
Description: External Communication Suite (EXCOMM) is a software programmable tactical radio (with embedded INFOSEC [Information Security]) that provides interoperable Line of Sight/Beyond Line of Sight (LOS/BLOS) C4I capabilities to the fleet.							
Contract Data:							
Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost (\$ M)
FY 2020	FFG 1	Various	C/FFP	TBD		1	6.345
Delivery Date:							
Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date		
FY 2020	FFG 1	Jul 2026	40	24	Mar 2021		
Competition/Second Source Initiatives: N/A							

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Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy						Date: March 2019	
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1				P-1 Line Item Number / Title: 2128 / FFG-Frigate			
Equipment Item: Identification Friend or Foe (IFF) UPX-29						PARM Code: PMA 213	
P-35 Category				FY 2020			
				Qty (Each)	Total Cost (\$ M)		
Major Hardware				1	5.221		
System Engineering					0.714		
Technical Engineering Services					0.207		
Other Costs					0.357		
Total				1	6.499		
Description: The AN/UPX-29(V) provides a centralized identification system that operates independently to transmit interrogations, detect transponder replies, and process the resulting information for use by a ship's operators and combat weapons system computers. The system provides Modes 1, 2, 3A, C and provides secure, positive ID of Mode 4, Mode S and Mode 5 targets.							
Contract Data:							
Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost (\$ M)
FY 2020	FFG 1	TBD	Various	Various		1	5.221
Delivery Date:							
Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date		
FY 2020	FFG 1	Jul 2026	40	24	Mar 2021		
Competition/Second Source Initiatives: N/A							

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Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy						Date: March 2019	
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1				P-1 Line Item Number / Title: 2128 / FFG-Frigate			
Equipment Item: Network Tactical Common Data Link (NTCDL) Variant B						PARM Code: PMW 170	
P-35 Category				FY 2020			
				Qty (Each)		Total Cost (\$ M)	
Major Hardware				1		4.281	
System Engineering						0.577	
Technical Engineering Services						0.255	
Other Costs						0.657	
Total				1		5.770	
Description: NTCDL provides the ability to transmit/receive real-time ISR data simultaneously from multiple sources (air, surface, subsurface, and man-portable) and exchange command and control information (voice, data, imagery, and full-motion video) across dissimilar joint, service, coalition, and civil networks. NTCDL provides warfighters the capability to support multiple, simultaneous, networked operations with in-service CDL equipped aircraft (e.g., F/A-18, P-3, and MH-60R) in addition to next-generation manned and unmanned platforms (e.g., Fire Scout).							
Contract Data:							
Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost (\$ M)
FY 2020	FFG 1	BAE Systems Inc.	TBD	TBD		1	4.281
Delivery Date:							
Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date		
FY 2020	FFG 1	Jul 2026	40	12	Mar 2022		
Competition/Second Source Initiatives: N/A							

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Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy						Date: March 2019	
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1				P-1 Line Item Number / Title: 2128 / FFG-Frigate			
Equipment Item: Consolidated Afloat Network Enterprise System (CANES)						PARM Code: PMW 160	
P-35 Category				FY 2020			
				Qty (Each)		Total Cost (\$ M)	
Major Hardware				1		2.645	
System Engineering						1.985	
Technical Engineering Services						0.513	
Other Costs						0.139	
Total				1		5.282	
Description: CANES is a single, highly scalable network, computing, and services infrastructure supporting mission area application hosting and service delivery across a diverse set of Communities of Interest (COIs). It provides Navy tactical/nontactical information environment and infrastructure necessary to enable hosting, extended services reach back & reach forward and relay functions.							
Contract Data:							
Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost (\$ M)
FY 2020	FFG 1	TBD	TBD	TBD		1	2.645
Delivery Date:							
Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date		
FY 2020	FFG 1	Jul 2026	40	12	Mar 2022		
Competition/Second Source Initiatives: N/A							

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Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy						Date: March 2019	
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1				P-1 Line Item Number / Title: 2128 / FFG-Frigate			
Equipment Item: NIXIE AN/SLQ-25E						PARM Code: PMS 415	
P-35 Category				FY 2020			
				Qty (Each)		Total Cost (\$ M)	
Major Hardware				1		2.010	
System Engineering						0.291	
Technical Engineering Services						0.442	
Other Costs						1.780	
Total				1		4.523	
Description: The Torpedo Countermeasures Transmitting Set AN/SLQ-25E (NIXIE) is a passive, electro-acoustic decoy system used to provide deceptive countermeasures against acoustic homing torpedoes.							
Contract Data:							
Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost (\$ M)
FY 2020	FFG 1	TBD	TBD	TBD		1	2.010
Delivery Date:							
Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date		
FY 2020	FFG 1	Jul 2026	40	18	Sep 2021		
Competition/Second Source Initiatives: N/A							

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Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy						Date: March 2019	
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1				P-1 Line Item Number / Title: 2128 / FFG-Frigate			
Equipment Item: Navy Advanced Extremely High Frequency (AEHF) Multiband Terminal (NMT)(AN/WSC-9(V)1))						PARM Code: PMW 170	
P-35 Category				FY 2020			
				Qty (Each)		Total Cost (\$ M)	
Major Hardware				1		3.952	
System Engineering						0.041	
Technical Engineering Services						0.190	
Other Costs						0.339	
Total				1		4.522	
Description: The Navy Multiband Terminal (NMT) is the Navy's next generation ground terminal for military protected and wideband satellite communications, providing voice, video and data communications. NMT supports protected strategic/tactical warfare communications down to housekeeping and humanitarian (quality of life) communications for the Sailor and maintains backwards compatibility with legacy waveforms and systems while ensuring access to new and future MILSATCOM capabilities (AEHF, WGS, EPS).							
Contract Data:							
Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost (\$ M)
FY 2020	FFG 1	Various	Various	Dec 2020	Option	1	3.952
Delivery Date:							
Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date		
FY 2020	FFG 1	Jul 2026	40	24	Mar 2021		
Competition/Second Source Initiatives: N/A							

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Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy						Date: March 2019	
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1				P-1 Line Item Number / Title: 2128 / FFG-Frigate			
Equipment Item: Situation Awareness EO/IR						PARM Code: PEO IWS 2E	
P-35 Category				FY 2020			
				Qty (Each)	Total Cost (\$ M)		
Major Hardware				1	2.905		
System Engineering					0.554		
Technical Engineering Services					0.090		
Other Costs					0.938		
Total				1	4.487		
Description: Situation Awareness Electro-Optical/Infrared (EO/IR) system provides the capability to classify, identify and assist in determining intent of conventional, asymmetrical and advanced contacts/threats. EO/IR improves Situational Awareness (SA) and supports AT/FP, ISR, NAV, INTEL, SUW, AAW and ASMD missions while providing Long Range HD Visible/Infra-Red and Laser Range Finding sensors and capability for controlling, displaying and recording sensor imagery							
Contract Data:							
Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost (\$ M)
FY 2020	FFG 1	Ball Aerospace & Technologies	TBD	TBD		1	2.905
Delivery Date:							
Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date		
FY 2020	FFG 1	Jul 2026	40	12	Mar 2022		
Competition/Second Source Initiatives: N/A							

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Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy						Date: March 2019	
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1				P-1 Line Item Number / Title: 2128 / FFG-Frigate			
Equipment Item: Inertial Navigation System (INS) AN/WSN-7(V)1						PARM Code: PEO IWS 6.0	
P-35 Category				FY 2020			
				Qty (Each)	Total Cost (\$ M)		
Major Hardware				1	2.500		
System Engineering					0.180		
Technical Engineering Services					0.396		
Other Costs					0.765		
Total				1	3.841		
Description: The AN/WSN-7 Ring Laser Gyro Navigation (RLGN) System calculates and disseminates own ship's position, velocity and attitude (heading, roll and pitch) data outputs. The AN/WSN-7 RLGN System provides real time navigation data to use by Navigation & combat systems.							
Contract Data:							
Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost (\$ M)
FY 2020	FFG 1	Sperry Marine	TBD	Sep 2020		1	2.500
Delivery Date:							
Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date		
FY 2020	FFG 1	Jul 2026	40	17	Oct 2021		
Competition/Second Source Initiatives: N/A							

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Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy						Date: March 2019	
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1				P-1 Line Item Number / Title: 2128 / FFG-Frigate			
Equipment Item: Aircraft Ship Integrated Securing and Traversing System (ASIST)						PARM Code: PMA 251	
P-35 Category				FY 2020			
				Qty (Each)	Total Cost (\$ M)		
Major Hardware				1	4.163		
System Engineering					0.516		
Technical Engineering Services					2.397		
Other Costs					1.285		
Total				1	8.361		
Description: Aircraft Ship Integrated Secure and Traverse (ASIST) provides safe recovery, securing, straightening, traversing, stowing, and launching of MH-60R and MQ-8C.							
Contract Data:							
Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost (\$ M)
FY 2020	FFG 1	INDAL	SS/IDIQ	Sep 2021	New	1	4.163
Delivery Date:							
Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date		
FY 2020	FFG 1	Jul 2026	21	24	Oct 2022		
Competition/Second Source Initiatives: N/A							

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Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy						Date: March 2019	
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1				P-1 Line Item Number / Title: 2128 / FFG-Frigate			
Equipment Item: Internal Communication (IC) Voice						PARM Code: PEO SHIPS	
P-35 Category				FY 2020			
				Qty (Each)		Total Cost (\$ M)	
Major Hardware				1		1.700	
System Engineering						0.185	
Technical Engineering Services						0.920	
Other Costs						0.470	
Total				1		3.275	
Description: IC Voice provides shipboard internal communication consisting of the announcing system, telephones, and wireless radios.							
Contract Data:							
Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost (\$ M)
FY 2020	FFG 1	TBD	TBD	TBD		1	1.700
Delivery Date:							
Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date		
FY 2020	FFG 1	Jul 2026	40	12	Mar 2022		
Competition/Second Source Initiatives: N/A							

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Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy						Date: March 2019	
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1				P-1 Line Item Number / Title: 2128 / FFG-Frigate			
Equipment Item: MK 48 Gun Weapon System (GWS)						PARM Code: PEO IWS 3C	
P-35 Category				FY 2020			
				Qty (Each)		Total Cost (\$ M)	
Major Hardware				1		11.108	
System Engineering						0.951	
Technical Engineering Services						0.417	
Other Costs						2.362	
Total				1		14.838	
Description: The MK 48 MOD 2 Gun Weapon System is fully integrated with MK 160 MOD 18 Gun Computer System w/ MK 20 MOD 1 Electro Optical Sight System and MK 110 MOD 0 57mm gun. The MK 160 Gun Fire Control System (GFCS) is the standard USN gun fire control system; the MK 20 Electro-Optical Sensor System (EOSS) is the standard gun optical sight used for gun engagements; and the MK 110 is an automated 57mm gun system used for surface and air engagements of hostile targets.							
Contract Data:							
Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost (\$ M)
FY 2020	FFG 1	Various	C/FFP	Various	Various	1	11.108
Delivery Date:							
Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date		
FY 2020	FFG 1	Jul 2026	40	24	Mar 2021		
Competition/Second Source Initiatives: N/A							

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Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy						Date: March 2019	
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1				P-1 Line Item Number / Title: 2128 / FFG-Frigate			
Equipment Item: Rolling Airframe Missile (RAM) Guided Missile Launching System- 21 Cell						PARM Code: PEO IWS 11	
P-35 Category				FY 2020			
				Qty (Each)	Total Cost (\$ M)		
Major Hardware				1	10.060		
System Engineering					0.775		
Technical Engineering Services					0.372		
Other Costs					0.797		
Total				1	12.004		
<p>Description: The Rolling Airframe Missile (RAM) Guided Missile Weapon System (GMWS) is a lightweight, fast reaction, high-firepower, passive, dual-mode (IR and RF) system. The RAM GMWS is a point defense weapon system, designed to engage and destroy incoming Anti-Ship Cruise Missiles (ASCM), helicopters, and fixed wing aircraft, and to engage and intercept surface craft. This represents the 21-cell variant.</p>							
Contract Data:							
Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost (\$ M)
FY 2020	FFG 1	Raytheon	C/FFP	TBD		1	10.060
Delivery Date:							
Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date		
FY 2020	FFG 1	Jul 2026	40	24	Mar 2021		
<p>Competition/Second Source Initiatives: N/A</p>							

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Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy						Date: March 2019	
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1				P-1 Line Item Number / Title: 2128 / FFG-Frigate			
Equipment Item: MK 41 Vertical Launch System (VLS)- 32 Cell						PARM Code: PEO IWS 3L	
P-35 Category				FY 2020			
				Qty (Each)	Total Cost (\$ M)		
Major Hardware				1	11.089		
Other Costs					0.430		
Total				1	11.519		
Description: The MK 41 Vertical Launch System (VLS) is a Modular, Below Deck Missile Launcher supporting Multiple Warfighting Mission Areas: AAW/ASW/BMD/Land Attack/Strike. This represents one 32-cell launcher system.							
Contract Data:							
Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost (\$ M)
FY 2020	FFG 1	TBD	C/FFP	May 2020		1	11.089
Delivery Date:							
Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date		
FY 2020	FFG 1	Jul 2026	40	18	Sep 2021		
Competition/Second Source Initiatives: N/A							
Remarks: The MK41 VLS System requirement increased from 16-cell to 32-cell. Testing and Integration costs are captured under the Frigate Weapons System (FWS).							

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Exhibit P-40, Budget Line Item Justification: PB 2020 Navy										Date: March 2019		
Appropriation / Budget Activity / Budget Sub Activity: 1611N: Shipbuilding and Conversion, Navy / BA 03: Amphibious Ships / BSA 1: Amphibious Ships							P-1 Line Item Number / Title: 3010 / LPD Flight II					
ID Code (A=Service Ready, B=Not Service Ready): A				Program Elements for Code B Items: N/A				Other Related Program Elements: 0604454N				
Line Item MDAP/MAIS Code: 542												
Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity (<i>Units in Each</i>)	-	1	-	-	-	-	1	-	1	-	-	3
Gross/Weapon System Cost (<i>\$ in Millions</i>)	0.000	1,814.000	0.000	0.000	0.000	0.000	1,838.000	0.000	1,738.892	0.000	350.000	5,740.892
Less PY Advance Procurement (<i>\$ in Millions</i>)	-	14.000	-	-	-	-	247.100	-	-	-	350.000	611.100
Net Procurement (P-1) (<i>\$ in Millions</i>)	0.000	1,800.000	0.000	0.000	0.000	0.000	1,590.900	0.000	1,738.892	0.000	-	5,129.792
Plus CY Advance Procurement (<i>\$ in Millions</i>)	14.000	-	350.000	247.100	-	247.100	-	-	-	-	-	611.100
Total Obligation Authority (<i>\$ in Millions</i>)	14.000	1,800.000	350.000	247.100	0.000	247.100	1,590.900	0.000	1,738.892	0.000	-	5,740.892
<i>(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)</i>												
Total (<i>\$ in Millions</i>)	14.000	1,800.000	350.000	247.100	-	247.100	1,590.900	-	1,738.892	-	-	5,740.892
Gross/Weapon System Unit Cost (<i>\$ in Millions</i>)	-	1,814.000	-	-	-	-	1,838.000	-	1,738.892	-	-	1,913.631

Description:
 The FY 2018 Defense Appropriations Act authorized the procurement of LPD 30. Per signed Acquisition Decision Memorandum, LPD 17 Flight II will meet the Capabilities Development Document for LX(R) and shall subsume all previous LX(R) efforts. LPD 30 will be the first ship of LPD 17 Flight II.

The LPD 17 Flight II is expected to functionally replace LSD-41 Class ships and LSD-49 Class ships for embark, transport, control, insert, sustainment, and extract of Marine Air-Ground Task Force elements and supporting forces by helicopters, landing craft, and amphibious vehicles. Program is on track to support FY27 retirement of LSDs.

\$350M Advance Procurement (AP) was appropriated in FY19 based on the PB19 profile which included a ship in FY20. The Department will need a change in law to execute this funding.

Characteristics:	-	Systems:
Length Overall	208.5 m	684 ft
Beam	31.9 m	105 ft
Displacement	25.3 lmt	24.9 klt
Draft	7.0 m	23 ft

Production Status:	LPD 30	Electronics
Contract Award Date	Mar 2019	-Mission Systems
Months to Completion		
a) Award to Delivery	71 months	
b) Construction Start to Delivery	58 months	
Delivery Date	Feb 2025	
Completion Of Fitting Out	Sep 2025	
Obligation Work Limit Date	Aug 2026	

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Exhibit P-40, Budget Line Item Justification: PB 2020 Navy			Date: March 2019	
Appropriation / Budget Activity / Budget Sub Activity: 1611N: Shipbuilding and Conversion, Navy / BA 03: Amphibious Ships / BSA 1: Amphibious Ships		P-1 Line Item Number / Title: 3010 / LPD Flight II		
ID Code (A=Service Ready, B=Not Service Ready): A	Program Elements for Code B Items: N/A		Other Related Program Elements: 0604454N	
Line Item MDAP/MAIS Code: 542				
<u>Design Schedule</u>	<u>Start / Issue</u>	<u>Complete / Response</u>	<u>Reissue</u>	<u>Reissue Complete / Response</u>
Issue Date for TLR	N/A	N/A		
Issue Date for TLS	N/A	N/A		
Preliminary Design	Mar 2015	Jun 2016		
Contract Design	Jun 2016	Jun 2017		
Detail Design	Dec 2018	Mar 2020		
Request for Proposals	Jul 2018	Aug 2018		
Design Agent	Huntington Ingalls Industries			
<u>Classification of Cost Estimate:</u> CLASS C				

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Exhibit P-5c, Ship Cost Analysis: PB 2020 Navy		Date: March 2019	
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 03 / 1		P-1 Line Item Number / Title: 3010 / LPD Flight II	
Cost Categories <small>(†) indicates the presence of a P-8a</small>	FY 2018		
	Qty <i>(Each)</i>		Total Cost <i>(\$ M)</i>
Plan Costs	1		
Basic Construction/Conversion			1,459.000
Change Orders			30.000
Electronics ^(†)			215.724
Hull, Mechanical, and Electrical (HM&E) ^(†)			16.400
Ordnance ^(†)			83.876
Other Cost			9.000
Total Ship Estimate			1,814.000
Less Advance Procurement FY 2016			14.000
Net P-1 Funding			1,800.000
Remarks: \$350M Advance Procurement (AP) was appropriated in FY19 based on the PB19 profile which included a ship in FY20. The Department will need a change in law to execute this funding.			

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LI 3010 - LPD Flight II
Navy

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Exhibit P-8a, Analysis of Ship Cost Estimates: PB 2020 Navy		Date: March 2019	
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 03 / 1		P-1 Line Item Number / Title: 3010 / LPD Flight II	
Electronics	FY 2018		
	Qty (Each)	Total Cost (\$ M)	
P-35 Items			
Mission Systems		42.938	
C4ISR		78.348	
Ship Self Defense System (SSDS)		14.768	
Cooperative Engagement Capability (CEC)		10.852	
Interrogator System (IFF)		5.915	
AN/SLQ-32(V)6 Surface Electronic Warfare Improvement Program (SEWIP)		12.771	
P-35 Items Subtotal		165.592	
Major Items			
Advanced Training Domain (ATD)		1.251	
AN/WSN-7(RLGN)		3.882	
Nulka Decoy Launching System (DLS)		1.419	
AADS		1.038	
Torpedo Countermeasures Transmitting Set (Nixie)		4.336	
RADIAC		0.103	
AN/UQN-10		0.204	
DHYSL		0.373	
Major Items Subtotal		12.606	
Other Cost Elements			
Miscellaneous Electronics		34.267	
IWS CSI		3.259	
Other Cost Elements Subtotal		37.526	
Total Electronics		215.724	

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Exhibit P-8a, Analysis of Ship Cost Estimates: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 03 / 1		P-1 Line Item Number / Title: 3010 / LPD Flight II
Hull, Mechanical, and Electrical (HM&E)	FY 2018	
	Qty (Each)	Total Cost (\$ M)
Major Items		
Boats		0.616
Truck, Forklift		2.070
Chemical Warfare Detector		0.246
Military Payroll System		0.586
Integrated Condition Assessment System (ICAS)		0.216
Oily Water Separator		0.294
Plastic Waste Processing EQP		0.714
Major Items Subtotal		4.742
Other Cost Elements		
Miscellaneous HM&E		11.658
Other Cost Elements Subtotal		11.658
Total Hull, Mechanical, and Electrical (HM&E)		16.400

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Exhibit P-8a, Analysis of Ship Cost Estimates: PB 2020 Navy		Date: March 2019	
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 03 / 1		P-1 Line Item Number / Title: 3010 / LPD Flight II	
Ordnance	FY 2018		
	Qty (Each)	Total Cost (\$ M)	
P-35 Items			
RAM BLOCK II		20.511	
MK 46 GUN		8.350	
AN/SPQ-9B Radar Set		6.571	
EASR		32.976	
P-35 Items Subtotal		68.408	
Major Items			
50 CAL MACHINE GUN		0.183	
ASGSI/HOSS/MWS Fit Control & Inst Land Sys		3.252	
ORDNANCE HANDLING EQUIPMENT		0.423	
Major Items Subtotal		3.858	
Other Cost Elements			
MISCELLANEOUS ORDNANCE		11.610	
Other Cost Elements Subtotal		11.610	
Total Ordnance		83.876	

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Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy						Date: March 2019	
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 03 / 1				P-1 Line Item Number / Title: 3010 / LPD Flight II			
Equipment Item: Mission Systems						PARM Code: N/A	
P-35 Category				FY 2018			
				Qty (Each)		Total Cost (\$ M)	
Major Hardware						40.902	
Other Costs						2.036	
Total						42.938	
Description: Mission Systems is a microcomputer-based integration of shipboard control electronics; Engineering Control System (ECS), Ship Control System (SCS), HM&E Network, Navigation Data Distribution System (NDDS), Interior Voice Network (IVN), and various distributed Sensors. Mission systems and associated integration will be provided by a combination of CFE and Government supplied material and services.							
Contract Data:							
Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost (\$ M)
FY 2018	LPD 30	Various	SS/FFP	TBD	Various	1	40.902
Delivery Date:							
Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date		
FY 2018	LPD 30	Nov 2024	37	24	Oct 2019		
Competition/Second Source Initiatives: N/A							

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Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy						Date: March 2019	
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 03 / 1				P-1 Line Item Number / Title: 3010 / LPD Flight II			
Equipment Item: C4ISR						PARM Code: N/A	
P-35 Category				FY 2018			
				Qty (Each)		Total Cost (\$ M)	
Major Hardware						41.102	
Spares						0.941	
Technical Engineering Services						6.510	
Ancillary Equipment						0.246	
Documentation and Systems Engineering						5.024	
Other Appropriate Costs						9.523	
Turnkey						15.002	
Total						78.348	
Description: To provide the link between the ship, the command hierarchy, and other units of the operating forces.							
Contract Data:							
Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost (\$ M)
FY 2018	LPD 30	Various	Various	TBD	Various	1	41.102
Delivery Date:							
Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date		
FY 2018	LPD 30	Nov 2024	16	16	Mar 2022		
Competition/Second Source Initiatives: N/A							

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Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy						Date: March 2019	
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 03 / 1				P-1 Line Item Number / Title: 3010 / LPD Flight II			
Equipment Item: Ship Self Defense System (SSDS)						PARM Code: N/A	
P-35 Category				FY 2018			
				Qty (Each)		Total Cost (\$ M)	
Major Hardware						9.717	
Spares						0.613	
Technical Engineering Services						0.248	
Other Costs						2.122	
Documentation and Systems Engineering						2.068	
Total						14.768	
Description: Ship Self Defense System Mark 2 is microcomputer-based, self-defense coordination system that integrates and automates multiple sensors, self defense weapons, and softkill systems to provide quick reaction combat capability against anti-ship cruise missile threats.							
Contract Data:							
Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost (\$ M)
FY 2018	LPD 30	TBD	TBD	TBD	New	1	9.717
Delivery Date:							
Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date		
FY 2018	LPD 30	Nov 2024	17	13	May 2022		
Competition/Second Source Initiatives: N/A							

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Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy						Date: March 2019	
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 03 / 1				P-1 Line Item Number / Title: 3010 / LPD Flight II			
Equipment Item: Cooperative Engagement Capability (CEC)						PARM Code: N/A	
P-35 Category				FY 2018			
				Qty (Each)		Total Cost (\$ M)	
Major Hardware						8.177	
Technical Engineering Services						0.435	
Documentation and Systems Engineering						0.498	
Other Costs						1.742	
Total						10.852	
Description: Cooperative Engagement Capability (CEC) coordinates all anti-warfare sensors into single, real time, fire control quality composite track which improves battle force air defense. Production of Planar Array Antenna Assembly (PAAA) production has ended. LPD 30 amounts reflect the Common Array Block (CAB) Family of Antenna (FoA) in place of PAAA.							
Contract Data:							
Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost (\$ M)
FY 2018	LPD 30	Raytheon	C/FFP	Various	Various	1	8.177
Delivery Date:							
Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date		
FY 2018	LPD 30	Nov 2024	24	18	May 2021		
Competition/Second Source Initiatives: N/A							

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Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy						Date: March 2019	
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 03 / 1				P-1 Line Item Number / Title: 3010 / LPD Flight II			
Equipment Item: Interrogator System (IFF)						PARM Code: N/A	
P-35 Category				FY 2018			
				Qty (Each)		Total Cost (\$ M)	
Major Hardware						5.232	
Spares						0.146	
Technical Engineering Services						0.117	
Other Costs						0.271	
Documentation and Systems Engineering						0.149	
Total						5.915	
Description: The Transponder Set is an Automatic Identification and Monitoring System (AIMS) Identification Friend or Foe (IFF) system that receives interrogation signals from air, surface, and land IFF - equipped units and automatically replies with a coded response signal that provides ownship position and identification.							
Contract Data:							
Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost (\$ M)
FY 2018	LPD 30	TBD	TBD	Various	New	1	5.232
Delivery Date:							
Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date		
FY 2018	LPD 30	Nov 2024	6	30	Nov 2021		
Competition/Second Source Initiatives: N/A							

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Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy						Date: March 2019	
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 03 / 1				P-1 Line Item Number / Title: 3010 / LPD Flight II			
Equipment Item: AN/SLQ-32(V)6 Surface Electronic Warfare Improvement Program (SEWIP)						PARM Code: N/A	
P-35 Category				FY 2018			
				Qty (Each)		Total Cost (\$ M)	
Major Hardware						10.767	
Spares						0.382	
Technical Engineering Services						0.142	
Other Costs						0.641	
Documentation and Systems Engineering						0.839	
Total						12.771	
Description: The AN/SLQ-32(V)6 (SEWIP) is a shipboard system that provides a full suite of Electronic Warfare capabilities designed to protect against anti-cruise ship missile threats. The SLQ-32 system is obsolete and NO LONGER AVAILABLE for refurbishment. LPD 30 will be built with the SEWIP (Block 2) system.							
Contract Data:							
Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost (\$ M)
FY 2018	LPD 30	TBD	TBD	TBD		1	10.767
Delivery Date:							
Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date		
FY 2018	LPD 30	Nov 2024	24	24	Nov 2020		
Competition/Second Source Initiatives: N/A							

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Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy						Date: March 2019	
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 03 / 1				P-1 Line Item Number / Title: 3010 / LPD Flight II			
Equipment Item: RAM BLOCK II						PARM Code: N/A	
P-35 Category				FY 2018			
				Qty (Each)		Total Cost (\$ M)	
Major Hardware						17.935	
Spares						0.129	
Technical Engineering Services						0.302	
Other Costs						1.020	
Documentation and Systems Engineering						1.125	
Total						20.511	
Description: The Rolling Airframe Missile (RAM) Block 2 system is a short-range, fast-reaction, high-firepower, lightweight weapon designed to destroy incoming anti-ship cruise missiles. LLTM was procured with FY16 Advance Procurement.							
Contract Data:							
Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost (\$ M)
FY 2018	LPD 30	Raytheon	C/FFP	Oct 2016	Option	2	8.968
Delivery Date:							
Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date		
FY 2018	LPD 30	Nov 2024	22	24	Jan 2021		
Competition/Second Source Initiatives: N/A							

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Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy						Date: March 2019	
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 03 / 1				P-1 Line Item Number / Title: 3010 / LPD Flight II			
Equipment Item: MK 46 GUN						PARM Code: N/A	
P-35 Category				FY 2018			
				Qty (Each)		Total Cost (\$ M)	
Major Hardware						8.130	
Technical Engineering Services						0.220	
Total						8.350	
Description: The MK 46 Gun is a remotely operated naval gun system using a high velocity cannon and second-generation thermal day-night sight for close-in ship's protection.							
Contract Data:							
Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost (\$ M)
FY 2018	LPD 30	General Dynamics	C/FFP	TBD	New	2	4.065
Delivery Date:							
Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date		
FY 2018	LPD 30	Nov 2024	24	18	May 2021		
Competition/Second Source Initiatives: N/A							

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Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy						Date: March 2019	
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 03 / 1				P-1 Line Item Number / Title: 3010 / LPD Flight II			
Equipment Item: AN/SPQ-9B Radar Set						PARM Code: N/A	
P-35 Category				FY 2018			
				Qty (Each)		Total Cost (\$ M)	
Major Hardware						4.200	
Spares						0.388	
Technical Engineering Services						0.707	
Other Costs						0.776	
Documentation and Systems Engineering						0.500	
Total						6.571	
Description: The AN/SPQ-9B is a high resolution, X-band, narrow beam radar that provides both air and surface tracking information.							
Contract Data:							
Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost (\$ M)
FY 2018	LPD 30	DRS LAUREL TECHNOLOGIES	C/FFP	Jul 2018	Option	1	4.200
Delivery Date:							
Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date		
FY 2018	LPD 30	Nov 2024	24	24	Nov 2020		
Competition/Second Source Initiatives: N/A							

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Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy						Date: March 2019	
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 03 / 1				P-1 Line Item Number / Title: 3010 / LPD Flight II			
Equipment Item: EASR						PARM Code: N/A	
P-35 Category				FY 2018			
				Qty (Each)		Total Cost (\$ M)	
Major Hardware						20.907	
Spares						1.093	
Technical Engineering Services						3.259	
Other Costs						6.437	
Documentation and Systems Engineering						1.280	
Total						32.976	
Description: Enterprise Air Surveillance Radar (EASR) is the replacement Air Search Radar and the costs are under development.							
Contract Data:							
Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost (\$ M)
FY 2018	LPD 30	TBD	TBD	TBD	New	1	20.907
Delivery Date:							
Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date		
FY 2018	LPD 30	Nov 2024	18	27	Feb 2021		
Competition/Second Source Initiatives: N/A							

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Exhibit P-10, Advance Procurement Requirements Analysis (page 1 - Budget Funding Justification): PB 2020 Navy							Date: March 2019			
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 03 / 1					P-1 Line Item Number / Title: 3010 / LPD Flight II					
First System (2020) Award Date:		First System (2020) Completion Date:			Interval Between Systems: 0 Months					
Cost Elements		Production Leadtime <i>(Months)</i>	When Required* <i>(Months)</i>	FY 2018 <i>(\$ M)</i>	FY 2019 <i>(\$ M)</i>	FY 2020 <i>(\$ M)</i>	FY 2021 <i>(\$ M)</i>	FY 2022 <i>(\$ M)</i>	FY 2023 <i>(\$ M)</i>	FY 2024 <i>(\$ M)</i>
LPD AP										
BASIC ⁽⁷⁾		-	-	-	350.000	0.000	-	-	-	-
<i>Total: LPD AP</i>				-	<i>350.000</i>	-	-	-	-	-
LPD 31										
BASIC ⁽⁸⁾		Various	76	-	-	247.100	-	-	-	-
<i>Total: LPD 31</i>				-	-	<i>247.100</i>	-	-	-	-
Total Advance Procurement/Obligation Authority				-	350.000	247.100				

*Note: "When Required" is the number of months required before ship delivery.

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Exhibit P-10, Advance Procurement Requirements Analysis (page 2 - Budget Funding Justification): PB 2020 Navy	Date: March 2019
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Appropriation / Budget Activity / Budget Sub Activity: 1611N / 03 / 1	P-1 Line Item Number / Title: 3010 / LPD Flight II
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Cost Elements	FY 2020						
	Production Leadtime <i>(Months)</i>	When Required* <i>(Months)</i>	Unit Cost <i>(\$ M)</i>	Contract Forecast Date	2020 Qty <i>(Each)</i>	For FY	Total Cost Request <i>(\$ M)</i>
LPD AP							
BASIC ⁽⁷⁾	-	-	-		-		0.000
Total: LPD AP							-
LPD 31							
BASIC ⁽⁸⁾	Various	76	-	Jan 2020	-	2021	247.100
Total: LPD 31							247.100
Total Advance Procurement/Obligation Authority							247.100

Description:

AP is required for the second ship of the LPD 17 Class Flight II in order to procure Long Lead Time Material and maintain schedule.

*Note: "When Required" is the number of months required before ship delivery.

Footnotes:

⁽⁷⁾ \$350M Advance Procurement (AP) was appropriated in FY19 based on the PB19 profile which included a ship in FY20. The Department will need a change in law to execute this funding.

⁽⁸⁾ Funding for LLTM for the second ship in FY20 will prevent a year long SCN gap in the acquisition profile.

