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**Department of Defense
Fiscal Year (FY) 2018 Budget Estimates**

May 2017



Navy

Justification Book Volume 1 of 5

Other Procurement, Navy

BA 1

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The estimated cost for this report for the Department of Navy (DON) is \$26,101.

The estimated total cost for supporting the DON budget justification material is approximately \$1,142,960 for the 2017 fiscal year. This includes \$76,659 in supplies and \$1,066,301 in labor.

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Navy • Budget Estimates FY 2018 • Procurement

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Department of Defense Appropriations Act, 2018

Other Procurement, Navy

For procurement, production, and modernization of support equipment and materials not otherwise provided for, Navy ordnance (except ordnance for new aircraft, new ships, and ships authorized for conversion); the purchase of passenger motor vehicles for replacement only; expansion of public and private plants, including the land necessary therefore, and such lands and interests therein, may be acquired, and construction prosecuted thereon prior to approval of title; and procurement and installation of equipment, appliances, and machine tools in public and private plants; reserve plant and Government and contractor-owned equipment layaway, \$8,497,848,000, to remain available for obligation until September 30, 2020.

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Department of the Navy
FY 2018 President's Budget Request
Exhibit P-1 FY 2018 President's Budget Request
Total Obligational Authority
(Dollars in Thousands)

Appropriation -----	FY 2016 Base + OCO -----	FY 2017 PB Request with CR Adj Base -----	FY 2017 Total PB Requests* with CR Adj Base -----
Other Procurement, Navy	6,585,466	6,471,930	6,689,919
Total Department of the Navy	6,585,466	6,471,930	6,689,919

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Department of the Navy
FY 2018 President's Budget Request
Exhibit P-1 FY 2018 President's Budget Request
Total Obligational Authority
(Dollars in Thousands)

Appropriation -----	FY 2017 PB Request with CR Adj OCO -----	FY 2017 Total PB Requests* with CR Adj OCO -----	FY 2017 Less Enacted Div B P.L.114-254** OCO -----	FY 2017 Remaining Req with CR Adj OCO -----
Other Procurement, Navy	12,186	22,686		22,686
Total Department of the Navy	12,186	22,686		22,686

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Department of the Navy
FY 2018 President's Budget Request
Exhibit P-1 FY 2018 President's Budget Request
Total Obligational Authority
(Dollars in Thousands)

Appropriation -----	FY 2017 Total PB Requests** with CR Adj Base+OCO+SAA -----	FY 2017 Total PB Requests* with CR Adj Base + OCO -----	FY 2017 Less Enacted Div B P.L.114-254** OCO -----	FY 2017 Remaining Req with CR Adj Base + OCO -----
Other Procurement, Navy	6,484,116	6,712,605		6,712,605
Total Department of the Navy	6,484,116	6,712,605		6,712,605

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Department of the Navy
 FY 2018 President's Budget Request
 Exhibit P-1 FY 2018 President's Budget Request
 Total Obligational Authority
 (Dollars in Thousands)

Appropriation -----	FY 2018 Base -----	FY 2018 OCO -----	FY 2018 Total -----
Other Procurement, Navy	8,277,789	220,059	8,497,848
Total Department of the Navy	8,277,789	220,059	8,497,848

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Department of the Navy
 FY 2018 President's Budget Request
 Exhibit P-1 FY 2018 President's Budget Request
 Total Obligational Authority
 (Dollars in Thousands)

Appropriation: Other Procurement, Navy

Budget Activity -----	FY 2016 Base + OCO -----	FY 2017 PB Request with CR Adj Base -----	FY 2017 Total PB Requests* with CR Adj Base -----
01. Ships Support Equipment	1,942,753	1,878,390	1,948,076
02. Communications & Electronics Equip	2,347,567	2,122,908	2,184,808
03. Aviation Support Equipment	419,644	439,109	439,109
04. Ordnance Support Equipment	852,190	933,565	982,065
05. Civil Engineering Support Equip	55,671	84,345	84,345
06. Supply Support Equipment	247,302	316,609	316,609
07. Personnel & Command Support Equip	444,006	364,275	402,178
08. Spares and Repair Parts	276,333	199,660	199,660
20. Undistributed		133,069	133,069
Total Other Procurement, Navy	6,585,466	6,471,930	6,689,919

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Department of the Navy
FY 2018 President's Budget Request
Exhibit P-1 FY 2018 President's Budget Request
Total Obligational Authority
(Dollars in Thousands)

Appropriation: Other Procurement, Navy

Budget Activity -----	FY 2017 PB Request with CR Adj OCO -----	FY 2017 Total PB Requests* with CR Adj OCO -----	FY 2017 Less Enacted Div B P.L.114-254** OCO -----	FY 2017 Remaining Req with CR Adj OCO -----
01. Ships Support Equipment				
02. Communications & Electronics Equip	12,000	12,000		12,000
03. Aviation Support Equipment				
04. Ordnance Support Equipment	99,329	104,829		104,829
05. Civil Engineering Support Equip	630	630		630
06. Supply Support Equipment	25	25		25
07. Personnel & Command Support Equip	12,222	17,222		17,222
08. Spares and Repair Parts				
20. Undistributed	-112,020	-112,020		-112,020
Total Other Procurement, Navy	12,186	22,686		22,686

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Department of the Navy
FY 2018 President's Budget Request
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Total Obligational Authority
(Dollars in Thousands)

Appropriation: Other Procurement, Navy

Budget Activity -----	FY 2017 Total PB Requests** with CR Adj Base+OCO+SAA -----	FY 2017 Total PB Requests* with CR Adj Base + OCO -----	FY 2017 Less Enacted Div B P.L.114-254** OCO -----	FY 2017 Remaining Req with CR Adj Base + OCO -----
01. Ships Support Equipment	1,878,390	1,948,076		1,948,076
02. Communications & Electronics Equip	2,134,908	2,196,808		2,196,808
03. Aviation Support Equipment	439,109	439,109		439,109
04. Ordnance Support Equipment	1,032,894	1,086,894		1,086,894
05. Civil Engineering Support Equip	84,975	84,975		84,975
06. Supply Support Equipment	316,634	316,634		316,634
07. Personnel & Command Support Equip	376,497	419,400		419,400
08. Spares and Repair Parts	199,660	199,660		199,660
20. Undistributed	21,049	21,049		21,049
Total Other Procurement, Navy	6,484,116	6,712,605		6,712,605

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Department of the Navy
FY 2018 President's Budget Request
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Total Obligational Authority
(Dollars in Thousands)

Appropriation: Other Procurement, Navy

Budget Activity -----	FY 2018 Base -----	FY 2018 OCO -----	FY 2018 Total -----
01. Ships Support Equipment	3,076,818	30,348	3,107,166
02. Communications & Electronics Equip	2,565,260	62,622	2,627,882
03. Aviation Support Equipment	441,542	29,245	470,787
04. Ordnance Support Equipment	929,371	34,406	963,777
05. Civil Engineering Support Equip	99,619	5,136	104,755
06. Supply Support Equipment	510,285	584	510,869
07. Personnel & Command Support Equip	376,329	56,540	432,869
08. Spares and Repair Parts	278,565	1,178	279,743
20. Undistributed			
Total Other Procurement, Navy	8,277,789	220,059	8,497,848

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Department of the Navy
FY 2018 President's Budget Request
Exhibit P-1 FY 2018 President's Budget Request
Total Obligational Authority
(Dollars in Thousands)

Appropriation: 1810N Other Procurement, Navy

Line No	Item Nomenclature	Ident Code	FY 2016 Base + OCO Quantity Cost	FY 2017 PB Request with CR Adj Base Quantity Cost	FY 2017 Total PB Requests* with CR Adj Base Quantity Cost	S e c
----	-----	-----	-----	-----	-----	-----
Budget Activity 01: Ships Support Equipment						

Ship Propulsion Equipment						
1	LM-2500 Gas Turbine	A	4,881			U
2	Allison 501k Gas Turbine	A	5,814			U
3	Surface Power Equipment	A		15,514	15,514	U
4	Hybrid Electric Drive (HED)		29,106	40,132	15,132	U
Generators						
5	Surface Combatant HM&E	A	36,860	29,974	29,974	U
Navigation Equipment						
6	Other Navigation Equipment	A	63,481	63,942	63,942	U
Periscopes						
7	Sub Periscopes & Imaging Equip	A	63,109			U
Other Shipboard Equipment						
8	Sub Periscope, Imaging and Supt Equip Prog	A		136,421	154,421	U
9	DDG Mod	A	421,195	367,766	432,766	U
10	Firefighting Equipment	A	13,983	14,743	14,743	U
11	Command and Control Switchboard	A	2,255	2,140	2,140	U
12	LHA/LHD Midlife	A	11,017	24,939	24,939	U
13	LCC 19/20 Extended Service Life Program	A	8,631			U

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Appropriation: 1810N Other Procurement, Navy

Line No	Item Nomenclature	Ident Code	FY 2017 PB Request with CR Adj OCO		FY 2017 Total PB Requests* with CR Adj OCO		FY 2017 Less Enacted Div B P.L.114-254** OCO		FY 2017 Remaining Req with CR Adj OCO		S e c
			Quantity	Cost	Quantity	Cost	Quantity	Cost	Quantity	Cost	
Budget Activity 01: Ships Support Equipment											
Ship Propulsion Equipment											
1	LM-2500 Gas Turbine	A									U
2	Allison 501k Gas Turbine	A									U
3	Surface Power Equipment	A									U
4	Hybrid Electric Drive (HED)										U
Generators											
5	Surface Combatant HM&E	A									U
Navigation Equipment											
6	Other Navigation Equipment	A									U
Periscopes											
7	Sub Periscopes & Imaging Equip	A									U
Other Shipboard Equipment											
8	Sub Periscope, Imaging and Supt Equip Prog	A									U
9	DDG Mod	A									U
10	Firefighting Equipment	A									U
11	Command and Control Switchboard	A									U
12	LHA/LHD Midlife	A									U
13	LCC 19/20 Extended Service Life Program	A									U

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Total Obligational Authority
(Dollars in Thousands)

Appropriation: 1810N Other Procurement, Navy

Line No	Item Nomenclature	Ident Code	FY 2017 Total PB Requests** with CR Adj Base+OCO+SAA Quantity	Cost	FY 2017 Total PB Requests* with CR Adj Base + OCO Quantity	Cost	FY 2017 Less Enacted Div B P.L.114-254** OCO Quantity	Cost	FY 2017 Remaining Req with CR Adj Base + OCO Quantity	Cost	S e c
Budget Activity 01: Ships Support Equipment											
Ship Propulsion Equipment											
1	LM-2500 Gas Turbine	A									U
2	Allison 501k Gas Turbine	A									U
3	Surface Power Equipment	A		15,514		15,514			15,514		U
4	Hybrid Electric Drive (HED)			40,132		15,132			15,132		U
Generators											
5	Surface Combatant HM&E	A		29,974		29,974			29,974		U
Navigation Equipment											
6	Other Navigation Equipment	A		63,942		63,942			63,942		U
Periscopes											
7	Sub Periscopes & Imaging Equip	A									U
Other Shipboard Equipment											
8	Sub Periscope, Imaging and Supt Equip Prog	A		136,421		154,421			154,421		U
9	DDG Mod	A		367,766		432,766			432,766		U
10	Firefighting Equipment	A		14,743		14,743			14,743		U
11	Command and Control Switchboard	A		2,140		2,140			2,140		U
12	LHA/LHD Midlife	A		24,939		24,939			24,939		U
13	LCC 19/20 Extended Service Life Program	A									U

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FY 2018 President's Budget Request
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Total Obligational Authority
(Dollars in Thousands)

Appropriation: 1810N Other Procurement, Navy

Line No	Item Nomenclature	Ident Code	FY 2018 Base Quantity	Cost	FY 2018 OCO Quantity	Cost	FY 2018 Total Quantity	Cost	S e c
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Budget Activity 01: Ships Support Equipment									

Ship Propulsion Equipment									
1	LM-2500 Gas Turbine	A							U
2	Allison 501k Gas Turbine	A							U
3	Surface Power Equipment	A		41,910			41,910		U
4	Hybrid Electric Drive (HED)			6,331			6,331		U
Generators									
5	Surface Combatant HM&E	A		27,392			27,392		U
Navigation Equipment									
6	Other Navigation Equipment	A		65,943			65,943		U
Periscopes									
7	Sub Periscopes & Imaging Equip	A							U
Other Shipboard Equipment									
8	Sub Periscope, Imaging and Supt Equip Prog	A		151,240			151,240		U
9	DDG Mod	A		603,355			603,355		U
10	Firefighting Equipment	A		15,887			15,887		U
11	Command and Control Switchboard	A		2,240			2,240		U
12	LHA/LHD Midlife	A		30,287			30,287		U
13	LCC 19/20 Extended Service Life Program	A							U

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Total Obligational Authority
(Dollars in Thousands)

Appropriation: 1810N Other Procurement, Navy

Line No	Item Nomenclature	Ident Code	FY 2016 Base + OCO Quantity Cost	FY 2017 PB Request with CR Adj Base Quantity Cost	FY 2017 Total PB Requests* with CR Adj Base Quantity Cost	S e c
----	-----	-----	-----	-----	-----	----
14	Pollution Control Equipment	B	16,609	20,191	20,191	U
15	Submarine Support Equipment	A	10,498	8,995	8,995	U
16	Virginia Class Support Equipment	A	35,747	66,838	66,838	U
17	LCS Class Support Equipment		39,349	54,823	54,823	U
18	Submarine Batteries		23,072	23,359	23,359	U
19	LPD Class Support Equipment		37,929	40,321	40,321	U
20	DDG 1000 Class Support Equipment	A		33,404	33,404	U
21	Strategic Platform Support Equip	A	18,563	15,836	15,836	U
22	DSSP Equipment	A	8,851	806	806	U
23	CG Modernization	A	99,500			U
24	LCAC	A	15,125	3,090	3,090	U
25	Underwater EOD Programs		51,652	24,350	24,350	U
26	Items Less Than \$5 Million	A	89,349	88,719	88,719	U
27	Chemical Warfare Detectors	A	3,027	2,873	2,873	U
28	Submarine Life Support System	A	7,399	6,043	6,043	U
	Reactor Plant Equipment					
29	Reactor Power Units	A				U
30	Reactor Components	A	296,095	342,158	342,158	U
	Ocean Engineering					
31	Diving and Salvage Equipment	A	15,982	8,973	8,973	U

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(Dollars in Thousands)

Appropriation: 1810N Other Procurement, Navy

Line No	Item Nomenclature	Ident Code	FY 2017 PB Request with CR Adj OCO Quantity	Cost	FY 2017 Total PB Requests* with CR Adj OCO Quantity	Cost	FY 2017 Less Enacted Div B P.L.114-254** OCO Quantity	Cost	FY 2017 Remaining Req with CR Adj OCO Quantity	Cost	S e c
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14	Pollution Control Equipment	B									U
15	Submarine Support Equipment	A									U
16	Virginia Class Support Equipment	A									U
17	LCS Class Support Equipment										U
18	Submarine Batteries										U
19	LPD Class Support Equipment										U
20	DDG 1000 Class Support Equipment	A									U
21	Strategic Platform Support Equip	A									U
22	DSSP Equipment	A									U
23	CG Modernization	A									U
24	LCAC	A									U
25	Underwater EOD Programs										U
26	Items Less Than \$5 Million	A									U
27	Chemical Warfare Detectors	A									U
28	Submarine Life Support System	A									U
	Reactor Plant Equipment										
29	Reactor Power Units	A									U
30	Reactor Components	A									U
	Ocean Engineering										
31	Diving and Salvage Equipment	A									U

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Department of the Navy
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(Dollars in Thousands)

Appropriation: 1810N Other Procurement, Navy

Line No	Item Nomenclature	Ident Code	FY 2017 Total PB Requests** with CR Adj Base+OCO+SAA Quantity	Cost	FY 2017 Total PB Requests* with CR Adj Base + OCO Quantity	Cost	FY 2017 Less Enacted Div B P.L.114-254** OCO Quantity	Cost	FY 2017 Remaining Req with CR Adj Base + OCO Quantity	Cost	S e c
----	-----	-----	-----	----	-----	----	-----	----	-----	----	-
14	Pollution Control Equipment	B		20,191		20,191				20,191	U
15	Submarine Support Equipment	A		8,995		8,995				8,995	U
16	Virginia Class Support Equipment	A		66,838		66,838				66,838	U
17	LCS Class Support Equipment			54,823		54,823				54,823	U
18	Submarine Batteries			23,359		23,359				23,359	U
19	LPD Class Support Equipment			40,321		40,321				40,321	U
20	DDG 1000 Class Support Equipment	A		33,404		33,404				33,404	U
21	Strategic Platform Support Equip	A		15,836		15,836				15,836	U
22	DSSP Equipment	A		806		806				806	U
23	CG Modernization	A									U
24	LCAC	A		3,090		3,090				3,090	U
25	Underwater EOD Programs			24,350		24,350				24,350	U
26	Items Less Than \$5 Million	A		88,719		88,719				88,719	U
27	Chemical Warfare Detectors	A		2,873		2,873				2,873	U
28	Submarine Life Support System	A		6,043		6,043				6,043	U
	Reactor Plant Equipment										
29	Reactor Power Units	A									U
30	Reactor Components	A		342,158		342,158				342,158	U
	Ocean Engineering										
31	Diving and Salvage Equipment	A		8,973		8,973				8,973	U

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Department of the Navy
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(Dollars in Thousands)