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Exhibit P-40, Budget Line Item Justification: PB 2020 Navy								Date: March 2019				
Appropriation / Budget Activity / Budget Sub Activity: 1611N: Shipbuilding and Conversion, Navy / BA 03: Amphibious Ships / BSA 1: Amphibious Ships							P-1 Line Item Number / Title: 3039 / Expeditionary Sea Base (ESB)					
ID Code (A=Service Ready, B=Not Service Ready): A			Program Elements for Code B Items: N/A					Other Related Program Elements: N/A				
Line Item MDAP/MAIS Code: N/A												
Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity (<i>Units in Each</i>)	5	1	1	-	-	-	-	-	1	-	-	8
Gross/Weapon System Cost (<i>\$ in Millions</i>)	2,837.500	635.000	647.000	0.000	0.000	0.000	0.000	0.000	676.260	0.000	-	4,795.760
Less PY Advance Procurement (<i>\$ in Millions</i>)	179.700	-	-	-	-	-	-	-	127.250	-	-	306.950
Less Cost To Complete (<i>\$ in Millions</i>)	38.000	-	-	-	-	-	-	-	-	-	-	38.000
Less Subsequent Year Full Funding (<i>\$ in Millions</i>)	162.900	-	-	-	-	-	-	-	-	-	-	162.900
Net Procurement (P-1) (<i>\$ in Millions</i>)	2,456.900	635.000	647.000	0.000	0.000	0.000	0.000	0.000	549.010	0.000	-	4,287.910
Plus Subsequent Year Full Funding (<i>\$ in Millions</i>)	162.900	-	-	-	-	-	-	-	-	-	-	162.900
Full Funding TOA (<i>\$ in Millions</i>)	2,619.800	635.000	647.000	-	-	-	-	-	549.010	-	-	4,450.810
Plus CY Advance Procurement (<i>\$ in Millions</i>)	179.700	-	-	-	-	-	-	127.250	-	-	-	306.950
Plus Cost To Complete (<i>\$ in Millions</i>)	-	-	-	38.000	-	38.000	-	-	-	-	-	38.000
Total Obligation Authority (<i>\$ in Millions</i>)	2,799.500	635.000	647.000	38.000	0.000	38.000	0.000	127.250	549.010	0.000	-	4,795.760
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)												
Plus Outfitting and Post Delivery (<i>\$ in Millions</i>)	92.545	12.275	27.087	16.091	-	16.091	12.000	-	-	-	-	159.998
Total (<i>\$ in Millions</i>)	2,892.045	647.275	674.087	54.091	-	54.091	12.000	127.250	549.010	-	-	4,955.758
Gross/Weapon System Unit Cost (<i>\$ in Millions</i>)	567.500	635.000	647.000	-	-	-	-	-	676.260	-	-	599.470
Description: The Expeditionary Mobile Base (ESB) (formerly MLP Afloat Forward Staging Base (AFSB)) will serve as a dedicated Naval Afloat Forward Staging Base, optimized to support naval assets in a variety of missions rather than independently modifying ships-of-opportunity as required to meet these roles. The ESB retains sealift capabilities inherent to the Class through cargo transportation and distribution, but provides enhanced aviation, berthing, small boat handling, and command and control capabilities to meet a broader mission set. The ESB provides the Combatant Commanders flexibility to respond to immediate threats and host task organized forces, including Airborne Mine Countermeasures and Special Forces to confront irregular challenges and counter-terrorism. This includes enhanced logistics and UNREP capability (receive only) and C4I capability to support future missions.												
Note: 1) The amounts in the Prior Years column includes the NDSF MPF,F MLP BLI 00401 Procurement Costs for Expeditionary Transport Dock (ESD) 1, ESD 2, and ESB 3 as well as SCN BLI 3039 for the ESB 4 and ESB 5. 2) The Outfitting and Post Delivery amounts in the Prior Years column represent NDSF BLI 5000 for ESD 1, ESD 2, and ESB 3 as well as SCN BLI 5110 for the ESB 4.												

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Exhibit P-40, Budget Line Item Justification: PB 2020 Navy			Date: March 2019																																																																																																																									
Appropriation / Budget Activity / Budget Sub Activity: 1611N: Shipbuilding and Conversion, Navy / BA 03: Amphibious Ships / BSA 1: Amphibious Ships			P-1 Line Item Number / Title: 3039 / Expeditionary Sea Base (ESB)																																																																																																																									
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Preliminary Design	Sep 2009	Dec 2009																																																																																																																										
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Detail Design	Aug 2010	Nov 2011																																																																																																																										
Request for Proposals	N/A	N/A																																																																																																																										
Design Agent																																																																																																																												
<u>Classification of Cost Estimate:</u> Budget Quality Class																																																																																																																												

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Exhibit P-5c, Ship Cost Analysis: PB 2020 Navy	Date: March 2019
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Appropriation / Budget Activity / Budget Sub Activity: 1611N / 03 / 1	P-1 Line Item Number / Title: 3039 / Expeditionary Sea Base (ESB)
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Cost Categories <small>(†) indicates the presence of a P-8a</small>	FY 2016		FY 2018		FY 2019	
	Qty (Each)	Total Cost (\$ M)	Qty (Each)	Total Cost (\$ M)	Qty (Each)	Total Cost (\$ M)
Plan Costs	1		1		1	
Basic Construction/Conversion		585.908		547.908		557.851
Change Orders		5.517		5.517		5.647
Electronics ^(†)		65.550		65.550		67.098
Hull, Mechanical, and Electrical (HM&E)		12.260		12.260		12.550
Other Cost		3.765		3.765		3.854
Total Ship Estimate		673.000		635.000		647.000
Less Cost to Complete FY 2020		38.000		-		-
Net P-1 Funding		635.000		635.000		647.000

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Exhibit P-27, Ship Production Schedule: PB 2020 Navy				Date: March 2019	
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 03 / 1			P-1 Line Item Number / Title: 3039 / Expeditionary Sea Base (ESB)		
Ship	Shipbuilder	Fiscal Year	Contract Award	Start of Construction	Delivery Date
ESB 5	NASSCO	2016	Dec 2016	Jan 2017	Sep 2019
ESB 6	NASSCO	2018	Jun 2019	Dec 2019	Feb 2022
ESB 7	NASSCO	2019	Jun 2019	May 2021	Jul 2023
ESB 8	NASSCO	2023	Jun 2023	May 2024	Jul 2026

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Exhibit P-8a, Analysis of Ship Cost Estimates: PB 2020 Navy				Date: March 2019	
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 03 / 1			P-1 Line Item Number / Title: 3039 / Expeditionary Sea Base (ESB)		
Electronics	FY 2018		FY 2019		
	Qty (Each)	Total Cost (\$ M)	Qty (Each)	Total Cost (\$ M)	
P-35 Items					
C4ISR	1	27.000	1	27.638	
AVIATION ELECTRONICS	1	38.550	1	39.460	
P-35 Items Subtotal		65.550		67.098	
Total Electronics		65.550		67.098	

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Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy						Date: March 2019	
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 03 / 1				P-1 Line Item Number / Title: 3039 / Expeditionary Sea Base (ESB)			
Equipment Item: C4ISR						PARM Code: N/A	
P-35 Category	FY 2018		FY 2019				
	Qty (Each)	Total Cost (\$ M)	Qty (Each)	Total Cost (\$ M)			
Major Hardware	1	16.135	1	16.516			
Spares		1.855		1.899			
System Engineering		5.565		5.696			
Technical Engineering Services		1.060		1.085			
Other Costs		2.385		2.442			
Total	1	27.000	1	27.638			

Description:
 C4ISR items consist of equipment which is in a containerized environment for secure storage and operation of ship's C2 equipment (Next Generation Wideband Communications, SMIS, (classified and unclassified networks).
 Additional cryptographic equipment above the equipment provided with SMIS, Military radios to provide VHF, UHF Line of Site, and UHF SATCOM, Commercial Broadband Satellite Program (CBSP) for wideband SATCOM to provide voice and data communications to the shore.
 A Navy network consisting of a rack of electronic boxes that will provide NIPRNET, SIPRNET and CENTRIX plus additional hardware and software to support Military Detachment functions, laptops and printers to outfit several added spaces supporting embarked units: briefing room, tactical operations center, planning room, intel room, training center and communication room. The infrastructure to support installation of a HF radio.

Contract Data:

Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost (\$ M)
FY 2018	ESB 6	Booz, Allen and Hamilton (BAH)	C/FFP	Mar 2019	Option	1	16.135
FY 2019	ESB 7	Booz, Allen and Hamilton (BAH)	C/FFP	Aug 2020	Option	1	16.516

Delivery Date:

Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date
FY 2018	ESB 6	Feb 2022	19	12	Jul 2019
FY 2019	ESB 7	Jul 2023	19	12	Dec 2020

Competition/Second Source Initiatives:
N/A

Remarks:
 1) BAH is prime contractor with several other contractors. NSWC Panama City is the coordinating activity for the C4ISR system.
 2) C4ISR: Cost for the ESB 5 and follow ships include the procurement, installation and testing of additional radios and antennas, satellite communication terminals, and network capabilities in support of the Special Operations Forces (SOF) capability.

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Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy						Date: March 2019																									
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 03 / 1				P-1 Line Item Number / Title: 3039 / Expeditionary Sea Base (ESB)																											
Equipment Item: AVIATION ELECTRONICS						PARM Code: N/A																									
P-35 Category	FY 2018		FY 2019																												
	Qty (Each)	Total Cost (\$ M)	Qty (Each)	Total Cost (\$ M)																											
Major Hardware	1	30.292	1	31.007																											
Spares		0.150		0.154																											
System Engineering		0.454		0.465																											
Technical Engineering Services		3.587		3.672																											
Technical Data		0.116		0.119																											
Other Costs		3.951		4.043																											
Total	1	38.550	1	39.460																											
Description: Consists of a Moriah wind measuring system to support helicopter operations, a Tactical Air Navigation System (TACAN) to provide a navigation beacon for aircraft, Advanced Stabilized Glide Slope Indicator (ASGSI) and Visual Landing Aids (VLA).																															
Contract Data: <table border="1" style="width:100%; border-collapse: collapse; margin-top: 5px;"> <tr> <th style="text-align: center;">Program Year</th> <th style="text-align: center;">Hull</th> <th style="text-align: center;">Prime Contractor</th> <th style="text-align: center;">Contract Method/Type</th> <th style="text-align: center;">Award Date</th> <th style="text-align: center;">New/Option</th> <th style="text-align: center;">Quantity (Each)</th> <th style="text-align: center;">Unit Cost (\$ M)</th> </tr> <tr> <td align="center">FY 2018</td> <td align="center">ESB 6</td> <td align="center">Various</td> <td align="center">Various</td> <td align="center">Mar 2019</td> <td align="center">Option</td> <td align="center">1</td> <td align="right">31.007</td> </tr> <tr> <td align="center">FY 2019</td> <td align="center">ESB 7</td> <td align="center">Various</td> <td align="center">Various</td> <td align="center">Aug 2020</td> <td align="center">Option</td> <td align="center">1</td> <td align="right">31.007</td> </tr> </table>								Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost (\$ M)	FY 2018	ESB 6	Various	Various	Mar 2019	Option	1	31.007	FY 2019	ESB 7	Various	Various	Aug 2020	Option	1	31.007
Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost (\$ M)																								
FY 2018	ESB 6	Various	Various	Mar 2019	Option	1	31.007																								
FY 2019	ESB 7	Various	Various	Aug 2020	Option	1	31.007																								
Delivery Date: <table border="1" style="width:100%; border-collapse: collapse; margin-top: 5px;"> <tr> <th style="text-align: center;">Program Year</th> <th style="text-align: center;">Hull</th> <th style="text-align: center;">Earliest Ship Delivery Date</th> <th style="text-align: center;">Months Required Before Delivery</th> <th style="text-align: center;">Production Leadtime</th> <th style="text-align: center;">Required Award Date</th> </tr> <tr> <td align="center">FY 2018</td> <td align="center">ESB 6</td> <td align="center">Feb 2022</td> <td align="center">17</td> <td align="center">14</td> <td align="center">Jul 2019</td> </tr> <tr> <td align="center">FY 2019</td> <td align="center">ESB 7</td> <td align="center">Jul 2023</td> <td align="center">17</td> <td align="center">14</td> <td align="center">Dec 2020</td> </tr> </table>								Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date	FY 2018	ESB 6	Feb 2022	17	14	Jul 2019	FY 2019	ESB 7	Jul 2023	17	14	Dec 2020						
Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date																										
FY 2018	ESB 6	Feb 2022	17	14	Jul 2019																										
FY 2019	ESB 7	Jul 2023	17	14	Dec 2020																										
Competition/Second Source Initiatives: N/A																															
Remarks: 1) AVIATION ELECTRONICS: Aviation navigation and landing system electronics. 2) Contract Data and Delivery Date information are estimated and provided based on planned execution. 3) Cost for the ESB 5 and follow ships include the procurement, installation and test infrastructure of antennas and control systems for the Air Search Radar, Small Tactical Unmanned Aerial System (STUAS), MQ-8C Ground Control Station (GCS) and Fire Scout UAV system in support of the Special Operations Forces (SOF) capability.																															

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Exhibit P-40, Budget Line Item Justification: PB 2020 Navy								Date: March 2019				
Appropriation / Budget Activity / Budget Sub Activity: 1611N: Shipbuilding and Conversion, Navy / BA 03: Amphibious Ships / BSA 1: Amphibious Ships						P-1 Line Item Number / Title: 3041 / LHA Replacement						
ID Code (A=Service Ready, B=Not Service Ready): A			Program Elements for Code B Items: N/A					Other Related Program Elements: 0604567N				
Line Item MDAP/MAIS Code: 333												
Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity (Units in Each)	3	-	-	-	-	-	-	-	-	1	-	4
Gross/Weapon System Cost (\$ in Millions)	10,290.292	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	4,076.400	-	14,366.692
Less PY Advance Procurement (\$ in Millions)	1,148.630	-	-	-	-	-	-	-	-	520.602	-	1,669.232
Less Cost To Complete (\$ in Millions)	247.788	-	-	-	-	-	-	-	-	-	-	247.788
Less Subsequent Year Full Funding (\$ in Millions)	5,005.404	-	-	-	-	-	-	-	-	1,937.964	-	6,943.368
Less Hurricane (\$ in Millions)	202.000	-	-	-	-	-	-	-	-	-	-	202.000
Net Procurement (P-1) (\$ in Millions)	3,686.470	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1,617.834	-	5,304.304
Plus Subsequent Year Full Funding (\$ in Millions)	3,294.477	1,710.927	-	-	-	-	-	-	-	-	1,937.964	6,943.368
Full Funding TOA (\$ in Millions)	6,980.947	1,710.927	-	-	-	-	-	-	-	1,617.834	1,937.964	12,247.672
Plus CY Advance Procurement (\$ in Millions)	1,148.630	-	350.000	-	-	-	-	-	170.602	-	-	1,669.232
Plus Cost To Complete (\$ in Millions)	208.488	14.200	25.100	-	-	-	-	-	-	-	-	247.788
Plus Hurricane (\$ in Millions)	202.000	-	-	-	-	-	-	-	-	-	-	202.000
Total Obligation Authority (\$ in Millions)	8,540.065	1,725.127	375.100	0.000	0.000	0.000	0.000	0.000	170.602	1,617.834	1,937.964	14,366.692
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)												
Plus Outfitting and Post Delivery (\$ in Millions)	123.703	16.211	32.569	11.361	-	11.361	-	-	-	-	-	183.844
Total (\$ in Millions)	8,663.768	1,741.338	407.669	11.361	-	11.361	-	-	170.602	1,617.834	1,937.964	14,550.536
Gross/Weapon System Unit Cost (\$ in Millions)	3,430.097	-	-	-	-	-	-	-	-	4,076.400	-	3,591.673
Description: The LHA(R) Program replaces the Tarawa Class (LHA 1) Amphibious Assault Ships and the retiring Wasp Class (LHD 1) Amphibious Assault Class Ships. The LHA(R) class program ensures that the Amphibious Fleet remains capable of Expeditionary Warfare well into the 21st Century and provide for an affordable and sustainable amphibious ship development program. Provides forward presence and power projection as an integral part of joint, interagency, and multinational maritime expeditionary forces. Operates for sustained periods in transit to and operations in an Amphibious Objective Area to include the embarkation, deployment, and landing of a Marine Landing Force and supporting forces by helicopters and tilt rotors supported by Joint Strike Fighters F-35B. LHA(R) Flight 0 is considered a transitional increment intended to increase the aviation capabilities of amphibious assault ships. The LHA(R) Flight 1 design continues the incremental development of amphibious assault ships by adding a well deck, and increasing flight deck capacity by reducing the footprint of the island and adding a sponson. LHA(R) Flight 0 consisted of two ships, LHA 6 and LHA 7. LHA(R) Flight 1 is the second increment in the LHA 6 Class with LHA 8 being the first ship of Flight 1. Advance Procurement funds in FY 2019 & FY 2023 and the first increment of Full Funding in FY24 are for the second Flight 1 ship, LHA 9.												

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Exhibit P-40, Budget Line Item Justification: PB 2020 Navy				Date: March 2019							
Appropriation / Budget Activity / Budget Sub Activity: 1611N: Shipbuilding and Conversion, Navy / BA 03: Amphibious Ships / BSA 1: Amphibious Ships			P-1 Line Item Number / Title: 3041 / LHA Replacement								
ID Code (A=Service Ready, B=Not Service Ready): A		Program Elements for Code B Items: N/A		Other Related Program Elements: 0604567N							
Line Item MDAP/MAIS Code: 333											
<table border="0" style="width:100%;"> <tr> <td style="vertical-align: top; width: 30%;"> Characteristics: Length Overall Beam Displacement Draft </td> <td style="vertical-align: top; width: 15%;"> LHA 7 844ft 106ft 45,594 tons 29ft 1in </td> <td style="vertical-align: top; width: 15%;"> LHA 8 844ft 106ft 43,000 tons 27ft 8in </td> <td style="vertical-align: top; width: 30%;"> Systems: Electronics -Command, Control, Communication, Computer Intelligence Surveillance and Reconnaissance (C4ISR) -MK 2 MOD 4E Ship Self Defense System (SSDS) -Integrated Voice Network (IVN) -AN/SLQ-32(V), Surface Warfare Improvement Program (SEWIP) -AN/SPN-50 (V)1 -Joint Precision Approach and Landing System (JPALS) -Hierarchical Yet Dynamically Reprogrammable Architecture (HYDRA) AN/SRC-55 -AN/UPX-29(V), Identification Friend or Foe (IFF) MK12 -Ring Laser Gyro Navigator (RLGN) AN/WSN-7 -Amphibious Air Traffic Control Direct Altitude and Identity Readout (AATC-DAIR) AN/TPX-42 -Aircraft Control Approach Central AN/SPN-35C -Aircraft Approach Control Transmitting Set (AACTS) AN/SPN-41B </td> <td style="vertical-align: top; width: 10%;"> Ordnance -Enterprise Air Surveillance Radar (EASR) -NATO Sea Sparrow Missile System (NSSMS) MK 57 Mod 14 -MK31 Mod 3, Rolling Airframe Missile (RAM) (Tech Refresh) -PHALANX Block 1B MK15 Mod 21 & 22, Close-in Weapon System (CIWS) -Vertical/Stationary Take-Off Landing Optical Landing System (VSTOL OLS) -AN/SPQ-9B Radar Set </td> </tr> </table>						Characteristics: Length Overall Beam Displacement Draft	LHA 7 844ft 106ft 45,594 tons 29ft 1in	LHA 8 844ft 106ft 43,000 tons 27ft 8in	Systems: Electronics -Command, Control, Communication, Computer Intelligence Surveillance and Reconnaissance (C4ISR) -MK 2 MOD 4E Ship Self Defense System (SSDS) -Integrated Voice Network (IVN) -AN/SLQ-32(V), Surface Warfare Improvement Program (SEWIP) -AN/SPN-50 (V)1 -Joint Precision Approach and Landing System (JPALS) -Hierarchical Yet Dynamically Reprogrammable Architecture (HYDRA) AN/SRC-55 -AN/UPX-29(V), Identification Friend or Foe (IFF) MK12 -Ring Laser Gyro Navigator (RLGN) AN/WSN-7 -Amphibious Air Traffic Control Direct Altitude and Identity Readout (AATC-DAIR) AN/TPX-42 -Aircraft Control Approach Central AN/SPN-35C -Aircraft Approach Control Transmitting Set (AACTS) AN/SPN-41B	Ordnance -Enterprise Air Surveillance Radar (EASR) -NATO Sea Sparrow Missile System (NSSMS) MK 57 Mod 14 -MK31 Mod 3, Rolling Airframe Missile (RAM) (Tech Refresh) -PHALANX Block 1B MK15 Mod 21 & 22, Close-in Weapon System (CIWS) -Vertical/Stationary Take-Off Landing Optical Landing System (VSTOL OLS) -AN/SPQ-9B Radar Set	
Characteristics: Length Overall Beam Displacement Draft	LHA 7 844ft 106ft 45,594 tons 29ft 1in	LHA 8 844ft 106ft 43,000 tons 27ft 8in	Systems: Electronics -Command, Control, Communication, Computer Intelligence Surveillance and Reconnaissance (C4ISR) -MK 2 MOD 4E Ship Self Defense System (SSDS) -Integrated Voice Network (IVN) -AN/SLQ-32(V), Surface Warfare Improvement Program (SEWIP) -AN/SPN-50 (V)1 -Joint Precision Approach and Landing System (JPALS) -Hierarchical Yet Dynamically Reprogrammable Architecture (HYDRA) AN/SRC-55 -AN/UPX-29(V), Identification Friend or Foe (IFF) MK12 -Ring Laser Gyro Navigator (RLGN) AN/WSN-7 -Amphibious Air Traffic Control Direct Altitude and Identity Readout (AATC-DAIR) AN/TPX-42 -Aircraft Control Approach Central AN/SPN-35C -Aircraft Approach Control Transmitting Set (AACTS) AN/SPN-41B	Ordnance -Enterprise Air Surveillance Radar (EASR) -NATO Sea Sparrow Missile System (NSSMS) MK 57 Mod 14 -MK31 Mod 3, Rolling Airframe Missile (RAM) (Tech Refresh) -PHALANX Block 1B MK15 Mod 21 & 22, Close-in Weapon System (CIWS) -Vertical/Stationary Take-Off Landing Optical Landing System (VSTOL OLS) -AN/SPQ-9B Radar Set							
<table border="0" style="width:100%;"> <tr> <td style="vertical-align: top; width: 30%;"> Production Status: Contract Award Date Months to Completion a) Award to Delivery b) Construction Start to Delivery Delivery Date Completion Of Fitting Out Obligation Work Limit Date </td> <td style="vertical-align: top; width: 15%;"> LHA 7 May 2012 85 months 71 months Jun 2019 Jun 2020 May 2021 </td> <td style="vertical-align: top; width: 15%;"> LHA 8 Jun 2017 79 months 63 months Jan 2024 Sep 2024 Aug 2025 </td> <td colspan="3"></td> </tr> </table>						Production Status: Contract Award Date Months to Completion a) Award to Delivery b) Construction Start to Delivery Delivery Date Completion Of Fitting Out Obligation Work Limit Date	LHA 7 May 2012 85 months 71 months Jun 2019 Jun 2020 May 2021	LHA 8 Jun 2017 79 months 63 months Jan 2024 Sep 2024 Aug 2025			
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<table border="0" style="width:100%;"> <tr> <td style="vertical-align: top; width: 30%;"> Design Schedule Issue Date for TLR Issue Date for TLS Preliminary Design Contract Design Detail Design Request for Proposals </td> <td style="vertical-align: top; width: 15%;"> Start / Issue N/A N/A Nov 2011 Mar 2013 Jun 2017 Jun 2015 </td> <td style="vertical-align: top; width: 15%;"> Complete / Response N/A N/A Mar 2013 Sep 2014 Mar 2019 Dec 2015 </td> <td style="vertical-align: top; width: 10%;"> Reissue </td> <td style="vertical-align: top; width: 30%;"> Reissue Complete / Response </td> </tr> </table>						Design Schedule Issue Date for TLR Issue Date for TLS Preliminary Design Contract Design Detail Design Request for Proposals	Start / Issue N/A N/A Nov 2011 Mar 2013 Jun 2017 Jun 2015	Complete / Response N/A N/A Mar 2013 Sep 2014 Mar 2019 Dec 2015	Reissue	Reissue Complete / Response	
Design Schedule Issue Date for TLR Issue Date for TLS Preliminary Design Contract Design Detail Design Request for Proposals	Start / Issue N/A N/A Nov 2011 Mar 2013 Jun 2017 Jun 2015	Complete / Response N/A N/A Mar 2013 Sep 2014 Mar 2019 Dec 2015	Reissue	Reissue Complete / Response							

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Exhibit P-40, Budget Line Item Justification: PB 2020 Navy			Date: March 2019	
Appropriation / Budget Activity / Budget Sub Activity: 1611N: Shipbuilding and Conversion, Navy / BA 03: Amphibious Ships / BSA 1: Amphibious Ships		P-1 Line Item Number / Title: 3041 / LHA Replacement		
ID Code (A=Service Ready, B=Not Service Ready): A	Program Elements for Code B Items: N/A		Other Related Program Elements: 0604567N	
Line Item MDAP/MAIS Code: 333				
<u>Design Schedule</u> Design Agent <u>Classification of Cost Estimate</u> : CLASS C	<u>Start / Issue</u> Huntington Ingalls Inc.	<u>Complete / Response</u>	<u>Reissue</u>	<u>Reissue Complete / Response</u>

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Exhibit P-5c, Ship Cost Analysis: PB 2020 Navy			Date: March 2019	
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 03 / 1		P-1 Line Item Number / Title: 3041 / LHA Replacement		
Cost Categories <small>^(†) indicates the presence of a P-8a</small>	FY 2011		FY 2017	
	Qty <small>(Each)</small>	Total Cost <small>(\$ M)</small>	Qty <small>(Each)</small>	Total Cost <small>(\$ M)</small>
Plan Costs	1	60.084	1	329.093
Basic Construction/Conversion		2,538.275		2,770.836
Change Orders		130.528		97.790
Electronics ^(†)		258.621		314.754
Hull, Mechanical, and Electrical (HM&E) ^(†)		56.013		63.184
Ordnance ^(†)		112.684		158.708
Other Cost		95.088		99.917
Total Ship Estimate		3,251.293		3,834.282
Less Advance Procurement FY 2009		176.351		-
Less Advance Procurement FY 2010		169.320		-
Less Advance Procurement FY 2015		-		29.093
Less Advance Procurement FY 2016		-		476.543
Less Subsequent Full Funding FY 2012		1,928.692		-
Less Subsequent Full Funding FY 2018		-		1,710.927
Less Cost to Complete FY 2018		14.200		-
Less Cost to Complete FY 2019		25.100		-
Net P-1 Funding		937.630		1,617.719

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Exhibit P-27, Ship Production Schedule: PB 2020 Navy				Date: March 2019	
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 03 / 1			P-1 Line Item Number / Title: 3041 / LHA Replacement		
Ship	Shipbuilder	Fiscal Year	Contract Award	Start of Construction	Delivery Date
LHA 7	HII	2011	May 2012	Jul 2013	Jun 2019
LHA 8	HII	2017	Jun 2017	Oct 2018	Jan 2024
LHA 9	TBD	2024	Feb 2024	Apr 2025	Sep 2030

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Exhibit P-8a, Analysis of Ship Cost Estimates: PB 2020 Navy		Date: March 2019	
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 03 / 1		P-1 Line Item Number / Title: 3041 / LHA Replacement	
Electronics	FY 2017		
	Qty (Each)	Total Cost (\$ M)	
P-35 Items			
Command, Control, Communication, Computer Intelligence Surveillance and Reconnaissance (C4ISR)	1	147.479	
MK 2 MOD 4E Ship Self Defense System (SSDS)	1	26.185	
Integrated Voice Network (IVN)	1	16.165	
AN/SLQ-32(V), Surface Warfare Improvement Program (SEWIP)	1	15.513	
AN/SPN-50 (V)1	1	11.145	
Joint Precision Approach and Landing System (JPALS)	1	7.893	
Hierarchical Yet Dynamically Reprogrammable Architecture (HYDRA) AN/SRC-55	1	7.503	
AN/UPX-29(V), Identification Friend or Foe (IFF) MK12	1	6.993	
Ring Laser Gyro Navigator (RLGN) AN/WSN-7	1	6.002	
Amphibious Air Traffic Control Direct Altitude and Identity Readout (AATC-DAIR) AN/TPX-42	1	5.729	
Aircraft Control Approach Central AN/SPN-35C	1	4.548	
Aircraft Approach Control Transmitting Set (AACTS) AN/SPN-41B	1	4.397	
P-35 Items Subtotal		259.552	
Major Items			
AN/USG-2, Cooperative Engagement Transmission Processing Set (CETPS)	1	10.397	
USQ-82, Gigabit Ethernet Data Multiplex System (GEDMS)	1	6.525	
AN/SLQ-25C, Torpedo Countermeasures Transmitting Set (NIXIE)	2	6.211	
AN/USQ-T46(V), Battle Force Tactical Training (BFTT)	1	4.002	
Announcing Systems AN/SIA-127H	1	3.007	
SATCC	1	2.035	
Amphibious Assault Direction System (AADS)	1	1.949	
Digital Photo Lab	1	1.870	
MK 53 NULKA Decoy Launching System (DLS) Mod 3	1	1.725	
Print Shop	1	1.539	
30 TV	1	1.263	
Next Generation Navigational Radar	1	1.173	
Major Items Subtotal		41.696	
Other Cost Elements			
Miscellaneous Electronics		13.506	
Other Cost Elements Subtotal		13.506	
Total Electronics		314.754	

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Exhibit P-8a, Analysis of Ship Cost Estimates: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 03 / 1		P-1 Line Item Number / Title: 3041 / LHA Replacement
<p>Remarks: For LHA(R) Flight 1 ships:</p> <p>- Enterprise Air Surveillance Radar (EASR) suite will be a modern, long-range, three-dimensional (3-D) radar used to search, detect and provide space-stabilized, three-coordinate (range, bearing, height) data for air intercept control and designation to a weapon system and Air Traffic Control (ATC) system. The LHA(R) Flight 1 configuration includes a rotating antenna array, below decks radar and cooling equipment. The EASR suite replaces the SPS 48/49 air-search radar systems. AN/SPS-48 air search radars have not been in production for several years. All existing AN/SPS-48 radars are installed on operational Fleet ships. Without the EASR suite, LHA(R) Flight 1 ships will not have an air-search radar for self-defense and airspace deconfliction.</p> <p>- AN/SPN-50 Shipboard Air Traffic Radar (SATR) system provides aircraft position, radar signal and radar data. Air traffic controllers use the data for aircraft sequencing and separation, airspace identification and containment, safety alerts, traffic advisories and landing guidance. AN/SPN-50 SATR replaces the AN/SPN 43C SATR. EASR and AN/SPN-50 are designed to be integrated systems whereas EASR and AN/SPN 43C are not as compatible.</p> <p>- The dual mast antenna configuration Cooperative Engagement Transmission Processing Set (CETPS) replaces the single mast CETPS. The CETPS dual mast antenna configuration improves the compatibility with AN/SPN-50 and allows the ship to maintain 360-degree data link coverage and full combat systems capability.</p>		

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Exhibit P-8a, Analysis of Ship Cost Estimates: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 03 / 1		P-1 Line Item Number / Title: 3041 / LHA Replacement
Hull, Mechanical, and Electrical (HM&E)	FY 2017	
	Qty (Each)	Total Cost (\$ M)
Major Items		
Equipment & Engineering		50.738
SUPSHIP Material/Services		4.196
Test & Instrumentation		8.250
Major Items Subtotal		63.184
Total Hull, Mechanical, and Electrical (HM&E)		63.184

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Exhibit P-8a, Analysis of Ship Cost Estimates: PB 2020 Navy		Date: March 2019	
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 03 / 1		P-1 Line Item Number / Title: 3041 / LHA Replacement	
Ordnance	FY 2017		
	Qty (Each)	Total Cost (\$ M)	
P-35 Items			
Enterprise Air Surveillance Radar (EASR)	1	40.063	
NATO Sea Sparrow Missile System (NSSMS) MK 57 Mod 14	1	32.302	
MK31 Mod 3, Rolling Airframe Missile (RAM) (Tech Refresh)	2	15.743	
PHALANX Block 1B MK15 Mod 21 & 22, Close-in Weapon System (CIWS)	1	14.431	
Vertical/Stationary Take-Off Landing Optical Landing System (VSTOL OLS)	1	13.824	
AN/SPQ-9B Radar Set	1	10.909	
P-35 Items Subtotal		127.272	
Major Items			
MK 38 Mod 2 Stabilized Gun Stand Assembly	3	6.145	
AN/SPQ-14	1	2.537	
MORIAH	1	1.762	
Major Items Subtotal		10.444	
Other Cost Elements			
Aviation Support		7.745	
Miscellaneous Ordnance		2.800	
Total Ship Test Program		10.447	
Other Cost Elements Subtotal		20.992	
Total Ordnance		158.708	
Remarks: The \$15.89M cost increase from PB 2017 was based on the initial contract award contract costs for the Enterprise Air Surveillance Radar (EASR) suite. EASR is the replacement for the AN/SPS-48 air-search radar that has not been in production for several years. All existing AN/SPS-48 radars are installed on operational Fleet ships, without the EASR, LHA(R) Flight 1 ships will not have an air-search radar for self-defense and airspace deconfliction.			

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Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy						Date: March 2019	
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 03 / 1				P-1 Line Item Number / Title: 3041 / LHA Replacement			
Equipment Item: Command, Control, Communication, Computer Intelligence Surveillance and Reconnaissance (C4ISR)						PARM Code: PEO C4I	
P-35 Category				FY 2017			
				Qty (Each)	Total Cost (\$ M)		
Major Hardware				1	89.070		
Technical Data and Documentation					0.965		
Spares					2.319		
System Engineering					14.809		
Technical Engineering Services					23.962		
Other Costs					16.354		
Total				1	147.479		
Description: The Command, Control, Communication, Computer Intelligence Surveillance and Reconnaissance (C4ISR) system is used to prove the link between the ship, the command hierarchy, and other units of the operating forces.							
Contract Data:							
Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost (\$ M)
FY 2017	LHA 8	Various	Various	Various	Various	1	89.070
Delivery Date:							
Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date		
FY 2017	LHA 8	Jan 2024	0		Various		
Competition/Second Source Initiatives: N/A							

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Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy						Date: March 2019	
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 03 / 1				P-1 Line Item Number / Title: 3041 / LHA Replacement			
Equipment Item: MK 2 MOD 4E Ship Self Defense System (SSDS)						PARM Code: PEO IWS1A5	
P-35 Category				FY 2017			
				Qty (Each)	Total Cost (\$ M)		
Major Hardware				1	8.414		
Technical Data and Documentation					1.483		
Spares					0.808		
System Engineering					5.590		
Technical Engineering Services					0.468		
Other Costs					9.422		
Total				1	26.185		
Description: The Ship Self Defense System (SSDS) MK 2, Mod (x) Common C2 system provides capabilities for multi-mission requirements including Ship Protection against air, surface, and subsurface threats using both own-ship and remote data (Joint Composite Track Number (JCTN) and Joint Data Network (JDN)) in support of the Anti-Air Warfare (AAW) Capstone requirements.							
Contract Data:							
Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost (\$ M)
FY 2017	LHA 8	Various	C/FFP	Nov 2018	New	1	8.414
Delivery Date:							
Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date		
FY 2017	LHA 8	Jan 2024	38	24	Nov 2018		
Competition/Second Source Initiatives: N/A							

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Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy						Date: March 2019	
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 03 / 1				P-1 Line Item Number / Title: 3041 / LHA Replacement			
Equipment Item: Integrated Voice Network (IVN)						PARM Code: SEA05H	
P-35 Category				FY 2017			
				Qty (Each)	Total Cost (\$ M)		
Major Hardware				1	12.650		
Technical Data and Documentation					0.500		
System Engineering					0.760		
Technical Engineering Services					1.570		
Other Costs					0.685		
Total				1	16.165		
Description: The Integrated Voice Communications Network (IVCN) is an overarching engineering approach to establish consistent engineering practices and integrated voice communication capabilities across the Fleet. IVN is a fully integrated, supportable communication voice solution.							
Contract Data:							
Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost (\$ M)
FY 2017	LHA 8	Various	C/FFP	Jan 2019	New	1	12.650
Delivery Date:							
Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date		
FY 2017	LHA 8	Jan 2024	54	6	Jan 2019		
Competition/Second Source Initiatives: N/A							

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Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy						Date: March 2019	
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 03 / 1				P-1 Line Item Number / Title: 3041 / LHA Replacement			
Equipment Item: AN/SLQ-32(V), Surface Warfare Improvement Program (SEWIP)						PARM Code: PEO IWS2E	
P-35 Category				FY 2017			
				Qty (Each)		Total Cost (\$ M)	
Major Hardware				1		13.421	
Technical Data and Documentation						0.039	
Spares						0.498	
System Engineering						0.919	
Technical Engineering Services						0.118	
Other Costs						0.518	
Total				1		15.513	
Description: SEWIP Block 2 is a scalable Electronic Warfare enterprise suite to provide improved Electromagnetic Interference (EMI) mitigation and Combat System Interface capabilities to select new construction ships as well as upgrade current AN/SLQ-32(V)3 and (V)4 Electronic Warfare (EW) suites on existing ships. It provides enhanced shipboard Electronic Warfare (EW) for early detection, analysis, threat warning and protection from anti-ship missiles. SEWIP Block 2 focused on Electronic Support (ES) capability improvements.							
Contract Data:							
Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost (\$ M)
FY 2017	LHA 8	Various	Various	Mar 2019	New	1	13.421
Delivery Date:							
Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date		
FY 2017	LHA 8	Jan 2024	30	18	Jan 2020		
Competition/Second Source Initiatives: N/A							

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Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy						Date: March 2019																	
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 03 / 1				P-1 Line Item Number / Title: 3041 / LHA Replacement																			
Equipment Item: AN/SPN-50 (V)1						PARM Code: NAVAIR PMA213																	
P-35 Category				FY 2017																			
				Qty (Each)	Total Cost (\$ M)																		
Major Hardware				1	9.014																		
Technical Data and Documentation					0.120																		
Spares					0.716																		
System Engineering					0.703																		
Technical Engineering Services					0.095																		
Other Costs					0.497																		
Total				1	11.145																		
Description: AN/SPN-50 Shipboard Air Traffic Radar (SATR) system provides aircraft position, radar signal and radar data. Air traffic controllers use the data for aircraft sequencing and separation, airspace identification and containment, safety alerts, traffic advisories and landing guidance.																							
Contract Data: <table border="1" style="width:100%; border-collapse: collapse; margin-top: 5px;"> <tr> <th style="width:12.5%;">Program Year</th> <th style="width:12.5%;">Hull</th> <th style="width:25%;">Prime Contractor</th> <th style="width:12.5%;">Contract Method/Type</th> <th style="width:12.5%;">Award Date</th> <th style="width:12.5%;">New/Option</th> <th style="width:12.5%;">Quantity (Each)</th> <th style="width:12.5%;">Unit Cost (\$ M)</th> </tr> <tr> <td>FY 2017</td> <td>LHA 8</td> <td>SAAB</td> <td>C/FFP</td> <td>Jan 2020</td> <td>New</td> <td style="text-align: center;">1</td> <td style="text-align: right;">9.014</td> </tr> </table>								Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost (\$ M)	FY 2017	LHA 8	SAAB	C/FFP	Jan 2020	New	1	9.014
Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost (\$ M)																
FY 2017	LHA 8	SAAB	C/FFP	Jan 2020	New	1	9.014																
Delivery Date: <table border="1" style="width:100%; border-collapse: collapse; margin-top: 5px;"> <tr> <th style="width:12.5%;">Program Year</th> <th style="width:12.5%;">Hull</th> <th style="width:12.5%;">Earliest Ship Delivery Date</th> <th style="width:12.5%;">Months Required Before Delivery</th> <th style="width:12.5%;">Production Leadtime</th> <th style="width:12.5%;">Required Award Date</th> </tr> <tr> <td>FY 2017</td> <td>LHA 8</td> <td style="text-align: center;">Jan 2024</td> <td style="text-align: center;">24</td> <td style="text-align: center;">24</td> <td style="text-align: center;">Jan 2020</td> </tr> </table>								Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date	FY 2017	LHA 8	Jan 2024	24	24	Jan 2020				
Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date																		
FY 2017	LHA 8	Jan 2024	24	24	Jan 2020																		
Competition/Second Source Initiatives: N/A																							
Remarks: AN/SPN-50 SATR system replaces the AN/SPN 43C SATR. EASR and AN/SPN-50 are designed to be integrated systems whereas EASR and AN/SPN 43C are not as compatible.																							

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Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy						Date: March 2019	
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 03 / 1				P-1 Line Item Number / Title: 3041 / LHA Replacement			
Equipment Item: Joint Precision Approach and Landing System (JPALS)						PARM Code: NAVAIR PMA213	
P-35 Category				FY 2017			
				Qty (Each)	Total Cost (\$ M)		
Major Hardware				1	4.898		
Spares					0.914		
System Engineering					0.739		
Technical Engineering Services					1.075		
Other Costs					0.267		
Total				1	7.893		
Description: The Joint Precision Approach Landing System (JPALS) works with the GPS satellite navigation system to provide accurate, reliable and high-integrity guidance for F-35 and future JPALS equipped aircraft. The system features anti-jam protection to ensure mission continuity in hostile environments. JPALS is a differential GPS that will provide an adverse weather precision approach and landing capability.							
Contract Data:							
Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost (\$ M)
FY 2017	LHA 8	TBD	TBD	May 2019	New	1	4.898
Delivery Date:							
Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date		
FY 2017	LHA 8	Jan 2024	44	12	May 2019		
Competition/Second Source Initiatives: N/A							

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Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy						Date: March 2019	
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 03 / 1				P-1 Line Item Number / Title: 3041 / LHA Replacement			
Equipment Item: Hierarchical Yet Dynamically Reprogrammable Architecture (HYDRA) AN/SRC-55						PARM Code: SEA05H	
P-35 Category				FY 2017			
				Qty (Each)		Total Cost (\$ M)	
Major Hardware				1		4.542	
Technical Data and Documentation						0.301	
Spares						0.093	
System Engineering						1.139	
Technical Engineering Services						0.642	
Other Costs						0.786	
Total				1		7.503	
Description: AN/SRC-55 HYDRA is a Wireless Interior Communications System that provides wire free mobile communications throughout the ship. HYDRA supports security, navigation, combat systems, engineering, damage control, maintenance and general operations such as maneuvering and docking, shore patrol and beach guard. It is interoperable with other shipboard communication systems and it has improved capabilities over the legacy wireless systems.							
Contract Data:							
Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost (\$ M)
FY 2017	LHA 8	Various	Various	Jul 2020	New	1	4.542
Delivery Date:							
Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date		
FY 2017	LHA 8	Jan 2024	36	6	Jul 2020		
Competition/Second Source Initiatives: N/A							

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Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy						Date: March 2019	
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 03 / 1				P-1 Line Item Number / Title: 3041 / LHA Replacement			
Equipment Item: AN/UPX-29(V), Identification Friend or Foe (IFF) MK12						PARM Code: NAVAIR PMA213	
P-35 Category				FY 2017			
				Qty (Each)	Total Cost (\$ M)		
Major Hardware				1	6.061		
Spares					0.106		
System Engineering					0.293		
Technical Engineering Services					0.103		
Other Costs					0.430		
Total				1	6.993		
Description: Identification Friend or Foe (IFF) is an approved and fully supported centralized Mark XII Interrogator system. It uses one receiver transmitter that synchronizes video with up to four radar sweeps. It supplies synthetic video (symbology) to, and accepts requests from, as many as 22 remote locations. It provides digital target reporting to the combat systems/weapon systems computer via full scan, sector, and/or pop-up interrogations. It provides instantaneous target reporting at requested range and azimuth through the use of an electronically-steered Antenna Group OE-120/UPX or OE-120A/UPX.							
Contract Data:							
Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost (\$ M)
FY 2017	LHA 8	Various	C/FFP	Feb 2019	New	1	6.061
Delivery Date:							
Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date		
FY 2017	LHA 8	Jan 2024	35	24	Feb 2019		
Competition/Second Source Initiatives: N/A							

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Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy						Date: March 2019	
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 03 / 1				P-1 Line Item Number / Title: 3041 / LHA Replacement			
Equipment Item: Ring Laser Gyro Navigator (RLGN) AN/WSN-7						PARM Code: PEO IWS6.0	
P-35 Category				FY 2017			
				Qty (Each)	Total Cost (\$ M)		
Major Hardware				1	5.491		
System Engineering					0.072		
Technical Engineering Services					0.300		
Other Costs					0.139		
Total				1	6.002		
Description: The AN/WSN-7(V) Ring Laser Gyro Navigation System provides real-time navigation data for use by navigation and combat systems.							
Contract Data:							
Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost (\$ M)
FY 2017	LHA 8	Northrop Grumman Systems Corp.	C/FFP	May 2018	New	1	5.491
Delivery Date:							
Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date		
FY 2017	LHA 8	Jan 2024	38	18	May 2019		
Competition/Second Source Initiatives: N/A							

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Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy						Date: March 2019	
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 03 / 1				P-1 Line Item Number / Title: 3041 / LHA Replacement			
Equipment Item: Amphibious Air Traffic Control Direct Altitude and Identity Readout (AATC-DAIR) AN/TPX-42						PARM Code: NAVAIR PMA213	
P-35 Category				FY 2017			
				Qty (Each)	Total Cost (\$ M)		
Major Hardware				1	4.246		
Spares					0.208		
System Engineering					0.506		
Technical Engineering Services					0.056		
Other Costs					0.713		
Total				1	5.729		
Description: The Amphibious Air Traffic Control (AATC) Direct Altitude and Identity Readout (DAIR) is an automatic beacon and radar that when integrated with an air traffic control radar, provides numeric and symbolic displays of position, identity, and altitude of aircraft in the terminal airspace on an operator's Plane Position Indicator (PPI) display.							
Contract Data:							
Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost (\$ M)
FY 2017	LHA 8	NAWCAD	WR	Jul 2018	New	1	4.246
Delivery Date:							
Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date		
FY 2017	LHA 8	Jan 2024	30	24	Jul 2019		
Competition/Second Source Initiatives: N/A							

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Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy						Date: March 2019	
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 03 / 1				P-1 Line Item Number / Title: 3041 / LHA Replacement			
Equipment Item: Aircraft Control Approach Central AN/SPN-35C						PARM Code: NAVAIR PMA213	
P-35 Category				FY 2017			
				Qty (Each)		Total Cost (\$ M)	
Major Hardware				1		3.529	
System Engineering						0.603	
Technical Engineering Services						0.083	
Other Costs						0.333	
Total				1		4.548	
Description: The AN/SPN-35 is a precision approach radar that provides glide slope guidance to Navy and Marine Corps aircraft. The system is used in conjunction with a vertical/short take-off and landing, optical landing system and the AN/SPN-41 Instrument Control Landing System for precision landing operations. It is also used for aircraft recovery during adverse weather and night conditions.							
Contract Data:							
Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost (\$ M)
FY 2017	LHA 8	NAWCAD	WR	Jul 2018	New	1	3.529
Delivery Date:							
Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date		
FY 2017	LHA 8	Jan 2024	30	36	Jul 2018		
Competition/Second Source Initiatives: N/A							

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Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy						Date: March 2019	
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 03 / 1				P-1 Line Item Number / Title: 3041 / LHA Replacement			
Equipment Item: Aircraft Approach Control Transmitting Set (AACTS) AN/SPN-41B						PARM Code: NAVAIR PMA213	
P-35 Category				FY 2017			
				Qty (Each)	Total Cost (\$ M)		
Major Hardware				1	3.381		
System Engineering					0.622		
Technical Engineering Services					0.063		
Other Costs					0.331		
Total				1	4.397		
Description: The AN/SPN-41 transmitting set is an electronic instrument control landing system that provides proper flight path data to an approaching aircraft. The AN/SPN-41 has two separate transmitters (azimuth and elevation) with individual antennas used for sector scanning. It provides primary or backup instrument approach capability.							
Contract Data:							
Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost (\$ M)
FY 2017	LHA 8	NAWCAD	WR	Jun 2018	New	1	3.381
Delivery Date:							
Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date		
FY 2017	LHA 8	Jan 2024	40	27	Jun 2018		
Competition/Second Source Initiatives: N/A							

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Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy						Date: March 2019																	
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 03 / 1				P-1 Line Item Number / Title: 3041 / LHA Replacement																			
Equipment Item: Enterprise Air Surveillance Radar (EASR)						PARM Code: PEO IWS2.0																	
P-35 Category				FY 2017																			
				Qty (Each)	Total Cost (\$ M)																		
Major Hardware				1	28.932																		
Technical Data and Documentation					0.042																		
Spares					1.337																		
System Engineering					0.472																		
Technical Engineering Services					3.436																		
Other Costs					5.844																		
Total				1	40.063																		
Description: Enterprise Air Surveillance Radar (EASR) suite will be a modern, long-range, three-dimensional (3-D) radar used to search, detect and provide space-stabilized, three-coordinate (range, bearing, height) data for air intercept control and designation to a weapon system and Air Traffic Control (ATC) system. The LHA(R) Flight 1 configuration includes a rotating antenna array, below decks radar and cooling equipment. Without the EASR suite, LHA(R) Flight 1 ships will not have an air-search radar for self-defense and airspace deconfliction.																							
Contract Data: <table border="1" style="width: 100%; border-collapse: collapse; margin-top: 5px;"> <tr> <th style="width: 10%;">Program Year</th> <th style="width: 10%;">Hull</th> <th style="width: 20%;">Prime Contractor</th> <th style="width: 15%;">Contract Method/Type</th> <th style="width: 10%;">Award Date</th> <th style="width: 10%;">New/Option</th> <th style="width: 10%;">Quantity (Each)</th> <th style="width: 15%;">Unit Cost (\$ M)</th> </tr> <tr> <td>FY 2017</td> <td>LHA 8</td> <td>Various</td> <td>Various</td> <td>Jun 2019</td> <td>New</td> <td style="text-align: center;">1</td> <td style="text-align: right;">28.932</td> </tr> </table>								Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost (\$ M)	FY 2017	LHA 8	Various	Various	Jun 2019	New	1	28.932
Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost (\$ M)																
FY 2017	LHA 8	Various	Various	Jun 2019	New	1	28.932																
Delivery Date: <table border="1" style="width: 100%; border-collapse: collapse; margin-top: 5px;"> <tr> <th style="width: 10%;">Program Year</th> <th style="width: 10%;">Hull</th> <th style="width: 15%;">Earliest Ship Delivery Date</th> <th style="width: 15%;">Months Required Before Delivery</th> <th style="width: 15%;">Production Leadtime</th> <th style="width: 20%;">Required Award Date</th> </tr> <tr> <td>FY 2017</td> <td>LHA 8</td> <td>Jan 2024</td> <td style="text-align: center;">31</td> <td style="text-align: center;">24</td> <td style="text-align: center;">Jun 2019</td> </tr> </table>								Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date	FY 2017	LHA 8	Jan 2024	31	24	Jun 2019				
Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date																		
FY 2017	LHA 8	Jan 2024	31	24	Jun 2019																		
Competition/Second Source Initiatives: N/A																							
Remarks: The \$15.89M cost increase from PB 2017 was based on the initial contract award contract costs for the EASR suite. The EASR suite is the replacement for the AN/SPS-48 air-search radar that has not been in production for several years. All existing AN/SPS-48 radars are installed on operational Fleet ships, without the EASR suite.																							

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Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy						Date: March 2019	
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 03 / 1				P-1 Line Item Number / Title: 3041 / LHA Replacement			
Equipment Item: NATO Sea Sparrow Missile System (NSSMS) MK 57 Mod 14						PARM Code: PEO IWS3.0	
P-35 Category				FY 2017			
				Qty (Each)	Total Cost (\$ M)		
Major Hardware				1	21.343		
Spares					1.437		
System Engineering					1.486		
Technical Engineering Services					3.118		
Other Costs					4.918		
Total				1	32.302		
Description: The NSSMS MK 57 is a short-range weapon system, which provides self-defense capability against air-to-surface missiles, surface-to-surface missiles, manned attack aircraft, and surface craft. The system is designed to provide these capabilities under both clear and adverse environmental conditions as well as in a hostile electronics attack environment. NSSMS MK 57 performs target engageability; and provides launcher control, missile control and missing firing orders.							
Contract Data:							
Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost (\$ M)
FY 2017	LHA 8	RAYTHEON	C/FFP	Apr 2018	New	1	21.343
Delivery Date:							
Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date		
FY 2017	LHA 8	Jan 2024	33	36	Apr 2018		
Competition/Second Source Initiatives: N/A							

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Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy						Date: March 2019	
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 03 / 1				P-1 Line Item Number / Title: 3041 / LHA Replacement			
Equipment Item: MK31 Mod 3, Rolling Airframe Missile (RAM) (Tech Refresh)						PARM Code: PEO IWS3B	
P-35 Category				FY 2017			
				Qty (Each)	Total Cost (\$ M)		
Major Hardware				2	10.954		
Technical Data and Documentation					0.663		
Spares					0.103		
System Engineering					2.145		
Technical Engineering Services					0.083		
Other Costs					1.795		
Total				2	15.743		
Description: The MK 49 Mod 3 Rolling Airframe Missile (RAM) Weapon System is a lightweight, low cost, high power system for anti-ship missile defense against current and evolving threats.							
Contract Data:							
Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost (\$ M)
FY 2017	LHA 8	RAYTHEON	C/FFP	Dec 2018	New	2	5.477
Delivery Date:							
Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date		
FY 2017	LHA 8	Jan 2024	37	24	Dec 2018		
Competition/Second Source Initiatives: N/A							

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Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy						Date: March 2019	
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 03 / 1				P-1 Line Item Number / Title: 3041 / LHA Replacement			
Equipment Item: PHALANX Block 1B MK15 Mod 21 & 22, Close-in Weapon System (CIWS)						PARM Code: PEO IWS3.0	
P-35 Category				FY 2017			
				Qty (Each)		Total Cost (\$ M)	
Major Hardware				1		11.627	
Technical Data and Documentation						0.098	
Spares						0.383	
System Engineering						0.514	
Technical Engineering Services						0.720	
Other Costs						1.089	
Total				1		14.431	
Description: Phalanx is a high fire rate Close-In Weapon System (CIWS) that automatically acquires, tracks and destroys Anti-Ship cruise missiles, Helos, Aircraft, and all types of Surface threats.							
Contract Data:							
Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost (\$ M)
FY 2017	LHA 8	RAYTHEON	C/FFP	Aug 2016	New	1	11.627
Delivery Date:							
Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date		
FY 2017	LHA 8	Jan 2024	47	24	Feb 2018		
Competition/Second Source Initiatives: N/A							

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Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy						Date: March 2019	
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 03 / 1				P-1 Line Item Number / Title: 3041 / LHA Replacement			
Equipment Item: Vertical/Stationary Take-Off Landing Optical Landing System (VSTOL OLS)						PARM Code: NAVAIR PMA251	
P-35 Category				FY 2017			
				Qty (Each)	Total Cost (\$ M)		
Major Hardware				1	11.700		
Technical Data and Documentation					0.150		
Spares					0.413		
System Engineering					0.319		
Technical Engineering Services					0.781		
Other Costs					0.461		
Total				1	13.824		
Description: The Vertical/Stationary Take-Off Landing (VSTOL) Optical Landing System is a visual landing aid that displays glide path and trend information to the VSTOL pilot preparing to land on ship. The system can guide an aircraft to the ship from a distance of 0.8 nautical miles. The OLS guides the aircraft to 50 feet above the flight deck up to the final approach phase.							
Contract Data:							
Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost (\$ M)
FY 2017	LHA 8	LAKEHURST MANUFACTURING	WR	Jul 2017	New	1	11.700
Delivery Date:							
Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date		
FY 2017	LHA 8	Jan 2024	30	48	Jul 2017		
Competition/Second Source Initiatives: N/A							

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Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy						Date: March 2019																	
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 03 / 1				P-1 Line Item Number / Title: 3041 / LHA Replacement																			
Equipment Item: AN/SPQ-9B Radar Set						PARM Code: PEO IWS2B																	
P-35 Category				FY 2017																			
				Qty (Each)		Total Cost (\$ M)																	
Major Hardware				1		8.890																	
Technical Data and Documentation						0.115																	
Spares						0.129																	
System Engineering						0.365																	
Technical Engineering Services						0.684																	
Other Costs						0.726																	
Total				1		10.909																	
Description: The AN/SPQ-9B is an X-Band Horizon Search, pulse Doppler, frequency agile radar designed for the littoral environment. It has a very high clutter improvement factor supporting a very low false track rate in the littorals and in high clutter environments.																							
Contract Data: <table border="1" style="width: 100%; border-collapse: collapse; margin-top: 5px;"> <tr> <th style="width: 10%;">Program Year</th> <th style="width: 10%;">Hull</th> <th style="width: 25%;">Prime Contractor</th> <th style="width: 15%;">Contract Method/Type</th> <th style="width: 10%;">Award Date</th> <th style="width: 10%;">New/Option</th> <th style="width: 10%;">Quantity (Each)</th> <th style="width: 10%;">Unit Cost (\$ M)</th> </tr> <tr> <td>FY 2017</td> <td>LHA 8</td> <td>LEONARDO DRS</td> <td>C/FFP</td> <td>Apr 2018</td> <td>New</td> <td style="text-align: center;">1</td> <td style="text-align: right;">8.890</td> </tr> </table>								Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost (\$ M)	FY 2017	LHA 8	LEONARDO DRS	C/FFP	Apr 2018	New	1	8.890
Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost (\$ M)																
FY 2017	LHA 8	LEONARDO DRS	C/FFP	Apr 2018	New	1	8.890																
Delivery Date: <table border="1" style="width: 100%; border-collapse: collapse; margin-top: 5px;"> <tr> <th style="width: 10%;">Program Year</th> <th style="width: 10%;">Hull</th> <th style="width: 15%;">Earliest Ship Delivery Date</th> <th style="width: 20%;">Months Required Before Delivery</th> <th style="width: 20%;">Production Leadtime</th> <th style="width: 25%;">Required Award Date</th> </tr> <tr> <td>FY 2017</td> <td>LHA 8</td> <td style="text-align: center;">Jan 2024</td> <td style="text-align: center;">30</td> <td style="text-align: center;">24</td> <td style="text-align: center;">Jul 2019</td> </tr> </table>								Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date	FY 2017	LHA 8	Jan 2024	30	24	Jul 2019				
Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date																		
FY 2017	LHA 8	Jan 2024	30	24	Jul 2019																		
Competition/Second Source Initiatives: N/A																							

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Exhibit P-10, Advance Procurement Requirements Analysis (page 1 - Budget Funding Justification): PB 2020 Navy	Date: March 2019
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Appropriation / Budget Activity / Budget Sub Activity: 1611N / 03 / 1	P-1 Line Item Number / Title: 3041 / LHA Replacement
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First System (2020) Award Date: June 2019	First System (2020) Completion Date:	Interval Between Systems: 0 Months
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Cost Elements	Production Leadtime (Months)	When Required* (Months)	FY 2018 (\$ M)	FY 2019 (\$ M)	FY 2020 (\$ M)	FY 2021 (\$ M)	FY 2022 (\$ M)	FY 2023 (\$ M)	FY 2024 (\$ M)
CFE									
PLANS	-	JUN-19	-	20.300	0.000	-	-	-	-
BASIC	-	JUN-19	-	139.620	0.000	-	-	170.602	-
Port Deck Edge Elevator Machinery	48	MAY-23	-	34.320	0.000	-	-	-	-
Steering Gear	46	AUG-23	-	5.020	0.000	-	-	-	-
S/S Diesel Generators	43	OCT-22	-	48.430	0.000	-	-	-	-
Main Reduction Gear	40	APR-22	-	42.760	0.000	-	-	-	-
Oily Waste Ultrafiltration System	37	OCT-22	-	2.570	0.000	-	-	-	-
A/C Chilled Water Plant	34	MAR-22	-	24.270	0.000	-	-	-	-
450/60Hz Switchboard	32	OCT-23	-	32.710	0.000	-	-	-	-
<i>Total: CFE</i>			-	350.000	-	-	-	170.602	-
Total Advance Procurement/Obligation Authority			-	350.000	-	-	-	170.602	-

*Note: "When Required" is the number of months required before ship delivery.

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Exhibit P-10, Advance Procurement Requirements Analysis (page 2 - Budget Funding Justification): PB 2020 Navy	Date: March 2019
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Appropriation / Budget Activity / Budget Sub Activity: 1611N / 03 / 1	P-1 Line Item Number / Title: 3041 / LHA Replacement
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Cost Elements	FY 2020						
	Production Leadtime (Months)	When Required* (Months)	Unit Cost (\$ M)	Contract Forecast Date	2020 Qty (Each)	For FY	Total Cost Request (\$ M)
CFE							
PLANS	-	JUN-19	-	Jun 2019	-		0.000
BASIC	-	JUN-19	-	Jun 2019	-		0.000
Port Deck Edge Elevator Machinery	48	MAY-23	-	Jun 2019	-		0.000
Steering Gear	46	AUG-23	-	Jun 2019	-		0.000
S/S Diesel Generators	43	OCT-22	-	Jun 2019	-		0.000
Main Reduction Gear	40	APR-22	-	Jun 2019	-		0.000
Oily Waste Ultrafiltration System	37	OCT-22	-	Jun 2019	-		0.000
A/C Chilled Water Plant	34	MAR-22	-	Jun 2019	-		0.000
450/60Hz Switchboard	32	OCT-23	-	Jun 2019	-		0.000
<i>Total: CFE</i>							-
Total Advance Procurement/Obligation Authority							-

Description:

*Note - This is an estimated plan based on a FY21 Ship, which is not part of the Navy's current Program of Record.

PLANS - (\$20.3M) Funds required for non-recurring engineering.

BASIC - (\$329.7M) Procurement of Long Lead Time Contractor Furnished Equipment (CFE) to support in-yard need dates for ship production and completion of design integration efforts.

PLANS - Non-recurring engineering

Port Deck Edge Elevator Machinery - Long Lead Time Contractor Furnished Equipment (CFE) to support in-yard need dates for ship production.

Steering Gear - Long Lead Time Contractor Furnished Equipment (CFE) to support in-yard need dates for ship production.

S/S Diesel Generators - Long Lead Time Contractor Furnished Equipment (CFE) to support in-yard need dates for ship production.

Main Reduction Gear - Long Lead Time Contractor Furnished Equipment (CFE) to support in-yard need dates for ship production.

Oily Waste Ultrafiltration System - Long Lead Time Contractor Furnished Equipment (CFE) to support in-yard need dates for ship production.

A/C Chilled Water Plant - Long Lead Time Contractor Furnished Equipment (CFE) to support in-yard need dates for ship production.

450/60Hz Switchboard - Long Lead Time Contractor Furnished Equipment (CFE) to support in-yard need dates for ship production.

*Note: "When Required" is the number of months required before ship delivery.

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Exhibit P-10, Advance Procurement Requirements Analysis (page 2 - Budget Funding Justification): PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 03 / 1		P-1 Line Item Number / Title: 3041 / LHA Replacement

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Exhibit P-40, Budget Line Item Justification: PB 2020 Navy								Date: March 2019				
Appropriation / Budget Activity / Budget Sub Activity: 1611N: Shipbuilding and Conversion, Navy / BA 03: Amphibious Ships / BSA 1: Amphibious Ships						P-1 Line Item Number / Title: 3043 / Expeditionary Fast Transport (EPF)						
ID Code (A=Service Ready, B=Not Service Ready): A			Program Elements for Code B Items: N/A					Other Related Program Elements: N/A				
Line Item MDAP/MAIS Code: N/A												
Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity (<i>Units in Each</i>)	8	1	1	-	-	-	-	-	-	-	-	10
Gross/Weapon System Cost (<i>\$ in Millions</i>)	1,571.897	225.000	225.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	-	2,021.897
Less PY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Less Cost To Complete (<i>\$ in Millions</i>)	61.090	-	-	-	-	-	-	-	-	-	-	61.090
Less Program Support (<i>\$ in Millions</i>)	2.732	-	-	-	-	-	-	-	-	-	-	2.732
Net Procurement (P-1) (<i>\$ in Millions</i>)	1,508.075	225.000	225.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	-	1,958.075
Plus CY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Plus Cost To Complete (<i>\$ in Millions</i>)	61.090	-	-	-	-	-	-	-	-	-	-	61.090
Plus Program Support (<i>\$ in Millions</i>)	2.732	-	-	-	-	-	-	-	-	-	-	2.732
Total Obligation Authority (<i>\$ in Millions</i>)	1,571.897	225.000	225.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	-	2,021.897
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)												
Plus Outfitting and Post Delivery (<i>\$ in Millions</i>)	75.138	6.624	9.018	2.403	-	2.403	4.233	-	-	-	-	97.416
Total (<i>\$ in Millions</i>)	1,647.035	231.624	234.018	2.403	-	2.403	4.233	-	-	-	-	2,119.313
Gross/Weapon System Unit Cost (<i>\$ in Millions</i>)	196.487	225.000	225.000	-	-	-	-	-	-	-	-	202.190

Description:

Future joint forces will be responsive, deployable, agile, versatile, lethal, survivable, and sustainable. The nation will need lift assets that can provide for assured access, decrease predictability and dwell time, and have the capacity to quickly deliver troops and equipment together in a manner that provides for unit integrity. Expeditionary Fast Transport (EPF) (formerly Joint High Speed Vessel) will provide combatant commanders high-speed intra-theater sealift with inherent cargo handling capability and the agility to achieve positional advantage over operational distances. Not limited to major ports, the EPF will be able to operate in austere port environments.

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Exhibit P-40, Budget Line Item Justification: PB 2020 Navy				Date: March 2019																																																	
Appropriation / Budget Activity / Budget Sub Activity: 1611N: Shipbuilding and Conversion, Navy / BA 03: Amphibious Ships / BSA 1: Amphibious Ships			P-1 Line Item Number / Title: 3043 / Expeditionary Fast Transport (EPF)																																																		
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Line Item MDAP/MAIS Code: N/A																																																					
<table style="width: 100%; border: none;"> <tr> <td style="width: 33%; vertical-align: top;"> Characteristics: Length Overall Beam Displacement Draft </td> <td style="width: 33%; vertical-align: top;"> Aluminum Catamaran 338 ft 93.5 ft 2359 Long Tons 12.5 ft </td> <td style="width: 33%; vertical-align: top;"> Systems: Electronics -C4ISR </td> </tr> </table>						Characteristics: Length Overall Beam Displacement Draft	Aluminum Catamaran 338 ft 93.5 ft 2359 Long Tons 12.5 ft	Systems: Electronics -C4ISR																																													
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Production Status:	EPF 11	EPF 12	EPF 13	EPF 14																																																	
Contract Award Date	Sep 2016	Sep 2016	Mar 2019	Mar 2019																																																	
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<table style="width: 100%; border: none;"> <tr> <td style="width: 33%;"><u>Design Schedule</u></td> <td style="width: 15%;"><u>Start / Issue</u></td> <td style="width: 15%;"><u>Complete / Response</u></td> <td style="width: 15%;"><u>Reissue</u></td> <td style="width: 20%;"><u>Reissue Complete / Response</u></td> </tr> <tr> <td>Issue Date for TLR</td> <td>N/A</td> <td>N/A</td> <td></td> <td></td> </tr> <tr> <td>Issue Date for TLS</td> <td>N/A</td> <td>N/A</td> <td></td> <td></td> </tr> <tr> <td>Preliminary Design</td> <td>Jan 2007</td> <td>Jul 2008</td> <td></td> <td></td> </tr> <tr> <td>Contract Design</td> <td>Jan 2007</td> <td>Jul 2008</td> <td></td> <td></td> </tr> <tr> <td>Detail Design</td> <td>Nov 2008</td> <td>Dec 2009</td> <td></td> <td></td> </tr> <tr> <td>Request for Proposals</td> <td>N/A</td> <td>N/A</td> <td></td> <td></td> </tr> <tr> <td>Design Agent</td> <td></td> <td></td> <td></td> <td></td> </tr> </table>						<u>Design Schedule</u>	<u>Start / Issue</u>	<u>Complete / Response</u>	<u>Reissue</u>	<u>Reissue Complete / Response</u>	Issue Date for TLR	N/A	N/A			Issue Date for TLS	N/A	N/A			Preliminary Design	Jan 2007	Jul 2008			Contract Design	Jan 2007	Jul 2008			Detail Design	Nov 2008	Dec 2009			Request for Proposals	N/A	N/A			Design Agent												
<u>Design Schedule</u>	<u>Start / Issue</u>	<u>Complete / Response</u>	<u>Reissue</u>	<u>Reissue Complete / Response</u>																																																	
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Issue Date for TLS	N/A	N/A																																																			
Preliminary Design	Jan 2007	Jul 2008																																																			
Contract Design	Jan 2007	Jul 2008																																																			
Detail Design	Nov 2008	Dec 2009																																																			
Request for Proposals	N/A	N/A																																																			
Design Agent																																																					
<u>Classification of Cost Estimate:</u> CLASS C																																																					

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Exhibit P-5c, Ship Cost Analysis: PB 2020 Navy						Date: March 2019		
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 03 / 1				P-1 Line Item Number / Title: 3043 / Expeditionary Fast Transport (EPF)				
Cost Categories <small>(†) indicates the presence of a P-8a</small>	FY 2015		FY 2016		FY 2018		FY 2019	
	Qty <i>(Each)</i>	Total Cost <i>(\$ M)</i>	Qty <i>(Each)</i>	Total Cost <i>(\$ M)</i>	Qty <i>(Each)</i>	Total Cost <i>(\$ M)</i>	Qty <i>(Each)</i>	Total Cost <i>(\$ M)</i>
Plan Costs	1		1		1		1	
Basic Construction/Conversion		169.795		176.610		178.000		178.000
Change Orders		4.855		4.960		5.000		5.000
Electronics ^(†)		14.985		16.840		17.000		17.000
Hull, Mechanical, and Electrical (HM&E) ^(†)		5.908		14.050		13.000		13.000
Other Cost		4.457		12.540		12.000		12.000
Total Ship Estimate		200.000		225.000		225.000		225.000
Net P-1 Funding		200.000		225.000		225.000		225.000

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Exhibit P-27, Ship Production Schedule: PB 2020 Navy					Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 03 / 1			P-1 Line Item Number / Title: 3043 / Expeditionary Fast Transport (EPF)		
Ship	Shipbuilder	Fiscal Year	Contract Award	Start of Construction	Delivery Date
EPF 11	AUSTAL	2015	Sep 2016	Jan 2017	Apr 2019
EPF 12	AUSTAL	2016	Sep 2016	Sep 2017	Feb 2020
EPF 13	AUSTAL	2018	Mar 2019	Nov 2019	Nov 2021
EPF 14	AUSTAL	2019	Mar 2019	Jul 2020	Jul 2022

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Exhibit P-8a, Analysis of Ship Cost Estimates: PB 2020 Navy			Date: March 2019	
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 03 / 1		P-1 Line Item Number / Title: 3043 / Expeditionary Fast Transport (EPF)		
Electronics	FY 2018		FY 2019	
	Qty (Each)	Total Cost (\$ M)	Qty (Each)	Total Cost (\$ M)
P-35 Items				
C4ISR	1	13.227	1	13.227
P-35 Items Subtotal		13.227		13.227
Major Items				
VISUAL LANDING AIDE SUITE	1	3.004	1	3.004
MISC ELECTRONICS		0.769		0.769
Major Items Subtotal		3.773		3.773
Total Electronics		17.000		17.000

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Exhibit P-8a, Analysis of Ship Cost Estimates: PB 2020 Navy			Date: March 2019	
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 03 / 1		P-1 Line Item Number / Title: 3043 / Expeditionary Fast Transport (EPF)		
Hull, Mechanical, and Electrical (HM&E)	FY 2018		FY 2019	
	Qty (Each)	Total Cost (\$ M)	Qty (Each)	Total Cost (\$ M)
Major Items				
ENGINEERING SERVICES		8.235		8.235
SUPSHIP MATERIAL SERVICES		1.978		1.978
LOGISTICS SUPPORT SERVICES		1.830		1.830
TEST AND INSTRUMENTATION		0.957		0.957
Major Items Subtotal		13.000		13.000
Total Hull, Mechanical, and Electrical (HM&E)		13.000		13.000

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Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy						Date: March 2019	
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 03 / 1				P-1 Line Item Number / Title: 3043 / Expeditionary Fast Transport (EPF)			
Equipment Item: C4ISR						PARM Code: 3Z (SPAWAR)	
P-35 Category	FY 2018		FY 2019				
	Qty (Each)	Total Cost (\$ M)	Qty (Each)	Total Cost (\$ M)			
Major Hardware	1	7.969	1	7.969			
Spares		0.646		0.646			
System Engineering		2.479		2.479			
Technical Engineering Services		1.060		1.060			
Other Costs		1.073		1.073			
Total	1	13.227	1	13.227			

Description:
 The Command, Control, Communications, Computers, Intelligence, Surveillance and Reconnaissance (C4ISR) system provides the line between the ship, the command hierarchy and other units of the operation force. The C4ISR Suite consists of a Network Suite (ISNS, ADNS and CENTRIXS-M), CBSP, UHF SATCOM Antenna, UHF/VHF LOS Suite and UHF SATCOM Radios, TVS-TVT, IA and RCS.