Appropriation: 1810N Other Procurement, Navy

Line No	Item Nomenclature	Ident Code	FY 2018 Base Quantity	Cost	FY 2018 OCO Quantity	Cost	FY 2018 Total Quantity	Cost	S e c
----	-----	-----	-----	-----	-----	-----	-----	-----	-----
14	Pollution Control Equipment	B		17,293			17,293		U
15	Submarine Support Equipment	A		27,990			27,990		U
16	Virginia Class Support Equipment	A		46,610			46,610		U
17	LCS Class Support Equipment			47,955			47,955		U
18	Submarine Batteries			17,594			17,594		U
19	LPD Class Support Equipment			61,908			61,908		U
20	DDG 1000 Class Support Equipment	A							U
21	Strategic Platform Support Equip	A		15,812			15,812		U
22	DSSP Equipment	A		4,178			4,178		U
23	CG Modernization	A		306,050			306,050		U
24	LCAC	A		5,507			5,507		U
25	Underwater EOD Programs			55,922		12,348	68,270		U
26	Items Less Than \$5 Million	A		96,909			96,909		U
27	Chemical Warfare Detectors	A		3,036			3,036		U
28	Submarine Life Support System	A		10,364			10,364		U
	Reactor Plant Equipment								
29	Reactor Power Units	A		324,925			324,925		U
30	Reactor Components	A		534,468			534,468		U
	Ocean Engineering								
31	Diving and Salvage Equipment	A		10,619			10,619		U

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

Appropriation: 1810N Other Procurement, Navy

Line No	Item Nomenclature	Ident Code	FY 2016 Base + OCO Quantity Cost	FY 2017 PB Request with CR Adj Base Quantity Cost	FY 2017 Total PB Requests* with CR Adj Base Quantity Cost	S e c
----	-----	-----	-----	-----	-----	-
	Small Boats					
32	Standard Boats	A	29,982	43,684	55,370	U
	Training Equipment					
33	Other Ships Training Equipment	A	62,358			U
	Production Facilities Equipment					
34	Operating Forces Ipe	A	61,718	75,421	75,421	U
	Other Ship Support					
35	Nuclear Alterations	A	132,625	172,718	172,718	U
36	LCS Common Mission Modules Equipment		23,061	27,840	27,840	U
37	LCS MCM Mission Modules		67,451	57,146	57,146	U
38	LCS ASW Mission Modules			31,952	31,952	U
39	LCS SUW Mission Modules		35,228	22,466	22,466	U
40	LCS In-Service Modernization	A				U
41	Remote Minehunting System (RMS)	A	53,077			U
	Logistic Support					
42	LSD Midlife & Modernization		48,174	10,813	10,813	U
			-----	-----	-----	
	Total Ships Support Equipment		1,942,753	1,878,390	1,948,076	

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Total Obligational Authority
(Dollars in Thousands)

Appropriation: 1810N Other Procurement, Navy

Line No	Item Nomenclature	Ident Code	FY 2017 PB Request with CR Adj OCO Quantity	Cost	FY 2017 Total PB Requests* with CR Adj OCO Quantity	Cost	FY 2017 Less Enacted Div B P.L.114-254** OCO Quantity	Cost	FY 2017 Remaining Req with CR Adj OCO Quantity	Cost	S e c
----	-----	-----	-----	----	-----	----	-----	----	-----	----	-
	Small Boats										
32	Standard Boats	A									U
	Training Equipment										
33	Other Ships Training Equipment	A									U
	Production Facilities Equipment										
34	Operating Forces Ipe	A									U
	Other Ship Support										
35	Nuclear Alterations	A									U
36	LCS Common Mission Modules Equipment										U
37	LCS MCM Mission Modules										U
38	LCS ASW Mission Modules										U
39	LCS SUW Mission Modules										U
40	LCS In-Service Modernization	A									U
41	Remote Minehunting System (RMS)	A									U
	Logistic Support										
42	LSD Midlife & Modernization										U
	Total Ships Support Equipment										

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FY 2018 President's Budget Request
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Total Obligational Authority
(Dollars in Thousands)

Appropriation: 1810N Other Procurement, Navy

Line No	Item Nomenclature	Ident Code	FY 2017 Total PB Requests** with CR Adj Base+OCO+SAA Quantity	Cost	FY 2017 Total PB Requests* with CR Adj Base + OCO Quantity	Cost	FY 2017 Less Enacted Div B P.L.114-254** OCO Quantity	Cost	FY 2017 Remaining Req with CR Adj Base + OCO Quantity	Cost	S e c
----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-
	Small Boats										
32	Standard Boats	A		43,684		55,370			55,370		U
	Training Equipment										
33	Other Ships Training Equipment	A									U
	Production Facilities Equipment										
34	Operating Forces Ipe	A		75,421		75,421			75,421		U
	Other Ship Support										
35	Nuclear Alterations	A		172,718		172,718			172,718		U
36	LCS Common Mission Modules Equipment			27,840		27,840			27,840		U
37	LCS MCM Mission Modules			57,146		57,146			57,146		U
38	LCS ASW Mission Modules			31,952		31,952			31,952		U
39	LCS SUW Mission Modules			22,466		22,466			22,466		U
40	LCS In-Service Modernization	A									U
41	Remote Minehunting System (RMS)	A									U
	Logistic Support										
42	LSD Midlife & Modernization			10,813		10,813			10,813		U
				-----		-----		-----	-----		
	Total Ships Support Equipment			1,878,390		1,948,076			1,948,076		

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

Appropriation: 1810N Other Procurement, Navy

Line No	Item Nomenclature	Ident Code	FY 2018 Base Quantity	Cost	FY 2018 OCO Quantity	Cost	FY 2018 Total Quantity	Cost	S e c
----	-----	-----	-----	----	-----	----	-----	----	-
	Small Boats								
32	Standard Boats	A		46,094		18,000		64,094	U
	Training Equipment								
33	Other Ships Training Equipment	A							U
	Production Facilities Equipment								
34	Operating Forces Ipe	A		191,541				191,541	U
	Other Ship Support								
35	Nuclear Alterations	A							U
36	LCS Common Mission Modules Equipment			34,666				34,666	U
37	LCS MCM Mission Modules			55,870				55,870	U
38	LCS ASW Mission Modules								U
39	LCS SUW Mission Modules			52,960				52,960	U
40	LCS In-Service Modernization	A		74,426				74,426	U
41	Remote Minehunting System (RMS)	A							U
	Logistic Support								
42	LSD Midlife & Modernization			89,536				89,536	U
				-----		-----		-----	
	Total Ships Support Equipment			3,076,818		30,348		3,107,166	

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Department of the Navy
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Exhibit P-1 FY 2018 President's Budget Request
Total Obligational Authority
(Dollars in Thousands)

Appropriation: 1810N Other Procurement, Navy

Line No	Item Nomenclature	Ident Code	FY 2016 Base + OCO Quantity Cost	FY 2017 PB Request with CR Adj Base Quantity Cost	FY 2017 Total PB Requests* with CR Adj Base Quantity Cost	S e c
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Budget Activity 02: Communications & Electronics Equip						

Ship Sonars						
43	SPQ-9B Radar	A	19,841	14,363	14,363	U
44	AN/SQQ-89 Surf ASW Combat System	A	103,241	90,029	90,029	U
45	SSN Acoustics	A	232,134			U
46	SSN Acoustic Equipment	A		248,765	288,265	U
47	Undersea Warfare Support Equipment	A	7,331	7,163	7,163	U
48	Sonar Switches and Transducers	A	11,781			U
ASW Electronic Equipment						
49	Submarine Acoustic Warfare System	A	19,718	21,291	21,291	U
50	SSTD	A	8,396	6,893	6,893	U
51	Fixed Surveillance System	A	146,968	145,701	145,701	U
52	SURTASS	A	26,153	36,136	46,136	U
53	Maritime Patrol and Reconnaissance Force	A	13,725			U
Electronic Warfare Equipment						
54	AN/SLQ-32	A	259,271	274,892	274,892	U
Reconnaissance Equipment						
55	Shipboard IW Exploit	A	138,002	170,733	170,733	U
56	Automated Identification System (AIS)		152	958	958	U

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Exhibit P-1 FY 2018 President's Budget Request
Total Obligational Authority
(Dollars in Thousands)

Appropriation: 1810N Other Procurement, Navy

Line No	Item Nomenclature	Ident Code	FY 2017 PB Request with CR Adj OCO Quantity	Cost	FY 2017 Total PB Requests* with CR Adj OCO Quantity	Cost	FY 2017 Less Enacted Div B P.L.114-254** OCO Quantity	Cost	FY 2017 Remaining Req with CR Adj OCO Quantity	Cost	S e c
Budget Activity 02: Communications & Electronics Equip											
Ship Sonars											
43	SPQ-9B Radar	A									U
44	AN/SQQ-89 Surf ASW Combat System	A									U
45	SSN Acoustics	A									U
46	SSN Acoustic Equipment	A									U
47	Undersea Warfare Support Equipment	A									U
48	Sonar Switches and Transducers	A									U
ASW Electronic Equipment											
49	Submarine Acoustic Warfare System	A									U
50	SSTD	A									U
51	Fixed Surveillance System	A									U
52	SURTASS	A									U
53	Maritime Patrol and Reconnaissance Force	A									U
Electronic Warfare Equipment											
54	AN/SLQ-32	A									U
Reconnaissance Equipment											
55	Shipboard IW Exploit	A									U
56	Automated Identification System (AIS)										U

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Total Obligational Authority
(Dollars in Thousands)

Appropriation: 1810N Other Procurement, Navy

Line No	Item Nomenclature	Ident Code	FY 2017 Total PB Requests** with CR Adj Base+OCO+SAA Quantity Cost	FY 2017 Total PB Requests* with CR Adj Base + OCO Quantity Cost	FY 2017 Less Enacted Div B P.L.114-254** OCO Quantity Cost	FY 2017 Remaining Req with CR Adj Base + OCO Quantity Cost	S e c
Budget Activity 02: Communications & Electronics Equip							
Ship Sonars							
43	SPQ-9B Radar	A	14,363	14,363		14,363	U
44	AN/SQQ-89 Surf ASW Combat System	A	90,029	90,029		90,029	U
45	SSN Acoustics	A					U
46	SSN Acoustic Equipment	A	248,765	288,265		288,265	U
47	Undersea Warfare Support Equipment	A	7,163	7,163		7,163	U
48	Sonar Switches and Transducers	A					U
ASW Electronic Equipment							
49	Submarine Acoustic Warfare System	A	21,291	21,291		21,291	U
50	SSTD	A	6,893	6,893		6,893	U
51	Fixed Surveillance System	A	145,701	145,701		145,701	U
52	SURTASS	A	36,136	46,136		46,136	U
53	Maritime Patrol and Reconnaissance Force	A					U
Electronic Warfare Equipment							
54	AN/SLQ-32	A	274,892	274,892		274,892	U
Reconnaissance Equipment							
55	Shipboard IW Exploit	A	170,733	170,733		170,733	U
56	Automated Identification System (AIS)		958	958		958	U

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Department of the Navy
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Exhibit P-1 FY 2018 President's Budget Request
Total Obligational Authority
(Dollars in Thousands)

Appropriation: 1810N Other Procurement, Navy

Line No	Item Nomenclature	Ident Code	FY 2018 Base Quantity	Cost	FY 2018 OCO Quantity	Cost	FY 2018 Total Quantity	Cost	S e c
----	-----	-----	-----	----	-----	----	-----	----	-
Budget Activity 02: Communications & Electronics Equip -----									
Ship Sonars									
43	SPQ-9B Radar	A		30,086			30,086		U
44	AN/SQQ-89 Surf ASW Combat System	A		102,222			102,222		U
45	SSN Acoustics	A							U
46	SSN Acoustic Equipment	A		287,553		43,500	331,053		U
47	Undersea Warfare Support Equipment	A		13,653			13,653		U
48	Sonar Switches and Transducers	A							U
ASW Electronic Equipment									
49	Submarine Acoustic Warfare System	A		21,449			21,449		U
50	SSTD	A		12,867			12,867		U
51	Fixed Surveillance System	A		300,102			300,102		U
52	SURTASS	A		30,180			30,180		U
53	Maritime Patrol and Reconnaissance Force	A							U
Electronic Warfare Equipment									
54	AN/SLQ-32	A		240,433			240,433		U
Reconnaissance Equipment									
55	Shipboard IW Exploit	A		187,007			187,007		U
56	Automated Identification System (AIS)			510			510		U

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Total Obligational Authority
(Dollars in Thousands)

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Line No	Item Nomenclature	Ident Code	FY 2016 Base + OCO Quantity Cost	FY 2017 PB Request with CR Adj Base Quantity Cost	FY 2017 Total PB Requests* with CR Adj Base Quantity Cost	S e c
----	-----	-----	-----	-----	-----	-
	Submarine Surveillance Equipment					
57	Submarine Support Equipment Prog	A	83,472			U
	Other Ship Electronic Equipment					
58	Cooperative Engagement Capability	B	25,695	22,034	22,034	U
59	Trusted Information System (TIS)		284			U
60	Naval Tactical Command Support System (NTCSS)	A	14,416	12,336	12,336	U
61	ATDLS	A	22,169	30,105	30,105	U
62	Navy Command and Control System (NCCS)		4,054	4,556	4,556	U
63	Minesweeping System Replacement	A	21,014	56,675	56,675	U
64	Shallow Water MCM	B		8,875	8,875	U
65	Navstar GPS Receivers (SPACE)	A	11,129	12,752	12,752	U
66	American Forces Radio and TV Service	A	4,240	4,577	4,577	U
67	Strategic Platform Support Equip	A	17,440	8,972	8,972	U
	Training Equipment					
68	Other Training Equipment	A	41,314			U
	Aviation Electronic Equipment					
69	Matcals	A	10,011			U
70	Ashore ATC Equipment	A		75,068	75,068	U
71	Afloat ATC Equipment	A		33,484	33,484	U
72	Shipboard Air Traffic Control	B	9,346			U

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(Dollars in Thousands)

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Line No	Item Nomenclature	Ident Code	FY 2017 PB Request with CR Adj OCO	FY 2017 Total PB Requests* with CR Adj OCO	FY 2017 Less Enacted Div B P.L.114-254** OCO	FY 2017 Remaining Req with CR Adj OCO	S e c
-----	-----	-----	Quantity Cost	Quantity Cost	Quantity Cost	Quantity Cost	-
	Submarine Surveillance Equipment						
57	Submarine Support Equipment Prog	A					U
	Other Ship Electronic Equipment						
58	Cooperative Engagement Capability	B					U
59	Trusted Information System (TIS)						U
60	Naval Tactical Command Support System (NTCSS)	A					U
61	ATDLS	A					U
62	Navy Command and Control System (NCCS)						U
63	Minesweeping System Replacement	A					U
64	Shallow Water MCM	B					U
65	Navstar GPS Receivers (SPACE)	A					U
66	American Forces Radio and TV Service	A					U
67	Strategic Platform Support Equip	A					U
	Training Equipment						
68	Other Training Equipment	A					U
	Aviation Electronic Equipment						
69	Matcals	A					U
70	Ashore ATC Equipment	A					U
71	Afloat ATC Equipment	A					U
72	Shipboard Air Traffic Control	B					U

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Total Obligational Authority
(Dollars in Thousands)

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Line No	Item Nomenclature	Ident Code	FY 2017 Total PB Requests** with CR Adj Base+OCO+SAA Quantity	Cost	FY 2017 Total PB Requests* with CR Adj Base + OCO Quantity	Cost	FY 2017 Less Enacted Div B P.L.114-254** OCO Quantity	Cost	FY 2017 Remaining Req with CR Adj Base + OCO Quantity	Cost	S e c
----	-----	-----	-----	----	-----	----	-----	----	-----	----	-
	Submarine Surveillance Equipment										
57	Submarine Support Equipment Prog	A									U
	Other Ship Electronic Equipment										
58	Cooperative Engagement Capability	B		22,034		22,034			22,034		U
59	Trusted Information System (TIS)										U
60	Naval Tactical Command Support System (NTCSS)	A		12,336		12,336			12,336		U
61	ATDLS	A		30,105		30,105			30,105		U
62	Navy Command and Control System (NCCS)			4,556		4,556			4,556		U
63	Minesweeping System Replacement	A		56,675		56,675			56,675		U
64	Shallow Water MCM	B		8,875		8,875			8,875		U
65	Navstar GPS Receivers (SPACE)	A		12,752		12,752			12,752		U
66	American Forces Radio and TV Service	A		4,577		4,577			4,577		U
67	Strategic Platform Support Equip	A		8,972		8,972			8,972		U
	Training Equipment										
68	Other Training Equipment	A									U
	Aviation Electronic Equipment										
69	Matcals	A									U
70	Ashore ATC Equipment	A		75,068		75,068			75,068		U
71	Afloat ATC Equipment	A		33,484		33,484			33,484		U
72	Shipboard Air Traffic Control	B									U

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Total Obligational Authority
(Dollars in Thousands)

Appropriation: 1810N Other Procurement, Navy

Line No	Item Nomenclature	Ident Code	FY 2018 Base Quantity	Cost	FY 2018 OCO Quantity	Cost	FY 2018 Total Quantity	Cost	S e c
----	-----	-----	-----	-----	-----	-----	-----	-----	-
	Submarine Surveillance Equipment								
57	Submarine Support Equipment Prog	A							U
	Other Ship Electronic Equipment								
58	Cooperative Engagement Capability	B		23,892			23,892		U
59	Trusted Information System (TIS)								U
60	Naval Tactical Command Support System (NTCSS)	A		10,741			10,741		U
61	ATDLS	A		38,016			38,016		U
62	Navy Command and Control System (NCCS)			4,512			4,512		U
63	Minesweeping System Replacement	A		31,531			31,531		U
64	Shallow Water MCM	B		8,796			8,796		U
65	Navstar GPS Receivers (SPACE)	A		15,923			15,923		U
66	American Forces Radio and TV Service	A		2,730			2,730		U
67	Strategic Platform Support Equip	A		6,889			6,889		U
	Training Equipment								
68	Other Training Equipment	A							U
	Aviation Electronic Equipment								
69	Matcals	A							U
70	Ashore ATC Equipment	A		71,882			71,882		U
71	Afloat ATC Equipment	A		44,611			44,611		U
72	Shipboard Air Traffic Control	B							U