 The FY18 EPF 13 and FY19 EPF 14 replaces ISNS with MSC-CANES.

Contract Data:

Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost (\$ M)
FY 2018	EPF 13	Various	Various	Jan 2019	Various	1	7.969
FY 2019	EPF 14	Various	Various	Jan 2019	Various	1	7.969

Delivery Date:

Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date
FY 2018	EPF 13	Nov 2021	0		Various
FY 2019	EPF 14	Jul 2022	0		Various

Competition/Second Source Initiatives:
N/A

Remarks:
 Multiple systems comprise the C4ISR with varying delivery dates and lead times. SPAWAR PMW760 is the coordinating activity for the C4ISR System.

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Exhibit P-40, Budget Line Item Justification: PB 2020 Navy										Date: March 2019		
Appropriation / Budget Activity / Budget Sub Activity: 1611N: Shipbuilding and Conversion, Navy / BA 03: Amphibious Ships / BSA 1: Amphibious Ships							P-1 Line Item Number / Title: 3036 / LPD-17					
ID Code (A=Service Ready, B=Not Service Ready): A			Program Elements for Code B Items: N/A					Other Related Program Elements: N/A				
Line Item MDAP/MAIS Code: N/A												
Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity (<i>Units in Each</i>)	13	-	-	-	-	-	-	-	-	-	-	13
Gross/Weapon System Cost (<i>\$ in Millions</i>)	21,372.232	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	-	21,372.232
Less PY Advance Procurement (<i>\$ in Millions</i>)	1,636.241	-	-	-	-	-	-	-	-	-	-	1,636.241
Less Cost To Complete (<i>\$ in Millions</i>)	2,113.707	-	-	-	-	-	-	-	-	-	-	2,113.707
Less Subsequent Year Full Funding (<i>\$ in Millions</i>)	869.394	-	-	-	-	-	-	-	-	-	-	869.394
Less Prior Year Full Funding (<i>\$ in Millions</i>)	1,000.000	-	-	-	-	-	-	-	-	-	-	1,000.000
Less Hurricane (<i>\$ in Millions</i>)	1,623.280	-	-	-	-	-	-	-	-	-	-	1,623.280
Less Transfer (<i>\$ in Millions</i>)	279.031	-	-	-	-	-	-	-	-	-	-	279.031
Net Procurement (P-1) (<i>\$ in Millions</i>)	13,850.579	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	-	13,850.579
Plus Subsequent Year Full Funding (<i>\$ in Millions</i>)	869.394	-	-	-	-	-	-	-	-	-	-	869.394
Plus Prior Year FF (<i>\$ in Millions</i>)	1,000.000	-	-	-	-	-	-	-	-	-	-	1,000.000
Full Funding TOA (<i>\$ in Millions</i>)	15,719.973	-	-	-	-	-	-	-	-	-	-	15,719.973
Plus CY Advance Procurement (<i>\$ in Millions</i>)	1,636.241	-	-	-	-	-	-	-	-	-	-	1,636.241
Plus Cost To Complete (<i>\$ in Millions</i>)	2,050.608	-	-	-	-	-	39.278	19.000	4.821	-	-	2,113.707
Plus Transfer (<i>\$ in Millions</i>)	279.031	-	-	-	-	-	-	-	-	-	-	279.031
Plus Hurricane (<i>\$ in Millions</i>)	1,623.280	-	-	-	-	-	-	-	-	-	-	1,623.280
Plus Hurricane Supplemental (OF & PD) (<i>\$ in Millions</i>)	25.970	-	-	-	-	-	-	-	-	-	-	25.970
Total Obligation Authority (<i>\$ in Millions</i>)	21,309.133	0.000	0.000	0.000	0.000	0.000	39.278	19.000	4.821	0.000	-	21,372.232
<i>(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)</i>												
Plus Outfitting and Post Delivery (<i>\$ in Millions</i>)	964.919	23.144	1.988	18.665	-	18.665	14.886	15.031	8.215	8.380	120.082	1,175.310
Total (<i>\$ in Millions</i>)	22,300.022	23.144	1.988	18.665	-	18.665	54.164	34.031	13.036	8.380	120.082	22,573.512
Gross/Weapon System Unit Cost (<i>\$ in Millions</i>)	1,644.018	-	-	-	-	-	-	-	-	-	-	1,644.018
Description: Functional replacement for LKA 113, LPD 4, LSD 36, and LST 1179 classes of Amphibious Ships in 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 primary amphibious warfare missions.												

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Exhibit P-40, Budget Line Item Justification: PB 2020 Navy				Date: March 2019	
Appropriation / Budget Activity / Budget Sub Activity: 1611N: Shipbuilding and Conversion, Navy / BA 03: Amphibious Ships / BSA 1: Amphibious Ships			P-1 Line Item Number / Title: 3036 / LPD-17		
ID Code (A=Service Ready, B=Not Service Ready): A		Program Elements for Code B Items: N/A		Other Related Program Elements: N/A	
Line Item MDAP/MAIS Code: N/A					
Characteristics: - Length Overall 208.5 m 684 ft Beam 31.9 m 105 ft Displacement 25.3 lmt 24.9 klt Draft 7.0 m 23 ft			Systems: Electronics -Mission Systems		
Production Status: Contract Award Date Months to Completion a) Award to Delivery b) Construction Start to Delivery Delivery Date Completion Of Fitting Out Obligation Work Limit Date			LPD 28 Dec 2016 57 months 57 months Sep 2021 Feb 2022 Jan 2023		LPD 29 Feb 2018 65 months 60 months Jul 2023 Mar 2024 Feb 2025
<u>Design Schedule</u> Issue Date for TLR Issue Date for TLS Preliminary Design Contract Design Detail Design Request for Proposals Design Agent			<u>Start / Issue</u> N/A N/A Jan 1993 Dec 1993 Dec 1996 N/A	<u>Complete / Response</u> Sep 1988 N/A Nov 1993 Mar 1996 Jul 2002 N/A	<u>Reissue</u>
<u>Reissue Complete / Response</u> 					
<u>Classification of Cost Estimate:</u> CLASS C					

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Exhibit P-5c, Ship Cost Analysis: PB 2020 Navy			Date: March 2019	
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 03 / 1		P-1 Line Item Number / Title: 3036 / LPD-17		
Cost Categories <small>^(†) indicates the presence of a P-8a</small>	FY 2016		FY 2017	
	Qty <small>(Each)</small>	Total Cost <small>(\$ M)</small>	Qty <small>(Each)</small>	Total Cost <small>(\$ M)</small>
Plan Costs				
Basic Construction/Conversion		1,478.976		1,435.821
Change Orders		35.000		29.000
Electronics ^(†)		198.547		233.276
Hull, Mechanical, and Electrical (HM&E) ^(†)		15.826		21.494
Ordnance ^(†)		64.023		102.230
Other Cost		5.976		7.000
Total Ship Estimate		1,798.348		1,828.821
Less Advance Procurement FY 2013		242.976		-
Less Cost to Complete FY 2021		20.278		19.000
Less Cost to Complete FY 2022		-		19.000
Less Cost to Complete FY 2023		-		4.821
Less Prior Year Full Funding FY 2015		1,000.000		-
Net P-1 Funding		535.094		1,786.000

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Exhibit P-27, Ship Production Schedule: PB 2020 Navy				Date: March 2019	
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 03 / 1			P-1 Line Item Number / Title: 3036 / LPD-17		
Ship	Shipbuilder	Fiscal Year	Contract Award	Start of Construction	Delivery Date
LPD 28	HUNTINGTON INGALLS INDUSTRIES	2016	Dec 2016	Dec 2016	Sep 2021
LPD 29	HUNTINGTON INGALLS INDUSTRIES	2017	Feb 2018	Jul 2018	Jul 2023

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Exhibit P-40, Budget Line Item Justification: PB 2020 Navy										Date: March 2019		
Appropriation / Budget Activity / Budget Sub Activity: 1611N: Shipbuilding and Conversion, Navy / BA 05: Auxiliaries, Craft, and Prior-Year Program Costs / BSA 1: Auxiliaries, Craft and Prior Yr Program Cost							P-1 Line Item Number / Title: 5025 / TAO Fleet Oiler					
ID Code (A=Service Ready, B=Not Service Ready): A				Program Elements for Code B Items: N/A				Other Related Program Elements: N/A				
Line Item MDAP/MAIS Code: P452												
Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity (<i>Units in Each</i>)	1	1	2	2	-	2	1	1	2	1	9	20
Gross/Weapon System Cost (<i>\$ in Millions</i>)	689.639	534.767	1,052.172	1,056.261	0.000	1,056.261	512.561	520.570	1,099.800	557.820	6,172.510	12,196.100
Less PY Advance Procurement (<i>\$ in Millions</i>)	-	73.079	75.068	75.046	-	75.046	73.000	73.000	74.000	75.500	77.000	595.693
Less Cost To Complete (<i>\$ in Millions</i>)	15.449	3.700	-	-	-	-	-	-	-	-	-	19.149
Net Procurement (P-1) (<i>\$ in Millions</i>)	674.190	457.988	977.104	981.215	0.000	981.215	439.561	447.570	1,025.800	482.320	6,095.510	11,581.258
Plus CY Advance Procurement (<i>\$ in Millions</i>)	73.079	75.068	75.046	73.000	-	73.000	73.000	74.000	75.500	77.000	-	595.693
Plus Cost To Complete (<i>\$ in Millions</i>)	-	-	15.449	3.700	-	3.700	-	-	-	-	-	19.149
Total Obligation Authority (<i>\$ in Millions</i>)	747.269	533.056	1,067.599	1,057.915	0.000	1,057.915	512.561	521.570	1,101.300	559.320	6,095.510	12,196.100
<i>(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)</i>												
Plus Outfitting and Post Delivery (<i>\$ in Millions</i>)	-	-	17.712	21.732	-	21.732	45.859	40.835	34.749	35.445	463.428	659.760
Total (<i>\$ in Millions</i>)	747.269	533.056	1,085.311	1,079.647	-	1,079.647	558.420	562.405	1,136.049	594.765	6,558.938	12,855.860
Gross/Weapon System Unit Cost (<i>\$ in Millions</i>)	689.639	534.767	526.086	528.131	-	528.131	512.561	520.570	549.900	557.820	685.834	609.805

Description:
T-AO 205 John Lewis Fleet Oiler Class will recapitalize the existing T-AO 187 fleet oiler class. The Navy's Combat Logistics Force (CLF) oilers supply fuel and dry cargo to Navy ships at sea. The T-AO Class will operate as a shuttle ships from resupply posts to customer ships. Additionally, in conjunction with a T-AKE, they will accompany and stay on-station with a Carrier Strike Group (CSG) to provide fuel as required to customer ships.

Note:
FY 2020 Cost to Complete funds prior year FY18 Follow-on Hull (T-AO 206) Government Furnished Equipment (GFE) in Electronics.

Characteristics:	T-AO
Length Overall	746 ft
Beam	106 ft
Displacement	22,515 MT (Lightship)
Draft	33.5 ft (Design)

Production Status:	T-AO 205	T-AO 206	T-AO 207	T-AO 208	T-AO 209	T-AO 210
Contract Award Date	Jun 2016	Mar 2018	Dec 2018	Dec 2018	Jan 2020	Jan 2020
Months to Completion						
a) Award to Delivery	53 months	42 months	43 months	48 months	47 months	52 months
b) Construction Start to Delivery	26 months	26 months	25 months	25 months	25 months	25 months
Delivery Date	Nov 2020	Sep 2021	Jul 2022	Dec 2022	Dec 2023	May 2024
Completion Of Fitting Out	Feb 2021	Dec 2021	Oct 2022	Mar 2023	Mar 2024	Aug 2024
Obligation Work Limit Date	Jan 2022	Nov 2022	Sep 2023	Feb 2024	Feb 2025	Jul 2025

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Exhibit P-40, Budget Line Item Justification: PB 2020 Navy			Date: March 2019	
Appropriation / Budget Activity / Budget Sub Activity: 1611N: Shipbuilding and Conversion, Navy / BA 05: Auxiliaries, Craft, and Prior-Year Program Costs / BSA 1: Auxiliaries, Craft and Prior Yr Program Cost		P-1 Line Item Number / Title: 5025 / TAO Fleet Oiler		
ID Code (A=Service Ready, B=Not Service Ready): A		Program Elements for Code B Items: N/A		Other Related Program Elements: N/A
Line Item MDAP/MAIS Code: P452				
<u>Design Schedule</u>	<u>Start / Issue</u>	<u>Complete / Response</u>	<u>Reissue</u>	<u>Reissue Complete / Response</u>
Issue Date for TLR	N/A	N/A		
Issue Date for TLS	N/A	N/A		
Preliminary Design	N/A	N/A		
Contract Design	N/A	N/A		
Detail Design	Jun 2016	Sep 2018		
Request for Proposals	Jun 2015	Dec 2015		
Design Agent				
<u>Classification of Cost Estimate:</u>				

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Exhibit P-5c, Ship Cost Analysis: PB 2020 Navy						Date: March 2019		
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 05 / 1				P-1 Line Item Number / Title: 5025 / TAO Fleet Oiler				
Cost Categories <small>(†) indicates the presence of a P-8a</small>	FY 2016		FY 2018		FY 2019		FY 2020	
	Qty <i>(Each)</i>	Total Cost <i>(\$ M)</i>	Qty <i>(Each)</i>	Total Cost <i>(\$ M)</i>	Qty <i>(Each)</i>	Total Cost <i>(\$ M)</i>	Qty <i>(Each)</i>	Total Cost <i>(\$ M)</i>
Plan Costs	1	102.121	1	-	2	-	2	-
Basic Construction/Conversion		540.086		489.027		964.030		966.403
Change Orders		8.118		4.890		9.500		9.643
Electronics ^(†)		27.899		26.650		54.366		55.454
Hull, Mechanical, and Electrical (HM&E) ^(†)		11.415		14.200		24.276		24.761
Total Ship Estimate		689.639		534.767		1,052.172		1,056.261
Less Advance Procurement FY 2017		-		73.079		-		-
Less Advance Procurement FY 2018		-		-		75.068		-
Less Advance Procurement FY 2019		-		-		-		75.046
Less Cost to Complete FY 2019		15.449		-		-		-
Less Cost to Complete FY 2020		-		3.700		-		-
Net P-1 Funding		674.190		457.988		977.104		981.215
Remarks: FY 2020 Cost to Complete funds FY18 Follow-on Hull (T-AO 206) Government Furnished Equipment (GFE) in Electronics.								

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Exhibit P-27, Ship Production Schedule: PB 2020 Navy				Date: March 2019	
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 05 / 1			P-1 Line Item Number / Title: 5025 / TAO Fleet Oiler		
Ship	Shipbuilder	Fiscal Year	Contract Award	Start of Construction	Delivery Date
T-AO 205	GD NASSCO	2016	Jun 2016	Sep 2018	Nov 2020
T-AO 206	GD NASSCO	2018	Mar 2018	Jul 2019	Sep 2021
T-AO 207	GD NASSCO	2019	Dec 2018	Jun 2020	Jul 2022
T-AO 208	GD NASSCO	2019	Dec 2018	Nov 2020	Dec 2022
T-AO 209	GD NASSCO	2020	Jan 2020	Nov 2021	Dec 2023
T-AO 210	GD NASSCO	2020	Jan 2020	Apr 2022	May 2024
T-AO 211 ⁽¹⁾	TBD	2021	Jan 2021	Nov 2022	Dec 2024
T-AO 212 ⁽²⁾	TBD	2022	Jan 2022	Apr 2023	May 2025
T-AO 213	TBD	2023	Jan 2023	Apr 2024	Aug 2026
T-AO 214	TBD	2023	Jan 2023	Jan 2025	Apr 2027
T-AO 215	TBD	2024	Jan 2024	May 2025	Jul 2027
Footnotes:					
⁽¹⁾ RFP released to Sole Source to GD NASSCO.					
⁽²⁾ RFP released to Sole Source to GD NASSCO.					

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Exhibit P-8a, Analysis of Ship Cost Estimates: PB 2020 Navy					Date: March 2019	
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 05 / 1			P-1 Line Item Number / Title: 5025 / TAO Fleet Oiler			
Electronics	FY 2018		FY 2019		FY 2020	
	Qty (Each)	Total Cost (\$ M)	Qty (Each)	Total Cost (\$ M)	Qty (Each)	Total Cost (\$ M)
P-35 Items						
Radio Communication System (RCS) TURNKEY	1	6.463	2	13.184	2	13.448
P-35 Items Subtotal		6.463		13.184		13.448
Major Items						
Consolidated Afloat Networks and Enterprise Services (CANES)	1	2.828	2	5.770	2	5.886
Digital Modular Radio (DMR)	1	4.742	2	9.674	2	9.868
Commercial Broadband Satellite Program (CBSP)	1	1.915	2	3.906	2	3.984
AN/SLQ-25 NIXIE	1	1.921	2	3.918	2	3.996
AN/USQ-155 Tactical Variant Switch (TVS)	1	1.326	2	2.706	2	2.760
Major Items Subtotal		12.732		25.974		26.494
Other Cost Elements						
Minor Systems		7.455		15.208		15.512
Other Cost Elements Subtotal		7.455		15.208		15.512
Total Electronics		26.650		54.366		55.454

Remarks:

FY 2020 Cost to Complete funds FY18 Follow-on Hull (T-AO 206) Government Furnished Equipment (GFE) in Electronics.

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Exhibit P-8a, Analysis of Ship Cost Estimates: PB 2020 Navy				Date: March 2019		
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 05 / 1			P-1 Line Item Number / Title: 5025 / TAO Fleet Oiler			
Hull, Mechanical, and Electrical (HM&E)	FY 2018		FY 2019		FY 2020	
	Qty <i>(Each)</i>	Total Cost <i>(\$ M)</i>	Qty <i>(Each)</i>	Total Cost <i>(\$ M)</i>	Qty <i>(Each)</i>	Total Cost <i>(\$ M)</i>
Major Items						
Engineering Services	1	11.037	2	19.388	2	19.776
Logistics Support Services		1.535		1.566		1.597
SOLAS Variant RIB (Qty 2 per ship)		0.792		1.616		1.648
Material Handling Equipment		0.621		1.268		1.294
Shipboard Automated Maintenance Module (SAMM)		0.215		0.438		0.446
Major Items Subtotal		14.200		24.276		24.761
Total Hull, Mechanical, and Electrical (HM&E)		14.200		24.276		24.761

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Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy						Date: March 2019	
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 05 / 1				P-1 Line Item Number / Title: 5025 / TAO Fleet Oiler			
Equipment Item: Radio Communication System (RCS) TURNKEY						PARM Code: N/A	
P-35 Category	FY 2018		FY 2019		FY 2020		
	Qty (Each)	Total Cost (\$ M)	Qty (Each)	Total Cost (\$ M)	Qty (Each)	Total Cost (\$ M)	
Major Hardware	1	1.208	2	2.464	2	2.514	
Ancillary Equipment		0.105		0.214		0.218	
Technical Engineering Services		1.009		2.058		2.100	
Ship Installation		3.741		7.632		7.784	
Program Management		0.400		0.816		0.832	
Total	1	6.463	2	13.184	2	13.448	

Description:
The Radio Communication System (RCS) consists of the subsystems that provide data and voice communications across the RF spectrum. The RCS will be comprised of subsystems provided from various sources, including SPAWAR Program of Record systems, commercial systems, and associated ancillary equipment that can be obtained through the stock system and bought commercially. These subsystems will be integrated into one system and will include the automated and manual patching equipment required to configure these subsystems. The subsystems included in the RCS include the High Frequency 400 Watt System, Digital Modular Radio (DMR) VHF/UHF Line of Sight and UHF SATCOM voice, Naval Modular Automated Communications System (NAVMACS) Naval Messaging System, Battle Force Tactical Network (BFTN), Tactical Variant Switch (TVS), Tactical Voice Terminal (TVT), Automated Digital Networks System (ADNS), Commercial Broadband Satellite Program (CBSP), Fleet Broadcast, Navy Order wire (NOW) Terminals, OE-570A/WSC UHF SATCOM Antenna, Portable Communications Equipment (PCE) and Cryptologic equipment. The subsystems are integrated by SPAWAR Systems Center Atlantic at the Charleston, SC Test and Integration Facility with the proper interfaces to operate as an overall system. The RCS subsystems and interfaces will be tested prior to shipment for installation on board the T-AO ships.

Contract Data:

Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost (\$ M)
FY 2018	T-AO 206	Scientific Research Corporation	C/CPFF	Jan 2018	New	1	1.208
FY 2019	T-AO 207	TBD	TBD	TBD		2	1.232
FY 2020	T-AO 209	TBD	TBD	TBD		2	1.257

Delivery Date:

Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date
FY 2018	T-AO 206	Sep 2021	7	14	Dec 2019
FY 2019	T-AO 207	Jul 2022	7	14	Oct 2020
FY 2020	T-AO 209	Dec 2023	7	14	Mar 2022

Competition/Second Source Initiatives:
N/A

Remarks:
FY 2019 includes T-AO 207 and T-AO 208
FY 2020 includes T-AO 209 and T-AO 210

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Exhibit P-10, Advance Procurement Requirements Analysis (page 1 - Budget Funding Justification): PB 2020 Navy						Date: March 2019				
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 05 / 1				P-1 Line Item Number / Title: 5025 / TAO Fleet Oiler						
First System (2020) Award Date: January 2018		First System (2020) Completion Date: January 2021			Interval Between Systems: 12 Months					
Cost Elements		Production Leadtime <i>(Months)</i>	When Required* <i>(Months)</i>	FY 2018 <i>(\$ M)</i>	FY 2019 <i>(\$ M)</i>	FY 2020 <i>(\$ M)</i>	FY 2021 <i>(\$ M)</i>	FY 2022 <i>(\$ M)</i>	FY 2023 <i>(\$ M)</i>	FY 2024 <i>(\$ M)</i>
Basic Construction/Conversion										
Propulsion, Auxiliary, Machinery, and Components ⁽⁹⁾		12-24	Various	73.000	73.000	73.000	73.000	74.000	75.500	77.000
Total: Basic Construction/Conversion				73.000	73.000	73.000	73.000	74.000	75.500	77.000
Hull, Mechanical, and Electrical (HM&E)										
Class Engineering Efforts		-	-	-	-	0.000	-	-	-	-
Total: Hull, Mechanical, and Electrical (HM&E)				-	-	-	-	-	-	-
Electronics										
Digital Modular Radio (DMR) ⁽¹⁰⁾		-	-	2.068	2.046	0.000	-	-	-	-
AN/SLQ-25 NIXIE		-	-	-	-	0.000	-	-	-	-
Total: Electronics				2.068	2.046	-	-	-	-	-
Total Advance Procurement/Obligation Authority				75.068	75.046	73.000	73.000	74.000	75.500	77.000

*Note: "When Required" is the number of months required before ship delivery.

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Exhibit P-10, Advance Procurement Requirements Analysis (page 2 - Budget Funding Justification): PB 2020 Navy	Date: March 2019
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Appropriation / Budget Activity / Budget Sub Activity: 1611N / 05 / 1	P-1 Line Item Number / Title: 5025 / TAO Fleet Oiler
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Cost Elements	FY 2020						
	Production Leadtime (Months)	When Required* (Months)	Unit Cost (\$ M)	Contract Forecast Date	2020 Qty (Each)	For FY	Total Cost Request (\$ M)
Basic Construction/Conversion							
Propulsion, Auxiliary, Machinery, and Components ⁽⁹⁾	12-24	Various	73.000	Jan 2020	1	2021	73.000
<i>Total: Basic Construction/Conversion</i>							<i>73.000</i>
Hull, Mechanical, and Electrical (HM&E)							
<i>Total: Hull, Mechanical, and Electrical (HM&E)</i>							<i>-</i>
Electronics							
Digital Modular Radio (DMR) ⁽¹⁰⁾	-	-	-		-		0.000
AN/SLQ-25 NIXIE	-	-	-		-		0.000
<i>Total: Electronics</i>							<i>-</i>
Total Advance Procurement/Obligation Authority							73.000

*Note: "When Required" is the number of months required before ship delivery.

Footnotes:

⁽⁹⁾ Funding to procure Contractor furnished Long Lead Time Materials (LLTM) and engineering related activities.

⁽¹⁰⁾ Funding to procure Government furnished Long Lead Time Materials (LLTM) and engineering related activities.

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Exhibit P-40, Budget Line Item Justification: PB 2020 Navy								Date: March 2019					
Appropriation / Budget Activity / Budget Sub Activity: 1611N: Shipbuilding and Conversion, Navy / BA 05: Auxiliaries, Craft, and Prior-Year Program Costs / BSA 1: Auxiliaries, Craft and Prior Yr Program Cost						P-1 Line Item Number / Title: 5035 / Towing, Salvage, and Rescue Ship (ATS)							
ID Code (A=Service Ready, B=Not Service Ready): A				Program Elements for Code B Items: N/A				Other Related Program Elements: N/A					
Line Item MDAP/MAIS Code: N/A													
Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total	
Procurement Quantity (<i>Units in Each</i>)	1	1	1	2	-	2	1	1	1	-	-	8	
Gross/Weapon System Cost (<i>\$ in Millions</i>)	75.000	76.204	80.517	150.282	0.000	150.282	77.893	79.237	80.469	0.000	-	619.602	
Less PY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-	
Net Procurement (P-1) (<i>\$ in Millions</i>)	75.000	76.204	80.517	150.282	0.000	150.282	77.893	79.237	80.469	0.000	-	619.602	
Plus CY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-	
Total Obligation Authority (<i>\$ in Millions</i>)	75.000	76.204	80.517	150.282	0.000	150.282	77.893	79.237	80.469	0.000	-	619.602	
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)													
Plus Outfitting and Post Delivery (<i>\$ in Millions</i>)	-	-	4.898	7.370	-	7.370	9.315	-	-	-	49.296	70.879	
Total (<i>\$ in Millions</i>)	75.000	76.204	85.415	157.652	-	157.652	87.208	79.237	80.469	-	49.296	690.481	
Gross/Weapon System Unit Cost (<i>\$ in Millions</i>)	75.000	76.204	80.517	75.141	-	75.141	77.893	79.237	80.469	-	-	77.450	
Description:													
The Navy requires ocean-going towing, salvage, and rescue capabilities to support Fleet operations. The Navy's current capabilities are provided by four T-ATF 166 class Fleet Tugs and four T-ARS 50 class Salvage ships which reach the end of their expected service lives starting in 2020 and 2025, respectively. The T-ATS program will recapitalize the current Fleet Tugs and Salvage Ships with a common hull Towing, Salvage and Rescue Ship (T-ATS) that is capable of performing the missions of the retiring T-ATF and T-ARS classes.													
Characteristics:		-											
Length Overall		263 ft											
Beam		59 ft											
Displacement		5,110 tons											
Draft		18 ft											
Production Status:		T-ATS 1601		T-ATS 1801		T-ATS 1901		T-ATS 2001		T-ATS 2002			
Contract Award Date		Mar 2018		Mar 2019		Mar 2019		Feb 2020		Feb 2020			
Months to Completion													
a) Award to Delivery		36 months		28 months		32 months		26 months		30 months			
b) Construction Start to Delivery		24 months		21 months		21 months		20 months		20 months			
Delivery Date		Mar 2021		Jul 2021		Nov 2021		Apr 2022		Aug 2022			
Completion Of Fitting Out		Apr 2021		Aug 2021		Dec 2021		May 2022		Sep 2022			
Obligation Work Limit Date		Mar 2022		Jul 2022		Nov 2022		Apr 2023		Aug 2023			
Design Schedule				Start / Issue		Complete / Response		Reissue		Reissue Complete / Response			
Issue Date for TLR				Dec 2015		Mar 2016							
Issue Date for TLS				N/A		N/A							
Preliminary Design				N/A		N/A							

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Exhibit P-40, Budget Line Item Justification: PB 2020 Navy			Date: March 2019	
Appropriation / Budget Activity / Budget Sub Activity: 1611N: Shipbuilding and Conversion, Navy / BA 05: Auxiliaries, Craft, and Prior-Year Program Costs / BSA 1: Auxiliaries, Craft and Prior Yr Program Cost		P-1 Line Item Number / Title: 5035 / Towing, Salvage, and Rescue Ship (ATS)		
ID Code (A=Service Ready, B=Not Service Ready): A		Program Elements for Code B Items: N/A		Other Related Program Elements: N/A
Line Item MDAP/MAIS Code: N/A				
<u>Design Schedule</u>	<u>Start / Issue</u>	<u>Complete / Response</u>	<u>Reissue</u>	<u>Reissue Complete / Response</u>
Contract Design	N/A	N/A		
Detail Design	Mar 2018	Sep 2019		
Request for Proposals	Mar 2017	May 2017		
Design Agent	Wartsila			
<u>Classification of Cost Estimate:</u>				

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Exhibit P-5c, Ship Cost Analysis: PB 2020 Navy						Date: March 2019		
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 05 / 1				P-1 Line Item Number / Title: 5035 / Towing, Salvage, and Rescue Ship (ATS)				
Cost Categories	FY 2016		FY 2018		FY 2019		FY 2020	
	Qty (Each)	Total Cost (\$ M)	Qty (Each)	Total Cost (\$ M)	Qty (Each)	Total Cost (\$ M)	Qty (Each)	Total Cost (\$ M)
Basic Construction/Conversion	1	63.742	1	62.842	1	66.685	2	130.097
Change Orders		3.200		2.145		2.008		2.602
Electronics		5.033		5.779		5.862		11.300
Hull, Mechanical, and Electrical (HM&E)		3.025		5.438		5.962		6.283
Total Ship Estimate		75.000		76.204		80.517		150.282
Net P-1 Funding		75.000		76.204		80.517		150.282

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Exhibit P-27, Ship Production Schedule: PB 2020 Navy				Date: March 2019	
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 05 / 1			P-1 Line Item Number / Title: 5035 / Towing, Salvage, and Rescue Ship (ATS)		
Ship	Shipbuilder	Fiscal Year	Contract Award	Start of Construction	Delivery Date
T-ATS 1601	Gulf Island Shipyards	2016	Mar 2018	Mar 2019	Mar 2021
T-ATS 1801	Gulf Island Shipyards	2018	Mar 2019	Oct 2019	Jul 2021
T-ATS 1901	Gulf Island Shipyards	2019	Mar 2019	Feb 2020	Nov 2021
T-ATS 2001	Gulf Island Shipyards	2020	Feb 2020	Aug 2020	Apr 2022
T-ATS 2002	Gulf Island Shipyards	2020	Feb 2020	Dec 2020	Aug 2022
T-ATS 2101	Gulf Island Shipyards	2021	Feb 2021	Aug 2021	Apr 2023
T-ATS 2201	Gulf Island Shipyards	2022	Feb 2022	Aug 2022	Apr 2024
T-ATS 2301	Gulf Island Shipyards	2023	Feb 2023	Aug 2023	Apr 2025

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Exhibit P-40, Budget Line Item Justification: PB 2020 Navy										Date: March 2019		
Appropriation / Budget Activity / Budget Sub Activity: 1611N: Shipbuilding and Conversion, Navy / BA 05: Auxiliaries, Craft, and Prior-Year Program Costs / BSA 1: Auxiliaries, Craft and Prior Yr Program Cost							P-1 Line Item Number / Title: 5087 / Oceanographic Ships					
ID Code (A=Service Ready, B=Not Service Ready): A				Program Elements for Code B Items: N/A				Other Related Program Elements: N/A				
Line Item MDAP/MAIS Code: N/A												
Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity (<i>Units in Each</i>)	3	1	-	-	-	-	-	-	-	-	-	4
Gross/Weapon System Cost (<i>\$ in Millions</i>)	291.326	180.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	-	471.326
Less PY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (<i>\$ in Millions</i>)	291.326	180.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	-	471.326
Plus CY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority (<i>\$ in Millions</i>)	291.326	180.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	-	471.326
<i>(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)</i>												
Plus Outfitting and Post Delivery (<i>\$ in Millions</i>)	14.862	-	-	-	-	-	-	-	-	-	8.575	23.437
Total (<i>\$ in Millions</i>)	306.188	180.000	-	-	-	-	-	-	-	-	8.575	494.763
Gross/Weapon System Unit Cost (<i>\$ in Millions</i>)	97.109	180.000	-	-	-	-	-	-	-	-	-	117.832

Description:

The FY 2018 Omnibus Appropriations Act included a Congressional add for Detail Design and Construction (DD&C) efforts for one T-AGS 60 vessel. T-AGS 67 is a repeat platform of T-AGS 66 and includes the Moon Pool Launch and Recovery System (MLARS). The TAGS 67 will be capable of deep ocean and coastal surveys, oceanographic sampling and data collections of surface, midwater and ocean floor parameters, shipboard oceanographic data processing and sample analysis, and operation of remotely operated vehicles (AUVs) and hydrographic survey launches (HSLs).