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

Appropriation: 1810N Other Procurement, Navy

Line No	Item Nomenclature	Ident Code	FY 2016 Base + OCO Quantity Cost	FY 2017 PB Request with CR Adj Base Quantity Cost	FY 2017 Total PB Requests* with CR Adj Base Quantity Cost	S e c
----	-----	----	-----	-----	-----	----
73	Automatic Carrier Landing System	A	21,281			U
74	National Air Space System	B	25,621			U
75	Fleet Air Traffic Control Systems	A	8,249			U
76	Landing Systems	A	11,910			U
77	ID Systems	A	29,676	22,177	22,177	U
78	Naval Mission Planning Systems	A	13,737	14,273	14,273	U
	Other Shore Electronic Equipment					
79	Deployable Joint Command & Control	A	1,314			U
80	Tactical/Mobile C4I Systems	A	13,600	27,927	27,927	U
81	DCGS-N	A	31,809	12,676	12,676	U
82	CANES		274,641	212,030	212,030	U
83	RADIAC	A	6,768	8,092	8,092	U
84	CANES-Intell		28,695	36,013	36,013	U
85	GPETE	A	6,962	6,428	6,428	U
86	MASF		290			U
87	Integ Combat System Test Facility	A	13,614	8,376	8,376	U
88	EMI Control Instrumentation	A	4,175	3,971	3,971	U
89	Items Less Than \$5 Million	A	66,176	58,721	58,721	U
	Shipboard Communications					
90	Shipboard Tactical Communications	A	8,277	17,366	17,366	U

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Total Obligational Authority
(Dollars in Thousands)

Appropriation: 1810N Other Procurement, Navy

Line No	Item Nomenclature	Ident Code	FY 2017 PB Request with CR Adj OCO Quantity	Cost	FY 2017 Total PB Requests* with CR Adj OCO Quantity	Cost	FY 2017 Less Enacted Div B P.L.114-254** OCO Quantity	Cost	FY 2017 Remaining Req with CR Adj OCO Quantity	Cost	S e c
----	-----	-----	-----	----	-----	----	-----	----	-----	----	-
73	Automatic Carrier Landing System	A									U
74	National Air Space System	B									U
75	Fleet Air Traffic Control Systems	A									U
76	Landing Systems	A									U
77	ID Systems	A									U
78	Naval Mission Planning Systems	A									U
	Other Shore Electronic Equipment										
79	Deployable Joint Command & Control	A									U
80	Tactical/Mobile C4I Systems	A									U
81	DCGS-N	A		12,000		12,000			12,000		U
82	CANES										U
83	RADIAC	A									U
84	CANES-Intell										U
85	GPETE	A									U
86	MASF										U
87	Integ Combat System Test Facility	A									U
88	EMI Control Instrumentation	A									U
89	Items Less Than \$5 Million	A									U
	Shipboard Communications										
90	Shipboard Tactical Communications	A									U

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(Dollars in Thousands)

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Line No	Item Nomenclature	Ident Code	FY 2017 Total PB Requests** with CR Adj Base+OCO+SAA Quantity	Cost	FY 2017 Total PB Requests* with CR Adj Base + OCO Quantity	Cost	FY 2017 Less Enacted Div B P.L.114-254** OCO Quantity	Cost	FY 2017 Remaining Req with CR Adj Base + OCO Quantity	Cost	S e c
----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-
73	Automatic Carrier Landing System	A									U
74	National Air Space System	B									U
75	Fleet Air Traffic Control Systems	A									U
76	Landing Systems	A									U
77	ID Systems	A		22,177		22,177			22,177		U
78	Naval Mission Planning Systems	A		14,273		14,273			14,273		U
	Other Shore Electronic Equipment										
79	Deployable Joint Command & Control	A									U
80	Tactical/Mobile C4I Systems	A		27,927		27,927			27,927		U
81	DCGS-N	A		24,676		24,676			24,676		U
82	CANES			212,030		212,030			212,030		U
83	RADIAC	A		8,092		8,092			8,092		U
84	CANES-Intell			36,013		36,013			36,013		U
85	GPETE	A		6,428		6,428			6,428		U
86	MASF										U
87	Integ Combat System Test Facility	A		8,376		8,376			8,376		U
88	EMI Control Instrumentation	A		3,971		3,971			3,971		U
89	Items Less Than \$5 Million	A		58,721		58,721			58,721		U
	Shipboard Communications										
90	Shipboard Tactical Communications	A		17,366		17,366			17,366		U

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Total Obligational Authority
(Dollars in Thousands)

Appropriation: 1810N Other Procurement, Navy

Line No	Item Nomenclature	Ident Code	FY 2018 Base Quantity	Cost	FY 2018 OCO Quantity	Cost	FY 2018 Total Quantity	Cost	S e c
----	-----	-----	-----	-----	-----	-----	-----	-----	-----
73	Automatic Carrier Landing System	A							U
74	National Air Space System	B							U
75	Fleet Air Traffic Control Systems	A							U
76	Landing Systems	A							U
77	ID Systems	A		21,239			21,239		U
78	Naval Mission Planning Systems	A		11,976		2,550	14,526		U
	Other Shore Electronic Equipment								
79	Deployable Joint Command & Control	A							U
80	Tactical/Mobile C4I Systems	A		32,425		7,900	40,325		U
81	DCGS-N	A		13,790		6,392	20,182		U
82	CANES			322,754			322,754		U
83	RADIAC	A		10,718			10,718		U
84	CANES-Intell			48,028			48,028		U
85	GPETE	A		6,861			6,861		U
86	MASF			8,081			8,081		U
87	Integ Combat System Test Facility	A		5,019			5,019		U
88	EMI Control Instrumentation	A		4,188			4,188		U
89	Items Less Than \$5 Million	A		105,292			105,292		U
	Shipboard Communications								
90	Shipboard Tactical Communications	A		23,695			23,695		U

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Line No	Item Nomenclature	Ident Code	FY 2016 Base + OCO Quantity Cost	FY 2017 PB Request with CR Adj Base Quantity Cost	FY 2017 Total PB Requests* with CR Adj Base Quantity Cost	S e c
91	Ship Communications Automation	A	121,817	102,479	114,879	U
92	Communications Items Under \$5M	A	17,025	10,403	10,403	U
	Submarine Communications					
93	Submarine Broadcast Support	A	15,485	34,151	34,151	U
94	Submarine Communication Equipment	A	58,037	64,529	64,529	U
	Satellite Communications					
95	Satellite Communications Systems	A	30,892	14,414	14,414	U
96	Navy Multiband Terminal (NMT)		118,142	38,365	38,365	U
	Shore Communications					
97	Joint Communications Support Element (JCSE)	A	4,591	4,156	4,156	U
98	Electrical Power Systems	A	1,246			U
	Cryptographic Equipment					
99	Info Systems Security Program (ISSP)	A	126,237	85,694	85,694	U
100	MIO Intel Exploitation Team	A	970	920	920	U
	Cryptologic Equipment					
101	Cryptologic Communications Equip	A	11,433	21,098	21,098	U
	Other Electronic Support					
102	Navy METOC-2***	A	1,483			U
103	Navy METOC-3***	A	483			U
104	USMC METOC-2***	A	323			U

***Funding in this line item was transferred during the year of execution from the Spectrum Relocation Fund (SRF) in support of the Advanced Wireless Services 3 (AWS-3) auction and is associated with the reallocation or sharing of the 1755-1780 MHz and 1695-1710 MHz bands. The SRF is administered by the Office of Management and Budget (OMB), which approves SRF transfers to federal agencies on an annual basis in consultation with the National Telecommunications and Information Administration (NTIA).

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Line No	Item Nomenclature	Ident Code	FY 2017 PB Request with CR Adj OCO Quantity	Cost	FY 2017 Total PB Requests* with CR Adj OCO Quantity	Cost	FY 2017 Less Enacted Div B P.L.114-254** OCO Quantity	Cost	FY 2017 Remaining Req with CR Adj OCO Quantity	Cost	S e c -
91	Ship Communications Automation	A									U
92	Communications Items Under \$5M	A									U
	Submarine Communications										
93	Submarine Broadcast Support	A									U
94	Submarine Communication Equipment	A									U
	Satellite Communications										
95	Satellite Communications Systems	A									U
96	Navy Multiband Terminal (NMT)										U
	Shore Communications										
97	Joint Communications Support Element (JCSE)	A									U
98	Electrical Power Systems	A									U
	Cryptographic Equipment										
99	Info Systems Security Program (ISSP)	A									U
100	MIO Intel Exploitation Team	A									U
	Cryptologic Equipment										
101	Cryptologic Communications Equip	A									U
	Other Electronic Support										
102	Navy METOC-2***	A									U
103	Navy METOC-3***	A									U
104	USMC METOC-2***	A									U

***Funding in this line item was transferred during the year of execution from the Spectrum Relocation Fund (SRF) in support of the Advanced Wireless Services 3 (AWS-3) auction and is associated with the reallocation or sharing of the 1755-1780 MHz and 1695-1710 MHz bands. The SRF is administered by the Office of Management and Budget (OMB), which approves SRF transfers to federal agencies on an annual basis in consultation with the National Telecommunications and Information Administration (NTIA).

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Line No	Item Nomenclature	Ident Code	FY 2017 Total PB Requests** with CR Adj Base+OCO+SAA Quantity Cost	FY 2017 Total PB Requests* with CR Adj Base + OCO Quantity Cost	FY 2017 Less Enacted Div B P.L.114-254** OCO Quantity Cost	FY 2017 Remaining Req with CR Adj Base + OCO Quantity Cost	S e c
91	Ship Communications Automation	A	102,479	114,879		114,879	U
92	Communications Items Under \$5M	A	10,403	10,403		10,403	U
	Submarine Communications						
93	Submarine Broadcast Support	A	34,151	34,151		34,151	U
94	Submarine Communication Equipment	A	64,529	64,529		64,529	U
	Satellite Communications						
95	Satellite Communications Systems	A	14,414	14,414		14,414	U
96	Navy Multiband Terminal (NMT)		38,365	38,365		38,365	U
	Shore Communications						
97	Joint Communications Support Element (JCSE)	A	4,156	4,156		4,156	U
98	Electrical Power Systems	A					U
	Cryptographic Equipment						
99	Info Systems Security Program (ISSP)	A	85,694	85,694		85,694	U
100	MIO Intel Exploitation Team	A	920	920		920	U
	Cryptologic Equipment						
101	Cryptologic Communications Equip	A	21,098	21,098		21,098	U
	Other Electronic Support						
102	Navy METOC-2***	A					U
103	Navy METOC-3***	A					U
104	USMC METOC-2***	A					U

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(Dollars in Thousands)

Appropriation: 1810N Other Procurement, Navy

Line No	Item Nomenclature	Ident Code	FY 2018 Base Quantity Cost	FY 2018 OCO Quantity Cost	FY 2018 Total Quantity Cost	S e c
91	Ship Communications Automation	A	103,990		103,990	U
92	Communications Items Under \$5M	A	18,577		18,577	U
	Submarine Communications					
93	Submarine Broadcast Support	A	29,669		29,669	U
94	Submarine Communication Equipment	A	86,204		86,204	U
	Satellite Communications					
95	Satellite Communications Systems	A	14,654		14,654	U
96	Navy Multiband Terminal (NMT)		69,764		69,764	U
	Shore Communications					
97	Joint Communications Support Element (JCSE)	A	4,256		4,256	U
98	Electrical Power Systems	A				U
	Cryptographic Equipment					
99	Info Systems Security Program (ISSP)	A	89,663		89,663	U
100	MIO Intel Exploitation Team	A	961		961	U
	Cryptologic Equipment					
101	Cryptologic Communications Equip	A	11,287	2,280	13,567	U
	Other Electronic Support					
102	Navy METOC-2***	A				U
103	Navy METOC-3***	A				U
104	USMC METOC-2***	A				U

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Appropriation: 1810N Other Procurement, Navy

Line No	Item Nomenclature	Ident Code	FY 2016 Base + OCO Quantity Cost	FY 2017 PB Request with CR Adj Base Quantity Cost	FY 2017 Total PB Requests* with CR Adj Base Quantity Cost	S e c
105	USMC METOC-1***	A	323			U
106	Monitoring - Hub***	A	308			U
107	DON UAS Video 5***	A	3,000			U
108	DON Robotics***	A	9,100			U
109	DON ACTS***	A	1,544			U
110	Coast Guard Equipment	A	2,529	32,291	32,291	U
	Drug Interdiction Support					
111	Other Drug Interdiction Support	A	4,507			U
	Total Communications & Electronics Equip		2,347,567	2,122,908	2,184,808	
	Budget Activity 03: Aviation Support Equipment					
	Sonobuoys					
112	Sonobuoys - All Types	A	166,385	162,588	162,588	U
	Aircraft Support Equipment					
113	Weapons Range Support Equipment	A	46,979	58,116	58,116	U
114	Aircraft Support Equipment	A	127,774	120,324	120,324	U
115	Advanced Arresting Gear (AAG)	A				U
116	Meteorological Equipment	A	14,997	29,253	29,253	U
117	DCRS/DPL	A	638	632	632	U
118	Airborne Mine Countermeasures	A	14,098	29,097	29,097	U

***Funding in this line item was transferred during the year of execution from the Spectrum Relocation Fund (SRF) in support of the Advanced Wireless Services 3 (AWS-3) auction and is associated with the reallocation or sharing of the 1755-1780 MHz and 1695-1710 MHz bands. The SRF is administered by the Office of Management and Budget (OMB), which approves SRF transfers to federal agencies on an annual basis in consultation with the National Telecommunications and Information Administration (NTIA).

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Line No	Item Nomenclature	Ident Code	FY 2017 PB Request with CR Adj OCO Quantity	Cost	FY 2017 Total PB Requests* with CR Adj OCO Quantity	Cost	FY 2017 Less Enacted Div B P.L.114-254** OCO Quantity	Cost	FY 2017 Remaining Req with CR Adj OCO Quantity	Cost	S e c
105	USMC METOC-1***	A									U
106	Monitoring - Hub***	A									U
107	DON UAS Video 5***	A									U
108	DON Robotics***	A									U
109	DON ACTS***	A									U
110	Coast Guard Equipment	A									U
	Drug Interdiction Support										
111	Other Drug Interdiction Support	A									U
	Total Communications & Electronics Equip			12,000		12,000				12,000	
	Budget Activity 03: Aviation Support Equipment										
	Sonobuoys										
112	Sonobuoys - All Types	A									U
	Aircraft Support Equipment										
113	Weapons Range Support Equipment	A									U
114	Aircraft Support Equipment	A									U
115	Advanced Arresting Gear (AAG)	A									U
116	Meteorological Equipment	A									U
117	DCRS/DPL	A									U
118	Airborne Mine Countermeasures	A									U

***Funding in this line item was transferred during the year of execution from the Spectrum Relocation Fund (SRF) in support of the Advanced Wireless Services 3 (AWS-3) auction and is associated with the reallocation or sharing of the 1755-1780 MHz and 1695-1710 MHz bands. The SRF is administered by the Office of Management and Budget (OMB), which approves SRF transfers to federal agencies on an annual basis in consultation with the National Telecommunications and Information Administration (NTIA).

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Line No	Item Nomenclature	Ident Code	FY 2017 Total PB Requests** with CR Adj Base+OC0+SAA Quantity Cost	FY 2017 Total PB Requests* with CR Adj Base + OC0 Quantity Cost	FY 2017 Less Enacted Div B P.L.114-254** OC0 Quantity Cost	FY 2017 Remaining Req with CR Adj Base + OC0 Quantity Cost	S e c
105	USMC METOC-1***	A					U
106	Monitoring - Hub***	A					U
107	DON UAS Video 5***	A					U
108	DON Robotics***	A					U
109	DON ACTS***	A					U
110	Coast Guard Equipment	A	32,291	32,291		32,291	U
	Drug Interdiction Support						
111	Other Drug Interdiction Support	A					U
	Total Communications & Electronics Equip		2,134,908	2,196,808		2,196,808	
	Budget Activity 03: Aviation Support Equipment						
	Sonobuoys						
112	Sonobuoys - All Types	A	162,588	162,588		162,588	U
	Aircraft Support Equipment						
113	Weapons Range Support Equipment	A	58,116	58,116		58,116	U
114	Aircraft Support Equipment	A	120,324	120,324		120,324	U
115	Advanced Arresting Gear (AAG)	A					U
116	Meteorological Equipment	A	29,253	29,253		29,253	U
117	DCRS/DPL	A	632	632		632	U
118	Airborne Mine Countermeasures	A	29,097	29,097		29,097	U

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Line No	Item Nomenclature	Ident Code	FY 2018 Base Quantity	Cost	FY 2018 OCO Quantity	Cost	FY 2018 Total Quantity	Cost	S e c
105	USMC METOC-1***	A							U
106	Monitoring - Hub***	A							U
107	DON UAS Video 5***	A							U
108	DON Robotics***	A							U
109	DON ACTS***	A							U
110	Coast Guard Equipment	A		36,584			36,584		U
	Drug Interdiction Support								
111	Other Drug Interdiction Support	A							U
	Total Communications & Electronics Equip			2,565,260		62,622	2,627,882		
	Budget Activity 03: Aviation Support Equipment								
	Sonobuoys								
112	Sonobuoys - All Types	A		173,616			173,616		U
	Aircraft Support Equipment								
113	Weapons Range Support Equipment	A		72,110			72,110		U
114	Aircraft Support Equipment	A		108,482			108,482		U
115	Advanced Arresting Gear (AAG)	A		10,900			10,900		U
116	Meteorological Equipment	A		21,137			21,137		U
117	DCRS/DPL	A		660			660		U
118	Airborne Mine Countermeasures	A		20,605			20,605		U

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Line No	Item Nomenclature	Ident Code	FY 2016 Base + OCO Quantity Cost	FY 2017 PB Request with CR Adj Base Quantity Cost	FY 2017 Total PB Requests* with CR Adj Base Quantity Cost	S e c
119	Aviation Support Equipment	A	48,773	39,099	39,099	U
	Total Aviation Support Equipment		419,644	439,109	439,109	
Budget Activity 04: Ordnance Support Equipment						
Ship Gun System Equipment						
120	Ship Gun Systems Equipment	A	5,300	6,191	6,191	U
Ship Missile Systems Equipment						
121	Ship Missile Support Equipment	A	276,503	320,446	320,446	U
122	Tomahawk Support Equipment	A	71,245	71,046	95,546	U
FBM Support Equipment						
123	Strategic Missile Systems Equip	A	240,677	215,138	215,138	U
ASW Support Equipment						
124	SSN Combat Control Systems	A	96,040	130,715	144,715	U
125	ASW Support Equipment	A	30,189	26,431	36,431	U
Other Ordnance Support Equipment						
126	Explosive Ordnance Disposal Equip	B	22,623	11,821	11,821	U
127	Items Less Than \$5 Million	A	9,906	6,243	6,243	U
Other Expendable Ordnance						
128	Submarine Training Device Mods	A		48,020	48,020	U
129	Training Device Mods	A	99,707			U

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			Quantity	Cost	Quantity	Cost	Quantity	Cost	Quantity	Cost	
119	Aviation Support Equipment	A									U
	Total Aviation Support Equipment										
	Budget Activity 04: Ordnance Support Equipment										
	Ship Gun System Equipment										
120	Ship Gun Systems Equipment	A									U
	Ship Missile Systems Equipment										
121	Ship Missile Support Equipment	A									U
122	Tomahawk Support Equipment	A									U
	FBM Support Equipment										
123	Strategic Missile Systems Equip	A									U
	ASW Support Equipment										
124	SSN Combat Control Systems	A									U
125	ASW Support Equipment	A									U
	Other Ordnance Support Equipment										
126	Explosive Ordnance Disposal Equip	B		99,329		104,829				104,829	U
127	Items Less Than \$5 Million	A									U
	Other Expendable Ordnance										
128	Submarine Training Device Mods	A									U
129	Training Device Mods	A									U

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Line No	Item Nomenclature	Ident Code	FY 2017 Total PB Requests** with CR Adj Base+OCO+SAA Quantity Cost	FY 2017 Total PB Requests* with CR Adj Base + OCO Quantity Cost	FY 2017 Less Enacted Div B P.L.114-254** OCO Quantity Cost	FY 2017 Remaining Req with CR Adj Base + OCO Quantity Cost	S e c
119	Aviation Support Equipment	A	39,099	39,099		39,099	U
	Total Aviation Support Equipment		439,109	439,109		439,109	
Budget Activity 04: Ordnance Support Equipment							
Ship Gun System Equipment							
120	Ship Gun Systems Equipment	A	6,191	6,191		6,191	U
Ship Missile Systems Equipment							
121	Ship Missile Support Equipment	A	320,446	320,446		320,446	U
122	Tomahawk Support Equipment	A	71,046	95,546		95,546	U
FBM Support Equipment							
123	Strategic Missile Systems Equip	A	215,138	215,138		215,138	U
ASW Support Equipment							
124	SSN Combat Control Systems	A	130,715	144,715		144,715	U
125	ASW Support Equipment	A	26,431	36,431		36,431	U
Other Ordnance Support Equipment							
126	Explosive Ordnance Disposal Equip	B	111,150	116,650		116,650	U
127	Items Less Than \$5 Million	A	6,243	6,243		6,243	U
Other Expendable Ordnance							
128	Submarine Training Device Mods	A	48,020	48,020		48,020	U
129	Training Device Mods	A					U

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Line No	Item Nomenclature	Ident Code	FY 2018 Base Quantity	Cost	FY 2018 OCO Quantity	Cost	FY 2018 Total Quantity	Cost	S e c
----	-----	-----	-----	-----	-----	-----	-----	-----	-----
119	Aviation Support Equipment	A		34,032		29,245		63,277	U
	Total Aviation Support Equipment			441,542		29,245		470,787	
Budget Activity 04: Ordnance Support Equipment									

	Ship Gun System Equipment								
120	Ship Gun Systems Equipment	A		5,277				5,277	U
	Ship Missile Systems Equipment								
121	Ship Missile Support Equipment	A		272,359		2,436		274,795	U
122	Tomahawk Support Equipment	A		73,184				73,184	U
	FBM Support Equipment								
123	Strategic Missile Systems Equip	A		246,221				246,221	U
	ASW Support Equipment								
124	SSN Combat Control Systems	A		129,972				129,972	U
125	ASW Support Equipment	A		23,209				23,209	U
	Other Ordnance Support Equipment								
126	Explosive Ordnance Disposal Equip	B		15,596		31,970		47,566	U
127	Items Less Than \$5 Million	A		5,981				5,981	U
	Other Expendable Ordnance								
128	Submarine Training Device Mods	A		74,550				74,550	U
129	Training Device Mods	A							U

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Line No	Item Nomenclature	Ident Code	FY 2016 Base + OCO Quantity Cost	FY 2017 PB Request with CR Adj Base Quantity Cost	FY 2017 Total PB Requests* with CR Adj Base Quantity Cost	S e c
130	Surface Training Equipment	A		97,514	97,514	U
	Total Ordnance Support Equipment		852,190	933,565	982,065	
Budget Activity 05: Civil Engineering Support Equip						

Civil Engineering Support Equipment						
131	Passenger Carrying Vehicles	A	2,438	8,853	8,853	U
132	General Purpose Trucks	A	2,493	4,928	4,928	U
133	Construction & Maintenance Equip	A	2,578	18,527	18,527	U
134	Fire Fighting Equipment	A	14,705	13,569	13,569	U
135	Tactical Vehicles	B	2,898	14,917	14,917	U
136	Amphibious Equipment	A	12,517	7,676	7,676	U
137	Pollution Control Equipment	A	3,018	2,321	2,321	U
138	Items Under \$5 Million	A	13,838	12,459	12,459	U
139	Physical Security Vehicles	A	1,186	1,095	1,095	U
	Total Civil Engineering Support Equip		55,671	84,345	84,345	
Budget Activity 06: Supply Support Equipment						

Supply Support Equipment						
140	Materials Handling Equipment	A	19,211			U
141	Supply Equipment	A		16,023	16,023	U
142	Other Supply Support Equipment	A	10,469			U

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130	Surface Training Equipment	A									U
	Total Ordnance Support Equipment			99,329		104,829				104,829	
Budget Activity 05: Civil Engineering Support Equip											

	Civil Engineering Support Equipment										
131	Passenger Carrying Vehicles	A									U
132	General Purpose Trucks	A									U
133	Construction & Maintenance Equip	A									U
134	Fire Fighting Equipment	A		630		630				630	U
135	Tactical Vehicles	B									U
136	Amphibious Equipment	A									U
137	Pollution Control Equipment	A									U
138	Items Under \$5 Million	A									U
139	Physical Security Vehicles	A									U
	Total Civil Engineering Support Equip			630		630				630	
Budget Activity 06: Supply Support Equipment											

	Supply Support Equipment										
140	Materials Handling Equipment	A									U
141	Supply Equipment	A									U
142	Other Supply Support Equipment	A									U

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Line No	Item Nomenclature	Ident Code	FY 2017 Total PB Requests** with CR Adj Base+OCO+SAA Quantity Cost	FY 2017 Total PB Requests* with CR Adj Base + OCO Quantity Cost	FY 2017 Less Enacted Div B P.L.114-254** OCO Quantity Cost	FY 2017 Remaining Req with CR Adj Base + OCO Quantity Cost	S e c
130	Surface Training Equipment	A	97,514	97,514		97,514	U
Total Ordnance Support Equipment			1,032,894	1,086,894		1,086,894	
Budget Activity 05: Civil Engineering Support Equip							
Civil Engineering Support Equipment							
131	Passenger Carrying Vehicles	A	8,853	8,853		8,853	U
132	General Purpose Trucks	A	4,928	4,928		4,928	U
133	Construction & Maintenance Equip	A	18,527	18,527		18,527	U
134	Fire Fighting Equipment	A	14,199	14,199		14,199	U
135	Tactical Vehicles	B	14,917	14,917		14,917	U
136	Amphibious Equipment	A	7,676	7,676		7,676	U
137	Pollution Control Equipment	A	2,321	2,321		2,321	U
138	Items Under \$5 Million	A	12,459	12,459		12,459	U
139	Physical Security Vehicles	A	1,095	1,095		1,095	U
Total Civil Engineering Support Equip			84,975	84,975		84,975	
Budget Activity 06: Supply Support Equipment							
Supply Support Equipment							
140	Materials Handling Equipment	A					U
141	Supply Equipment	A	16,023	16,023		16,023	U
142	Other Supply Support Equipment	A					U

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Line No	Item Nomenclature	Ident Code	FY 2018 Base Quantity	Cost	FY 2018 OCO Quantity	Cost	FY 2018 Total Quantity	Cost	S e c
----	-----	-----	-----	-----	-----	-----	-----	-----	-----
130	Surface Training Equipment	A		83,022				83,022	U
	Total Ordnance Support Equipment			929,371		34,406		963,777	
Budget Activity 05: Civil Engineering Support Equip -----									
Civil Engineering Support Equipment									
131	Passenger Carrying Vehicles	A		5,299				5,299	U
132	General Purpose Trucks	A		2,946		496		3,442	U
133	Construction & Maintenance Equip	A		34,970				34,970	U
134	Fire Fighting Equipment	A		2,541		2,304		4,845	U
135	Tactical Vehicles	B		19,699		2,336		22,035	U
136	Amphibious Equipment	A		12,162				12,162	U
137	Pollution Control Equipment	A		2,748				2,748	U
138	Items Under \$5 Million	A		18,084				18,084	U
139	Physical Security Vehicles	A		1,170				1,170	U
	Total Civil Engineering Support Equip			99,619		5,136		104,755	
Budget Activity 06: Supply Support Equipment -----									
Supply Support Equipment									
140	Materials Handling Equipment	A							U
141	Supply Equipment	A		21,797		164		21,961	U
142	Other Supply Support Equipment	A							U

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Line No	Item Nomenclature	Ident Code	FY 2016 Base + OCO		FY 2017 PB Request with CR Adj Base		FY 2017 Total PB Requests* with CR Adj Base		S e c	
			Quantity	Cost	Quantity	Cost	Quantity	Cost		
143	First Destination Transportation	A		5,908		5,115		5,115	U	
144	Special Purpose Supply Systems	A		211,714		295,471		295,471	U	
	Total Supply Support Equipment			247,302		316,609		316,609		
Budget Activity 07: Personnel & Command Support Equip										

Training Devices										
145	Training Support Equipment	A		7,468					U	
146	Training and Education Equipment	A				9,504		9,504	U	
Command Support Equipment										
147	Command Support Equipment	A		29,745		37,180		44,680	U	
148	Education Support Equipment	A		3,180					U	
149	Medical Support Equipment	A		32,790		4,128		4,128	U	
151	Naval MIP Support Equipment	A		4,608		1,925		1,925	U	
152	Operating Forces Support Equipment	A		6,607		4,777		21,033	U	
153	C4ISR Equipment	A		9,929		9,073		9,073	U	
154	Environmental Support Equipment	A		23,009		21,107		21,107	U	
155	Physical Security Equipment	A		93,478		100,906		110,203	U	
156	Enterprise Information Technology	A		95,094		67,544		67,544	U	
Other										
159	Cancelled Account Adjustments	A		17					U	

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Line No	Item Nomenclature	Ident Code	FY 2017 PB Request with CR Adj OCO		FY 2017 Total PB Requests* with CR Adj OCO		FY 2017 Less Enacted Div B P.L.114-254** OCO		FY 2017 Remaining Req with CR Adj OCO		S e c
			Quantity	Cost	Quantity	Cost	Quantity	Cost	Quantity	Cost	
143	First Destination Transportation	A		25		25				25	U
144	Special Purpose Supply Systems	A									U
	Total Supply Support Equipment			25		25				25	
Budget Activity 07: Personnel & Command Support Equip											
Training Devices											
145	Training Support Equipment	A									U
146	Training and Education Equipment	A									U
Command Support Equipment											
147	Command Support Equipment	A		10,562		10,562				10,562	U
148	Education Support Equipment	A									U
149	Medical Support Equipment	A				5,000				5,000	U
151	Naval MIP Support Equipment	A									U
152	Operating Forces Support Equipment	A									U
153	C4ISR Equipment	A									U
154	Environmental Support Equipment	A									U
155	Physical Security Equipment	A									U
156	Enterprise Information Technology	A									U
Other											
159	Cancelled Account Adjustments	A									U

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Department of the Navy
FY 2018 President's Budget Request
Exhibit P-1 FY 2018 President's Budget Request
Total Obligational Authority
(Dollars in Thousands)

Appropriation: 1810N Other Procurement, Navy

Line No	Item Nomenclature	Ident Code	FY 2017 Total PB Requests** with CR Adj Base+OCO+SAA Quantity	Cost	FY 2017 Total PB Requests* with CR Adj Base + OCO Quantity	Cost	FY 2017 Less Enacted Div B P.L.114-254** OCO Quantity	Cost	FY 2017 Remaining Req with CR Adj Base + OCO Quantity	Cost	S e c
143	First Destination Transportation	A		5,140		5,140				5,140	U
144	Special Purpose Supply Systems	A		295,471		295,471				295,471	U
	Total Supply Support Equipment			316,634		316,634				316,634	
Budget Activity 07: Personnel & Command Support Equip											
Training Devices											
145	Training Support Equipment	A									U
146	Training and Education Equipment	A		9,504		9,504				9,504	U
Command Support Equipment											
147	Command Support Equipment	A		47,742		55,242				55,242	U
148	Education Support Equipment	A									U
149	Medical Support Equipment	A		4,128		9,128				9,128	U
151	Naval MIP Support Equipment	A		1,925		1,925				1,925	U
152	Operating Forces Support Equipment	A		4,777		21,033				21,033	U
153	C4ISR Equipment	A		9,073		9,073				9,073	U
154	Environmental Support Equipment	A		21,107		21,107				21,107	U
155	Physical Security Equipment	A		100,906		110,203				110,203	U
156	Enterprise Information Technology	A		67,544		67,544				67,544	U
Other											
159	Cancelled Account Adjustments	A									U

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Department of the Navy
FY 2018 President's Budget Request
Exhibit P-1 FY 2018 President's Budget Request
Total Obligational Authority
(Dollars in Thousands)

Appropriation: 1810N Other Procurement, Navy

Line No	Item Nomenclature	Ident Code	FY 2018 Base Quantity	Cost	FY 2018 OCO Quantity	Cost	FY 2018 Total Quantity	Cost	S e c
----	-----	-----	-----	----	-----	----	-----	----	-----
143	First Destination Transportation	A		5,572		420		5,992	U
144	Special Purpose Supply Systems	A		482,916				482,916	U
	Total Supply Support Equipment			510,285		584		510,869	
	Budget Activity 07: Personnel & Command Support Equip								

	Training Devices								
145	Training Support Equipment	A							U
146	Training and Education Equipment	A		25,624				25,624	U
	Command Support Equipment								
147	Command Support Equipment	A		59,076		21,650		80,726	U
148	Education Support Equipment	A							U
149	Medical Support Equipment	A		4,383				4,383	U
151	Naval MIP Support Equipment	A		2,030				2,030	U
152	Operating Forces Support Equipment	A		7,500		15,800		23,300	U
153	C4ISR Equipment	A		4,010				4,010	U
154	Environmental Support Equipment	A		23,644		1,000		24,644	U
155	Physical Security Equipment	A		101,982		15,890		117,872	U
156	Enterprise Information Technology	A		19,789				19,789	U
	Other								
159	Cancelled Account Adjustments	A							U

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Department of the Navy
FY 2018 President's Budget Request
Exhibit P-1 FY 2018 President's Budget Request
Total Obligational Authority
(Dollars in Thousands)

Appropriation: 1810N Other Procurement, Navy

Line No	Item Nomenclature	Ident Code	FY 2016 Base + OCO Quantity Cost	FY 2017 PB Request with CR Adj Base Quantity Cost	FY 2017 Total PB Requests* with CR Adj Base Quantity Cost	S e c
160	Next Generation Enterprise Service	A	104,642	98,216	98,216	U
999	Classified Programs		33,439	9,915	14,765	U
	Total Personnel & Command Support Equip		444,006	364,275	402,178	
Budget Activity 08: Spares and Repair Parts						
Spares and Repair Parts						
161	Spares and Repair Parts	A	276,333	199,660	199,660	U
	Total Spares and Repair Parts		276,333	199,660	199,660	
Budget Activity 20: Undistributed						
Undistributed						
162	Adj to Match Continuing Resolution	A		133,069	133,069	U
	Total Undistributed			133,069	133,069	
	Total Other Procurement, Navy		6,585,466	6,471,930	6,689,919	

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Department of the Navy
FY 2018 President's Budget Request
Exhibit P-1 FY 2018 President's Budget Request
Total Obligational Authority
(Dollars in Thousands)

Appropriation: 1810N Other Procurement, Navy

Line No	Item Nomenclature	Ident Code	FY 2017 PB Request with CR Adj OCO Quantity	Cost	FY 2017 Total PB Requests* with CR Adj OCO Quantity	Cost	FY 2017 Less Enacted Div B P.L.114-254** OCO Quantity	Cost	FY 2017 Remaining Req with CR Adj OCO Quantity	Cost	S e c
160	Next Generation Enterprise Service	A									U
999	Classified Programs			1,660		1,660				1,660	U
				-----		-----		-----		-----	
	Total Personnel & Command Support Equip			12,222		17,222				17,222	
	Budget Activity 08: Spares and Repair Parts										

	Spares and Repair Parts										
161	Spares and Repair Parts	A									U
				-----		-----		-----		-----	
	Total Spares and Repair Parts										
	Budget Activity 20: Undistributed										