Characteristics:

T-AGS

Length Overall 353 ft
Beam 58 ft
Displacement 4,888 Long Tons
Draft 19 ft

Production Status:

T-AGS 67

Contract Award Date Mar 2019
Months to Completion
a) Award to Delivery 40 months
b) Construction Start to Delivery 38 months
Delivery Date Jul 2022
Completion Of Fitting Out Oct 2022
Obligation Work Limit Date Oct 2023

<u>Design Schedule</u>	<u>Start / Issue</u>	<u>Complete / Response</u>	<u>Reissue</u>	<u>Reissue Complete / Response</u>
Issue Date for TLR	Aug 1993	N/A		
Issue Date for TLS	N/A	N/A		
Preliminary Design	N/A	N/A		

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Exhibit P-40, Budget Line Item Justification: PB 2020 Navy			Date: March 2019	
Appropriation / Budget Activity / Budget Sub Activity: 1611N: Shipbuilding and Conversion, Navy / BA 05: Auxiliaries, Craft, and Prior-Year Program Costs / BSA 1: Auxiliaries, Craft and Prior Yr Program Cost		P-1 Line Item Number / Title: 5087 / Oceanographic Ships		
ID Code (A=Service Ready, B=Not Service Ready): A	Program Elements for Code B Items: N/A		Other Related Program Elements: N/A	
Line Item MDAP/MAIS Code: N/A				
<u>Design Schedule</u>	<u>Start / Issue</u>	<u>Complete / Response</u>	<u>Reissue</u>	<u>Reissue Complete / Response</u>
Contract Design	Sep 2018	N/A		
Detail Design	Mar 2019	N/A		
Request for Proposals	Aug 2018	N/A		
Design Agent	N/A			
Classification of Cost Estimate: N/A				

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Exhibit P-5c, Ship Cost Analysis: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 05 / 1		P-1 Line Item Number / Title: 5087 / Oceanographic Ships
Cost Categories	FY 2018	
	Qty (Each)	Total Cost (\$ M)
Plan Costs	1	
Basic Construction/Conversion		140.000
Change Orders		1.500
Electronics		29.500
Hull, Mechanical, and Electrical (HM&E)		9.000
Other Cost		
Total Ship Estimate		180.000
Net P-1 Funding		180.000

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LI 5087 - Oceanographic Ships
Navy

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Exhibit P-40, Budget Line Item Justification: PB 2020 Navy										Date: March 2019		
Appropriation / Budget Activity / Budget Sub Activity: 1611N: Shipbuilding and Conversion, Navy / BA 05: Auxiliaries, Craft, and Prior-Year Program Costs / BSA 1: Auxiliaries, Craft and Prior Yr Program Cost							P-1 Line Item Number / Title: 5100 / LCU 1700					
ID Code (A=Service Ready, B=Not Service Ready): A				Program Elements for Code B Items: N/A				Other Related Program Elements: N/A				
Line Item MDAP/MAIS Code: N/A												
Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity <i>(Units in Each)</i>	1	-	2	4	-	4	4	4	4	4	9	32
Gross/Weapon System Cost <i>(\$ in Millions)</i>	34.000	0.000	41.520	85.670	0.000	85.670	89.514	88.708	89.524	91.313	196.412	716.661
Less PY Advance Procurement <i>(\$ in Millions)</i>	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) <i>(\$ in Millions)</i>	34.000	0.000	41.520	85.670	0.000	85.670	89.514	88.708	89.524	91.313	196.412	716.661
Plus CY Advance Procurement <i>(\$ in Millions)</i>	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority <i>(\$ in Millions)</i>	34.000	0.000	41.520	85.670	0.000	85.670	89.514	88.708	89.524	91.313	196.412	716.661
<i>(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)</i>												
Total <i>(\$ in Millions)</i>	34.000	-	41.520	85.670	-	85.670	89.514	88.708	89.524	91.313	196.412	716.661
Gross/Weapon System Unit Cost <i>(\$ in Millions)</i>	34.000	-	20.760	21.418	-	21.418	22.379	22.177	22.381	22.828	21.824	22.396

Description:
 The Landing Craft, Utility (LCU) 1700 program provides heavy lift capability to transport personnel, weapons, equipment, and cargo from the ship to shore and shore to shore across the range of military operations (ROMO). LCU 1700 will be able to conduct 24 hours/day operations for up to 10 days for continuous landing of troops, equipment, and supplies; provide support for missions requiring persistence such as riverine sustainment, surveillance or port clearing; and execute missions to reinforce, reposition, and resupply forces over a wide operating area.

LCU 1700 provides the functional replacement for the LCU 1610 class of landing craft, all of which have significantly exceeded their 25 year service life, the average age is approaching 50 years old.

LCU 1700 requirement is for 32 craft.

Note:
 Notional Characteristics based on Government Preliminary Design.
 Production Status dates provided are based on awarded contract delivery dates.

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Exhibit P-40, Budget Line Item Justification: PB 2020 Navy						Date: March 2019																																									
Appropriation / Budget Activity / Budget Sub Activity: 1611N: Shipbuilding and Conversion, Navy / BA 05: Auxiliaries, Craft, and Prior-Year Program Costs / BSA 1: Auxiliaries, Craft and Prior Yr Program Cost				P-1 Line Item Number / Title: 5100 / LCU 1700																																											
ID Code (A=Service Ready, B=Not Service Ready): A		Program Elements for Code B Items: N/A			Other Related Program Elements: N/A																																										
Line Item MDAP/MAIS Code: N/A																																															
<table style="width:100%; border: none;"> <tr> <td style="width:15%;">Characteristics:</td> <td style="width:15%;">LCU</td> <td colspan="6"></td> </tr> <tr> <td>Length Overall</td> <td>139 ft</td> <td colspan="6"></td> </tr> <tr> <td>Beam</td> <td>31 ft</td> <td colspan="6"></td> </tr> <tr> <td>Displacement</td> <td>428 Tons</td> <td colspan="6"></td> </tr> <tr> <td>Draft</td> <td>7.3 ft</td> <td colspan="6"></td> </tr> </table>								Characteristics:	LCU							Length Overall	139 ft							Beam	31 ft							Displacement	428 Tons							Draft	7.3 ft						
Characteristics:	LCU																																														
Length Overall	139 ft																																														
Beam	31 ft																																														
Displacement	428 Tons																																														
Draft	7.3 ft																																														
Production Status:		LCU 1700	LCU 1701	LCU 1702	LCU 1703	LCU 1704	LCU 1705	LCU 1706																																							
Contract Award Date		Mar 2018	Feb 2019	Feb 2019	Mar 2020	Mar 2020	Mar 2020	Mar 2020																																							
Months to Completion																																															
a) Award to Delivery		32 months	24 months	27 months	25 months	27 months	29 months	31 months																																							
b) Construction Start to Delivery		18 months	18 months	18 months	16 months	15 months	14 months	13 months																																							
Delivery Date		Nov 2020	Feb 2021	May 2021	Apr 2022	Jun 2022	Aug 2022	Oct 2022																																							
Completion Of Fitting Out		Dec 2020	Mar 2021	Jun 2022	May 2022	Jul 2022	Sep 2022	Nov 2022																																							
Obligation Work Limit Date		Nov 2021	Feb 2022	May 2022	Apr 2023	Jun 2023	Aug 2023	Oct 2023																																							

<u>Design Schedule</u>	<u>Start / Issue</u>	<u>Complete / Response</u>	<u>Reissue</u>	<u>Reissue Complete / Response</u>
Issue Date for TLR	N/A	N/A		
Issue Date for TLS	N/A	N/A		
Preliminary Design	Mar 2014	May 2015		
Contract Design	Jun 2015	Jun 2016		
Detail Design	Apr 2018	Apr 2019		
Request for Proposals	Feb 2017	May 2017		
Design Agent	Swiftships LLC			

Classification of Cost Estimate:

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Exhibit P-5c, Ship Cost Analysis: PB 2020 Navy	Date: March 2019
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Appropriation / Budget Activity / Budget Sub Activity: 1611N / 05 / 1	P-1 Line Item Number / Title: 5100 / LCU 1700
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Cost Categories	FY 2016		FY 2019		FY 2020	
	Qty (Each)	Total Cost (\$ M)	Qty (Each)	Total Cost (\$ M)	Qty (Each)	Total Cost (\$ M)
Basic Construction/Conversion		19.050		33.163		67.673
Change Orders		1.600		1.500		3.170
Electronics		3.890		3.768		6.761
Hull, Mechanical, and Electrical (HM&E)		2.360		1.589		3.060
Other Cost		2.100		1.500		5.006
Plan Costs	1	5.000	2	-	4	-
Total Ship Estimate		34.000		41.520		85.670
Net P-1 Funding		34.000		41.520		85.670

Remarks:

FY 2016 electronics funding includes non-recurring engineering costs.

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Exhibit P-27, Ship Production Schedule: PB 2020 Navy					Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 05 / 1			P-1 Line Item Number / Title: 5100 / LCU 1700		
Ship	Shipbuilder	Fiscal Year	Contract Award	Start of Construction	Delivery Date
LCU 1700	Swiftships LLC	2016	Mar 2018	May 2019	Nov 2020
LCU 1701	Swiftships LLC	2019	Feb 2019	Aug 2019	Feb 2021
LCU 1702	Swiftships LLC	2019	Feb 2019	Nov 2019	May 2021
LCU 1703	Swiftships LLC	2020	Mar 2020	Dec 2020	Apr 2022
LCU 1704	Swiftships LLC	2020	Mar 2020	Mar 2021	Jun 2022
LCU 1705	Swiftships LLC	2020	Mar 2020	Jun 2021	Aug 2022
LCU 1706	Swiftships LLC	2020	Mar 2020	Sep 2021	Oct 2022
LCU 1707	Swiftships LLC	2021	Mar 2021	Dec 2021	Mar 2023
LCU 1708	Swiftships LLC	2021	Mar 2021	Mar 2022	May 2023
LCU 1709	Swiftships LLC	2021	Mar 2021	Jun 2022	Jul 2023
LCU 1710	Swiftships LLC	2021	Mar 2021	Sep 2022	Sep 2023
LCU 1711	Swiftships LLC	2022	Mar 2022	Feb 2023	Feb 2024
LCU 1712	Swiftships LLC	2022	Mar 2022	Apr 2023	Apr 2024
LCU 1713	Swiftships LLC	2022	Mar 2022	Jun 2023	Jun 2024
LCU 1714	Swiftships LLC	2022	Mar 2022	Aug 2023	Aug 2024
LCU 1715	Swiftships LLC	2023	Mar 2023	Jan 2024	Jan 2025
LCU 1716	Swiftships LLC	2023	Mar 2023	Mar 2024	Mar 2025
LCU 1717	Swiftships LLC	2023	Mar 2023	May 2024	May 2025
LCU 1718	Swiftships LLC	2023	Mar 2023	Jul 2024	Jul 2025
LCU 1719	Swiftships LLC	2024	Mar 2024	Jan 2025	Jan 2026
LCU 1720	Swiftships LLC	2024	Mar 2024	Mar 2025	Mar 2026
LCU 1721	Swiftships LLC	2024	Mar 2024	May 2025	May 2026
LCU 1722	Swiftships LLC	2024	Mar 2024	Jul 2025	Jul 2026

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Exhibit P-40, Budget Line Item Justification: PB 2020 Navy							Date: March 2019			
Appropriation / Budget Activity / Budget Sub Activity: 1611N: Shipbuilding and Conversion, Navy / BA 05: Auxiliaries, Craft, and Prior-Year Program Costs / BSA 1: Auxiliaries, Craft and Prior Yr Program Cost					P-1 Line Item Number / Title: 5110 / Outfitting					
ID Code (A=Service Ready, B=Not Service Ready): A			Program Elements for Code B Items: N/A				Other Related Program Elements: N/A			
Line Item MDAP/MAIS Code: N/A										
Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Full Funding TOA - Outfitting (\$ in Millions)	624.217	104.464	181.139	267.204	246.622	158.484	181.015	187.475	931.467	2,882.087
Full Funding TOA - Post Delivery (\$ in Millions)	743.113	380.020	363.708	482.174	353.213	384.032	377.808	389.751	1,245.481	4,719.300
Full Funding TOA - First Destination (\$ in Millions)	33.671	4.589	5.191	5.301	5.396	5.499	5.612	5.724	5.581	76.564
Total Obligation Authority (\$ in Millions)	1,401.001	489.073	550.038	754.679	605.231	548.015	564.435	582.950	2,182.529	7,677.951

Description:

Outfitting funds are used to acquire on board repair parts, other secondary items, equipage, recreation items, precommissioning crew support and general use consumables furnished to the shipbuilder or the fitting-out activity to fill the ship's initial allowances as defined by the baseline coordinated shipboard allowance list (COSAL). The program also budgets for contractor-furnished spares, a lead-time away from delivery. The program ensures operational readiness of ships undergoing new construction, conversion, service life extension program (SLEP), and nuclear refueling. It ensures these ships receive their full allowances of spare parts and equipment which are vitally required to support the shipboard maintenance process; ensures ships are equipped with operating space items (tools, test equipment, damage control), personnel safety and survivability commodities for successful completion of builder sea trials; supports shipboard maintenance and thereby achieving the OPNAV-directed supply readiness goals for material on board ship at delivery. SCN funding for the initial fill of allowance list items are limited to those items on the COSAL and authorized requirements through the Obligation Work Limiting Date (OWLD). While most outfitting funds are executed prior to ships' completion of fitting out dates, some outfitting funding may be required in the fiscal year following the scheduled Delivery Date.

Post Delivery funding covers the repair of government-responsible items which were believed to have been complete to standard and/or operable at delivery, as well as funding to conduct tests and trials after delivery.

It is essential to deliver to the Fleet complete ships, free from both contractor and government responsible deficiencies, capable of supporting the Navy's mission. The Post Shakedown Availability (PSA) is a shipyard availability assigned to commence after delivery and to be completed prior to the expiration of the SCN OWLD. It is during this time that acceptance and final contract trials deficiencies will be corrected. The purpose of the PSA is to correct new construction deficiencies found during the shakedown period; to correct contractor and government responsible deficiencies previously authorized; and accomplishment of other improvements or class items as authorized. Funding is used for corrections authorized by the ship's Program Manager as a result of builders' trials (pre-delivery), acceptance or underway trials, final contract trials, trial board items, and correction of production-related defects or deficiencies which develop during the post delivery period. Although the majority of post delivery funding occurs after ships' delivery dates, some funding is required prior to the delivery date in preparation for post delivery events.

First Destination Transportation (FDT). FDT delivers material from a procurement source to the first point of use or storage which may be in the Continental United States or overseas. The procurement source may be a supplier outside of the Department of Defense (DoD) supply system or a DoD activity which fabricates new material. FDT also includes transportation from point of origin to point of use or storage when Navy-owned material or equipment is provided to a contractor incident to a Research and Development project or a system/equipment acquisition or modification.

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Exhibit P-29, Outfitting: PB 2020 Navy

Date: March 2019

Appropriation / Budget Activity / Budget Sub Activity:
1611N / 05 / 1P-1 Line Item Number / Title:
5110 / Outfitting

Ship Class	Hull Number	Program Year	Contract Award	Start of Const.	Delivery Date	CFO	PSA Start	PSA Finish	OWL Date	Prior Years	FY 2018	FY 2019	FY 2020	To Complete	Total
CVN	78	2008	Sep 2008	Aug 2005	May 2017	Jul 2017	Jul 2018	Jul 2019	Jan 2020	151.600	-	-	-	-	151.600
CVN	79 ⁽¹⁾	2013	Jun 2015	Feb 2011	Sep 2024	Nov 2024	Mar 2023	Sep 2024	Oct 2025	-	0.231	-	38.539	131.915	170.685
CVN	80	2018	Jan 2019	Jan 2019	Mar 2028	May 2028	Oct 2028	Mar 2029	Apr 2029	-	-	-	-	175.279	175.279
CVN	81	2020	Jan 2019	Jan 2019	Feb 2032	Apr 2032	Sep 2032	Feb 2033	Mar 2033	-	-	-	-	182.396	182.396
CVN Total										151.600	0.231	-	38.539	489.590	679.960
VIRGINIA	787	2011	Dec 2008	Sep 2011	May 2017	May 2017	Oct 2017	Aug 2018	Sep 2018	17.912	0.430	-	-	-	18.342
VIRGINIA	788	2012	Dec 2008	Mar 2012	Sep 2017	Sep 2017	Apr 2018	Oct 2018	Nov 2018	16.706	0.455	-	-	-	17.161
VIRGINIA	789	2012	Dec 2008	Sep 2012	Jun 2018	Jun 2018	Oct 2018	May 2019	May 2019	16.623	0.725	-	-	-	17.348
VIRGINIA	790	2013	Dec 2008	Mar 2013	Sep 2018	Sep 2018	Feb 2019	Jul 2019	Aug 2019	17.031	2.001	-	-	-	19.032
VIRGINIA	791	2013	Dec 2008	Sep 2013	Jun 2019	Jun 2019	Oct 2019	Jan 2020	May 2020	16.823	1.361	0.450	-	-	18.634
VIRGINIA	792	2014	Apr 2014	May 2014	Oct 2019	Oct 2019	Jan 2020	Jun 2020	Sep 2020	14.487	2.507	0.718	-	-	17.712
VIRGINIA	793	2014	Apr 2014	Sep 2014	May 2020	May 2020	Jul 2020	Oct 2020	Apr 2021	13.386	3.687	0.983	8.163	-	26.219
VIRGINIA	794	2015	Apr 2014	Apr 2015	Sep 2020	Sep 2020	Jan 2021	Apr 2021	Aug 2021	6.366	6.771	4.112	11.460	-	28.709
VIRGINIA	795	2015	Apr 2014	Sep 2015	Apr 2021	Apr 2021	Jul 2021	Oct 2021	Mar 2022	-	4.640	9.838	4.366	6.850	25.694
VIRGINIA	796	2016	Apr 2014	Mar 2016	Aug 2021	Aug 2021	Nov 2021	Feb 2022	Jul 2022	-	-	10.241	13.486	6.522	30.249
VIRGINIA	797	2016	Apr 2014	Sep 2016	Jan 2022	Jan 2022	May 2022	Aug 2022	Dec 2022	-	-	0.051	11.062	11.310	22.423
VIRGINIA	798	2017	Apr 2014	Mar 2017	Jun 2022	Jun 2022	Oct 2022	Jan 2023	May 2023	-	-	-	9.740	12.632	22.372
VIRGINIA	799	2017	Apr 2014	Sep 2017	Dec 2022	Dec 2022	Apr 2023	Jul 2023	Nov 2023	-	-	-	-	22.794	22.794
VIRGINIA	800	2018	Apr 2014	Mar 2018	Apr 2023	Apr 2023	Jul 2023	Oct 2023	Mar 2024	-	-	-	-	22.794	22.794
VIRGINIA	801	2018	Apr 2014	Sep 2018	Sep 2023	Sep 2023	Jan 2024	Apr 2024	Aug 2024	-	-	-	-	23.185	23.185
VIRGINIA	802	2019	Apr 2019	Mar 2019	Jan 2025	Jan 2025	Apr 2025	Aug 2025	Dec 2025	-	-	-	-	25.012	25.012
VIRGINIA	803	2019	Apr 2019	Sep 2019	Nov 2025	Nov 2025	Jan 2026	Apr 2026	Oct 2026	-	-	-	-	25.682	25.682
VIRGINIA	804	2020	Apr 2019	Mar 2020	Jan 2026	Jan 2026	Apr 2026	Jul 2026	Dec 2026	-	-	-	-	25.682	25.682
VIRGINIA	805	2020	Apr 2019	Sep 2020	Sep 2026	Sep 2026	Jan 2027	Apr 2027	Aug 2027	-	-	-	-	26.195	26.195
VIRGINIA	812	2020	Apr 2019	Mar 2023	Sep 2029	Sep 2029	Jan 2030	Apr 2030	Aug 2030	-	-	-	-	26.719	26.719
VIRGINIA	806	2021	Apr 2019	Mar 2021	Jan 2027	Jan 2027	Apr 2027	Jul 2027	Dec 2027	-	-	-	-	26.195	26.195
VIRGINIA	807	2021	Apr 2019	Sep 2021	Nov 2027	Nov 2027	Feb 2028	May 2028	Oct 2028	-	-	-	-	26.719	26.719
VIRGINIA	808	2022	Apr 2019	Mar 2022	Mar 2028	Mar 2028	Jun 2028	Sep 2028	Feb 2029	-	-	-	-	26.719	26.719
VIRGINIA	809	2022	Apr 2019	Sep 2022	Sep 2028	Sep 2028	Jan 2029	Apr 2029	Aug 2029	-	-	-	-	26.719	26.719
VIRGINIA Total										119.334	22.577	26.393	58.277	341.729	568.310
CVN-RCOH	73	2016	Aug 2017	Aug 2017	Aug 2021	Oct 2021	Aug 2021	Aug 2022	Sep 2022	-	7.701	20.048	31.597	9.368	68.714
CVN-RCOH	74	2020	Jan 2021	Jan 2021	Jan 2025	Mar 2025	Jan 2025	Jan 2026	Feb 2026	-	-	-	-	69.162	69.162
CVN-RCOH Total										-	7.701	20.048	31.597	78.530	137.876
DDG 1000	1000	2007	Feb 2008	Feb 2009	Sep 2019	Jan 2020	Jul 2020	Dec 2020	Dec 2020	63.268	1.658	-	0.450	1.778	67.154
DDG 1000	1001	2007	Sep 2011	Mar 2010	Sep 2020	Oct 2020	Apr 2021	Jul 2021	Sep 2021	14.528	5.021	3.539	1.799	-	24.887
DDG 1000	1002	2009	Sep 2011	Apr 2012	Sep 2022	Oct 2022	Apr 2023	Jul 2023	Sep 2023	0.029	-	10.550	3.305	8.820	22.704
DDG 1000 Total										77.825	6.679	14.089	5.554	10.598	114.745
DDG	114	2011	Sep 2011	Sep 2013	Nov 2017	Mar 2018	Oct 2018	Feb 2019	Feb 2019	18.006	2.321	-	-	-	20.327
DDG	116	2012	Feb 2012	Feb 2013	Jun 2018	Oct 2018	May 2019	Sep 2019	Sep 2019	15.664	1.904	3.336	-	-	20.904

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DDG	117	2013	Jun 2013	Sep 2014	Feb 2019	Jun 2019	Jan 2020	May 2020	May 2020	14.553	5.901	2.030	1.675	-	24.159
DDG	118	2013	Jun 2013	Aug 2015	Apr 2020	Aug 2020	Apr 2021	Jul 2021	Jul 2021	-	8.896	7.403	2.786	2.025	21.110
DDG	120	2013	Mar 2014	Sep 2016	Jan 2021	May 2021	Jan 2022	Apr 2022	Apr 2022	-	-	-	20.613	3.328	23.941
DDG	119	2014	Jun 2013	Jul 2015	Oct 2019	Feb 2020	Aug 2020	Dec 2020	Jan 2021	6.820	3.562	5.554	1.987	0.636	18.559
DDG	121	2015	Jun 2013	Apr 2016	Jul 2020	Dec 2020	Jul 2021	Nov 2021	Nov 2021	-	-	14.936	6.543	2.343	23.822
DDG	122	2015	Jun 2013	Sep 2017	Oct 2021	Feb 2022	Oct 2022	Jan 2023	Jan 2023	-	-	-	-	10.490	10.490
DDG	123	2016	Jun 2013	Jan 2017	Jul 2021	Nov 2021	May 2022	Sep 2022	Oct 2022	-	-	-	9.780	7.400	17.180
DDG	124	2016	Jun 2013	Jul 2018	Jun 2022	Oct 2022	Apr 2023	Aug 2023	Sep 2023	-	-	-	-	24.778	24.778
DDG	127	2016	Sep 2017	Jul 2018	Nov 2022	Mar 2023	Sep 2023	Jan 2024	Feb 2024	-	-	-	-	22.173	22.173
DDG	125	2017	Jun 2013	May 2018	Apr 2023	Aug 2023	Feb 2024	Jun 2024	Jul 2024	-	-	-	-	25.237	25.237
DDG	126	2017	Jun 2013	Apr 2019	Jun 2024	Oct 2024	Apr 2025	Aug 2025	Sep 2025	-	-	-	-	25.787	25.787
DDG	128	2018	Sep 2018	Jun 2020	Oct 2024	Feb 2025	Aug 2025	Dec 2025	Jan 2026	-	-	-	-	24.064	24.064
DDG	129	2018	Sep 2018	May 2021	Jul 2025	Nov 2025	May 2026	Sep 2026	Oct 2026	-	-	-	-	26.304	26.304
DDG	130	2019	Sep 2018	Jul 2020	Jul 2025	Nov 2025	May 2026	Sep 2026	Oct 2026	-	-	-	-	26.303	26.303
DDG	131	2019	Sep 2018	Mar 2022	Apr 2026	Aug 2026	Feb 2027	Jun 2027	Jul 2027	-	-	-	-	26.736	26.736
DDG	132	2019	Dec 2018	Jun 2021	May 2026	Sep 2026	Mar 2027	Jul 2027	Aug 2027	-	-	-	-	25.962	25.962
DDG	133	2020	Sep 2018	Oct 2022	Nov 2026	Mar 2027	Sep 2027	Jan 2028	Feb 2028	-	-	-	-	26.842	26.842
DDG	134	2020	Sep 2018	Apr 2022	Nov 2026	Mar 2027	Sep 2027	Jan 2028	Feb 2028	-	-	-	-	26.736	26.736
DDG	135	2020	Jun 2020	Nov 2022	Mar 2027	Aug 2027	Feb 2028	Jun 2028	Jul 2028	-	-	-	-	26.969	26.969
DDG Total										55.043	22.584	33.259	43.384	334.113	488.383
LCS	6	2010	Dec 2010	Aug 2011	Aug 2015	Nov 2015	Jun 2017	Aug 2018	Oct 2018	6.490	0.040	-	-	-	6.530
LCS	5	2010	Dec 2010	Aug 2011	Oct 2015	Nov 2015	Jan 2017	May 2018	Jun 2018	6.533	0.010	-	-	-	6.543
LCS	8	2011	Mar 2011	Jul 2012	Jun 2016	Sep 2016	May 2017	Jun 2018	Jun 2018	6.151	-	-	-	-	6.151
LCS	7	2011	Mar 2011	Apr 2012	Aug 2016	Oct 2016	May 2017	Apr 2018	Jun 2018	6.384	0.012	-	-	-	6.396
LCS	10	2012	Mar 2012	Mar 2013	Dec 2016	May 2017	Feb 2018	Oct 2018	Oct 2018	5.368	0.045	-	-	-	5.413
LCS	12	2012	Mar 2012	Sep 2013	Sep 2017	Nov 2017	Jul 2018	Jan 2019	Mar 2019	5.205	0.029	0.805	-	-	6.039
LCS	9	2012	Mar 2012	Jan 2013	Sep 2017	Dec 2017	Dec 2018	Jul 2019	Aug 2019	5.200	0.132	-	-	-	5.332
LCS	11	2012	Mar 2012	Aug 2013	Aug 2018	Jun 2019	Oct 2019	May 2020	May 2020	5.617	0.125	0.400	-	-	6.142
LCS	14	2013	Mar 2013	Feb 2014	Feb 2018	Aug 2018	Mar 2019	Oct 2019	Oct 2019	5.424	0.318	0.300	-	-	6.042
LCS	16	2013	Mar 2013	Sep 2014	Apr 2018	Feb 2019	Jun 2019	Nov 2019	Jan 2020	4.597	1.220	0.301	-	-	6.118
LCS	13	2013	Mar 2013	Feb 2014	Aug 2018	Apr 2019	Jul 2019	Feb 2020	Mar 2020	4.676	0.236	1.095	-	-	6.007
LCS	15	2013	Mar 2013	Dec 2014	Feb 2019	Feb 2020	Apr 2020	Dec 2020	Jan 2021	4.104	0.246	0.255	1.404	-	6.009
LCS	18	2014	Mar 2014	Mar 2015	Aug 2018	Jun 2019	Oct 2019	Mar 2020	May 2020	4.325	0.914	0.828	0.130	-	6.197
LCS	20	2014	Mar 2014	Feb 2016	Jul 2019	Feb 2020	Jul 2020	Oct 2020	Nov 2020	3.558	1.799	0.700	2.148	-	8.205
LCS	17	2014	Mar 2014	Aug 2015	Jul 2019	Apr 2020	Aug 2020	Feb 2021	Mar 2021	3.828	0.966	0.635	0.738	-	6.167
LCS	19	2014	Mar 2014	Aug 2016	Feb 2020	Oct 2020	Mar 2021	Aug 2021	Sep 2021	2.920	0.583	1.403	2.864	0.225	7.995
LCS	22	2015	Mar 2015	Dec 2016	Aug 2019	Jun 2020	Oct 2020	Mar 2021	May 2021	0.293	3.749	1.525	0.571	2.198	8.336
LCS	24	2015	Mar 2015	Jul 2017	Apr 2020	Jan 2021	Jun 2021	Nov 2021	Dec 2021	-	1.386	2.006	4.255	0.894	8.541
LCS	21	2015	Mar 2015	Feb 2017	Oct 2020	Aug 2021	Jan 2022	Jul 2022	Jul 2022	1.338	1.639	0.999	3.011	1.148	8.135

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LCS	26	2016	Mar 2016	Jan 2018	Nov 2020	Aug 2021	Jan 2022	Jun 2022	Jul 2022	-	-	1.780	4.006	3.050	8.836
LCS	23	2016	Nov 2015	Sep 2017	Jun 2021	Feb 2022	Jul 2022	Dec 2022	Jan 2023	1.097	2.558	0.830	1.152	2.716	8.353
LCS	25	2016	Mar 2016	Feb 2018	Feb 2022	Oct 2022	Mar 2023	Sep 2023	Sep 2023	-	-	0.514	-	8.048	8.562
LCS	28	2017	Jun 2017	Oct 2018	Jan 2022	Oct 2022	Mar 2023	Aug 2023	Sep 2023	-	-	-	2.607	6.688	9.295
LCS	27	2017	Oct 2017	Nov 2018	Oct 2022	Jun 2023	Nov 2023	Apr 2024	May 2024	-	-	-	-	8.988	8.988
LCS	30	2017	Oct 2017	May 2019	Oct 2022	Jul 2023	Dec 2023	May 2024	Jun 2024	-	-	-	-	9.840	9.840
LCS	29	2018	Sep 2018	Dec 2019	Sep 2023	Jun 2024	Nov 2024	May 2025	May 2025	-	-	-	-	9.210	9.210
LCS	32	2018	Sep 2018	Nov 2019	Sep 2023	Jun 2024	Nov 2024	May 2025	May 2025	-	-	-	-	9.893	9.893
LCS	34	2018	Sep 2018	Feb 2020	Sep 2023	Jun 2024	Nov 2024	May 2025	May 2025	-	-	-	-	9.865	9.865
LCS	36	2019	Dec 2018	May 2020	Dec 2023	Sep 2024	Feb 2025	Aug 2025	Aug 2025	-	-	-	-	9.845	9.845
LCS	31	2019	Jan 2019	Jan 2020	Jan 2024	Oct 2024	Mar 2025	Sep 2025	Sep 2025	-	-	-	-	9.830	9.830
LCS	38	2019	Dec 2018	Nov 2020	Jun 2024	Mar 2025	Aug 2025	Feb 2026	Feb 2026	-	-	-	-	9.845	9.845
LCS Total										83.108	16.007	14.376	22.886	102.283	238.660
LPD	27	2012	Jul 2012	Aug 2012	Sep 2017	Apr 2018	Nov 2018	Aug 2019	Aug 2019	24.430	1.424	-	-	-	25.854
LPD	28	2016	Dec 2016	Dec 2016	Sep 2021	Feb 2022	Aug 2022	Jan 2023	Jan 2023	-	-	-	18.458	8.124	26.582
LPD	29	2017	Feb 2018	Jul 2018	Jul 2023	Mar 2024	Sep 2024	Feb 2025	Feb 2025	-	-	-	-	28.577	28.577
LPD Total										24.430	1.424	-	18.458	36.701	81.013
ESB	4	2014	Dec 2014	Oct 2015	Feb 2018	Jun 2018	Jan 2019	May 2019	May 2019	17.916	-	-	-	-	17.916
ESB	5	2016	Dec 2016	Jan 2017	Sep 2019	Dec 2019	Sep 2020	Nov 2020	Nov 2020	-	4.895	12.207	6.914	-	24.016
ESB	6	2018	Jun 2019	Dec 2019	Feb 2022	May 2022	Feb 2023	Apr 2023	Apr 2023	-	-	-	-	22.500	22.500
ESB	7	2019	Jun 2019	May 2021	Jul 2023	Oct 2023	Jul 2024	Sep 2024	Sep 2024	-	-	-	-	22.750	22.750
ESB	8	2023	Jun 2023	May 2024	Jul 2026	Oct 2026	Jul 2027	Sep 2027	Sep 2027	-	-	-	-	23.335	23.335
ESB Total										17.916	4.895	12.207	6.914	68.585	110.517
LHA	7	2011	May 2012	Jul 2013	Jun 2019	Jun 2020	Nov 2020	Feb 2021	May 2021	28.358	9.071	8.330	-	1.177	46.936
LHA	8	2017	Jun 2017	Oct 2018	Jan 2024	Sep 2024	Mar 2025	Jun 2025	Aug 2025	-	-	-	-	28.646	28.646
LHA Total										28.358	9.071	8.330	-	29.823	75.582
EPF	9	2012	Feb 2012	Nov 2015	Dec 2017	Mar 2018	Jan 2019	Apr 2019	Apr 2019	3.367	-	-	-	-	3.367
EPF	10	2013	Dec 2012	Jun 2016	Nov 2018	Feb 2019	Aug 2019	Oct 2019	Jan 2020	4.448	-	-	-	-	4.448
EPF	11	2015	Sep 2016	Jan 2017	Apr 2019	Jul 2019	Jan 2020	Mar 2020	Jan 2020	-	3.495	0.366	-	-	3.861
EPF	12	2016	Sep 2016	Sep 2017	Feb 2020	May 2020	Nov 2020	Jan 2021	Apr 2021	-	0.109	4.439	-	-	4.548
EPF	13	2018	Mar 2019	Nov 2019	Nov 2021	Feb 2022	Aug 2022	Oct 2022	Jan 2023	-	-	-	-	4.500	4.500
EPF Total										7.815	3.604	4.805	-	4.500	20.724
T-AO	205	2016	Jun 2016	Sep 2018	Nov 2020	Feb 2021	Jun 2021	Sep 2021	Jan 2022	-	-	17.712	3.784	-	21.496
T-AO	206	2018	Mar 2018	Jul 2019	Sep 2021	Dec 2021	Apr 2022	Jul 2022	Nov 2022	-	-	-	11.039	7.385	18.424
T-AO	207	2019	Dec 2018	Jun 2020	Jul 2022	Oct 2022	Feb 2023	May 2023	Sep 2023	-	-	-	2.712	15.931	18.643
T-AO	208	2019	Dec 2018	Nov 2020	Dec 2022	Mar 2023	Jul 2023	Oct 2023	Feb 2024	-	-	-	-	18.885	18.885
T-AO	209	2020	Jan 2020	Nov 2021	Dec 2023	Mar 2024	Jul 2024	Oct 2024	Feb 2025	-	-	-	-	18.710	18.710
T-AO	210	2020	Jan 2020	Apr 2022	May 2024	Aug 2024	Dec 2024	Mar 2025	Jul 2025	-	-	-	-	19.397	19.397
T-AO	211	2021	Jan 2021	Nov 2022	Dec 2024	Mar 2025	Jul 2025	Oct 2025	Feb 2026	-	-	-	-	19.648	19.648