	Undistributed										
162	Adj to Match Continuing Resolution	A		-112,020		-112,020				-112,020	U
				-----		-----		-----		-----	
	Total Undistributed			-112,020		-112,020				-112,020	
				-----		-----		-----		-----	
	Total Other Procurement, Navy			12,186		22,686				22,686	

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Department of the Navy
FY 2018 President's Budget Request
Exhibit P-1 FY 2018 President's Budget Request
Total Obligational Authority
(Dollars in Thousands)

Appropriation: 1810N Other Procurement, Navy

Line No	Item Nomenclature	Ident Code	FY 2017 Total PB Requests** with CR Adj Base+OCO+SAA Quantity Cost	FY 2017 Total PB Requests* with CR Adj Base + OCO Quantity Cost	FY 2017 Less Enacted Div B P.L.114-254** OCO Quantity Cost	FY 2017 Remaining Req with CR Adj Base + OCO Quantity Cost	S e c
160	Next Generation Enterprise Service	A	98,216	98,216		98,216	U
999	Classified Programs		11,575	16,425		16,425	U
	Total Personnel & Command Support Equip		376,497	419,400		419,400	
Budget Activity 08: Spares and Repair Parts							
Spares and Repair Parts							
161	Spares and Repair Parts	A	199,660	199,660		199,660	U
	Total Spares and Repair Parts		199,660	199,660		199,660	
Budget Activity 20: Undistributed							
Undistributed							
162	Adj to Match Continuing Resolution	A	21,049	21,049		21,049	U
	Total Undistributed		21,049	21,049		21,049	
	Total Other Procurement, Navy		6,484,116	6,712,605		6,712,605	

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Department of the Navy
FY 2018 President's Budget Request
Exhibit P-1 FY 2018 President's Budget Request
Total Obligational Authority
(Dollars in Thousands)

Appropriation: 1810N Other Procurement, Navy

Line No	Item Nomenclature	Ident Code	FY 2018 Base Quantity	Cost	FY 2018 OCO Quantity	Cost	FY 2018 Total Quantity	Cost	S e c
----	-----	-----	-----	----	-----	----	-----	----	-
160	Next Generation Enterprise Service	A		104,584				104,584	U
999	Classified Programs			23,707		2,200		25,907	U
				-----		-----		-----	
	Total Personnel & Command Support Equip			376,329		56,540		432,869	
	Budget Activity 08: Spares and Repair Parts								

	Spares and Repair Parts								
161	Spares and Repair Parts	A		278,565		1,178		279,743	U
				-----		-----		-----	
	Total Spares and Repair Parts			278,565		1,178		279,743	
	Budget Activity 20: Undistributed								

	Undistributed								
162	Adj to Match Continuing Resolution	A							U
				-----		-----		-----	
	Total Undistributed								
				-----		-----		-----	
	Total Other Procurement, Navy			8,277,789		220,059		8,497,848	

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10	01	09	0910	Firefighting Equipment.....	Volume 1 - 133
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21	01	09	0950	Strategic Platform Support Equip.....	Volume 1 - 209
22	01	09	0955	Deep Subm Sys Proj (DSSP) Equip.....	Volume 1 - 211
23	01	09	0960	CG Modernization.....	Volume 1 - 213
24	01	09	0970	LCAC.....	Volume 1 - 237
25	01	09	0977	Underwater EOD Programs.....	Volume 1 - 239
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27	01	09	0989	Chemical Warfare Detectors.....	Volume 1 - 279
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57	02	06	2560	Submarine Supt Equip Prog.....	Volume 2 - 153
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60	02	07	2611	Naval Tact Cmd Supt Sys (NTCSS).....	Volume 2 - 171
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76	02	09	2846	Landing Systems.....	Volume 2 - 261
77	02	09	2851	ID Systems.....	Volume 2 - 263
78	02	09	2876	Naval Mission Planning Systems.....	Volume 2 - 275
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80	02	10	2906	Tactical/Mobile C4I Systems.....	Volume 2 - 279
81	02	10	2914	Distributed Common Ground System-Navy (DCGS-N).....	Volume 2 - 289
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Exhibit P-40, Budget Line Item Justification: FY 2018 Navy										Date: May 2017		
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 01: Ships Support Equipment / BSA 1: Ship Propulsion Equipment							P-1 Line Item Number / Title: 0110 / LM-2500 Gas Turbine					
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 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	To Complete	Total
Procurement Quantity (<i>Units in Each</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost (<i>\$ in Millions</i>)	147.659	4.881	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	-	152.540
Less PY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (<i>\$ in Millions</i>)	147.659	4.881	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	-	152.540
Plus CY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority (<i>\$ in Millions</i>)	147.659	4.881	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	-	152.540
<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 Dollars</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost (<i>\$ in Dollars</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Description: Beginning in FY17 and out, The Department has consolidated all BLI 0110 LM2500 Gas Turbine requirements and efforts into the Surface Power Equipment (BLI 0131). The FY 2016 funding request was reduced by \$3.208 million to account for the availability of prior year execution balances. The LM2500 Marine Gas Turbine and its associated Engineering Control Systems provide main propulsion for the Navy's surface combatants including the FFG 7 OLIVER HAZARD PERRY Class, CG 47 TICONDEROGA Class, DDG 51 ARLEIGH BURKE Class, and LCS Class. The LM2500 is composed of two major sub-assemblies: the gas generator and power turbine sections. It is coupled to the ship drive-train by a high speed coupling shaft. The LM2500+ Marine Gas Turbine and its associated Engineering Control Systems provide main propulsion power for the Navy's amphibious assault ships including the LHD-8 MAKIN ISLAND, LHA-6 and LHA-7. The LM2500+ is composed of two major sub-assemblies: the gas generator and power turbine sections. It is coupled to the ship drive-train by a high speed coupling shaft. The control system for both engines provides for both local and remote engine operations. The budget funds the following: [P40A / GA009 MODIFICATION PROGRAM]: GA009 - MODIFICATION KIT PROGRAM This cost code procures modification kits listed below for the LM2500 Gas Turbine Engine. These modifications increase reliability and fleet readiness through component upgrades which improves the Mean Time Between Failure (MTBF). The modification kits are procured based on historical usage rates, re-packaged into individual kits, and sent to either a depot to be installed during engine overhauls or to Regional Maintenance Centers for installation. No procurement quantities are a result of procuring various kits of various costs. The kits included in the cost code are as follows: --Accelerometers (Vibration Monitor) -- Compressor Rear Frame Mid-flange Fastener installation -- C-Sump Lubrication Supply Line -- Power Turbine Upgraded Speed Sensor -- Improved Drain Shutoff Valve -- Turbine Mid-Frame Modification -- 7B Piping Modification --5-Element to 6-Element Pump Conversion --T5.4 Flexible Thermo Harness --Mid Flange Fastener												

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Exhibit P-40, Budget Line Item Justification: FY 2018 Navy		Date: May 2017	
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 01: Ships Support Equipment / BSA 1: Ship Propulsion Equipment		P-1 Line Item Number / Title: 0110 / LM-2500 Gas Turbine	
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			
[P40A / GA010 GAS GENERATOR]: GA010 - GAS GENERATOR This cost element procures the LM2500 single shank propulsion gas turbine for the DDG-51 & LCS-2 class ships and the LM2500+ single shank propulsion gas turbine for the LHD8 and LHA6-LHA8. The programs projected FY-18 in-service population of single shank propulsion gas turbine engines is estimated to be 382 due to new construction. Breakdown of ship class spare procurement is listed below. The procurement of these engines includes all required shipping/storage containers. LM2500 gas generator procurements are presently scheduled to occur every other year. DDG LM2500 Single Shank Based on experience with 35 years of usage demand data on the LM2500 Engine and IAW 10 USC Sec. 2308, DFAR subpart 207.70 and DoDI 3110.06, a total of 36 spares are required to support the fleet requirements. Current onhand is 28 with a requirement for eight (8) additional gas generator units to be procured IAW projected class population in FY19. LCS 2 LM2500 Single Shank. Based on experience with 35 years of usage demand data on the LM2500 Engine and IAW 10 USC Sec. 2308, DFAR subpart 207.70 and DoDI 3110.06, a total of 3 spares are required to support the fleet requirements. Current onhand is 1 with one (1) procured in May FY12 which leaves the requirement for one (1) additional gas generator unit to be procured IAW projected class population in FY19. LHD8/LHA6-LHA8 LM2500+ Single Shank. Based on experience with 35 years of usage demand data on the LM2500 Engine and IAW 10 USC Sec. 2308, DFAR subpart 207.70 and DoDI 3110.06, a total of 2 spares are required to support the fleet requirements. Current onhand is 1, which leaves the requirement for one (1) additional gas generator to be procured IAW projected class population. The program has budgeted to procure one (1) Power Turbine Assembly in FY18 to meet the baseline requirement. This engine represents a significantly different configuration than the standard LM2500 Single Shank Engine procured in previous fiscal years. LM2500 Hot Section Kits Are procured as required from the below list per quarterly failure analysis and maintained to replace High Pressure Turbine (HPT) components beyond economical repair (BER). Shortages of replacement blades increase engine repair turn-around time (RTAT) during engine refurbishment/repair as a result of material shortages. Procurement quantities are a result of procuring various kits of various costs. The kits included in the cost code are as follows: --HPT Shrouds --HPT Seal Assembly --HPT Blades --HPT Nozzles --Compressor Blades [P40A / GA012 CONTROL SYSTEMS MODIFICATIONS]: GA012 - CONTROL SYSTEM MODIFICATIONS This cost code funds the procurement and installation of the Aft Steering Local Control Unit and Damage Control Hard Drives following control system modifications: Aft steering local control unit single board computers are currently obsolete and require replacement. Installation is required to be completed on 24 ships. Installations do not require CNO availabilities. Installations will be accomplished during pier side availability by NSWCCD Philadelphia. There are 4 kits required per ship. The kits include the following hardware: single board computer, daughter board, transceiver, power cables, and associated software packages. Current Damage Control Workstation hard drives are currently obsolete and require replacement. In order to maintain commonality in configuration a one-time bulk buy in FY12 is required as vendor is phasing-out the production of this unit. Installation is required to be completed on 24 ships. There are seven (7) hard drives required per ship. Installations do not require CNO availabilities. Installations will be accomplished during pier side availability by NSWCCD Philadelphia. [P40A / GA015 LM2500 DIGITAL FUEL CONTROL]: GA015 - DIGITAL FUEL CONTROL (DFC)			

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Exhibit P-40, Budget Line Item Justification: FY 2018 Navy		Date: May 2017
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 01: Ships Support Equipment / BSA 1: Ship Propulsion Equipment		P-1 Line Item Number / Title: 0110 / LM-2500 Gas Turbine
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		
This cost code procures the Digital Fuel Control (DFC) shipsets, ancillary equipment and install material to support the CG/DDG modernization schedules. Procurement and installations are budgeted to correspond with CNO ship availabilities. One DFC Kit is required to upgrade each of the four LM2500 engines, which makes one DFC shipset. The DFC is the most significant change to the LM2500 engine since its inception into the USN that addresses obsolescence components which accounted for approximately 40% of all engine failures. This modification is estimated to be 75% more reliable than the old system. This upgrade replaces the existing Hydro-mechanical main fuel control (MFC) system which was designed for aircraft; with a Digital Fuel Control (DFC) system designed for military marine environment. This modification increases engine reliability, decreases periodic maintenance, enhances operational functions, and provides an automatic stall detection and shutdown capability. [P40A / GA016 MANAGEMENT ENERGY INITIATIVES]: GA016 - MANAGEMENT ENERGY INITIATIVES FY15 funds for energy initiatives realigned to Surface Combatant HM&E, Ships Support Equipment and Maritime Energy Initiatives (BLI 0200, L7027) to more effectively meet the Departments energy initiatives goals. [P40A / GA830 PRODUCTION ENGINEERING]: GA830 - PRODUCTION ENGINEERING The review and approval of any production contract technical documentation, or the separate development of this documentation to include Technical Manuals, Signal Flow Diagrams, Planned Maintenance System (PMS), Level III Production Drawings, Provisioning Technical Documentation (PTD), Program Support Data, Allowance Parts Lists (APL's) and engineering in support of final design reviews. [P3A / GA015 DIGITAL FUEL CONTROL SHIPSET]: GA015 - DIGITAL FUEL CONTROL (DFC)This cost element procures the Digital Fuel Control (DFC) shipsets, ancillary equipment and install material to support the CG/DDG modernization schedules. One DFC Kit is required to upgrade each of the four DDG class LM2500 engines, which makes one DFC shipset. The DFC is the most significant change to the LM2500 engine since its inception into the USN that addresses obsolescence components which accounted for approximately 40% of all engine failures. In summary this modification is estimated to be 75% more reliable than the old system. This upgrade replaces the existing Hydro-mechanical main fuel control (MFC) system which was designed for aircraft; with a Digital Fuel Control (DFC) system designed for military marine environment. This modification increases engine reliability, decreases periodic maintenance, enhances operational functions, and provides an automatic stall detection and shutdown capability. DFC ship-set procurement cost are updated based on actual prior year contract award prices. GA6IN - INSTALLATION FOR DIGITAL FUEL CONTROL (DFC) GA015 FY17 planned installation of the FY16 procured units will be reflected in the Surface Power Equipment (BLI 0131) exhibit. This cost element funds the installation of Cost element GA015-Digital Fuel Control (DFC) shipsets as part of the CG/DDG HM&E modernization program. This includes pre-assembly at NSWCCD Philadelphia, shipping to installation location, shipboard installation, training, post installation operational testing and associated travel cost.		
Justification: Beginning in FY17 and out, The Department has consolidated all BLI 0110 LM2500 Gas Turbine requirements and efforts into the Surface Power Equipment (BLI 0131).		

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Exhibit P-40, Budget Line Item Justification: FY 2018 Navy **Date:** May 2017

Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 01: Ships Support Equipment / BSA 1: Ship Propulsion Equipment	P-1 Line Item Number / Title: 0120 / Allison 501K Gas Turbine

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 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	To Complete	Total
Procurement Quantity (<i>Units in Each</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost (<i>\$ in Millions</i>)	150.894	5.814	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	-	156.708
Less PY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (<i>\$ in Millions</i>)	150.894	5.814	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	-	156.708
Plus CY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority (<i>\$ in Millions</i>)	150.894	5.814	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	-	156.708
<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 Dollars</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost (<i>\$ in Dollars</i>)	-	-	-	-	-	-	-	-	-	-	-	-

Description:

Beginning in FY17 and out, The Department has consolidated all BLI 0120 Allison 501K Gas Turbine requirements and efforts into the Surface Power Equipment (BLI 0131).

This program provides the life-cycle support for the following Marine Gas Turbine systems: The Rolls Royce (Allison) 501-K Series Gas Turbines are used to drive electrical generators in Ship Service Gas Turbine Generators (SSGTG). The 501-K17 is used on the CG-47 Class ships. The 501-K34 is an upgraded version used on the DDG-51 Class ships and is not interchangeable with the 501-K17. The Rolls Royce MT-30 are used on LCS-1 variant for main propulsion and DDG 1000 for electrical generation. Rolls Royce 250-KS4 is used as a starter gas turbine for the 501-K34 on DDG 79 and follow.

[P40A / GF001 STOCK ROTATING SPARES]: GF001 - STOCK ROTATING SPARES

This cost code procures the MT-30 & MT-5 gas turbines for the Littoral Combat Ship (LCS) and Zumwalt DDG 1000 program, the 250-KS4 SSGTG starter engines for the DDG 79 and follow, and the 501-K34 gas turbines DDG 51 class ships. The procurement of these engines includes all required shipping/storage containers.

MT-30 Gas Turbines

Based on experience with similar turbines and IAW 10 USC Sec. 2308, DFAR subpart 207.70 and DoDI 3110.06, a total of 5 spares are required to support the fleet. Current MT-30 spares on-hand is two (2), three (3) budgeted procurement in FY18-FY20. The projected FY-20 and beyond in-service population of MT-30 gas turbine engines is fifty (50) due to new construction.

MT-5 Gas Turbines

Based on experience with similar turbines and IAW 10 USC Sec. 2308, DFAR subpart 207.70 and DoDI 3110.06, a total of 2 spares are required to support the fleet. Current MT-5 spares on-hand is zero (0) with one (1) budgeted procurement in FY18-FY20. The projected FY-20 and beyond in-service population of MT-5 gas turbine engines is six (6) due to new construction.

250-KS4 SSGTG Starter Engines

Based on experience with similar turbines and IAW 10 USC Sec. 2308, DFAR subpart 207.70 and DoDI 3110.06, a total of 12 spares are required to support the fleet requirements. Current spares on-hand is twelve (12) which achieves the baseline sparing requirement. The projected FY-18 in-service population of starter engines is 112 due to new construction. Operation Tomodachi has resulted in the radiological contamination of twelve (12) 250-KS4 Marine Gas Turbines, which created an unplanned requirement to replace the twelve (12) affected engines beginning in FY13. Currently, the program has budgeted for six (6) replacements through FY20 leaving a requirement of six (6) additional replacement assets to be procured.

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Exhibit P-40, Budget Line Item Justification: FY 2018 Navy		Date: May 2017	
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 01: Ships Support Equipment / BSA 1: Ship Propulsion Equipment		P-1 Line Item Number / Title: 0120 / Allison 501K Gas Turbine	
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			
501-K34 Gas Turbines Based on experience with similar turbines and IAW 10 USC Sec. 2308, DFAR subpart 207.70 and DoDI 3110.06, a total of 24 spares are required to support the fleet requirements. Current 501-K34 spares on-hand is 20 and 2 procured in FY-12, which leaves a requirement of 2 additional gas generator units to be procured. The projected FY-19 in-service population of gas turbine engines is 192, an increase from 186 in FY-12 due to new construction. [P40A / GF007 MODIFICATION PROGRAM]: GF007 - MODIFICATION PROGRAM This cost code procures modification kits listed below for the Rolls Royce Marine Gas Turbines (MGT). Analysis of Rolls Royce MGT engineering performance data, metrics, the SEA 21 Top Tech Issues and the component improvement program has identified necessary improvements to correct Rolls Royce MGT deficiencies. The modifications addresses the Fleet's top maintenance and reliability issues by reducing failure rates of system components, and improve Rolls Royce MGT readiness. The modification kits are packaged and shipped to the ship for installation during schedule CNO availability by a team of NSWCCD Philadelphia and Alteration Installation Team (AIT) personnel. Number of procurement quantities are a result of procuring various kits of various costs. The kits included in the cost code are as follows: --Engine Vibration Monitor --GTG Intake Filter System Replacement --SSGTG Bleed Air Control Valve Installation and Improvement --SSS Clutch upgrade to Air Turbine Starter (ATS) --SSGTG FADC 2-1 HMI Computer Conversion --SSGTG RIMSS Exhaust Backflow Detection System --Output Quill Shaft Bolt Replacement --RIMSS Tachometer Connector Improvement --Model 139 SSV and Off Mounted fuel Mod --FADC upgrade conversion --MT30 variant conversion kits [P40A / GF018 501 K-34 HOT SECTION REPLACEMENT]: GF018 - HOT SECTION REPLACEMENT This cost code procures High Pressure Turbine (HPT) components to supplement fall-out due to radiological contamination resultant from support of Operational Tomodachi. Number of procurement quantities are a result of procuring various kits of various costs. The kits included in the cost code are as follows: Blade Stage Kits T1, T2, T3 and T4; Vane Stage Kits T1, T2, T3 and T4 [P40A / GF020 MANAGEMENT ENERGY INITIATIVES]: FY15 funds for energy initiatives realigned to Surface Combatant HM&E, Ships Support Equipment and Maritime Energy Initiatives (BLI 0200, L7027) to more effectively meet the Departments energy initiatives goals. [P40A / GF830 PRODUCTION ENGINEERING]: GF830 - PRODUCTION ENGINEERING The review and approval of any production contract technical documentation, or the separate development of this documentation to include Technical Manuals, Signal Flow Diagrams, PMS, Level III Production Drawings, Provisioning Technical Documentation (PTD), Program Support Data, Allowance Parts Lists (APL's) and engineering in support of final design reviews. This includes efforts associated with tracking and updating NDE, MGTIS and Weblog to reflect completed installations and ensure consistent documentation for engine configuration management.			
Justification: Beginning in FY17 and out, The Department has consolidated all BLI 0120 Allison 501K Gas Turbine requirements and efforts into the Surface Power Equipment (BLI 0131).			

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Exhibit P-40, Budget Line Item Justification: FY 2018 Navy										Date: May 2017		
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 01: Ships Support Equipment / BSA 1: Ship Propulsion Equipment							P-1 Line Item Number / Title: 0131 / Surface Power Equipment					
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 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	To Complete	Total
Procurement Quantity (<i>Units in Each</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost (<i>\$ in Millions</i>)	0.000	0.000	15.514	41.910	0.000	41.910	42.362	38.055	40.792	10.015	65.562	254.210
Less PY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (<i>\$ in Millions</i>)	0.000	0.000	15.514	41.910	0.000	41.910	42.362	38.055	40.792	10.015	65.562	254.210
Plus CY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority (<i>\$ in Millions</i>)	0.000	0.000	15.514	41.910	0.000	41.910	42.362	38.055	40.792	10.015	65.562	254.210
<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 Dollars</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost (<i>\$ in Dollars</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Description: Beginning in FY17, the Department established Surface Power Equipment BLI 0131 to consolidate the LM-2500 Gas Turbine BLI 0110 and Allison 501K Gas Turbine BLI 0120 along with their associated efforts into one budget line. Program FY21 DFC procurement decreased quantity from five (5)to three (3) due to DDG modernization program schedule change. Surface Power Equipment budget line provides life-cycle support for the following Marine Gas Turbine systems: The General Electric LM2500 Marine Gas Turbine provides main propulsion for the Navy's surface combatants including the CG 47 TICONDEROGA Class, DDG 51 ARLEIGH BURKE Class, and LCS-2 (Austal) Class. The LM2500 is composed of two major sub-assemblies: the gas generator and power turbine sections. It is coupled to the ship drive-train by a high speed coupling shaft. The LM2500+ Marine Gas Turbine and its associated Engineering Control Systems provide main propulsion power for the Navy's amphibious assault ships including the LHD-8 USS MAKIN ISLAND, LHA-6 USS AMERICA and LHA-7 USS TRIPOLI. The LM2500+ is composed of two major sub-assemblies: the gas generator and power turbine sections. It is coupled to the ship drive-train by a high speed coupling shaft. The control system for both engines provides for both local and remote engine operations. The Rolls Royce (Allison) 501-K Series Gas Turbines are used to drive electrical generators in Ship Service Gas Turbine Generators (SSGTG). The 501-K17 is used on the CG-47 Class ships. The 501-K34 is an upgraded version used on the DDG-51 Class ships and is not interchangeable with the 501-K17. The MT5S is a higher-power derivative of the 501-K engine family (utilizing Rolls Royce's new "Marine Trent" or "MT" naming convention vice the older "501-K" naming convention) used for auxiliary electrical generation on DDG-1000 class ships; the MT5S is not interchangeable with the 501-K17 or 501-K34. The Rolls Royce MT-30 is used on LCS-1 (Lockheed) Class for main propulsion and DDG 1000 for electrical generation. Rolls Royce 250-KS4 is used as a starter gas turbine for the 501-K34 on DDG 79 and follow. The Rolls Royce MT7 gas turbine is used for both lift and propulsion fan power on the next generation of LCAC landing craft. The budget funds the following: [P40A / PE009 GE Readiness Improvement Upgrade Kits]: PE009 - MODIFICATION KIT PROGRAM: This cost code procures modification kits listed below for the GE Gas Turbine Engine. These modifications increase reliability and fleet readiness through component upgrades which improves the Mean Time Between Failure (MTBF). The modification kits are procured based on historical usage rates, re-packaged												

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Exhibit P-40, Budget Line Item Justification: FY 2018 Navy		Date: May 2017
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 01: Ships Support Equipment / BSA 1: Ship Propulsion Equipment		P-1 Line Item Number / Title: 0131 / Surface Power Equipment
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		
into individual kits, and sent to either a depot to be installed during engine overhauls or to Regional Maintenance Centers for installation. Procurement quantities are not shown because these funds are used to procure a variety of modification kits, with specific kit quantities and prices varying from one year to the next. The kits included in the cost code are as follows: --Accelerometers (Vibration Monitor) -- Compressor Rear Frame Mid-flange Fastener installation -- C-Sump Lubrication Supply Line -- Power Turbine Upgraded Speed Sensor -- Improved Drain Shutoff Valve -- Turbine Mid-Frame Modification -- 7B Piping Modification -- 5-Element to 6-Element Pump Conversion -- T5.4 Flexible Thermo Harness -- Mid Flange Fastener [P40A / PE010 Stock Rotating Spares]: PE010 - GAS GENERATOR: This cost element procures the LM2500 single shank propulsion gas turbine for the DDG-51 & LCS-2 class ships and the LM2500+ single shank propulsion gas turbine for the LHD8 and LHA6-LHA8. The programs projected FY-18 in-service population of single shank propulsion gas turbine engines is estimated to be 382 due to new construction. Breakdown of ship class spare procurement is listed below. The procurement of these engines includes all required shipping/storage containers. DDG LM2500 Single Shank Based on experience with 35 years of usage demand data on the LM2500 Engine and IAW 10 USC Sec. 2308, DFAR subpart 207.70 and DoDI 3110.06, a total of 36 spares are required to support the fleet requirements. Current onhand is 28 with a requirement for eight (8) additional gas generator units to be procured IAW projected class population in FY21. LCS 2 LM2500 Single Shank. Based on experience with 35 years of usage demand data on the LM2500 Engine and IAW 10 USC Sec. 2308, DFAR subpart 207.70 and DoDI 3110.06, a total of 3 spares are required to support the fleet requirements. Current onhand is 2 with the requirement for one (1) additional gas generator unit to be procured IAW projected class population in FY21. LHD8/LHA6-LHA8 LM2500+ Single Shank. Based on experience with 35 years of usage demand data on the LM2500 Engine and IAW 10 USC Sec. 2308, DFAR subpart 207.70 and DoDI 3110.06, a total of 2 spares are required to support the fleet requirements. Current onhand is 1, which leaves the requirement for one (1) additional gas generator to be procured IAW projected class population. The program has budgeted to procure one (1) Gas Generator Assembly in FY18 to meet the baseline requirement. This engine represents a significantly different configuration than the standard LM2500 Single Shank Engine procured in previous fiscal years. LM2500 Hot Section Kits Are procured as required from the below list per quarterly failure analysis and maintained to replace High Pressure Turbine (HPT) components beyond economical repair (BER). Shortages of replacement blades increase engine repair turn-around time (RTAT) during engine refurbishment/repair as a result of material shortages. Procurement quantities are a result of procuring various kits of various costs. The kits included in the cost code are as follows: --HPT Shrouds --HPT Seal Assembly --HPT Blades --HPT Nozzles --Compressor Blades		

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Exhibit P-40, Budget Line Item Justification: FY 2018 Navy		Date: May 2017
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 01: Ships Support Equipment / BSA 1: Ship Propulsion Equipment		P-1 Line Item Number / Title: 0131 / Surface Power Equipment
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		
[P40A / PE014 Special Support Equipage]: PE014 Special Support Equipage Procurement of Special Support Equipment allows for increased depot repair capability, thereby stabilizing or reducing the cost to overhaul engines at the depot. This tooling is generally associated with depot modifications being made to the engine to increase engine reliability. This increased capability reduces engine overhaul costs. [P40A / PE015 LM2500 DIGITAL FUEL CONTROL]: PE015 - DIGITAL FUEL CONTROL (DFC)This cost code procures the Digital Fuel Control (DFC) shipsets, ancillary equipment and install material to support the CG/DDG modernization schedules. Procurement and installations are budgeted to correspond with CNO ship availabilities. One DFC Kit is required to upgrade each of the four LM2500 engines, which makes one DFC shipset. The DFC is the most significant change to the LM2500 engine since its inception into the USN that addresses obsolescence components which accounted for approximately 40% of all engine failures. This modification is estimated to be 75% more reliable than the old system. This upgrade replaces the existing Hydro-mechanical main fuel control (MFC) system which was designed for aircraft; with a Digital Fuel Control (DFC) system designed for military marine environment. This modification increases engine reliability, decreases periodic maintenance, enhances operational functions, and provides an automatic stall detection and shutdown capability. [P40A - 2 / PE001 STOCK ROTATING SPARES]: PE001 - STOCK ROTATING SPARES This cost code procures the MT-30 & MT-5 gas turbines for the Littoral Combat Ship (LCS) and Zumwalt DDG 1000 program, the 250-KS4 SSGTG starter engines for the DDG 79 and follow, and the 501-K34 gas turbines DDG 51 class ships. The procurement of these engines includes all required shipping/storage containers. MT-30 Gas Turbines Based on experience with similar turbines and IAW 10 USC Sec. 2308, DFAR subpart 207.70 and DoDI 3110.06, a total of 6 spares are required to support the fleet. Current MT-30 spares on-hand is two (2), four (4) budgeted procurement in FY18-FY21. The projected FY-22 and beyond in-service population of MT-30 gas turbine engines is fifty (50) due to new construction. MT-5 Gas Turbines Based on experience with similar turbines and IAW 10 USC Sec. 2308, DFAR subpart 207.70 and DoDI 3110.06, a total of 2 spares are required to support the fleet. Current MT-5 spares on-hand is zero (0) with two (2) budgeted in FY18-FY19. The projected FY-21 and beyond in-service population of MT-5 gas turbine engines is six (6) due to new construction. Earlier budget exhibits called for procurement of (1) MT-5 in FY19 and (1) in FY20. The current budget calls for procurement of (1) MT-5 in FY18 and (1) in FY19. This change was required because Rolls-Royce has indicated that production of the MT-5 will end before an FY20 procurement can occur. The total requirement for (2) spare MT-5 gas turbines is unchanged 250-KS4 SSGTG Starter Engines Based on experience with similar turbines and IAW 10 USC Sec. 2308, DFAR subpart 207.70 and DoDI 3110.06, a total of 12 spares are required to support the fleet requirements. Current spares on-hand is twelve (12) which achieves the baseline sparing requirement. The projected FY-18 in-service population of starter engines is 112 due to new construction. Operation Tomodachi has resulted in the radiological contamination of twelve (12) 250-KS4 Marine Gas Turbines, which created an unplanned requirement to replace the twelve (12) affected engines beginning in FY13. Currently, the program has budgeted for six (6) replacements through FY22 with four (4) already procured, leaving a requirement of two (2) additional replacement assets to be procured. 501-K34 Gas Turbines Based on experience with similar turbines and IAW 10 USC Sec. 2308, DFAR subpart 207.70 and DoDI 3110.06, a total of 26 spares are required to support the fleet requirements. Current 501-K34 spares on-hand is 22, which leaves a requirement of 4 additional gas generator units to be procured. The projected FY22 in-service population of gas turbine engines is 222 due to new construction. [P40A - 2 / PE007 MODIFICATION PROGRAM]: PE007 - MODIFICATION PROGRAM This cost code procures modification kits listed below for the Rolls Royce Marine Gas Turbines (MGT). Analysis of Rolls Royce MGT engineering performance data, metrics, the SEA 21 Top Tech Issues and the component improvement program has identified necessary improvements to correct Rolls Royce MGT deficiencies. The modifications addresses the Fleet's top maintenance and reliability issues by reducing failure rates of system components, and improve Rolls Royce MGT readiness. The modification kits are packaged and shipped to the ship for installation during schedule CNO availability by a team of NSWCPD (Philadelphia) and Alteration Installation Team (AIT) personnel. Procurement quantities are not shown because these funds are used to procure a variety of modification kits, with specific kit quantities and prices varying from one year to the next. The kits included in the cost code are as follows:		

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Exhibit P-40, Budget Line Item Justification: FY 2018 Navy		Date: May 2017
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 01: Ships Support Equipment / BSA 1: Ship Propulsion Equipment		P-1 Line Item Number / Title: 0131 / Surface Power Equipment
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		
--Engine Vibration Monitor --Cyber Secure CPU upgrade --SSGTG Bleed Air Control Valve Installation and Improvement --SSS Clutch upgrade to Air Turbine Starter (ATS) --SSGTG FADC 2-1 HMI Computer Conversion --SSGTG RIMSS Exhaust Backflow Detection System --Output Quill Shaft Bolt Replacement --RIMSS Tachometer Connector Improvement --Model 139 SSV and Off Mounted fuel Mod --FADC upgrade conversion --MT30 variant conversion kits [P40A - 3 / PE830 PRODUCTION ENGINEERING]: PE830 PRODUCTION ENGINEERING The review and approval of any production contract technical documentation, or the separate development of this documentation to include: - Technical Manuals - Signal Flow Diagrams - PMS - Level III Production Drawings - Provisioning Technical Documentation (PTD) - Program Support Data - Allowance Parts Lists (APL's) - Engineering in support of final design reviews This includes efforts associated with tracking and updating NDE, MGTIS and Weblog to reflect completed installations and ensure consistent documentation for engine configuration management. [P40AMOD / PE015 DIGITAL FUEL CONTROL SHIPSET]: PE015 - DIGITAL FUEL CONTROL (DFC)This cost element procures the Digital Fuel Control (DFC) shipsets, ancillary equipment and install material to support the CG/DDG modernization schedules. FY21 quantity changed from five (5)to three (3) due to DDG modernization program schedule change. The procurement schedule for DFC ship sets is dictated by the Department's master schedule for DDG modernizations. The number of DDG modernizations changes from one year to the next based upon ship and dry dock availability. One DFC Kit is required to upgrade each of the four DDG class LM2500 engines, which makes one DFC shipset. The DFC is the most significant change to the LM2500 engine since its inception into the USN that addresses obsolescence components which accounted for approximately 40% of all engine failures. In summary this modification is estimated to be 75% more reliable than the old system. This upgrade replaces the existing Hydro-mechanical main fuel control (MFC) system which was designed for aircraft; with a Digital Fuel Control (DFC) system designed for military marine environment. This modification increases engine reliability, decreases periodic maintenance, enhances operational functions, and provides an automatic stall detection and shutdown capability. PE6IN - INSTALLATION FOR DIGITAL FUEL CONTROL (DFC) FY17 planned installations reflects the FY16 procured units in LM2500 Gas Turbine (BLI 0110) exhibit.		

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Exhibit P-40, Budget Line Item Justification: FY 2018 Navy		Date: May 2017
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 01: Ships Support Equipment / BSA 1: Ship Propulsion Equipment		P-1 Line Item Number / Title: 0131 / Surface Power Equipment
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 This cost element funds the installation of Cost element PE015-Digital Fuel Control (DFC) shipsets as part of the CG/DDG HM&E modernization program. This includes pre-assembly at NSWCPD (Philadelphia), shipping to installation location, shipboard installation, training, post installation operational testing and associated travel cost.		

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Exhibit P-40, Budget Line Item Justification: FY 2018 Navy								Date: May 2017		
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 01: Ships Support Equipment / BSA 1: Ship Propulsion Equipment						P-1 Line Item Number / Title: 0131 / Surface Power Equipment				
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 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 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-40a	General Electric Gas Turbine				- / 0.000	- / -	- / 1.354	- / 6.881	- / -	- / 6.881
P-40a	Rolls Royce Gas Turbine				- / 0.000	- / -	- / 4.315	- / 24.779	- / -	- / 24.779
P-40a	PE830 PRODUCTION ENGINEERING				- / 0.000	- / -	- / 0.346	- / 0.349	- / -	- / 0.349
P-40a	PE015 - LM2500 GAS TURBINE DIGITAL FUEL CONTROL				- / 0.000	- / 0.000	- / 9.499	- / 9.901	- / 0.000	- / 9.901
P-40	Total Gross/Weapon System Cost				- / 0.000	- / 0.000	- / 15.514	- / 41.910	- / 0.000	- / 41.910
*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. Title represents the P-40a Title when only the P-40a Summary/Total is shown. Note: Totals in this Exhibit P-40 set may not be exact or sum exactly due to rounding.										
Justification: Beginning in FY17, the Department established Surface Power Equipment BLI 0131 to consolidate the LM-2500 Gas Turbine BLI 0110 and Allison 501K Gas Turbine BLI 0120 along with their associated efforts into one budget line.										