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T-AO	212	2022	Jan 2022	Apr 2023	May 2025	Aug 2025	Dec 2025	Mar 2026	Jul 2026	-	-	-	-	19.927	19.927
T-AO Total										-	-	17.712	17.535	119.883	155.130
T-ATS(X)	1601	2016	Mar 2018	Mar 2019	Mar 2021	Apr 2021	Aug 2021	Aug 2021	Mar 2022	-	-	2.702	1.508	-	4.210
T-ATS(X)	1801	2018	Mar 2019	Oct 2019	Jul 2021	Aug 2021	Mar 2022	Mar 2022	Jul 2022	-	-	2.196	1.886	-	4.082
T-ATS(X)	1901	2019	Mar 2019	Feb 2020	Nov 2021	Dec 2021	Jul 2022	Jul 2022	Nov 2022	-	-	-	1.490	2.528	4.018
T-ATS(X)	2001	2020	Feb 2020	Aug 2020	Apr 2022	May 2022	Dec 2022	Dec 2022	Apr 2023	-	-	-	-	4.320	4.320
T-ATS(X)	2002	2020	Feb 2020	Dec 2020	Aug 2022	Sep 2022	Apr 2023	Apr 2023	Aug 2023	-	-	-	-	4.320	4.320
T-ATS(X) Total										-	-	4.898	4.884	11.168	20.950
MTS	701	2015	Feb 2015	Feb 2015	Sep 2019	Sep 2019			Aug 2020	15.683	-	-	-	-	15.683
MTS	711	2017	May 2017	May 2017	Mar 2021	Mar 2021			Feb 2022	-	3.000	11.740	4.800	-	19.540
MTS Total										15.683	3.000	11.740	4.800	-	35.223
LCAC	102	2015	Mar 2015	Sep 2016	Nov 2019	Mar 2020	Aug 2020	Nov 2020	Jan 2021	-	0.550	0.360	-	-	0.910
LCAC	101	2015	Dec 2012	Mar 2015	Dec 2019	Mar 2020	Jun 2020	Aug 2020	Jan 2021	0.300	0.601	-	-	-	0.901
LCAC	103	2015	Mar 2015	Nov 2016	Dec 2019	Mar 2020	Sep 2020	Dec 2020	Jan 2021	-	-	1.037	-	-	1.037
LCAC	104	2016	Mar 2016	Feb 2017	Mar 2020	Aug 2020	Jan 2021	Apr 2021	Jul 2021	-	-	1.037	-	-	1.037
LCAC	105	2016	Mar 2016	May 2017	May 2020	Aug 2020	Feb 2021	May 2021	Jul 2021	-	-	0.853	0.184	-	1.037
LCAC	106	2016	Mar 2016	Oct 2017	Jun 2020	Aug 2020	Mar 2021	Jun 2021	Jul 2021	-	-	-	1.037	-	1.037
LCAC	107	2016	Mar 2016	Apr 2018	Oct 2020	Oct 2021	Mar 2022	Jun 2022	Sep 2022	-	-	-	1.037	-	1.037
LCAC	108	2016	Mar 2016	Jul 2018	Dec 2020	Oct 2021	Apr 2022	Jul 2022	Sep 2022	-	-	-	1.037	-	1.037
LCAC	109	2017	Mar 2019	Dec 2018	Aug 2021	Oct 2021	May 2022	Aug 2022	Sep 2022	-	-	-	0.534	0.524	1.058
LCAC	110	2017	Mar 2019	Mar 2019	Oct 2021	Apr 2022	Sep 2022	Dec 2022	Mar 2023	-	-	-	-	1.058	1.058
LCAC	111	2018	Mar 2019	Jul 2019	Dec 2021	Apr 2022	Oct 2022	Jan 2023	Mar 2023	-	-	-	-	1.058	1.058
LCAC	112	2018	Mar 2019	Sep 2019	Jan 2022	Apr 2022	Nov 2022	Feb 2023	Mar 2023	-	-	-	-	1.058	1.058
LCAC	113	2018	Mar 2019	Nov 2019	Mar 2022	Aug 2022	Jan 2023	Apr 2023	Jul 2023	-	-	-	-	1.058	1.058
LCAC	114	2018	Mar 2019	Feb 2020	Apr 2022	Aug 2022	Feb 2023	May 2023	Jul 2023	-	-	-	-	1.079	1.079
LCAC	115	2018	Mar 2019	Apr 2020	Jun 2022	Aug 2022	Mar 2023	Jun 2023	Jul 2023	-	-	-	-	1.078	1.078
LCAC	116	2018	Mar 2019	Jul 2020	Aug 2022	Jan 2023	Jun 2023	Sep 2023	Dec 2023	-	-	-	-	1.079	1.079
LCAC	117	2018	Mar 2019	Sep 2020	Sep 2022	Jan 2023	Jul 2023	Oct 2023	Dec 2023	-	-	-	-	1.079	1.079
LCAC	118	2018	Mar 2019	Nov 2020	Nov 2022	Jan 2023	Aug 2023	Nov 2023	Dec 2023	-	-	-	-	1.079	1.079
LCAC	119	2019	Mar 2019	Feb 2021	Dec 2022	Jun 2023	Nov 2023	Feb 2024	May 2024	-	-	-	-	1.079	1.079
LCAC	120	2019	Mar 2019	Apr 2021	Feb 2023	Jun 2023	Dec 2023	Mar 2024	May 2024	-	-	-	-	1.079	1.079
LCAC	121	2019	Mar 2019	Jun 2021	Apr 2023	Jun 2023	Jan 2024	Apr 2024	May 2024	-	-	-	-	1.102	1.102
LCAC	122	2019	Mar 2019	Jul 2021	May 2023	Nov 2023	Mar 2024	Jul 2024	Oct 2024	-	-	-	-	1.102	1.102
LCAC	123	2019	Mar 2019	Sep 2021	Jul 2023	Nov 2023	Apr 2024	Aug 2024	Oct 2024	-	-	-	-	1.102	1.102
LCAC	124	2019	Mar 2019	Nov 2021	Aug 2023	Nov 2023	May 2024	Sep 2024	Oct 2024	-	-	-	-	1.102	1.102
LCAC	125	2019	Mar 2019	Jan 2022	Sep 2023	Mar 2024	Aug 2024	Nov 2024	Feb 2025	-	-	-	-	1.102	1.102
LCAC	126	2019	Mar 2019	Mar 2022	Nov 2023	Mar 2024	Sep 2024	Dec 2024	Feb 2025	-	-	-	-	1.123	1.123
LCAC	127	2021	Dec 2020	May 2022	Jan 2024	Mar 2024	Oct 2024	Jan 2025	Feb 2025	-	-	-	-	1.123	1.123
LCAC	128	2021	Dec 2020	Jul 2022	Mar 2024	Sep 2024	Feb 2025	Jun 2025	Aug 2025	-	-	-	-	1.123	1.123

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LCAC	129	2021	Dec 2020	Sep 2022	May 2024	Sep 2024	Mar 2025	Jul 2025	Aug 2025	-	-	-	-	1.145	1.145
LCAC	130	2021	Dec 2020	Nov 2022	Jul 2024	Sep 2024	Apr 2025	Jul 2025	Aug 2025	-	-	-	-	1.145	1.145
LCAC	131	2022	Mar 2022	Jan 2023	Sep 2024	Mar 2025	Aug 2025	Dec 2025	Mar 2026	-	-	-	-	0.963	0.963
LCAC Total										0.300	1.151	3.287	3.829	24.440	33.007
LCAC SLEP	65	2016	Mar 2016	Oct 2016	Feb 2018	Mar 2018	Apr 2018	Apr 2018	Feb 2019	0.215	-	-	-	-	0.215
LCAC SLEP	76	2016	Mar 2016	Feb 2017	May 2018	Jun 2018	Jul 2018	Jul 2018	May 2019	0.337	-	-	-	-	0.337
LCAC SLEP	86	2017	Sep 2018	Jan 2019	Apr 2020	May 2020	Jun 2020	Jun 2020	Apr 2021	-	-	0.238	-	-	0.238
LCAC SLEP	87	2017	Sep 2018	Jun 2019	Sep 2020	Oct 2020	Nov 2020	Nov 2020	Sep 2021	-	-	-	0.242	-	0.242
LCAC SLEP	77	2017	Sep 2018	Nov 2019	Feb 2021	Mar 2021	Apr 2021	Apr 2021	Sep 2021	-	-	-	0.242	-	0.242
LCAC SLEP	50	2019	Jun 2019	Apr 2020	Nov 2021	Dec 2021	Jan 2022	Jan 2022	Nov 2022	-	-	-	-	0.257	0.257
LCAC SLEP Total										0.552	-	0.238	0.484	0.257	1.531
YP SLEP	694	2016	Jul 2018	Aug 2018	Mar 2019	Apr 2019			Mar 2020	0.047	-	-	-	-	0.047
YP SLEP	689	2016	Apr 2019	May 2019	Oct 2019	Jan 2020			Dec 2020	0.046	-	-	-	-	0.046
YP SLEP	692	2016	Apr 2019	May 2019	Oct 2019	Jan 2020			Dec 2020	0.046	-	-	-	-	0.046
YP SLEP	690	2017	Jul 2019	Aug 2019	Jan 2020	Apr 2020			Mar 2021	0.047	-	-	-	-	0.047
YP SLEP	698	2017	Jul 2019	Aug 2019	Jan 2020	Apr 2020			Mar 2021	0.047	-	-	-	-	0.047
YP SLEP	691	2017	Oct 2019	Nov 2019	Apr 2020	Jul 2020			Jun 2021	-	-	-	0.049	-	0.049
YP SLEP	683	2017	Jan 2020	Feb 2020	Jul 2020	Oct 2020			Sep 2021	0.047	-	-	-	-	0.047
YP SLEP	684	2017	Jan 2020	Feb 2020	Jul 2020	Oct 2020			Sep 2021	-	-	-	0.048	-	0.048
YP SLEP	700	2017	Apr 2020	May 2020	Oct 2020	Jan 2021			Dec 2021	-	-	-	0.048	-	0.048
YP SLEP Total										0.280	-	-	0.145	-	0.425
PUBS	0	2010								41.973	5.540	9.757	9.918	52.863	120.051
PUBS Total										41.973	5.540	9.757	9.918	52.863	120.051
Full Funding TOA - Outfitting Total										624.217	104.464	181.139	267.204	1,705.063	2,882.087

Footnotes:

(1) FY20 Outfitting for CVN 79 is required in FY20 to support preliminary acceptance from the shipbuilder in June of FY22 and includes outfitting items required to support propulsion, safe navigation, and aircraft launch and recovery.

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Exhibit P-30, Delivery: PB 2020 Navy

Date: March 2019

Appropriation / Budget Activity / Budget Sub Activity:
1611N / 05 / 1P-1 Line Item Number / Title:
5110 / Outfitting

Ship Class	Hull Number	Program Year	Contract Award	Start of Const.	Delivery Date	CFO	PSA Start	PSA Finish	OWL Date	Prior Years	FY 2018	FY 2019	FY 2020	To Complete	Total
CVN	78	2008	Sep 2008	Aug 2005	May 2017	Jul 2017	Jul 2018	Jul 2019	Jan 2020	78.562	92.116	27.097	56.300	-	254.075
CVN	79 ⁽¹⁾	2013	Jun 2015	Feb 2011	Sep 2024	Nov 2024	Mar 2023	Sep 2024	Oct 2025	-	-	-	-	143.800	143.800
CVN	80	2018	Jan 2019	Jan 2019	Mar 2028	May 2028	Oct 2028	Mar 2029	Apr 2029	-	-	-	-	158.769	158.769
CVN	81	2020	Jan 2019	Jan 2019	Feb 2032	Apr 2032	Sep 2032	Feb 2033	Mar 2033	-	-	-	-	165.215	165.215
CVN Total										78.562	92.116	27.097	56.300	467.784	721.859
VIRGINIA	787	2011	Dec 2008	Sep 2011	May 2017	May 2017	Oct 2017	Aug 2018	Sep 2018	43.453	2.095	-	-	-	45.548
VIRGINIA	788	2012	Dec 2008	Mar 2012	Sep 2017	Sep 2017	Apr 2018	Oct 2018	Nov 2018	25.075	14.240	-	-	-	39.315
VIRGINIA	789	2012	Dec 2008	Sep 2012	Jun 2018	Jun 2018	Oct 2018	May 2019	May 2019	8.999	24.453	5.000	-	-	38.452
VIRGINIA	790	2013	Dec 2008	Mar 2013	Sep 2018	Sep 2018	Feb 2019	Jul 2019	Aug 2019	5.295	5.132	35.000	-	-	45.427
VIRGINIA	791	2013	Dec 2008	Sep 2013	Jun 2019	Jun 2019	Oct 2019	Jan 2020	May 2020	-	0.783	27.753	13.000	-	41.536
VIRGINIA	792	2014	Apr 2014	May 2014	Oct 2019	Oct 2019	Jan 2020	Jun 2020	Sep 2020	-	-	5.000	36.859	-	41.859
VIRGINIA	793	2014	Apr 2014	Sep 2014	May 2020	May 2020	Jul 2020	Oct 2020	Apr 2021	-	-	5.000	35.285	-	40.285
VIRGINIA	794	2015	Apr 2014	Apr 2015	Sep 2020	Sep 2020	Jan 2021	Apr 2021	Aug 2021	-	-	-	15.888	36.774	52.662
VIRGINIA	795	2015	Apr 2014	Sep 2015	Apr 2021	Apr 2021	Jul 2021	Oct 2021	Mar 2022	-	-	-	6.258	46.435	52.693
VIRGINIA	796	2016	Apr 2014	Mar 2016	Aug 2021	Aug 2021	Nov 2021	Feb 2022	Jul 2022	-	-	-	-	53.804	53.804
VIRGINIA	797	2016	Apr 2014	Sep 2016	Jan 2022	Jan 2022	May 2022	Aug 2022	Dec 2022	-	-	-	-	54.475	54.475
VIRGINIA	798	2017	Apr 2014	Mar 2017	Jun 2022	Jun 2022	Oct 2022	Jan 2023	May 2023	-	-	-	-	54.785	54.785
VIRGINIA	799	2017	Apr 2014	Sep 2017	Dec 2022	Dec 2022	Apr 2023	Jul 2023	Nov 2023	-	-	-	-	55.785	55.785
VIRGINIA	800	2018	Apr 2014	Mar 2018	Apr 2023	Apr 2023	Jul 2023	Oct 2023	Mar 2024	-	-	-	-	55.921	55.921
VIRGINIA	801	2018	Apr 2014	Sep 2018	Sep 2023	Sep 2023	Jan 2024	Apr 2024	Aug 2024	-	-	-	-	56.911	56.911
VIRGINIA	802	2019	Apr 2019	Mar 2019	Jan 2025	Jan 2025	Apr 2025	Aug 2025	Dec 2025	-	-	-	-	32.000	32.000
VIRGINIA	803	2019	Apr 2019	Sep 2019	Nov 2025	Nov 2025	Jan 2026	Apr 2026	Oct 2026	-	-	-	-	21.000	21.000
VIRGINIA	804	2020	Apr 2019	Mar 2020	Jan 2026	Jan 2026	Apr 2026	Jul 2026	Dec 2026	-	-	-	-	16.180	16.180
VIRGINIA Total										82.822	46.703	77.753	107.290	484.070	798.638
CVN-RCOH	73	2016	Aug 2017	Aug 2017	Aug 2021	Oct 2021	Aug 2021	Aug 2022	Sep 2022	-	-	-	-	38.596	38.596
CVN-RCOH	74	2020	Jan 2021	Jan 2021	Jan 2025	Mar 2025	Jan 2025	Jan 2026	Feb 2026	-	-	-	-	44.404	44.404
CVN-RCOH Total										-	-	-	-	83.000	83.000
DDG 1000	1000	2007	Feb 2008	Feb 2009	Sep 2019	Jan 2020	Jul 2020	Dec 2020	Dec 2020	142.808	24.582	17.115	31.852	12.177	228.534
DDG 1000	1001	2007	Sep 2011	Mar 2010	Sep 2020	Oct 2020	Apr 2021	Jul 2021	Sep 2021	5.429	9.471	13.404	25.586	44.192	98.082
DDG 1000	1002	2009	Sep 2011	Apr 2012	Sep 2022	Oct 2022	Apr 2023	Jul 2023	Sep 2023	1.200	-	-	-	120.875	122.075
DDG 1000 Total										149.437	34.053	30.519	57.438	177.244	448.691
DDG	114	2011	Sep 2011	Sep 2013	Nov 2017	Mar 2018	Oct 2018	Feb 2019	Feb 2019	23.198	17.257	-	-	-	40.455
DDG	116	2012	Feb 2012	Feb 2013	Jun 2018	Oct 2018	May 2019	Sep 2019	Sep 2019	-	15.283	19.063	-	-	34.346
DDG	117	2013	Jun 2013	Sep 2014	Feb 2019	Jun 2019	Jan 2020	May 2020	May 2020	-	12.414	20.703	-	-	33.117
DDG	118	2013	Jun 2013	Aug 2015	Apr 2020	Aug 2020	Apr 2021	Jul 2021	Jul 2021	-	-	-	30.784	6.073	36.857
DDG	120	2013	Mar 2014	Sep 2016	Jan 2021	May 2021	Jan 2022	Apr 2022	Apr 2022	-	-	-	-	36.081	36.081
DDG	119	2014	Jun 2013	Jul 2015	Oct 2019	Feb 2020	Aug 2020	Dec 2020	Jan 2021	-	-	-	38.143	-	38.143
DDG	121	2015	Jun 2013	Apr 2016	Jul 2020	Dec 2020	Jul 2021	Nov 2021	Nov 2021	-	-	-	18.613	16.113	34.726
DDG	122	2015	Jun 2013	Sep 2017	Oct 2021	Feb 2022	Oct 2022	Jan 2023	Jan 2023	-	-	-	-	35.905	35.905

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Exhibit P-30, Delivery: PB 2020 Navy

Date: March 2019

Appropriation / Budget Activity / Budget Sub Activity:
1611N / 05 / 1P-1 Line Item Number / Title:
5110 / Outfitting

Ship Class	Hull Number	Program Year	Contract Award	Start of Const.	Delivery Date	CFO	PSA Start	PSA Finish	OWL Date	Prior Years	FY 2018	FY 2019	FY 2020	To Complete	Total
DDG	123	2016	Jun 2013	Jan 2017	Jul 2021	Nov 2021	May 2022	Sep 2022	Oct 2022	-	-	-	-	35.847	35.847
DDG	124	2016	Jun 2013	Jul 2018	Jun 2022	Oct 2022	Apr 2023	Aug 2023	Sep 2023	-	-	-	-	35.846	35.846
DDG	127	2016	Sep 2017	Jul 2018	Nov 2022	Mar 2023	Sep 2023	Jan 2024	Feb 2024	-	-	-	-	36.937	36.937
DDG	125	2017	Jun 2013	May 2018	Apr 2023	Aug 2023	Feb 2024	Jun 2024	Jul 2024	-	-	-	-	32.497	32.497
DDG	126	2017	Jun 2013	Apr 2019	Jun 2024	Oct 2024	Apr 2025	Aug 2025	Sep 2025	-	-	-	-	39.456	39.456
DDG	128	2018	Sep 2018	Jun 2020	Oct 2024	Feb 2025	Aug 2025	Dec 2025	Jan 2026	-	-	-	-	43.013	43.013
DDG	129	2018	Sep 2018	May 2021	Jul 2025	Nov 2025	May 2026	Sep 2026	Oct 2026	-	-	-	-	56.372	56.372
DDG	130	2019	Sep 2018	Jul 2020	Jul 2025	Nov 2025	May 2026	Sep 2026	Oct 2026	-	-	-	-	61.734	61.734
DDG	131	2019	Sep 2018	Mar 2022	Apr 2026	Aug 2026	Feb 2027	Jun 2027	Jul 2027	-	-	-	-	61.734	61.734
DDG	135	2020	Jun 2020	Nov 2022	Mar 2027	Aug 2027	Feb 2028	Jun 2028	Jul 2028	-	-	-	-	57.304	57.304
DDG Total										23.198	44.954	39.766	87.540	554.912	750.370
LCS	6	2010	Dec 2010	Aug 2011	Aug 2015	Nov 2015	Jun 2017	Aug 2018	Oct 2018	75.049	6.456	-	-	-	81.505
LCS	5	2010	Dec 2010	Aug 2011	Oct 2015	Nov 2015	Jan 2017	May 2018	Jun 2018	86.383	6.745	-	-	-	93.128
LCS	8	2011	Mar 2011	Jul 2012	Jun 2016	Sep 2016	May 2017	Jun 2018	Jun 2018	44.958	2.707	-	-	-	47.665
LCS	7	2011	Mar 2011	Apr 2012	Aug 2016	Oct 2016	May 2017	Apr 2018	Jun 2018	44.500	3.349	-	-	-	47.849
LCS	10	2012	Mar 2012	Mar 2013	Dec 2016	May 2017	Feb 2018	Oct 2018	Oct 2018	31.174	11.731	-	-	-	42.905
LCS	12	2012	Mar 2012	Sep 2013	Sep 2017	Nov 2017	Jul 2018	Jan 2019	Mar 2019	30.071	15.004	-	-	-	45.075
LCS	9	2012	Mar 2012	Jan 2013	Sep 2017	Dec 2017	Dec 2018	Jul 2019	Aug 2019	31.181	9.007	-	-	-	40.188
LCS	11	2012	Mar 2012	Aug 2013	Aug 2018	Jun 2019	Oct 2019	May 2020	May 2020	27.169	6.617	6.585	-	-	40.371
LCS	14	2013	Mar 2013	Feb 2014	Feb 2018	Aug 2018	Mar 2019	Oct 2019	Oct 2019	5.894	14.935	18.914	-	-	39.743
LCS	16	2013	Mar 2013	Sep 2014	Apr 2018	Feb 2019	Jun 2019	Nov 2019	Jan 2020	0.100	19.191	20.876	-	-	40.167
LCS	13	2013	Mar 2013	Feb 2014	Aug 2018	Apr 2019	Jul 2019	Feb 2020	Mar 2020	0.200	11.221	26.832	1.117	-	39.370
LCS	15	2013	Mar 2013	Dec 2014	Feb 2019	Feb 2020	Apr 2020	Dec 2020	Jan 2021	-	1.300	18.684	20.957	-	40.941
LCS	18	2014	Mar 2014	Mar 2015	Aug 2018	Jun 2019	Oct 2019	Mar 2020	May 2020	-	12.770	20.343	6.916	-	40.029
LCS	20	2014	Mar 2014	Feb 2016	Jul 2019	Feb 2020	Jul 2020	Oct 2020	Nov 2020	-	-	13.724	24.790	2.455	40.969
LCS	17	2014	Mar 2014	Aug 2015	Jul 2019	Apr 2020	Aug 2020	Feb 2021	Mar 2021	-	-	8.711	29.132	3.081	40.924
LCS	19	2014	Mar 2014	Aug 2016	Feb 2020	Oct 2020	Mar 2021	Aug 2021	Sep 2021	-	-	2.503	25.663	12.805	40.971
LCS	22	2015	Mar 2015	Dec 2016	Aug 2019	Jun 2020	Oct 2020	Mar 2021	May 2021	-	-	2.991	15.942	21.774	40.707
LCS	24	2015	Mar 2015	Jul 2017	Apr 2020	Jan 2021	Jun 2021	Nov 2021	Dec 2021	-	-	-	6.188	34.483	40.671
LCS	21	2015	Mar 2015	Feb 2017	Oct 2020	Aug 2021	Jan 2022	Jul 2022	Jul 2022	-	-	-	5.656	34.697	40.353
LCS	26	2016	Mar 2016	Jan 2018	Nov 2020	Aug 2021	Jan 2022	Jun 2022	Jul 2022	-	-	-	-	40.257	40.257
LCS	23	2016	Nov 2015	Sep 2017	Jun 2021	Feb 2022	Jul 2022	Dec 2022	Jan 2023	-	-	-	-	40.752	40.752
LCS	25	2016	Mar 2016	Feb 2018	Feb 2022	Oct 2022	Mar 2023	Sep 2023	Sep 2023	-	-	-	-	40.426	40.426
LCS	28	2017	Jun 2017	Oct 2018	Jan 2022	Oct 2022	Mar 2023	Aug 2023	Sep 2023	-	-	-	-	40.426	40.426
LCS	27	2017	Oct 2017	Nov 2018	Oct 2022	Jun 2023	Nov 2023	Apr 2024	May 2024	-	-	-	-	40.874	40.874
LCS	30	2017	Oct 2017	May 2019	Oct 2022	Jul 2023	Dec 2023	May 2024	Jun 2024	-	-	-	-	41.645	41.645
LCS	29	2018	Sep 2018	Dec 2019	Sep 2023	Jun 2024	Nov 2024	May 2025	May 2025	-	-	-	-	41.532	41.532
LCS	32	2018	Sep 2018	Nov 2019	Sep 2023	Jun 2024	Nov 2024	May 2025	May 2025	-	-	-	-	41.868	41.868
LCS	34	2018	Sep 2018	Feb 2020	Sep 2023	Jun 2024	Nov 2024	May 2025	May 2025	-	-	-	-	41.868	41.868

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Exhibit P-30, Delivery: PB 2020 Navy

Date: March 2019

Appropriation / Budget Activity / Budget Sub Activity:
1611N / 05 / 1P-1 Line Item Number / Title:
5110 / Outfitting

Ship Class	Hull Number	Program Year	Contract Award	Start of Const.	Delivery Date	CFO	PSA Start	PSA Finish	OWL Date	Prior Years	FY 2018	FY 2019	FY 2020	To Complete	Total
LCS	36	2019	Dec 2018	May 2020	Dec 2023	Sep 2024	Feb 2025	Aug 2025	Aug 2025	-	-	-	-	42.375	42.375
LCS	31	2019	Jan 2019	Jun 2020	Jan 2024	Oct 2024	Mar 2025	Sep 2025	Sep 2025	-	-	-	-	42.363	42.363
LCS	38	2019	Dec 2018	Nov 2020	Jun 2024	Mar 2025	Aug 2025	Feb 2026	Feb 2026	-	-	-	-	42.375	42.375
LCS Total										376.679	121.033	140.163	136.361	606.056	1,380.292
LPD	27	2012	Jul 2012	Aug 2012	Sep 2017	Apr 2018	Nov 2018	Aug 2019	Aug 2019	28.171	21.720	1.988	-	-	51.879
LPD	28	2016	Dec 2016	Dec 2016	Sep 2021	Feb 2022	Aug 2022	Jan 2023	Jan 2023	-	-	-	0.207	67.558	67.765
LPD	29	2017	Feb 2018	Jul 2018	Jul 2023	Mar 2024	Sep 2024	Feb 2025	Feb 2025	-	-	-	-	62.335	62.335
LPD Total										28.171	21.720	1.988	0.207	129.893	181.979
ESB	4	2014	Dec 2014	Oct 2015	Feb 2018	Jun 2018	Jan 2019	May 2019	May 2019	-	7.380	7.787	-	1.202	16.369
ESB	5	2016	Dec 2016	Jan 2017	Sep 2019	Dec 2019	Sep 2020	Nov 2020	Nov 2020	-	-	7.093	9.177	0.016	16.286
ESB	6	2018	Jun 2019	Dec 2019	Feb 2022	May 2022	Feb 2023	Apr 2023	Apr 2023	-	-	-	-	13.437	13.437
ESB	7	2019	Jun 2019	May 2021	Jul 2023	Oct 2023	Jul 2024	Sep 2024	Sep 2024	-	-	-	-	11.882	11.882
ESB	8	2023	Jun 2023	May 2024	Jul 2026	Oct 2026	Jul 2027	Sep 2027	Sep 2027	-	-	-	-	11.125	11.125
ESB Total										-	7.380	14.880	9.177	37.662	69.099
LHA	7	2011	May 2012	Jul 2013	Jun 2019	Jun 2020	Nov 2020	Feb 2021	May 2021	-	7.140	24.239	11.361	13.840	56.580
LHA	8	2017	Jun 2017	Oct 2018	Jan 2024	Sep 2024	Mar 2025	Jun 2025	Aug 2025	-	-	-	-	55.219	55.219
LHA Total										-	7.140	24.239	11.361	69.059	111.799
EPF	9	2012	Feb 2012	Nov 2015	Dec 2017	Mar 2018	Jan 2019	Apr 2019	Apr 2019	2.341	1.603	-	-	-	3.944
EPF	10	2013	Dec 2012	Jun 2016	Nov 2018	Feb 2019	Aug 2019	Oct 2019	Jan 2020	1.903	0.952	-	-	-	2.855
EPF	11	2015	Sep 2016	Jan 2017	Apr 2019	Jul 2019	Jan 2020	Mar 2020	Jun 2020	-	0.465	3.611	-	-	4.076
EPF	12	2016	Sep 2016	Sep 2017	Feb 2020	May 2020	Nov 2020	Jan 2021	Apr 2021	-	-	0.602	2.403	0.002	3.007
EPF	13	2018	Mar 2019	Nov 2019	Nov 2021	Feb 2022	Aug 2022	Oct 2022	Jan 2023	-	-	-	-	3.586	3.586
EPF Total										4.244	3.020	4.213	2.403	3.588	17.468
T-AO	205	2016	Jun 2016	Sep 2018	Nov 2020	Feb 2021	Jun 2021	Sep 2021	Jan 2022	-	-	-	4.197	14.518	18.715
T-AO	206	2018	Mar 2018	Jul 2019	Sep 2021	Dec 2021	Apr 2022	Jul 2022	Nov 2022	-	-	-	-	17.326	17.326
T-AO	207	2019	Dec 2018	Jun 2020	Jul 2022	Oct 2022	Feb 2023	May 2023	Sep 2023	-	-	-	-	12.398	12.398
T-AO	208	2019	Dec 2018	Nov 2020	Dec 2022	Mar 2023	Jul 2023	Oct 2023	Feb 2024	-	-	-	-	12.515	12.515
T-AO	209	2020	Jan 2020	Nov 2021	Dec 2023	Mar 2024	Jul 2024	Oct 2024	Feb 2025	-	-	-	-	12.594	12.594
T-AO	210	2020	Jan 2020	Apr 2022	May 2024	Aug 2024	Dec 2024	Mar 2025	Jul 2025	-	-	-	-	12.753	12.753
T-AO	211	2021	Jan 2021	Nov 2022	Dec 2024	Mar 2025	Jul 2025	Oct 2025	Feb 2026	-	-	-	-	13.001	13.001
T-AO Total										-	-	-	4.197	95.105	99.302
T-ATS(X)	1601	2016	Mar 2018	Mar 2019	Mar 2021	Apr 2021	Aug 2021	Aug 2021	Mar 2022	-	-	-	2.486	1.800	4.286
T-ATS(X)	1801	2018	Mar 2019	Oct 2019	Jul 2021	Aug 2021	Mar 2022	Mar 2022	Jul 2022	-	-	-	-	4.667	4.667
T-ATS(X) Total										-	-	-	2.486	6.467	8.953
LCAC	102	2015	Mar 2015	Sep 2016	Nov 2019	Mar 2020	Aug 2020	Nov 2020	Jan 2021	-	-	1.430	-	-	1.430
LCAC	101	2015	Dec 2012	Mar 2015	Dec 2019	Mar 2020	Jun 2020	Aug 2020	Jan 2021	-	1.738	0.250	-	-	1.988
LCAC	103	2015	Mar 2015	Nov 2016	Dec 2019	Mar 2020	Sep 2020	Dec 2020	Jan 2021	-	-	1.410	0.105	-	1.515
LCAC	104	2016	Mar 2016	Feb 2017	Mar 2020	Aug 2020	Jan 2021	Apr 2021	Jul 2021	-	-	-	1.264	0.230	1.494
LCAC	105	2016	Mar 2016	May 2017	May 2020	Aug 2020	Feb 2021	May 2021	Jul 2021	-	-	-	1.480	0.020	1.500

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Exhibit P-30, Delivery: PB 2020 Navy	Date: March 2019
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Appropriation / Budget Activity / Budget Sub Activity: 1611N / 05 / 1	P-1 Line Item Number / Title: 5110 / Outfitting
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Ship Class	Hull Number	Program Year	Contract Award	Start of Const.	Delivery Date	CFO	PSA Start	PSA Finish	OWL Date	Prior Years	FY 2018	FY 2019	FY 2020	To Complete	Total
LCAC	106	2016	Mar 2016	Oct 2017	Jun 2020	Aug 2020	Mar 2021	Jun 2021	Jul 2021	-	-	-	1.475	0.025	1.500
LCAC	107	2016	Mar 2016	Apr 2018	Oct 2020	Oct 2021	Mar 2022	Jun 2022	Sep 2022	-	-	-	1.470	0.020	1.490
LCAC	108	2016	Mar 2016	Jul 2018	Dec 2020	Oct 2021	Apr 2022	Jul 2022	Sep 2022	-	-	-	1.470	0.015	1.485
LCAC	109	2017	Mar 2019	Dec 2018	Aug 2021	Oct 2021	May 2022	Aug 2022	Sep 2022	-	-	-	-	1.810	1.810
LCAC	110	2017	Mar 2019	Mar 2019	Oct 2021	Apr 2022	Sep 2022	Dec 2022	Mar 2023	-	-	-	-	1.826	1.826
LCAC	111	2018	Mar 2019	Jul 2019	Dec 2021	Apr 2022	Oct 2022	Jan 2023	Mar 2023	-	-	-	-	1.731	1.731
LCAC	112	2018	Mar 2019	Sep 2019	Jan 2022	Apr 2022	Nov 2022	Feb 2023	Mar 2023	-	-	-	-	1.700	1.700
LCAC	113	2018	Mar 2019	Nov 2019	Mar 2022	Aug 2022	Jan 2023	Apr 2023	Jul 2023	-	-	-	-	1.690	1.690
LCAC	114	2018	Mar 2019	Feb 2020	Apr 2022	Aug 2022	Feb 2023	May 2023	Jul 2023	-	-	-	-	1.642	1.642
LCAC	115	2018	Mar 2019	Apr 2020	Jun 2022	Aug 2022	Mar 2023	Jun 2023	Jul 2023	-	-	-	-	1.642	1.642
LCAC	116	2018	Mar 2019	Jul 2020	Aug 2022	Jan 2023	Jun 2023	Sep 2023	Dec 2023	-	-	-	-	1.642	1.642
LCAC	117	2018	Mar 2019	Sep 2020	Sep 2022	Jan 2023	Jul 2023	Oct 2023	Dec 2023	-	-	-	-	1.642	1.642
LCAC	118	2018	Mar 2019	Nov 2020	Nov 2022	Jan 2023	Aug 2023	Nov 2023	Dec 2023	-	-	-	-	1.668	1.668
LCAC	119	2019	Mar 2019	Feb 2021	Dec 2022	Jun 2023	Nov 2023	Feb 2024	May 2024	-	-	-	-	1.463	1.463
LCAC	120	2019	Mar 2019	Apr 2021	Feb 2023	Jun 2023	Dec 2023	Mar 2024	May 2024	-	-	-	-	1.393	1.393
LCAC	121	2019	Mar 2019	Jun 2021	Apr 2023	Jun 2023	Jan 2024	Apr 2024	May 2024	-	-	-	-	1.367	1.367
LCAC	122	2019	Mar 2019	Jul 2021	May 2023	Nov 2023	Mar 2024	Jul 2024	Oct 2024	-	-	-	-	1.123	1.123
LCAC	123	2019	Mar 2019	Sep 2021	Jul 2023	Nov 2023	Apr 2024	Aug 2024	Oct 2024	-	-	-	-	1.101	1.101
LCAC	124	2019	Mar 2019	Nov 2021	Aug 2023	Nov 2023	May 2024	Sep 2024	Oct 2024	-	-	-	-	1.100	1.100
LCAC	125	2019	Mar 2019	Jan 2022	Sep 2023	Mar 2024	Aug 2024	Nov 2024	Feb 2025	-	-	-	-	1.098	1.098
LCAC	126	2019	Mar 2019	Mar 2022	Nov 2023	Mar 2024	Sep 2024	Dec 2024	Feb 2025	-	-	-	-	1.095	1.095
LCAC	127	2021	Dec 2020	May 2022	Jan 2024	Mar 2024	Oct 2024	Jan 2025	Feb 2025	-	-	-	-	1.096	1.096
LCAC	128	2021	Dec 2020	Jul 2022	Mar 2024	Sep 2024	Feb 2025	Jun 2025	Aug 2025	-	-	-	-	1.090	1.090
LCAC	129	2021	Dec 2020	Sep 2022	May 2024	Sep 2024	Mar 2025	Jul 2025	Aug 2025	-	-	-	-	1.086	1.086
LCAC	130	2021	Dec 2020	Nov 2022	Jul 2024	Sep 2024	Apr 2025	Jul 2025	Aug 2025	-	-	-	-	1.082	1.082
LCAC	131	2022	Mar 2022	Jan 2023	Sep 2024	Mar 2025	Aug 2025	Dec 2025	Mar 2026	-	-	-	-	1.080	1.080
LCAC	132	2022	Mar 2022	Mar 2023	Nov 2024	Mar 2025	Sep 2025	Dec 2025	Mar 2026	-	-	-	-	1.075	1.075
LCAC	133	2022	Mar 2022	May 2023	Jan 2025	Mar 2025	Oct 2025	Jan 2026	Mar 2026	-	-	-	-	1.443	1.443
LCAC Total										-	1.738	3.090	7.264	34.995	47.087
LCAC SLEP	65	2016	Mar 2016	Oct 2016	Feb 2018	Mar 2018	Apr 2018	Apr 2018	Feb 2019	-	0.081	-	-	-	0.081
LCAC SLEP	76	2016	Mar 2016	Feb 2017	May 2018	Jun 2018	Jul 2018	Jul 2018	May 2019	-	0.082	-	-	-	0.082
LCAC SLEP	86	2017	Sep 2018	Jan 2019	Apr 2020	May 2020	Jun 2020	Jun 2020	Apr 2021	-	-	-	0.150	-	0.150
LCAC SLEP	87	2017	Sep 2018	Jun 2019	Sep 2020	Oct 2020	Nov 2020	Nov 2020	Sep 2021	-	-	-	-	0.150	0.150
LCAC SLEP	77	2017	Sep 2018	Nov 2019	Feb 2021	Mar 2021	Apr 2021	Apr 2021	Sep 2021	-	-	-	-	0.150	0.150
LCAC SLEP	50	2019	Jun 2019	Apr 2020	Nov 2021	Dec 2021	Jan 2022	Jan 2022	Nov 2022	-	-	-	-	0.150	0.150
LCAC SLEP Total										-	0.163	-	0.150	0.450	0.763
Full Funding TOA - Post Delivery Total										743.113	380.020	363.708	482.174	2,750.285	4,719.300

Footnotes:

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LI 5110 - Outfitting Navy

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Exhibit P-40, Budget Line Item Justification: PB 2020 Navy **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity: 1611N: Shipbuilding and Conversion, Navy / BA 05: Auxiliaries, Craft, and Prior-Year Program Costs / BSA 1: Auxiliaries, Craft and Prior Yr Program Cost	P-1 Line Item Number / Title: 5112 / Ship to Shore Connector
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ID Code (A=Service Ready, B=Not Service Ready): A	Program Elements for Code B Items: N/A	Other Related Program Elements: N/A
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Line Item MDAP/MAIS Code: N/A

Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity (<i>Units in Each</i>)	10	8	8	-	-	-	4	7	5	5	24	71
Gross/Weapon System Cost (<i>\$ in Millions</i>)	536.497	524.554	507.875	0.000	0.000	0.000	274.140	476.245	352.040	359.094	1,624.090	4,654.535
Less PY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Less Cost To Complete (<i>\$ in Millions</i>)	14.500	-	-	-	-	-	-	-	-	-	-	14.500
Less Previously Appropriated RDT&E,N (<i>\$ in Millions</i>)	23.700	-	-	-	-	-	-	-	-	-	-	23.700
Net Procurement (P-1) (<i>\$ in Millions</i>)	498.297	524.554	507.875	0.000	0.000	0.000	274.140	476.245	352.040	359.094	1,624.090	4,616.335
Plus CY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Plus Cost To Complete (<i>\$ in Millions</i>)	-	5.100	9.400	-	-	-	-	-	-	-	-	14.500
Plus Previously Appropriated RDT&E,N (<i>\$ in Millions</i>)	23.700	-	-	-	-	-	-	-	-	-	-	23.700
Total Obligation Authority (<i>\$ in Millions</i>)	521.997	529.654	517.275	0.000	0.000	0.000	274.140	476.245	352.040	359.094	1,624.090	4,654.535
<i>(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)</i>												
Plus Outfitting and Post Delivery (<i>\$ in Millions</i>)	0.300	2.889	6.377	11.093	-	11.093	19.876	8.499	13.608	13.880	62.950	139.472
Total (<i>\$ in Millions</i>)	522.297	532.543	523.652	11.093	-	11.093	294.016	484.744	365.648	372.974	1,687.040	4,794.007
Gross/Weapon System Unit Cost (<i>\$ in Millions</i>)	53.650	65.569	63.484	-	-	-	68.535	68.035	70.408	71.819	67.670	65.557

Description:

The Ship to Shore Connector (SSC) program provides the capability to rapidly move assault forces with the littoral operational environment to accomplish Unified Command Plan (UCP) missions and ensures the Joint Force Commander's (JFCDR's) ability to conduct amphibious operations and operate over the high water mark, including movement over ice, mud, rivers, swamps and marshes. SSC provides the functional replacement for the LCAC Class of ships, which began reaching extended service life in 2015.

The Test and Training craft (Craft 100) and R&D costs for LCAC 101 are funded in RDT&E PE 0604567N and PE 0605220N Project 3137.

The Department of Defense Appropriations Act, 2015 directed that the Department complete LCAC 101 in the Shipbuilding and Conversion, Navy Appropriation. LCAC 101 is partially financed with \$23.7M of FY 13/FY 14 R&D funding.

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Exhibit P-40, Budget Line Item Justification: PB 2020 Navy					Date: March 2019			
Appropriation / Budget Activity / Budget Sub Activity: 1611N: Shipbuilding and Conversion, Navy / BA 05: Auxiliaries, Craft, and Prior-Year Program Costs / BSA 1: Auxiliaries, Craft and Prior Yr Program Cost				P-1 Line Item Number / Title: 5112 / Ship to Shore Connector				
ID Code (A=Service Ready, B=Not Service Ready): A		Program Elements for Code B Items: N/A			Other Related Program Elements: N/A			
Line Item MDAP/MAIS Code: N/A								
Characteristics:		Aluminum						
Length Overall		91.8 ft						
Beam		48.3 ft						
Displacement		180.57 metric tons						
Draft		N/A						
Production Status:		LCAC 101	LCAC 102	LCAC 103	LCAC 104	LCAC 105	LCAC 106	LCAC 107
Contract Award Date		Dec 2012	Mar 2015	Mar 2015	Mar 2016	Mar 2016	Mar 2016	Mar 2016
Months to Completion								
a) Award to Delivery		84 months	56 months	57 months	48 months	50 months	51 months	55 months
b) Construction Start to Delivery		57 months	38 months	37 months	37 months	36 months	32 months	30 months
Delivery Date		Dec 2019	Nov 2019	Dec 2019	Mar 2020	May 2020	Jun 2020	Oct 2020
Completion Of Fitting Out		Mar 2020	Mar 2020	Mar 2020	Aug 2020	Aug 2020	Aug 2020	Oct 2021
Obligation Work Limit Date		Jan 2021	Jan 2021	Jan 2021	Jul 2021	Jul 2021	Jul 2021	Sep 2022
Production Status:		LCAC 108	LCAC 109	LCAC 110	LCAC 111	LCAC 112	LCAC 113	LCAC 114
Contract Award Date		Mar 2016	Mar 2019	Mar 2019	Mar 2019	Mar 2019	Mar 2019	Mar 2019
Months to Completion								
a) Award to Delivery		57 months	29 months	31 months	33 months	34 months	36 months	37 months
b) Construction Start to Delivery		29 months	32 months	31 months	29 months	28 months	28 months	26 months
Delivery Date		Dec 2020	Aug 2021	Oct 2021	Dec 2021	Jan 2022	Mar 2022	Apr 2022
Completion Of Fitting Out		Oct 2021	Oct 2021	Apr 2022	Apr 2022	Apr 2022	Aug 2022	Aug 2022
Obligation Work Limit Date		Sep 2022	Sep 2022	Mar 2023	Mar 2023	Mar 2023	Jul 2023	Jul 2023
Production Status:		LCAC 115	LCAC 116	LCAC 117	LCAC 118	LCAC 119	LCAC 120	LCAC 121
Contract Award Date		Mar 2019	Mar 2019	Mar 2019	Mar 2019	Mar 2019	Mar 2019	Mar 2019
Months to Completion								
a) Award to Delivery		39 months	41 months	42 months	44 months	45 months	47 months	49 months
b) Construction Start to Delivery		26 months	25 months	24 months	24 months	22 months	22 months	22 months
Delivery Date		Jun 2022	Aug 2022	Sep 2022	Nov 2022	Dec 2022	Feb 2023	Apr 2023
Completion Of Fitting Out		Aug 2022	Jan 2023	Jan 2023	Jan 2023	Jun 2023	Jun 2023	Jun 2023
Obligation Work Limit Date		Jul 2023	Dec 2023	Dec 2023	Dec 2023	May 2024	May 2024	May 2024
Production Status:		LCAC 122	LCAC 123	LCAC 124	LCAC 125	LCAC 126		
Contract Award Date		Mar 2019	Mar 2019	Mar 2019	Mar 2019	Mar 2019		
Months to Completion								
a) Award to Delivery		50 months	52 months	53 months	54 months	56 months		
b) Construction Start to Delivery		22 months	22 months	21 months	20 months	20 months		
Delivery Date		May 2023	Jul 2023	Aug 2023	Sep 2023	Nov 2023		
Completion Of Fitting Out		Nov 2023	Nov 2023	Nov 2023	Mar 2024	Mar 2024		
Obligation Work Limit Date		Oct 2024	Oct 2024	Oct 2024	Feb 2025	Feb 2025		

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Exhibit P-40, Budget Line Item Justification: PB 2020 Navy			Date: March 2019	
Appropriation / Budget Activity / Budget Sub Activity: 1611N: Shipbuilding and Conversion, Navy / BA 05: Auxiliaries, Craft, and Prior-Year Program Costs / BSA 1: Auxiliaries, Craft and Prior Yr Program Cost		P-1 Line Item Number / Title: 5112 / Ship to Shore Connector		
ID Code (A=Service Ready, B=Not Service Ready): A		Program Elements for Code B Items: N/A		Other Related Program Elements: N/A
Line Item MDAP/MAIS Code: N/A				
<u>Design Schedule</u>	<u>Start / Issue</u>	<u>Complete / Response</u>	<u>Reissue</u>	<u>Reissue Complete / Response</u>
Issue Date for TLR	N/A	N/A		
Issue Date for TLS	N/A	N/A		
Preliminary Design	Apr 2008	May 2009		
Contract Design	May 2009	Jul 2010		
Detail Design	Jul 2012	Sep 2014		
Request for Proposals	May 2011	Jul 2012		
Design Agent	NAVSEA/TEXTRON,INC			
<u>Classification of Cost Estimate:</u>				

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Exhibit P-5c, Ship Cost Analysis: PB 2020 Navy

Date: March 2019

Appropriation / Budget Activity / Budget Sub Activity:
1611N / 05 / 1P-1 Line Item Number / Title:
5112 / Ship to Shore Connector

Cost Categories (†) indicates the presence of a P-8a	FY 2015		FY 2016		FY 2017		FY 2018		FY 2019		FY 2020	
	Qty (Each)	Total Cost (\$ M)	Qty (Each)	Total Cost (\$ M)	Qty (Each)	Total Cost (\$ M)	Qty (Each)	Total Cost (\$ M)	Qty (Each)	Total Cost (\$ M)	Qty (Each)	Total Cost (\$ M)
Plan Costs	3		5		2		8		8		0	
Basic Construction/Conversion		152.103		191.718		94.260		396.161		376.166		-
Change Orders		6.425		5.109		2.833		11.592		11.200		-
Electronics		4.057		8.500		4.162		16.813		17.152		-
Hull, Mechanical, and Electrical (HM&E) (†)		12.547		4.000		22.140		89.354		92.232		-
Ordnance		0.010		0.015		0.006		0.025		0.025		-
Other Cost		22.658		1.288		4.659		10.609		11.100		-
Total Ship Estimate		197.800		210.630		128.060		524.554		507.875		-
Less Cost to Complete FY 2018		5.100		-		-		-		-		-
Less Cost to Complete FY 2019		9.400		-		-		-		-		-
Less RDTEN FY 2013		21.486		-		-		-		-		-
Less RDTEN FY 2014		2.214		-		-		-		-		-
Net P-1 Funding		159.600		210.630		128.060		524.554		507.875		-

Remarks:

HM&E increased from PB 2019 to support engine procurement.

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Exhibit P-27, Ship Production Schedule: PB 2020 Navy					Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 05 / 1			P-1 Line Item Number / Title: 5112 / Ship to Shore Connector		
Ship	Shipbuilder	Fiscal Year	Contract Award	Start of Construction	Delivery Date
LCAC 101	TEXTRON, INC	2015	Dec 2012	Mar 2015	Dec 2019
LCAC 102	TEXTRON, INC	2015	Mar 2015	Sep 2016	Nov 2019
LCAC 103	TEXTRON, INC	2015	Mar 2015	Nov 2016	Dec 2019
LCAC 104	TEXTRON, INC	2016	Mar 2016	Feb 2017	Mar 2020
LCAC 105	TEXTRON, INC	2016	Mar 2016	May 2017	May 2020
LCAC 106	TEXTRON, INC	2016	Mar 2016	Oct 2017	Jun 2020
LCAC 107	TEXTRON, INC	2016	Mar 2016	Apr 2018	Oct 2020
LCAC 108	TEXTRON, INC	2016	Mar 2016	Jul 2018	Dec 2020
LCAC 109	TEXTRON, INC	2017	Mar 2019	Dec 2018	Aug 2021
LCAC 110	TEXTRON, INC	2017	Mar 2019	Mar 2019	Oct 2021
LCAC 111	TEXTRON, INC	2018	Mar 2019	Jul 2019	Dec 2021
LCAC 112	TEXTRON, INC	2018	Mar 2019	Sep 2019	Jan 2022
LCAC 113	TEXTRON, INC	2018	Mar 2019	Nov 2019	Mar 2022
LCAC 114	TEXTRON, INC	2018	Mar 2019	Feb 2020	Apr 2022
LCAC 115	TEXTRON, INC	2018	Mar 2019	Apr 2020	Jun 2022
LCAC 116	TEXTRON, INC	2018	Mar 2019	Jul 2020	Aug 2022
LCAC 117	TEXTRON, INC	2018	Mar 2019	Sep 2020	Sep 2022
LCAC 118	TEXTRON, INC	2018	Mar 2019	Nov 2020	Nov 2022
LCAC 119	TBD	2019	Mar 2019	Feb 2021	Dec 2022
LCAC 120	TBD	2019	Mar 2019	Apr 2021	Feb 2023
LCAC 121	TBD	2019	Mar 2019	Jun 2021	Apr 2023
LCAC 122	TBD	2019	Mar 2019	Jul 2021	May 2023
LCAC 123	TBD	2019	Mar 2019	Sep 2021	Jul 2023
LCAC 124	TBD	2019	Mar 2019	Nov 2021	Aug 2023
LCAC 125	TBD	2019	Mar 2019	Jan 2022	Sep 2023
LCAC 126	TBD	2019	Mar 2019	Mar 2022	Nov 2023
LCAC 127	TBD	2021	Dec 2020	May 2022	Jan 2024
LCAC 128	TBD	2021	Dec 2020	Jul 2022	Mar 2024
LCAC 129	TBD	2021	Dec 2020	Sep 2022	May 2024
LCAC 130	TBD	2021	Dec 2020	Nov 2022	Jul 2024
LCAC 131	TBD	2022	Mar 2022	Jan 2023	Sep 2024
LCAC 132	TBD	2022	Mar 2022	Mar 2023	Nov 2024
LCAC 133	TBD	2022	Mar 2022	May 2023	Jan 2025

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Exhibit P-27, Ship Production Schedule: PB 2020 Navy					Date: March 2019	
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 05 / 1			P-1 Line Item Number / Title: 5112 / Ship to Shore Connector			
Ship	Shipbuilder	Fiscal Year	Contract Award	Start of Construction	Delivery Date	
LCAC 134	TBD	2022	Mar 2022	Jul 2023	Mar 2025	
LCAC 135	TBD	2022	Mar 2022	Sep 2023	May 2025	
LCAC 136	TBD	2022	Mar 2022	Nov 2023	Jul 2025	
LCAC 137	TBD	2022	Mar 2022	Jan 2024	Sep 2025	
LCAC 138	TBD	2023	Mar 2023	Mar 2024	Nov 2025	
LCAC 139	TBD	2023	Mar 2023	May 2024	Jan 2026	
LCAC 140	TBD	2023	Mar 2023	Jul 2024	Mar 2026	
LCAC 141	TBD	2023	Mar 2023	Sep 2024	May 2026	
LCAC 142	TBD	2023	Mar 2023	Nov 2024	Jul 2026	
LCAC 143	TBD	2024	Mar 2024	Jan 2025	Sep 2026	
LCAC 144	TBD	2024	Mar 2024	Mar 2025	Nov 2026	
LCAC 145	TBD	2024	Mar 2024	May 2025	Jan 2027	
LCAC 146	TBD	2024	Mar 2024	Jul 2025	Mar 2027	
LCAC 147	TBD	2024	Mar 2024	Sep 2025	May 2027	

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Exhibit P-8a, Analysis of Ship Cost Estimates: PB 2020 Navy			Date: March 2019	
Appropriation / Budget Activity / Budget Sub Activity:		P-1 Line Item Number / Title:		
1611N / 05 / 1		5112 / Ship to Shore Connector		
Hull, Mechanical, and Electrical (HM&E)	FY 2018		FY 2019	
	Qty (Each)	Total Cost (\$ M)	Qty (Each)	Total Cost (\$ M)
Major Items				
MT7 Engines	32	77.564	32	80.058
Material/Services		11.790		12.174
Major Items Subtotal		89.354		92.232
Other Cost Elements				
New Cost Element				
Other Cost Elements Subtotal				
Total Hull, Mechanical, and Electrical (HM&E)		89.354		92.232

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Exhibit P-40, Budget Line Item Justification: PB 2020 Navy									Date: March 2019			
Appropriation / Budget Activity / Budget Sub Activity: 1611N: Shipbuilding and Conversion, Navy / BA 05: Auxiliaries, Craft, and Prior-Year Program Costs / BSA 1: Auxiliaries, Craft and Prior Yr Program Cost							P-1 Line Item Number / Title: 5113 / Service Craft					
ID Code (A=Service Ready, B=Not Service Ready): A			Program Elements for Code B Items: N/A					Other Related Program Elements: N/A				
Line Item MDAP/MAIS Code: N/A												
Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity (<i>Units in Each</i>)	43	5	4	6	-	6	15	12	7	8	-	100
Gross/Weapon System Cost (<i>\$ in Millions</i>)	200.406	62.994	72.062	56.289	0.000	56.289	118.178	108.657	110.865	113.083	-	842.534
Less PY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (<i>\$ in Millions</i>)	200.406	62.994	72.062	56.289	0.000	56.289	118.178	108.657	110.865	113.083	-	842.534
Plus CY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority (<i>\$ in Millions</i>)	200.406	62.994	72.062	56.289	0.000	56.289	118.178	108.657	110.865	113.083	-	842.534
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)												
Plus Outfitting and Post Delivery (<i>\$ in Millions</i>)	3.000	-	-	-	-	-	-	-	-	-	-	3.000
Total (<i>\$ in Millions</i>)	203.406	62.994	72.062	56.289	-	56.289	118.178	108.657	110.865	113.083	-	845.534
Gross/Weapon System Unit Cost (<i>\$ in Millions</i>)	4.661	12.599	18.016	9.382	-	9.382	7.879	9.055	15.838	14.135	-	8.425
Description: The US Navy owns/operates approximately 366 Service Craft consisting of 36 different classes of craft at 56 different commands and activities throughout the world. Service Craft provide critical support to carriers, submarines, and other Navy vessels through port operations and ship maintenance. Nearly half of the Service Craft inventory is over 40 years of age. The Service Craft budget supports the acquisition and procurement of replacement craft as follows: Auxiliary Personnel Lighters - Small (APL(S)):The FY 2018 Omnibus Appropriations Act included a Congressional add for Detail Design and Construction (DD&C) efforts for one APL. APLs provide crew messing, duty crew berthing, and administrative training spaces to ships and improve the quality-of-life for sailors during CNO availabilities. Harbor Tugs (YTs): YTs provide port operations towing, mooring, docking, undocking and escort of submarines, aircraft carriers, and other Navy vessels. Fuel Oil Barges (YONs): YONs carry liquid petroleum products for refueling ships. Waste Oil Barges (YWOs): YWOs support the offload of waste oil from ships and transport for processing. Covered Lighters (YFNs): YFNs transport ordnance, equipment and cargo which must be protected from weather. Open Lighters (YCs): YCs transport cargo/equipment and serve as a work platform for ship maintenance. Repair, Berthing and Messing Barges (YRBMs): YRBMs provide crew messing,duty crew berthing, and administrative spaces for small to mid-size ships and submarines during CNO maintenance availabilities.												

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Exhibit P-40, Budget Line Item Justification: PB 2020 Navy						Date: March 2019																																																																	
Appropriation / Budget Activity / Budget Sub Activity: 1611N: Shipbuilding and Conversion, Navy / BA 05: Auxiliaries, Craft, and Prior-Year Program Costs / BSA 1: Auxiliaries, Craft and Prior Yr Program Cost				P-1 Line Item Number / Title: 5113 / Service Craft																																																																			
ID Code (A=Service Ready, B=Not Service Ready): A		Program Elements for Code B Items: N/A			Other Related Program Elements: N/A																																																																		
Line Item MDAP/MAIS Code: N/A																																																																							
<table style="width:100%; border-collapse: collapse;"> <tr> <td style="width:15%;">Characteristics:</td> <td style="width:15%;">Hull Various</td> <td style="width:15%;">Multiple Craft</td> <td colspan="5"></td> </tr> <tr> <td>Length Overall</td> <td>Various</td> <td>Various</td> <td colspan="5"></td> </tr> <tr> <td>Beam</td> <td>Various</td> <td>Various</td> <td colspan="5"></td> </tr> <tr> <td>Displacement</td> <td>Various</td> <td>Various</td> <td colspan="5"></td> </tr> <tr> <td>Draft</td> <td>Various</td> <td>Various</td> <td colspan="5"></td> </tr> </table>								Characteristics:	Hull Various	Multiple Craft						Length Overall	Various	Various						Beam	Various	Various						Displacement	Various	Various						Draft	Various	Various																													
Characteristics:	Hull Various	Multiple Craft																																																																					
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Displacement	Various	Various																																																																					
Draft	Various	Various																																																																					
<table style="width:100%; border-collapse: collapse;"> <tr> <td style="width:15%;">Production Status:</td> <td style="width:15%;">YT 808</td> <td style="width:15%;">YT 809</td> <td style="width:15%;">YT 810</td> <td style="width:15%;">YT 811</td> <td style="width:15%;">APL 67</td> <td style="width:15%;">APL 68</td> <td style="width:15%;">YT 812</td> </tr> <tr> <td>Contract Award Date</td> <td>Jul 2018</td> <td>Jul 2018</td> <td>Jul 2018</td> <td>Jul 2018</td> <td>Sep 2018</td> <td>Sep 2018</td> <td>Dec 2018</td> </tr> <tr> <td>Months to Completion</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td> a) Award to Delivery</td> <td>18 months</td> <td>21 months</td> <td>27 months</td> <td>31 months</td> <td>22 months</td> <td>25 months</td> <td>28 months</td> </tr> <tr> <td> b) Construction Start to Delivery</td> <td>10 months</td> <td>13 months</td> <td>12 months</td> <td>12 months</td> <td>15 months</td> <td>12 months</td> <td>12 months</td> </tr> <tr> <td>Delivery Date</td> <td>Jan 2020</td> <td>Apr 2020</td> <td>Oct 2020</td> <td>Feb 2021</td> <td>Jul 2020</td> <td>Oct 2020</td> <td>Apr 2021</td> </tr> <tr> <td>Completion Of Fitting Out</td> <td>Apr 2020</td> <td>Jan 2020</td> <td>Jan 2021</td> <td>May 2021</td> <td>Oct 2020</td> <td>Jan 2021</td> <td>Jul 2021</td> </tr> <tr> <td>Obligation Work Limit Date</td> <td>Mar 2021</td> <td>Jun 2021</td> <td>Dec 2021</td> <td>Apr 2022</td> <td>Sep 2021</td> <td>Dec 2021</td> <td>Jun 2022</td> </tr> </table>								Production Status:	YT 808	YT 809	YT 810	YT 811	APL 67	APL 68	YT 812	Contract Award Date	Jul 2018	Jul 2018	Jul 2018	Jul 2018	Sep 2018	Sep 2018	Dec 2018	Months to Completion								a) Award to Delivery	18 months	21 months	27 months	31 months	22 months	25 months	28 months	b) Construction Start to Delivery	10 months	13 months	12 months	12 months	15 months	12 months	12 months	Delivery Date	Jan 2020	Apr 2020	Oct 2020	Feb 2021	Jul 2020	Oct 2020	Apr 2021	Completion Of Fitting Out	Apr 2020	Jan 2020	Jan 2021	May 2021	Oct 2020	Jan 2021	Jul 2021	Obligation Work Limit Date	Mar 2021	Jun 2021	Dec 2021	Apr 2022	Sep 2021	Dec 2021	Jun 2022
Production Status:	YT 808	YT 809	YT 810	YT 811	APL 67	APL 68	YT 812																																																																
Contract Award Date	Jul 2018	Jul 2018	Jul 2018	Jul 2018	Sep 2018	Sep 2018	Dec 2018																																																																
Months to Completion																																																																							
a) Award to Delivery	18 months	21 months	27 months	31 months	22 months	25 months	28 months																																																																
b) Construction Start to Delivery	10 months	13 months	12 months	12 months	15 months	12 months	12 months																																																																
Delivery Date	Jan 2020	Apr 2020	Oct 2020	Feb 2021	Jul 2020	Oct 2020	Apr 2021																																																																
Completion Of Fitting Out	Apr 2020	Jan 2020	Jan 2021	May 2021	Oct 2020	Jan 2021	Jul 2021																																																																
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Exhibit P-40, Budget Line Item Justification: PB 2020 Navy				Date: March 2019	
Appropriation / Budget Activity / Budget Sub Activity: 1611N: Shipbuilding and Conversion, Navy / BA 05: Auxiliaries, Craft, and Prior-Year Program Costs / BSA 1: Auxiliaries, Craft and Prior Yr Program Cost			P-1 Line Item Number / Title: 5113 / Service Craft		
ID Code (A=Service Ready, B=Not Service Ready): A		Program Elements for Code B Items: N/A		Other Related Program Elements: N/A	
Line Item MDAP/MAIS Code: N/A					
<u>Design Schedule</u>		<u>Start / Issue</u>		<u>Complete / Response</u>	
Design Agent					
<u>Classification of Cost Estimate:</u>					
<p>Justification:</p> <p>APL barracks craft provide critical berthing and messing facilities for sailors while their ships are in port for availabilities and Inter-Deployment Training Cycles (IDTC). Even when the Home Port Ashore initiative is fully implemented, berthing barges will still be required to meet the original mission of providing berthing for Duty Crews and messing, training, and office space for the entire crew per OPNAVINST 4700.38B. Thirteen (13) of the seventeen (17) APLs in service were built from 1944-1946; they do not meet current safety standards, are not dual gender-compatible and lack modern communication capabilities. This program for New APLs replaces outdated and dilapidated transport ships and will greatly improve our sailors' quality of life, improve safety during availabilities and save the Navy a significant amount of money over the life of the program.</p> <p>YT harbor tugboats provide critical vessel docking/undocking, towing, escort, personnel transfer, and emergency services to carriers, ships, and submarines. New YTs are required to meet mission requirements and to replace aging YTB tugboats in the Northwest Region, Yokosuka, and Portsmouth Naval Shipyard.</p> <p>YON Fuel Oil Barges will greatly reduce the risk of a major fuel oil spill. Many existing YONs are 50-60 years old and of single hull construction. New YON Fuel Oil Barges will be double-hulled and will meet the requirements of the Oil Protection Act of 1990 (OPA 90).</p> <p>New YWO barges will be double-hulled and will have piping and other systems specifically designed for transferring oily waste. Existing barges being used to transport oily waste are 66 to 78 years old and in extremely poor condition.</p> <p>New YC Open Lighter and YFN Covered Lighter barges are required to replace the oldest YCs and YFNs in the Fleet, which are over 50 years old and have become unaffordable to overhaul.</p>					

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Exhibit P-5c, Ship Cost Analysis: PB 2020 Navy	Date: March 2019
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Appropriation / Budget Activity / Budget Sub Activity: 1611N / 05 / 1	P-1 Line Item Number / Title: 5113 / Service Craft
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Cost Categories	FY 2016		FY 2017		FY 2018		FY 2019		FY 2020	
	Qty (Each)	Total Cost (\$ M)	Qty (Each)	Total Cost (\$ M)	Qty (Each)	Total Cost (\$ M)	Qty (Each)	Total Cost (\$ M)	Qty (Each)	Total Cost (\$ M)
Plan Costs	2		3		5		4		6	
Basic Construction/Conversion		28.217		62.132		61.074		69.721		55.161
Change Orders		1.400		2.260		1.220		1.391		0.528
Hull, Mechanical, and Electrical (HM&E)		0.397		0.800		0.700		0.950		0.600
Total Ship Estimate		30.014		65.192		62.994		72.062		56.289
Net P-1 Funding		30.014		65.192		62.994		72.062		56.289