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Exhibit P-40a, Budget Item Justification For Aggregated Items: FY 2018 Navy															Date: May 2017					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 1							P-1 Line Item Number / Title: 0131 / Surface Power Equipment								Aggregated Items Title: General Electric Gas Turbine ⁽¹⁾					
Item Number / Title [DODIC]	ID CD	MDAP/MAIS Code	Prior Years			FY 2016			FY 2017			FY 2018 Base			FY 2018 OCO			FY 2018 Total		
			Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)
1) PE009 GE Readiness Improvement Upgrade Kits																				
1.1) MODIFICATION KIT PROGRAM		A		-	-	-	-	-	-	-	0.490	-	-	-	-	-	-	-	-	-
Subtotal: 1) PE009 GE Readiness Improvement Upgrade Kits			-	-	0.000	-	-	-	-	-	0.490	-	-	-	-	-	-	-	-	-
2) PE010 Stock Rotating Spares ⁽²⁾																				
2.2) LHD/LHA6 LM2500+		A		-	-	-	-	-	-	-	-	5,329K	1	5.329	-	-	-	5,329K	1	5.329
Subtotal: 2) PE010 Stock Rotating Spares			-	-	0.000	-	-	-	-	-	-	-	-	5.329	-	-	-	-	-	5.329
3) PE014 Special Support Equipage ⁽³⁾																				
3.1) Special Support Equipage ⁽⁴⁾		A		-	-	-	-	-	-	-	0.800	-	-	1.389	-	-	-	-	-	1.389
Subtotal: 3) PE014 Special Support Equipage			-	-	0.000	-	-	-	-	-	0.800	-	-	1.389	-	-	-	-	-	1.389
4) PE015 LM2500 DIGITAL FUEL CONTROL																				
4.1) ANCILLARY EQUIPMENT/ INSTALLATION MATERIALS		A		-	-	-	-	-	-	-	0.064	-	-	0.163	-	-	-	-	-	0.163
Subtotal: 4) PE015 LM2500 DIGITAL FUEL CONTROL			-	-	0.000	-	-	-	-	-	0.064	-	-	0.163	-	-	-	-	-	0.163
Total			-	-	0.000	-	-	-	-	-	1.354	-	-	6.881	-	-	-	-	-	6.881
Note: Subtotals or Totals in this Exhibit P-40a may not be exact or sum exactly, due to rounding.																				
Footnotes:																				
⁽¹⁾ The FY 2016 funding request was reduced by \$3.208 million to account for the availability of prior year execution balances.																				
⁽²⁾ The cost estimates for all engine procurements between FY18-FY21 are based on the Rough Order of Magnitude pricing provided by General Electric. The program will update the actual costs during the FY the contract is awarded.																				
⁽³⁾ Procurement of Special Support Equipment allows for increased depot repair capability, thereby stabilizing or reducing the cost to overhaul engines at the depot. This tooling is generally associated with depot modifications being made to the engine to increase engine reliability. This increased capability reduces engine overhaul costs. FY17 - FY18 funding is being provided to procure support tooling for the LM2500+ Gas Turbine as part of Strategic Lay-Down 15 (SLD15), the propulsion engine for the LHA-6, which is being homeported in Sasebo, Japan. No installation cost is associated with this cost element.																				
⁽⁴⁾ FY17 - FY18 funding is being provided to procure support tooling for the LM2500+ Gas Turbine as part of Strategic Lay-Down 15 (SLD15), the propulsion engine for the LHA-6, which is being homeported in Sasebo, Japan. No installation cost is associated with this cost element.																				

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Exhibit P-40a, Budget Item Justification For Aggregated Items: FY 2018 Navy															Date: May 2017					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 1							P-1 Line Item Number / Title: 0131 / Surface Power Equipment								Aggregated Items Title: Rolls Royce Gas Turbine					
Item Number / Title [DODIC]	ID CD	MDAP/MAIS Code	Prior Years			FY 2016			FY 2017			FY 2018 Base			FY 2018 OCO			FY 2018 Total		
			Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)
1) PE001 STOCK ROTATING SPARES																				
1.2) 250-KS4	A		-	-	-	-	-	-	474,000.00	1	0.474	493,000.00	1	0.493	-	-	-	493,000.00	1	0.493
1.3) MT-30	A		-	-	-	-	-	-	-	-	-	19,001K	1	19.001	-	-	-	19,001K	1	19.001
1.4) MT-5	A		-	-	-	-	-	-	-	-	-	4,128K	1	4.128	-	-	-	4,128K	1	4.128
Subtotal: 1) PE001 STOCK ROTATING SPARES			-	-	0.000	-	-	-	-	-	0.474	-	-	23.622	-	-	-	-	-	23.622
2) PE007 MODIFICATION PROGRAM																				
2.1) PROCURE MODIFICATION KITS (5)	A		-	-	-	-	-	-	-	-	2.810	-	-	0.900	-	-	-	-	-	0.900
2.2) INSTALLATION FOR MODIFICATION KITS	A		-	-	-	-	-	-	-	-	1.031	-	-	0.257	-	-	-	-	-	0.257
Subtotal: 2) PE007 MODIFICATION PROGRAM			-	-	0.000	-	-	-	-	-	3.841	-	-	1.157	-	-	-	-	-	1.157
Total			-	-	0.000	-	-	-	-	-	4.315	-	-	24.779	-	-	-	-	-	24.779

Note: Subtotals or Totals in this Exhibit P-40a may not be exact or sum exactly, due to rounding.

Footnotes:

(5) PE007 MODIFICATION PROGRAM: The modification program is designed to procure and install hardware to affect improvements in reliability and maintainability aboard CG-47 and DDG-51 class Ship Service Gas Turbine Generator (SSGTG) units. Each hull has a total of three (3) SSGTG units installed. Each SSGTG is controlled by a Full Authority Digital Control (FADC). CG-47 class uses the 501-K17 and DDG-51 class uses the 501-K34. There are currently three variants of the 501-K34 SSGTG: AG9130, AG9140HF and AG9140RF. The AG9140RF also includes the Remote Independent Mechanical Starting System (RIMSS) consisting of the 250-KS4 engine. The quantity of modification kits procured corresponds to the number of SSGTG units to be upgraded. The type and scope of each modification required will vary from one ship to the next. The type and scope of each modification required will vary from one ship to the next. The number and type of kits installed in any given Fiscal Year (FY) varies depending upon ship availability schedules during that FY. FY2017 budget of \$4,571K funds; Ship Change Document (SCD); FADC HMI Upgrade, Qty 21, \$1,415 - System upgrage; SCD 5216, Qty 24, \$173 - FADC 2-1 Conversion; SCD 10677, Qty 9, \$234 - Off-Eng Fuel Valve (CG47); SCD 12115, Qty 18, \$213 - RIMSS Tachometer; AYB 9130-021R1/9140-018R1, Qty 99, \$34 - HUM BRK. The remaining balance is for ancillary materials related to each of the aforementioned SCDs. The increase in the PE007 budget FY17 represents a change in the types and quantities of modification kits purchased from one year to the next; these changes are driven by ship availability schedule and include both procurement and installation costs.

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Exhibit P-40a, Budget Item Justification For Aggregated Items: FY 2018 Navy															Date: May 2017					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 1							P-1 Line Item Number / Title: 0131 / Surface Power Equipment							Aggregated Items Title: PE830 PRODUCTION ENGINEERING (6)						
Item Number / Title [DODIC]	ID CD	MDAP/MAIS Code	Prior Years			FY 2016			FY 2017			FY 2018 Base			FY 2018 OCO			FY 2018 Total		
			Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)
1) Production Engineering ⁽⁷⁾																				
1.1) Production Engineering	A		-	-	-	-	-	-	-	-	0.346	-	-	0.349	-	-	-	-	-	0.349
Subtotal: 1) Production Engineering			-	-	0.000	-	-	-	-	-	0.346	-	-	0.349	-	-	-	-	-	0.349
Total			-	-	0.000	-	-	-	-	-	0.346	-	-	0.349	-	-	-	-	-	0.349

Note: Subtotals or Totals in this Exhibit P-40a may not be exact or sum exactly, due to rounding.

Footnotes:

⁽⁶⁾ The review and approval of any production contract technical documentation, or the separate development of this documentation to include: - Technical Manuals - Signal Flow Diagrams - PMS - Level III Production Drawings - Provisioning Technical Documentation (PTD) - Program Support Data - Allowance Parts Lists (APL's) - Engineering in support of final design reviews This includes efforts associated with tracking and updating NDE, MGTIS and Weblog to reflect completed installations and ensure consistent documentation for engine configuration management.

⁽⁷⁾ PE830 is the sum of consolidation of cost code GA830 (Production Engineering) from budget line 0110 and cost code GF830 (Production Engineering) from budget line 0120, which is a result of the Department consolidation of budget lines 0110 and 0120.

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Exhibit P-40a, Budget Item Justification For Aggregated Items: FY 2018 Navy												Date: May 2017							
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 1						P-1 Line Item Number / Title: 0131 / Surface Power Equipment						Aggregated Items Title: PE015 - LM2500 GAS TURBINE DIGITAL FUEL CONTROL							

Item Number / Title [DODIC]	ID CD	MDAP/ MAIS Code	Prior Years			FY 2016			FY 2017			FY 2018 Base			FY 2018 OCO			FY 2018 Total			
			Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	
B Kits/Recurring																					
PE015 DIGITAL FUEL CONTROL SHIPSET – Procurement ⁽⁸⁾		A		-	-	-	-	-	-	1,791K	5	8.955	1,880K	5	9.400	-	-	-	1,880K	5	9.400
PE015 DIGITAL FUEL CONTROL SHIPSET – Installation		A		-	-	-	-	-	-	-	-	0.544	-	-	0.501	-	-	-	-	-	0.501
Subtotal: B Kits/Recurring				-	-	0.000	-	-	-	-	-	9.499	-	-	9.901	-	-	-	-	-	9.901
Total				-	-	0.000	-	-	0.000	-	-	9.499	-	-	9.901	-	-	0.000	-	-	9.901

Note: Subtotals or Totals in this Exhibit P-40a may not be exact or sum exactly, due to rounding.

Remarks:

This cost code procures the Digital Fuel Control (DFC) shipsets, ancillary equipment and install material to support the CG/DDG modernization schedules.

One DFC Kit is required to upgrade each of the four DDG class LM2500 engines, which makes one DFC shipset.

The DFC is the most significant change to the LM2500 engine since its inception into the USN that addresses obsolescence components which accounted for approximately 40% of all engine failures. In summary this modification is estimated to be 75% more reliable than old system.

This upgrade replaces the existing Hydro-mechanical main fuel control (MFC) system which was designed for aircraft;

with a Digital Fuel Control (DFC) system designed for military marine environment. This modification increases engine reliability, decreases periodic maintenance, enhances operational functions, and provides an automatic stall detection and shutdown capability.

Footnotes:

⁽⁸⁾ DFC ship-set procurement cost updated based on actual prior year contract award prices. FY21 quantity changed from five (5) to three (3) due to DDG modernization program schedule change. The procurement schedule for DFC ship sets is dictated by the Department's master schedule for DDG modernizations. The number of DDG modernizations changes from one year to the next based upon ship and dry dock availability. FY17 planned installations reflects the FY16 procured units in LM2500 Gas Turbine (BLI 0110) exhibit.

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Exhibit P-40, Budget Line Item Justification: FY 2018 Navy										Date: May 2017		
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 01: Ships Support Equipment / BSA 1: Ship Propulsion Equipment							P-1 Line Item Number / Title: 0140 / Hybrid Electric Drive (HED)					
ID Code (A=Service Ready, B=Not Service Ready): A				Program Elements for Code B Items: 0708017N				Other Related Program Elements: 0604567N, 0204228N				
Line Item MDAP/MAIS Code: N/A												
Resource Summary	Prior Years	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	To Complete	Total
Procurement Quantity (<i>Units in Each</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost (<i>\$ in Millions</i>)	12.638	29.106	15.132	6.331	0.000	6.331	5.867	0.000	0.000	0.000	46.585	115.659
Less PY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (<i>\$ in Millions</i>)	12.638	29.106	15.132	6.331	0.000	6.331	5.867	0.000	0.000	0.000	46.585	115.659
Plus CY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority (<i>\$ in Millions</i>)	12.638	29.106	15.132	6.331	0.000	6.331	5.867	0.000	0.000	0.000	46.585	115.659
<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>)	-	0.581	0.468	-	-	-	0.478	0.133	0.518	0.459	Continuing	Continuing
Flyaway Unit Cost (<i>\$ in Dollars</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost (<i>\$ in Dollars</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Description: The Hybrid Electric Drive (HED) consists of an electric motor which can be coupled to the propulsion reduction gear to provide propulsion power from the ship service gas turbine generators (SSGTGs) during low speed operations. This will permit the securing of one or more propulsion gas turbines and allow higher power loading resulting in more efficient operation of the SSGTGs, which will be generating electric power for the HED as well as ship service power. In addition to reducing fuel consumption and the associated costs, HED results in the additional benefits of increasing the ship's range, increased time on station performing its mission, and reducing the frequency of fuel replenishment. The HED shipsets will include the propulsion motors, motor drives and the associated controls, interfaces, and mounting equipment that will be required to install the HED on DDG 51 Class Ships. This budget supports the HED for installation on DDG 51 Class in-service ships beginning in FY17. [P3A / TD001 - Hybrid Electric Drive]: Procure Hybrid Electric Drive (HED) for the DDG 51 Flight IIA Ships including equipment procurement, recurring equipment engineering, equipment integration, and ILS [P3A / Equipment Modification]: Equipment Modifications will be performed to correct deficiencies and engineering change proposals.												
Justification: This item covers HED procurement requirements for the DDG 51 Hybrid Electric Drive Backfit Program to be installed on Flight IIA ships.												

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Exhibit P-40, Budget Line Item Justification: FY 2018 Navy										Date: May 2017		
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 01: Ships Support Equipment / BSA 2: Generators							P-1 Line Item Number / Title: 0200 / Surface Combatant HM&E					
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 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	To Complete	Total
Procurement Quantity (<i>Units in Each</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost (<i>\$ in Millions</i>)	42.793	36.860	29.974	27.392	0.000	27.392	37.913	38.685	38.289	39.053	139.314	430.273
Less PY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (<i>\$ in Millions</i>)	42.793	36.860	29.974	27.392	0.000	27.392	37.913	38.685	38.289	39.053	139.314	430.273
Plus CY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority (<i>\$ in Millions</i>)	42.793	36.860	29.974	27.392	0.000	27.392	37.913	38.685	38.289	39.053	139.314	430.273
<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>)	-	0.188	0.157	-	-	-	0.239	0.382	-	-	-	0.966
Flyaway Unit Cost (<i>\$ in Dollars</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost (<i>\$ in Dollars</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Description: The FY 2018 funding request was reduced by \$2.924 million to account for the availability of prior year execution balances. This program initiated in FY14 as a transfer of funding from BLI 5246, to allow the Navy to better align and identify Hull, Mechanical & Electrical (HM&E) requirements, shipboard upgrades and equipment in support of the in-service Surface Combatants to include Class Common Equipment to support shorter Regular Overhauls and Selected Restricted Availabilities, including Ship System Components that require long repair turn-around; CG/DDG - Machinery Control Systems (MCS) COTS Refresh; Ship Control Systems and installation in support of the Ship Control System. [P40A / GB001 - CG/DDG COTS Tech Refresh]: Due to Diminishing Manufacturing Sources and Material Shortages (DMSMS), Commercial Off The Shelf (COTS) equipment must be periodically refreshed to ensure supportability to the Fleet. This cost code is used to fund solutions for HM&E systems that have parts with oncoming DMSMS impacts. DMSMS solutions, including after-market manufacturing (reverse engineering), bridge-buys, life-of-type buys, modernization through replacement, modification / redesign, and reclamation are implemented to ensure that in-service ships are operational and sustainable throughout the life of the system. DMSMS issues and planned resolutions are implemented outside of standard CNO availabilities (WOO or CMAV) and are impacted by pending fact-of-life influences, including shifting availabilities, modified vendor End of Sale dates, and unforeseen material shortages. [P40A / GB002 - Class Common Equipment]: The CCE program is to provide Ready-For-Issue (RFI) systems and equipment in support of Surface Combatant ship industrial availabilities, and to replace major system equipment which sustains battle damage or major failure. CCE Availability Assets (AAs) ensure warfighting capability, readiness, and on-time deployment by providing RFI long lead time material (LLTM) in case of possible catastrophic damage or major failure on Aegis ships. CCE AAs are procured and stored to support backfit upgrades and emergent maintenance within brief availability windows. The ready accessibility of these assets avoids delays in availability completion caused by lengthy equipment repair turn-around time or acquisition lead time. In addition to availability assets, the CCE program also provides for Insurance Assets. These are the major long lead time HM&E equipment/systems which, due to major damage or battle damage, would prevent a ship from being able to be quickly repaired in order to accomplish its mission. The CCE program provides for both CG and DDG assets. [P40A / GB003 - Ship Control Systems (Installed under GB6IN)]: Funds provided support the procurement of Ship Control Systems (SCS) upgrades to be installed under GB6IN on both cruisers and destroyers in support of the Fleet Modernization Program. Ship Control Systems provide lifecycle support for legacy and modernized engineering controls. SCS equipment and components are procured for various ship changes and engineering change proposals for in-service surface combatants and are installed outside of standard CNO availabilities. This effort includes maintaining Land Based Engineering Sites (LBES), CG / DDG system refresh, SCD design engineering, CG / DDG equipment procurement, and CG / DDG ISEA/ILS support. This cost code also provides for funding the necessary software licenses in support of												