Remarks:

FY 16 Craft:
2 YT: \$30.014
TOTAL: \$30.014

FY 17 Craft:
1 APL: \$39.000
2 YT: \$26.192
TOTAL: \$65.192

FY 18 Craft:
1 YT: \$13.660
2 YWO: \$ 6.000
1 YON: \$ 4.334
1 APL: \$39.00
TOTAL: \$62.994

FY 19 Craft:
1 APL: \$39.808
1 YFN \$4.490
2 YT: \$27.764
TOTAL: \$72.062

FY 20 Craft:
2 YC: \$3.264
1 YWO: \$ 3.338
2 YON: \$ 9.780
1 APL: \$39.907
TOTAL: \$56.289

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Exhibit P-27, Ship Production Schedule: PB 2020 Navy				Date: March 2019	
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 05 / 1			P-1 Line Item Number / Title: 5113 / Service Craft		
Ship	Shipbuilder	Fiscal Year	Contract Award	Start of Construction	Delivery Date
YT 808	DCI	2016	Jul 2018	Mar 2019	Jan 2020
YT 809	DCI	2016	Jul 2018	Mar 2019	Apr 2020
YT 810	DCI	2017	Jul 2018	Oct 2019	Oct 2020
YT 811	DCI	2017	Jul 2018	Feb 2020	Feb 2021
APL 67	VT Halter	2017	Sep 2018	Apr 2019	Jul 2020
APL 68	VT Halter	2018	Sep 2018	Oct 2019	Oct 2020
YT 812	DCI	2018	Dec 2018	Apr 2020	Apr 2021
YWO 05	TBD	2018	Aug 2019	Dec 2019	Oct 2020
YON 1801	TBD	2018	Aug 2019	Dec 2019	Oct 2020
YWO 04	TBD	2018	Aug 2019	Jan 2020	Dec 2020
YT 813	DCI	2019	Mar 2019	Aug 2020	Aug 2021
APL 69	TBD	2019	May 2019	Apr 2020	Apr 2021
YFN 1901	TBD	2019	Jun 2019	Jul 2019	Feb 2020
YT 814	TBD	2019	Jun 2019	Oct 2019	Oct 2020
YC 2001	TBD	2020	Mar 2020	Apr 2020	Dec 2020
YON 2001	TBD	2020	Mar 2020	Apr 2020	Jun 2021
YWO 06	TBD	2020	Mar 2020	Apr 2020	Dec 2020
YC 2002	TBD	2020	Mar 2020	Jun 2020	Feb 2021
YON 2002	TBD	2020	Mar 2020	Jul 2020	Sep 2021
APL 70	TBD	2020	Apr 2020	Oct 2020	Nov 2021
APL 71	TBD	2021	Feb 2021	Mar 2021	Apr 2022
YRBM 2101	TBD	2021	Feb 2021	Jun 2021	Jul 2022
YON 2102	TBD	2021	Mar 2021	Apr 2021	Jun 2022
YWO 07	TBD	2021	Mar 2021	Apr 2021	Jun 2022
YFN 2101	TBD	2021	Mar 2021	Apr 2021	Nov 2021
YC 2101	TBD	2021	Mar 2021	Apr 2021	Oct 2021
YT 815	TBD	2021	Mar 2021	May 2021	May 2022
YFN 2102	TBD	2021	Mar 2021	Jun 2021	Feb 2022
YON 2101	TBD	2021	Mar 2021	Jun 2021	Sep 2022
YC 2102	TBD	2021	Mar 2021	Jun 2021	Dec 2021
YWO 08	TBD	2021	Mar 2021	Jul 2021	Jul 2022
YC 2103	TBD	2021	Mar 2021	Aug 2021	Feb 2022
YWO 09	TBD	2021	Mar 2021	Oct 2021	Dec 2022

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Exhibit P-27, Ship Production Schedule: PB 2020 Navy					Date: March 2019	
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 05 / 1			P-1 Line Item Number / Title: 5113 / Service Craft			
Ship	Shipbuilder	Fiscal Year	Contract Award	Start of Construction	Delivery Date	
YC 2105	TBD	2021	Mar 2021	Oct 2021	Apr 2022	
YC 2104	TBD	2021	Mar 2021	Oct 2021	Apr 2022	
YRBM 2201	TBD	2022	Feb 2022	Mar 2022	Apr 2023	
APL 72	TBD	2022	Feb 2022	Jun 2022	Jul 2023	
YC 2201	TBD	2022	Mar 2022	Apr 2022	Oct 2022	
YWO 10	TBD	2022	Mar 2022	Apr 2022	Jun 2023	
YON 2201	TBD	2022	Mar 2022	Apr 2022	Feb 2023	
YC 2202	TBD	2022	Mar 2022	Jun 2022	Dec 2022	
YWO 12	TBD	2022	Mar 2022	Jul 2022	Sep 2023	
YON 2202	TBD	2022	Mar 2022	Jul 2022	Sep 2023	
YC 2203	TBD	2022	Mar 2022	Aug 2022	Feb 2023	
YC 2204	TBD	2022	Mar 2022	Aug 2022	Feb 2023	
YWO 11	TBD	2022	Mar 2022	Oct 2022	Dec 2023	
YON 2203	TBD	2022	Apr 2022	Aug 2022	Feb 2023	
YON 2301	TBD	2023	Mar 2022	Oct 2022	Dec 2023	
YRBM 2301	TBD	2023	Feb 2023	Mar 2023	Apr 2024	
APL 73	TBD	2023	Feb 2023	Jun 2023	Jul 2024	
YT 816	TBD	2023	Mar 2023	Apr 2023	Apr 2024	
YON 2302	TBD	2023	Mar 2023	Apr 2023	Jun 2024	
YC 2301	TBD	2023	Mar 2023	Apr 2023	Oct 2023	
YON 2303	TBD	2023	Mar 2023	Jun 2023	Sep 2024	
YC 15	TBD	2024	Apr 2024	Jun 2024	Dec 2024	
YFN 2401	TBD	2024	Apr 2024	Jun 2024	May 2025	
YON 2401	TBD	2024	Apr 2024	Jun 2024	Jun 2025	
YWO 13	TBD	2024	Apr 2024	Jun 2024	Jun 2025	
YT 817	TBD	2024	Apr 2024	Jul 2024	Jul 2025	
YRBM 2401	TBD	2024	Apr 2024	Aug 2024	Aug 2025	
YON 2402	TBD	2024	Apr 2024	Sep 2024	Sep 2025	
APL 74	TBD	2024	Apr 2024	Sep 2024	Oct 2025	

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Exhibit P-40, Budget Line Item Justification: PB 2020 Navy										Date: March 2019		
Appropriation / Budget Activity / Budget Sub Activity: 1611N: Shipbuilding and Conversion, Navy / BA 05: Auxiliaries, Craft, and Prior-Year Program Costs / BSA 1: Auxiliaries, Craft and Prior Yr Program Cost							P-1 Line Item Number / Title: 5139 / LCAC SLEP					
ID Code (A=Service Ready, B=Not Service Ready): A				Program Elements for Code B Items: N/A				Other Related Program Elements: N/A				
Line Item MDAP/MAIS Code: N/A												
Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity (<i>Units in Each</i>)	67	-	1	-	-	-	-	-	-	-	-	68
Gross/Weapon System Cost (<i>\$ in Millions</i>)	1,420.497	0.000	23.321	0.000	0.000	0.000	0.000	0.000	0.000	0.000	-	1,443.818
Less PY Advance Procurement (<i>\$ in Millions</i>)	27.900	-	-	-	-	-	-	-	-	-	-	27.900
Less Cost To Complete (<i>\$ in Millions</i>)	14.000	-	-	-	-	-	-	-	-	-	-	14.000
Less Subsequent Year Full Funding (<i>\$ in Millions</i>)	1.774	-	-	-	-	-	-	-	-	-	-	1.774
Less Hurricane (<i>\$ in Millions</i>)	19.800	-	-	-	-	-	-	-	-	-	-	19.800
Less Transfer (<i>\$ in Millions</i>)	1.500	-	-	-	-	-	-	-	-	-	-	1.500
Net Procurement (P-1) (<i>\$ in Millions</i>)	1,355.523	0.000	23.321	0.000	0.000	0.000	0.000	0.000	0.000	0.000	-	1,378.844
Plus Subsequent Year Full Funding (<i>\$ in Millions</i>)	1.774	-	-	-	-	-	-	-	-	-	-	1.774
Full Funding TOA (<i>\$ in Millions</i>)	1,357.297	-	23.321	-	-	-	-	-	-	-	-	1,380.618
Plus CY Advance Procurement (<i>\$ in Millions</i>)	27.900	-	-	-	-	-	-	-	-	-	-	27.900
Plus Cost To Complete (<i>\$ in Millions</i>)	14.000	-	-	-	-	-	-	-	-	-	-	14.000
Plus Transfer (<i>\$ in Millions</i>)	1.500	-	-	-	-	-	-	-	-	-	-	1.500
Plus Hurricane (<i>\$ in Millions</i>)	19.800	-	-	-	-	-	-	-	-	-	-	19.800
Total Obligation Authority (<i>\$ in Millions</i>)	1,420.497	0.000	23.321	0.000	0.000	0.000	0.000	0.000	0.000	0.000	-	1,443.818
<i>(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)</i>												
Plus Outfitting and Post Delivery (<i>\$ in Millions</i>)	12.882	0.163	0.238	0.634	-	0.634	-	-	-	-	-	13.917
Total (<i>\$ in Millions</i>)	1,433.379	0.163	23.559	0.634	-	0.634	-	-	-	-	-	1,457.735
Gross/Weapon System Unit Cost (<i>\$ in Millions</i>)	21.201	-	23.321	-	-	-	-	-	-	-	-	21.233

Description:

Landing Craft, Air Cushion (LCAC) transports weapon systems, equipment, cargo and personnel of the assault elements of the Marine Air/Ground Task Force from ship to shore and across the beach. The LCAC Service Life Extension Program (SLEP) extends the craft service life from twenty years to thirty years. The program incorporates the following modifications and enhancements: upgrade from the TF40B engines to the ETF40B engines; repair corrosion damage; replace obsolete electronics; upgrade C4N suite; and replace deep skirt.

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Exhibit P-40, Budget Line Item Justification: PB 2020 Navy				Date: March 2019																																																																																																																																																	
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<table style="width: 100%; border: none;"> <tr> <td style="width: 15%;">Characteristics:</td> <td style="width: 15%;">Air Cushion</td> <td colspan="4"></td> </tr> <tr> <td>Length Overall</td> <td>91.8 ft (on cushion)</td> <td colspan="4"></td> </tr> <tr> <td>Beam</td> <td>49.2 ft (on cushion)</td> <td colspan="4"></td> </tr> <tr> <td>Displacement</td> <td>106 tons</td> <td colspan="4"></td> </tr> <tr> <td>Draft</td> <td>None (air cushion)</td> <td colspan="4"></td> </tr> <tr> <td colspan="6"> </td> </tr> <tr> <td>Production Status:</td> <td>LCAC SLEP 86</td> <td>LCAC SLEP 87</td> <td>LCAC SLEP 77</td> <td colspan="2">LCAC SLEP 50</td> </tr> <tr> <td>Contract Award Date</td> <td>Sep 2018</td> <td>Sep 2018</td> <td>Sep 2018</td> <td colspan="2">Jun 2019</td> </tr> <tr> <td>Months to Completion</td> <td></td> <td></td> <td></td> <td colspan="2"></td> </tr> <tr> <td> a) Award to Delivery</td> <td>19 months</td> <td>24 months</td> <td>29 months</td> <td colspan="2">29 months</td> </tr> <tr> <td> b) Construction Start to Delivery</td> <td>15 months</td> <td>15 months</td> <td>15 months</td> <td colspan="2">19 months</td> </tr> <tr> <td>Delivery Date</td> <td>Apr 2020</td> <td>Sep 2020</td> <td>Feb 2021</td> <td colspan="2">Nov 2021</td> </tr> <tr> <td>Completion Of Fitting Out</td> <td>May 2020</td> <td>Oct 2020</td> <td>Mar 2021</td> <td colspan="2">Dec 2021</td> </tr> <tr> <td>Obligation Work Limit Date</td> <td>Apr 2021</td> <td>Sep 2021</td> <td>Sep 2021</td> <td colspan="2">Nov 2022</td> </tr> <tr> <td colspan="6"> </td> </tr> <tr> <td><u>Design Schedule</u></td> <td><u>Start / Issue</u></td> <td><u>Complete / Response</u></td> <td><u>Reissue</u></td> <td colspan="2"><u>Reissue Complete / Response</u></td> </tr> <tr> <td>Issue Date for TLR</td> <td>N/A</td> <td>N/A</td> <td></td> <td colspan="2"></td> </tr> <tr> <td>Issue Date for TLS</td> <td>N/A</td> <td>N/A</td> <td></td> <td colspan="2"></td> </tr> <tr> <td>Preliminary Design</td> <td>N/A</td> <td>N/A</td> <td></td> <td colspan="2"></td> </tr> <tr> <td>Contract Design</td> <td>N/A</td> <td>N/A</td> <td></td> <td colspan="2"></td> </tr> <tr> <td>Detail Design</td> <td>N/A</td> <td>N/A</td> <td></td> <td colspan="2"></td> </tr> <tr> <td>Request for Proposals</td> <td>Apr 2018</td> <td>Jul 2018</td> <td></td> <td colspan="2"></td> </tr> <tr> <td>Design Agent</td> <td colspan="5">Landing Craft Planning Yard</td> </tr> <tr> <td colspan="6"><u>Classification of Cost Estimate:</u> N/A</td> </tr> </table>						Characteristics:	Air Cushion					Length Overall	91.8 ft (on cushion)					Beam	49.2 ft (on cushion)					Displacement	106 tons					Draft	None (air cushion)					 						Production Status:	LCAC SLEP 86	LCAC SLEP 87	LCAC SLEP 77	LCAC SLEP 50		Contract Award Date	Sep 2018	Sep 2018	Sep 2018	Jun 2019		Months to Completion						a) Award to Delivery	19 months	24 months	29 months	29 months		b) Construction Start to Delivery	15 months	15 months	15 months	19 months		Delivery Date	Apr 2020	Sep 2020	Feb 2021	Nov 2021		Completion Of Fitting Out	May 2020	Oct 2020	Mar 2021	Dec 2021		Obligation Work Limit Date	Apr 2021	Sep 2021	Sep 2021	Nov 2022		 						<u>Design Schedule</u>	<u>Start / Issue</u>	<u>Complete / Response</u>	<u>Reissue</u>	<u>Reissue Complete / Response</u>		Issue Date for TLR	N/A	N/A				Issue Date for TLS	N/A	N/A				Preliminary Design	N/A	N/A				Contract Design	N/A	N/A				Detail Design	N/A	N/A				Request for Proposals	Apr 2018	Jul 2018				Design Agent	Landing Craft Planning Yard					<u>Classification of Cost Estimate:</u> N/A					
Characteristics:	Air Cushion																																																																																																																																																				
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<u>Classification of Cost Estimate:</u> N/A																																																																																																																																																					

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Exhibit P-5c, Ship Cost Analysis: PB 2020 Navy			Date: March 2019	
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 05 / 1		P-1 Line Item Number / Title: 5139 / LCAC SLEP		
Cost Categories	FY 2017		FY 2019	
	Qty (Each)	Total Cost (\$ M)	Qty (Each)	Total Cost (\$ M)
Plan Costs	3		1	
Basic Construction/Conversion		35.925		13.671
Electronics		6.542		0.275
Hull, Mechanical, and Electrical (HM&E)		33.850		8.660
Other Cost		3.983		0.715
Total Ship Estimate		80.300		23.321
Net P-1 Funding		80.300		23.321

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Exhibit P-27, Ship Production Schedule: PB 2020 Navy	Date: March 2019
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Appropriation / Budget Activity / Budget Sub Activity: 1611N / 05 / 1	P-1 Line Item Number / Title: 5139 / LCAC SLEP
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Ship	Shipbuilder	Fiscal Year	Contract Award	Start of Construction	Delivery Date
LCAC SLEP 86	Tecnico	2017	Sep 2018	Jan 2019	Apr 2020
LCAC SLEP 87	Tecnico	2017	Sep 2018	Jun 2019	Sep 2020
LCAC SLEP 77	Tecnico	2017	Sep 2018	Nov 2019	Feb 2021
LCAC SLEP 50	Tecnico	2019	Jun 2019	Apr 2020	Nov 2021

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Exhibit P-40, Budget Line Item Justification: PB 2020 Navy										Date: March 2019		
Appropriation / Budget Activity / Budget Sub Activity: 1611N: Shipbuilding and Conversion, Navy / BA 05: Auxiliaries, Craft, and Prior-Year Program Costs / BSA 1: Auxiliaries, Craft and Prior Yr Program Cost							P-1 Line Item Number / Title: 5300 / Completion of PY Shpbldg Progr					
ID Code (A=Service Ready, B=Not Service Ready): A				Program Elements for Code B Items: N/A				Other Related Program Elements: N/A				
Line Item MDAP/MAIS Code: N/A												
Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity (<i>Units in Each</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost (<i>\$ in Millions</i>)	0.000	0.000	0.000	55.700	0.000	55.700	83.772	42.077	46.351	0.000	-	227.900
Less PY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (<i>\$ in Millions</i>)	0.000	0.000	0.000	55.700	0.000	55.700	83.772	42.077	46.351	0.000	-	227.900
Plus CY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
LPD 17 Class (<i>\$ in Millions</i>)	-	-	-	-	-	-	39.278	19.000	4.821	-	-	63.099
ESB (<i>\$ in Millions</i>)	-	-	-	38.000	-	38.000	-	-	-	-	-	38.000
LCS (<i>\$ in Millions</i>)	-	-	-	14.000	-	14.000	24.860	-	41.530	-	-	80.390
DDG-51 (<i>\$ in Millions</i>)	-	-	-	-	-	-	19.634	23.077	-	-	-	42.711
TAO Fleet Oiler (<i>\$ in Millions</i>)	-	-	-	3.700	-	3.700	-	-	-	-	-	3.700
Total Obligation Authority (<i>\$ in Millions</i>)	0.000	0.000	0.000	55.700	0.000	55.700	83.772	42.077	46.351	0.000	-	227.900
<i>(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)</i>												
Initial Spares (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Flyaway Unit Cost (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Total (<i>\$ in Millions</i>)	-	-	-	55.700	-	55.700	83.772	42.077	46.351	-	-	227.900
Gross/Weapon System Unit Cost (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-

Description:
 Note: General Provision 8071 of the Department of Defense and Labor, Health and Human Services, and Education Appropriations Act, 2019 and Continuing Appropriations Act, 2019 directs that funds appropriated for the Completion of Prior Year Shipbuilding Programs be merged with and available for the same purposes as the appropriation to which transferred.

[P5 / [2127] Littoral Combat Ship (LCS)]: Funds in FY 2020 are for the Government responsible portion of the shipbuilding construction contract overrun for LCS 23, LCS 25, and LCS 26 (\$14.0M).

[P5 / (3039) ESB]: Funds in FY 2020 support ESB 5 repairs resulting from the National Steel and Shipbuilding Company (NASSCO) graving dock flooding incident in July 2018 (\$38.0M).

[P5 / [5025] TAO Fleet Oiler]: Funds in FY 2020 are for Government Furnished Equipment (GFE) for the T-AO 206 (\$3.7M).

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Exhibit P-40, Budget Line Item Justification: PB 2020 Navy								Date: March 2019		
Appropriation / Budget Activity / Budget Sub Activity: 1611N: Shipbuilding and Conversion, Navy / BA 05: Auxiliaries, Craft, and Prior-Year Program Costs / BSA 1: Auxiliaries, Craft and Prior Yr Program Cost						P-1 Line Item Number / Title: 5300 / Completion of PY Shpbldg Progr				
ID Code (A=Service Ready, B=Not Service Ready): A			Program Elements for Code B Items: N/A			Other Related Program Elements: N/A				
Line Item MDAP/MAIS Code: N/A										
Exhibits Schedule					Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Exhibit Type	Title*	Subexhibits	ID CD	MDAP/MAIS Code	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)
P-5	Ship Estimate				- / 0.000	- / 0.000	- / 0.000	- / 55.700	- / 0.000	- / 55.700
P-40	Total Gross/Weapon System Cost				- / 0.000	- / 0.000	- / 0.000	- / 55.700	- / 0.000	- / 55.700
*Title represents 1) the Number / Title for Items; 2) the Number / Title [DODIC] for Ammunition; and/or 3) the Number / Title (Modification Type) for Modifications.										
Note: Totals in this Exhibit P-40 set may not be exact or sum exactly due to rounding.										

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Exhibit P-5, Cost Analysis: PB 2020 Navy												Date: March 2019						
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 05 / 1						P-1 Line Item Number / Title: 5300 / Completion of PY Shpbldg Progr						Item Number / Title [DODIC]: Ship Estimate						
ID Code (A=Service Ready, B=Not Service Ready) :										MDAP/MAIS Code:								
Resource Summary				Prior Years		FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total				
Procurement Quantity <i>(Units in Each)</i>				-		-		-		-		-		-				
Gross/Weapon System Cost <i>(\$ in Millions)</i>				0.000		0.000		0.000		55.700		0.000		55.700				
Less PY Advance Procurement <i>(\$ in Millions)</i>				-		-		-		-		-		-				
Net Procurement (P-1) <i>(\$ in Millions)</i>				0.000		0.000		0.000		55.700		0.000		55.700				
Plus CY Advance Procurement <i>(\$ in Millions)</i>				-		-		-		-		-		-				
Total Obligation Authority <i>(\$ in Millions)</i>				0.000		0.000		0.000		55.700		0.000		55.700				
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)																		
Initial Spares <i>(\$ in Millions)</i>				-		-		-		-		-		-				
Gross/Weapon System Unit Cost <i>(\$ in Millions)</i>				-		-		-		-		-		-				
Note: Subtotals or Totals in this Exhibit P-5 may not be exact or sum exactly due to rounding.																		
Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	Unit Cost (\$ M)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$ M)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$ M)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$ M)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$ M)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$ M)	Qty (Each)	Total Cost (\$ M)
Completion of PY Shipbuilding Programs - [2127] Littoral Combat Ship (LCS) Cost																		
1.1) Government responsible portion of shipbuilding contract overrun for LCS 23, 25, 26	-	-	-	-	-	-	-	-	-	-	-	14.000	-	-	-	-	-	14.000
Subtotal: Completion of PY Shipbuilding Programs - [2127] Littoral Combat Ship (LCS) Cost	-	-	-	-	-	-	-	-	-	-	-	14.000	-	-	-	-	-	14.000
Completion of PY Shipbuilding Programs - (3039) ESB Cost																		
2.1) ESB 5 repairs	-	-	-	-	-	-	-	-	-	-	-	38.000	-	-	-	-	-	38.000
Subtotal: Completion of PY Shipbuilding Programs - (3039) ESB Cost	-	-	-	-	-	-	-	-	-	-	-	38.000	-	-	-	-	-	38.000
Completion of PY Shipbuilding Programs - [5025] TAO Fleet Oiler Cost																		
5.1) Government Furnished Equipment (GFE) for T-AO 206	-	-	-	-	-	-	-	-	-	-	-	3.700	-	-	-	-	-	3.700
Subtotal: Completion of PY Shipbuilding Programs - [5025] TAO Fleet Oiler Cost	-	-	-	-	-	-	-	-	-	-	-	3.700	-	-	-	-	-	3.700
Gross/Weapon System Cost	-	-	0.000	-	-	0.000	-	-	0.000	-	-	55.700	-	-	0.000	-	-	55.700

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Exhibit P-40, Budget Line Item Justification: PB 2020 Navy										Date: March 2019		
Appropriation / Budget Activity / Budget Sub Activity: 1611N: Shipbuilding and Conversion, Navy / BA 05: Auxiliaries, Craft, and Prior-Year Program Costs / BSA 1: Auxiliaries, Craft and Prior Yr Program Cost							P-1 Line Item Number / Title: 5092 / Moored Training Ship					
ID Code (A=Service Ready, B=Not Service Ready): A				Program Elements for Code B Items: N/A				Other Related Program Elements: N/A				
Line Item MDAP/MAIS Code: N/A												
Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity (<i>Units in Each</i>)	2	-	-	-	-	-	-	-	-	-	-	2
Gross/Weapon System Cost (<i>\$ in Millions</i>)	2,186.336	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	-	2,186.336
Less PY Advance Procurement (<i>\$ in Millions</i>)	824.541	-	-	-	-	-	-	-	-	-	-	824.541
Net Procurement (P-1) (<i>\$ in Millions</i>)	1,361.795	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	-	1,361.795
Plus CY Advance Procurement (<i>\$ in Millions</i>)	824.541	-	-	-	-	-	-	-	-	-	-	824.541
Total Obligation Authority (<i>\$ in Millions</i>)	2,186.336	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	-	2,186.336
<i>(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)</i>												
Plus Outfitting and Post Delivery (<i>\$ in Millions</i>)	14.810	3.000	11.740	4.800	-	4.800	-	-	-	-	-	34.350
Total (<i>\$ in Millions</i>)	2,201.146	3.000	11.740	4.800	-	4.800	-	-	-	-	-	2,220.686
Gross/Weapon System Unit Cost (<i>\$ in Millions</i>)	1,093.168	-	-	-	-	-	-	-	-	-	-	1,093.168

Description:
 (1) The details of this program are classified CONFIDENTIAL and are reported annually to Congress in the classified budget justification books.

Characteristics:	MTS-701	MTS-711
Length Overall	433 ft	433 ft
Beam	33 ft	33 ft
Displacement	7,500 LT	7,500 LT
Draft	27 ft	27 ft

Production Status:	MTS- 701 ⁽¹⁾	MTS- 711
Contract Award Date	Feb 2015	May 2017
Months to Completion		
a) Award to Delivery	55 months	46 months
b) Construction Start to Delivery	55 months	46 months
Delivery Date	Sep 2019	Mar 2021
Completion Of Fitting Out	Sep 2019	Mar 2021
Obligation Work Limit Date	Aug 2020	Feb 2022

<u>Design Schedule</u>	<u>Start / Issue</u>	<u>Complete / Response</u>	<u>Reissue</u>	<u>Reissue Complete / Response</u>
Issue Date for TLR	N/A	N/A		
Issue Date for TLS	Apr 2008	Jan 2015		
Preliminary Design	Jan 2012	N/A		
Contract Design	Feb 2012	N/A		

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Exhibit P-40, Budget Line Item Justification: PB 2020 Navy				Date: March 2019	
Appropriation / Budget Activity / Budget Sub Activity: 1611N: Shipbuilding and Conversion, Navy / BA 05: Auxiliaries, Craft, and Prior-Year Program Costs / BSA 1: Auxiliaries, Craft and Prior Yr Program Cost			P-1 Line Item Number / Title: 5092 / Moored Training Ship		
ID Code (A=Service Ready, B=Not Service Ready): A		Program Elements for Code B Items: N/A		Other Related Program Elements: N/A	
Line Item MDAP/MAIS Code: N/A					
<u>Design Schedule</u>		<u>Start / Issue</u>		<u>Complete / Response</u>	
Detail Design		Feb 2012		N/A	
Request for Proposals		N/A		N/A	
Design Agent		ELECTRIC BOAT			
<u>Classification of Cost Estimate:</u>					
<p>Justification: The details of this program are classified CONFIDENTIAL and are reported annually to Congress in the classified budget justification books.</p> <p>Footnotes: (1) The details of this program are CONFIDENTIAL and are reported annually to Congress in the classified budget justification books.</p>					

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Exhibit P-5c, Ship Cost Analysis: PB 2020 Navy			Date: March 2019	
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 05 / 1		P-1 Line Item Number / Title: 5092 / Moored Training Ship		
Cost Categories	FY 2015		FY 2017	
	Qty (Each)	Total Cost (\$ M)	Qty (Each)	Total Cost (\$ M)
Design	1	482.400	1	46.449
Plans/Conversion		387.700		382.214
GFE		30.600		31.100
Basic Construction		421.321		404.552
Total Ship Estimate		1,322.021		864.315
Less Advance Procurement FY 2012		131.200		-
Less Advance Procurement FY 2013		283.453		-
Less Advance Procurement FY 2014		170.100		37.200
Less Advance Procurement FY 2015		-		64.388
Less Advance Procurement FY 2016		-		138.200
Net P-1 Funding		737.268		624.527

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Exhibit P-27, Ship Production Schedule: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 05 / 1	P-1 Line Item Number / Title: 5092 / Moored Training Ship	

Ship	Shipbuilder	Fiscal Year	Contract Award	Start of Construction	Delivery Date
MTS- 701 ⁽¹⁾	EB/NNSY	2015	Feb 2015	Feb 2015	Sep 2019
MTS- 711	EB/NNSY	2017	May 2017	May 2017	Mar 2021

Footnotes:
⁽¹⁾ The details of this program are CONFIDENTIAL and are reported annually to Congress in the classified budget justification books.

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Exhibit P-40, Budget Line Item Justification: PB 2020 Navy	Date: March 2019
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Appropriation / Budget Activity / Budget Sub Activity: 1611N: Shipbuilding and Conversion, Navy / BA 05: Auxiliaries, Craft, and Prior-Year Program Costs / BSA 1: Auxiliaries, Craft and Prior Yr Program Cost	P-1 Line Item Number / Title: 5212 / YP Craft Maintenance/ROH/SLEP
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ID Code (A=Service Ready, B=Not Service Ready): A	Program Elements for Code B Items: N/A	Other Related Program Elements: N/A
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Line Item MDAP/MAIS Code: N/A

Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity (<i>Units in Each</i>)	12	-	-	-	-	-	-	-	-	-	-	12
Gross/Weapon System Cost (<i>\$ in Millions</i>)	43.201	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	-	43.201
Less PY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (<i>\$ in Millions</i>)	43.201	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	-	43.201
Plus CY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority (<i>\$ in Millions</i>)	43.201	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	-	43.201
<i>(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)</i>												
Plus Outfitting and Post Delivery (<i>\$ in Millions</i>)	0.426	-	-	0.145	-	0.145	-	-	-	-	-	0.571
Total (<i>\$ in Millions</i>)	43.627	-	-	0.145	-	0.145	-	-	-	-	-	43.772
Gross/Weapon System Unit Cost (<i>\$ in Millions</i>)	3.600	-	-	-	-	-	-	-	-	-	-	3.600

Description:

Naval Academy YP (Yard Patrol) craft are utilized to train midshipmen on piloting, seamanship, navigation, and engineering. The YP Service Life Extension Program (SLEP) extends the YP 676 Class service life approximately 10 years beyond the current average vessel age of 27 years. YP SLEP work items include but are not limited to the following: hull fendering, electronic navigation system components, paint and non-skid, damaged hull sections, hatches and deck planking, various pumps (bilge, seawater cooling, fire), and galley appliances. The SLEP will also include the overhaul of the engines and transformers, and propeller repair. The required repairs will vary by craft and will be conducted at both the U.S. Coast Guard Yard in Baltimore and private small business shipyards.

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Exhibit P-40, Budget Line Item Justification: PB 2020 Navy						Date: March 2019																																																																																																																																																																																																																	
Appropriation / Budget Activity / Budget Sub Activity: 1611N: Shipbuilding and Conversion, Navy / BA 05: Auxiliaries, Craft, and Prior-Year Program Costs / BSA 1: Auxiliaries, Craft and Prior Yr Program Cost				P-1 Line Item Number / Title: 5212 / YP Craft Maintenance/ROH/SLEP																																																																																																																																																																																																																			
ID Code (A=Service Ready, B=Not Service Ready): A		Program Elements for Code B Items: N/A			Other Related Program Elements: N/A																																																																																																																																																																																																																		
Line Item MDAP/MAIS Code: N/A																																																																																																																																																																																																																							
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Exhibit P-5c, Ship Cost Analysis: PB 2020 Navy			Date: March 2019	
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 05 / 1		P-1 Line Item Number / Title: 5212 / YP Craft Maintenance/ROH/SLEP		
Cost Categories	FY 2016		FY 2017	
	Qty (Each)	Total Cost (\$ M)	Qty (Each)	Total Cost (\$ M)
Basic Construction/Conversion	6	17.936	6	17.936
Change Orders		0.944		0.469
Electronics		1.458		1.458
Hull, Mechanical, and Electrical (HM&E)		1.500		1.500
Total Ship Estimate		21.838		21.363
Net P-1 Funding		21.838		21.363

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Exhibit P-27, Ship Production Schedule: PB 2020 Navy	Date: March 2019
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Appropriation / Budget Activity / Budget Sub Activity: 1611N / 05 / 1	P-1 Line Item Number / Title: 5212 / YP Craft Maintenance/ROH/SLEP
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Ship	Shipbuilder	Fiscal Year	Contract Award	Start of Construction	Delivery Date
YP SLEP 695	USCG YARD	2016	Aug 2016	Aug 2018	Mar 2019
YP SLEP 694	LYON SHIPYARD/TECNICO CORP.	2016	Jul 2018	Aug 2018	Mar 2019
YP SLEP 686	USCG YARD	2016	Mar 2019	May 2019	Oct 2019
YP SLEP 689	LYON SHIPYARD/TECNICO CORP.	2016	Apr 2019	May 2019	Oct 2019
YP SLEP 692	LYON SHIPYARD/TECNICO CORP.	2016	Apr 2019	May 2019	Oct 2019
YP SLEP 698	LYON SHIPYARD/TECNICO CORP.	2017	Jul 2019	Aug 2019	Jan 2020
YP SLEP 690	LYON SHIPYARD/TECNICO CORP.	2017	Jul 2019	Aug 2019	Jan 2020
YP SLEP 691	LYON SHIPYARD/TECNICO CORP.	2017	Oct 2019	Nov 2019	Apr 2020
YP SLEP 683	LYON SHIPYARD/TECNICO CORP.	2017	Jan 2020	Feb 2020	Jul 2020
YP SLEP 684	LYON SHIPYARD/TECNICO CORP.	2017	Jan 2020	Feb 2020	Jul 2020
YP SLEP 700	LYON SHIPYARD/TECNICO CORP.	2017	Apr 2020	May 2020	Oct 2020