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Exhibit P-40, Budget Line Item Justification: FY 2018 Navy		Date: May 2017
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 01: Ships Support Equipment / BSA 2: Generators		P-1 Line Item Number / Title: 0200 / Surface Combatant HM&E
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		
the HM&E COTS systems/equipment for both CG and DDG class ships. Examples of systems requiring software licenses are: Machinery Control System components, Voyage Management System, Integrated Bridge System, Integrated Bridge and Navigation System, and Digital Video Surveillance System.		
[P40A / GB004 - Maritime Energy Initiatives (Previously Procured in BLI 0110 and BLI 0120)]: Maritime Energy Initiatives provide surface combatants with technologies/tools that reduce energy usage. This will enhance operational capabilities, allowing for longer time on-station and fewer refuelings. These initiatives will also help meet the CNO's 2020 goal of reducing the surface fleet's fuel usage by 15%. The initiatives consist of: 1) Hull and Hydrodynamics - These initiatives focus on the dynamic forces where the ship contacts the water. They include, but are not limited to hull appendages that reduce drag, thus improving speed and fuel efficiency; 2) Power Generation and Transmission Systems - These initiatives focus on, but are not limited to improving the efficiency of ships' prime movers, generators, main reduction gears, propulsion motors/drives, and shaft-line components; 3) Combat and Ship Systems Support Services - These initiatives focus on, but are not limited to improving systems that use electricity when providing support services (e.g. cooling, heating, air, lube oil) to combat machinery, or life support systems; and 4) Decision Aids - These initiatives will inform the sailor of decisions they can make to save energy and improve operational efficiency by consolidating and manipulating ship data and providing it back as actionable information.		
[P40A / GB6IN - HM&E Installation (Procured under GB003)]: Funds provided support the installation of ship control systems upgrades (procured in GB003 CG/DDG) on both cruisers and destroyers in support of the Fleet Modernization Program. Installation funding supports expected service life and maintains the surface combatant's machinery and ship control systems. This functional code is also utilized to execute Maritime Energy Initiative installation tasks displayed on the P-3a exhibits.		
[P40AMOD / GB004 - Maritime Energy Initiatives (TMCS)]: The Heating, Ventilation, and Air Conditioning (HVAC) system is the largest distributed system on a Surface Combatant and typically consumes between 25% and 40% of all energy used. Surveys on several DDG-class ships indicate that average space temperatures across the ship were being maintained well below the design temperature. Thermal Management Control System (TMCS) provides centralized control and monitoring of space temperatures at design set-points for each compartment throughout the ship. This technology enables improved operational efficiency of the HVAC system, thereby lowering AC loads and reducing electrical demand.		
[P40AMOD / GB004 - Maritime Energy Initiatives (Bow Bulb)]: Bow bulb is a near surface, small volume design for installation on the destroyer's bow in combination with the existing sonar dome. Modification of bow shape reduces hull wave drag without an increase in hull resistance, reducing fuel consumption.		
[P40AMOD / GB004 - Maritime Energy Initiatives (VSD for CPS)]: The Collective Protective System (CPS) is a full time air filtration system integrated into the ship's HVAC system. The amount of outside supply air delivered to CPS zones varies with filter loading over time and is almost always higher than needed, resulting in above average HVAC loads. Variable Speed Drive (VSD) will be installed as an airflow control component to optimize supply air flow, realizing energy savings from fan motor and reduced HVAC loads.		
[P40AMOD / GB004 - Maritime Energy Initiatives (SSL)]: Solid State Lighting (SSL) lamps consist of individual Light Emitting Diodes (LEDs), which serve as replacements for incandescent and fluorescent lighting fixtures. SSL replacements are engineered to meet military specifications. SSL replacements for incandescent and fluorescent fixtures reduce energy usage by approximately 85% and 50%, respectively. Additionally, this install will drastically reduce the electrical lighting load, maintenance actions, and the space needed for spare parts.		
[P40AMOD / GB004 - Maritime Energy Initiatives (Shipboard Energy Dashboard FLT IIA)]: The Shipboard Energy Dashboard FLT IIA technology is a shipboard tool providing real time situational awareness of the energy demand associated with equipment lineup and mission. Technology raises operator awareness of how certain engineering plant lineups and equipment affect fuel consumption rates. Energy savings will be realized through energy usage culture change.		
[P3A - 6 / GB004 - Maritime Energy Initiatives (Shipboard Energy Dashboard FLT I)]: The Shipboard Energy Dashboard FLT I technology is a shipboard tool providing real time situational awareness of the energy demand associated with equipment lineup and mission. Technology raises operator awareness of how certain engineering plant lineups and equipment affect fuel consumption rates. Energy savings will be realized through energy usage culture change.		
[P3A - 7 / GB004 - Maritime Energy Initiatives (Triton Fuel Penalty)]: Triton Fuel Penalty is a system capable of reporting in real time when a ship's powering condition has degraded due to increased drag from bio fouling. Personnel will be able to schedule ship cleanings utilizing feedback taken from actual measurements of drag while in service. This capability will reduce the current penalty paid by the fleet to overcome the negative effects of biological fouling on ship performance and fuel expenditure.		

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Exhibit P-40, Budget Line Item Justification: FY 2018 Navy								Date: May 2017		
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 01: Ships Support Equipment / BSA 2: Generators						P-1 Line Item Number / Title: 0200 / Surface Combatant HM&E				
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 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 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-40a	Surface Combatant HM&E				- / 30.322	- / 16.010	- / 13.808	- / 7.522	- / -	- / 7.522
P-40a	GB004 - Maritime Energy Initiatives (TMCS)				- / 4.946	- / 11.656	- / 9.136	- / 8.222	- / 0.000	- / 8.222
P-40a	GB004 - Maritime Energy Initiatives (Bow Bulb)				- / 0.000	- / 0.000	- / 0.000	- / 1.544	- / 0.000	- / 1.544
P-40a	GB004 - Maritime Energy Initiatives (VSD for CPS)				- / 2.017	- / 4.417	- / 3.613	- / 4.344	- / 0.000	- / 4.344
P-40a	GB004 - Maritime Energy Initiatives (SSL)				- / 5.262	- / 4.165	- / 3.119	- / 5.543	- / 0.000	- / 5.543
P-40a	GB004 - Maritime Energy Initiatives (Shipboard Energy Dashboard FLT IIA)				- / 0.246	- / 0.612	- / 0.298	- / 0.217	- / 0.000	- / 0.217
P-40	Total Gross/Weapon System Cost				- / 42.793	- / 36.860	- / 29.974	- / 27.392	- / 0.000	- / 27.392
*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. Title represents the P-40a Title when only the P-40a Summary/Total is shown.										
Note: Totals in this Exhibit P-40 set may not be exact or sum exactly due to rounding.										

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Exhibit P-40a, Budget Item Justification For Aggregated Items: FY 2018 Navy															Date: May 2017					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 2							P-1 Line Item Number / Title: 0200 / Surface Combatant HM&E								Aggregated Items Title: Surface Combatant HM&E					
Item Number / Title [DODIC]	ID CD	MDAP/MAIS Code	Prior Years			FY 2016			FY 2017			FY 2018 Base			FY 2018 OCO			FY 2018 Total		
			Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)
1) GB001 - CG/DDG COTS Tech Refresh																				
1.1) GB001 - CG/DDG COTS Tech Refresh (1)	A		-	-	11.289	-	-	6.457	-	-	3.782	-	-	1.737	-	-	-	-	-	1.737
Subtotal: 1) GB001 - CG/DDG COTS Tech Refresh			-	-	11.289	-	-	6.457	-	-	3.782	-	-	1.737	-	-	-	-	-	1.737
2) GB002 - Class Common Equipment																				
2.1) GB002 - Class Common Equipment	A		-	-	3.895	-	-	2.020	-	-	2.382	-	-	1.398	-	-	-	-	-	1.398
Subtotal: 2) GB002 - Class Common Equipment			-	-	3.895	-	-	2.020	-	-	2.382	-	-	1.398	-	-	-	-	-	1.398
3) GB003 - Ship Control Systems (Installed under GB6IN) (2)																				
3.1) GB003 - CG 47 Class (Installed under GB6IN 5.1) (3)	A		1,232K	1	1.232	1,373K	1	1.373	5,230K	1	5.230	1,957K	1	1.957	-	-	-	1,957K	1	1.957
3.2) GB003 - DDG 51 Class (Installed under GB6IN 5.2) (4)	A		4,032K	2	8.063	4,273K	1	4.273	-	-	-	319,000.00	1	0.319	-	-	-	319,000.00	1	0.319
3.3) GB003 - Ship Control Systems Software Licenses	A		-	-	3.149	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: 3) GB003 - Ship Control Systems (Installed under GB6IN)			-	-	12.444	-	-	5.646	-	-	5.230	-	-	2.276	-	-	-	-	-	2.276
4) GB004 - Maritime Energy Initiatives (Previously Procured in BLI 0110 and BLI 0120) (5)																				
4.1) GB004 - Maritime Energy Initiative Install (Procured prior to transfer)	A		-	-	2.694	-	-	0.084	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: 4) GB004 - Maritime Energy Initiatives (Previously Procured in BLI 0110 and BLI 0120)			-	-	2.694	-	-	0.084	-	-	-	-	-	-	-	-	-	-	-	-
5) GB6IN - HM&E Installation (Procured under GB003)																				
5.1) GB6IN - CG 47 Class Install (Procured under GB003 3.1) (6)	A		-	-	-	-	-	-	-	-	1.681	-	-	1.760	-	-	-	-	-	1.760
5.2) GB6IN - DDG 51 Class Install (Procured under GB003 3.2) (7)	A		-	-	-	-	-	1.803	-	-	0.733	-	-	0.351	-	-	-	-	-	0.351
Subtotal: 5) GB6IN - HM&E Installation (Procured under GB003)			-	-	0.000	-	-	1.803	-	-	2.414	-	-	2.111	-	-	-	-	-	2.111
Total			-	-	30.322	-	-	16.010	-	-	13.808	-	-	7.522	-	-	-	-	-	7.522
Note: Subtotals or Totals in this Exhibit P-40a may not be exact or sum exactly, due to rounding.																				

Note: Subtotals or Totals in this Exhibit P-40a may not be exact or sum exactly, due to rounding.

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Exhibit P-40a, Budget Item Justification For Aggregated Items: FY 2018 Navy		Date: May 2017
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 2	P-1 Line Item Number / Title: 0200 / Surface Combatant HM&E	Aggregated Items Title: Surface Combatant HM&E

Footnotes:

⁽¹⁾ FY19: Indicates an increase from FY18 to purchase DMS Obsolescence Equipment and Battle Spares that were not required in FY18

⁽²⁾ Procurements in cost code GB003 are dependent upon the specific alterations to be accomplished and an individual ship's configuration. Shipsets of equipment vary in quantities and types of components each fiscal year and within a fiscal year. Quantity of "1" represents the total value of multiple shipsets purchased on multiple contracts for multiple ships. Unit costs for specific alterations are not associated with cost code GB003 due to the varying degree of engineering changes required per ship (ship configuration dependent) and the installation normally occurs outside of CNO availabilities, in either a WOO or CMAV.

⁽³⁾ GB003 Scheduled Procurements for CG 47 Class (To be installed under GB6IN 5.1): FY16: 12 different kits procured for 3 ships (CG 53, CG 56, and CG 62) to be installed in FY17 under GB6IN; FY17: 15 different kits procured for 3 ships (CG 58, CG59, and CG 61) to be installed in FY18 under GB6IN; FY18: 4 kit procured for 2 ship (CG57, and CG 60) to be installed in FY19 under GB6IN FY19: No procurements FY20: 5 kits procured for 1 ship to be installed in FY21 under GB6IN. FY21: 1 kit procured for 1 ship to be installed in FY22 under GB6IN.

⁽⁴⁾ GB003 Scheduled Procurements for DDG 51 Class (To be installed under GB6IN 5.2): FY16: 20 different kits procured for 4 ships (DDG 52, DDG 55, DDG 69, and DDG 111) to be installed in FY17 under GB6IN. FY17: No procurements. FY18: 5 different kits procured for 1 ship to be installed in FY19 under GB6IN (DDG65). FY19: 21 different kits procured for 7 ships to be installed in FY20 under GB6IN. FY20: 16 different kits procured for 5 ships to be installed in FY21 under GB6IN. FY21: 13 different kits procured for 7 ships to be installed in FY22 under GB6IN. FY22: 16 different kits procured for 7 ships to be installed in FY23 under GB6IN.

⁽⁵⁾ Maritime Energy Initiative funding transferred from BLI 0110 and BLI 0120 to BLI 0200 in FY15. FY16 installations tied to prior year procurements under different BLI's cannot be properly displayed in BLI 0200 P-3a exhibits. The purpose of this P-40a is to display this installation data. All installations tied to BLI 0200 Maritime Energy Initiative procurements are displayed on P-3a exhibits.

⁽⁶⁾ GB6IN Scheduled Installs for CG 47 Class (Procured under GB003 3.1). FY16: No installations. FY17: 12 different kits installed on 7 ships (CG 52, CG 53, CG 55, CG 56, CG 57, CG 62 and CG 66) procured in FY16 under GB003. FY18: 15 different kits installed on 3 ships (CG58, CG59, CG60) procured in FY17 and prior under GB003. FY19: 4 kit installed on 2 ships procured in FY18 under GB003. FY20: No installs, DSA only. FY21: 5 different kits installed on 1 ship procured in FY20 under GB003. FY22: 1 kit installed on 7 ship procured in FY21 under GB003.

⁽⁷⁾ GB6IN Scheduled Installs for DDG 51 Class (Procured under GB003 3.2): FY16: 5 kits installed on 5 ships (DDG 52, DDG 53, DDG 59, DDG 61, and DDG 65) procured in FY15 under GB003. FY17: 15 different kits installed on 5 ships (DDG 52, DDG 55, DDG 59 DDG 65 and DDG 111) procured in FY16 under GB003. FY18: 5 different kits installed on 2 ships (DDG 55, 69). FY19: 5 different kits installed on 1 ship (DDG 65) procured in FY18 under GB003. FY20: 21 different kits installed on 7 ships procured in FY19 under GB003. FY21: 16 different kits installed on 5 ships procured in FY20 under GB003. FY22: 13 different kits installed on 7 ships procured under FY21 GB003.

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Exhibit P-40a, Budget Item Justification For Aggregated Items: FY 2018 Navy															Date: May 2017					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 2							P-1 Line Item Number / Title: 0200 / Surface Combatant HM&E							Aggregated Items Title: GB004 - Maritime Energy Initiatives (TMCS)						
Item Number / Title [DODIC]	ID CD	MDAP/MAIS Code	Prior Years			FY 2016			FY 2017			FY 2018 Base			FY 2018 OCO			FY 2018 Total		
			Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)
B Kits/Recurring																				
Thermal Management Control System Equipment -- Procurement ⁽⁸⁾	A		991,000.00	4	3.964	1,008K	4	4.032	905,800.00	2	1.812	922,104.00	4	3.688	-	-	-	922,104.00	4	3.688
Thermal Management Control System Equipment -- Installation	A		-	-	0.900	-	-	7.422	-	-	7.220	-	-	4.421	-	-	-	-	-	4.421
Subtotal: B Kits/Recurring			-	-	4.864	-	-	11.454	-	-	9.032	-	-	8.109	-	-	-	-	-	8.109
Support Cost																				
TMCS Engineering Services	A		-	-	0.082	-	-	0.202	-	-	0.104	-	-	0.113	-	-	-	-	-	0.113
Subtotal: Support Cost			-	-	0.082	-	-	0.202	-	-	0.104	-	-	0.113	-	-	-	-	-	0.113
Total			-	-	4.946	-	-	11.656	-	-	9.136	-	-	8.222	-	-	0.000	-	-	8.222
Note: Subtotals or Totals in this Exhibit P-40a may not be exact or sum exactly, due to rounding.																				
Remarks: The Heating, Ventilation, and Air Conditioning (HVAC) system is the largest distributed system on a Surface Combatant and typically consumes between 25% and 40% of all energy used. Surveys on several DDG-class ships indicate that average space temperatures across the ship were being maintained well below the design temperature. Thermal Management Control System (TMCS) provides centralized control and monitoring of space temperatures at design set-points for each compartment throughout the ship. This technology enables improved operational efficiency of the HVAC system, thereby lowering AC loads and reducing electrical demand. Engineering Services: It includes five (5) elements that are related to the production and delivery of a usable end-item: Production Engineering, Quality Assurance, Product Improvement, Acceptance Test and Evaluation, and Contractor Engineering and Technical Services (CETS). Five (5) elements and approximate breakdown is as follows: Production Engineering includes preparation, test and technical evaluation of engineering changes to correct deficiencies in the production items; production configuration control; review and evaluation of production design data and documentation; and logistic supportability efforts. Quality Assurance includes the preparation of procedures and the conduct of inspections, examinations and test during production that are necessary to deliver an item of the required quality as specified by the terms of the contract. Product Improvement includes improving reliability/maintainability/availability, and the correction of deficiencies exclusive of contractual specifications. Acceptance Test and Evaluation of a production item includes preparation of test plans, testing, data analysis, and data evaluation. Contractor Engineering and Technical Services (CETS) includes the furnishing of advice, instruction, and training by commercial or industrial companies.																				
Footnotes: ⁽⁸⁾ Installation costs include planning support that is conducted the year prior to installation (i.e., \$0.916M installation cost in FY16 refers to the prior year planning for FY17 installation). Installation schedules vary due to ships entering different types of availabilities for different lengths of time.																				

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Exhibit P-40a, Budget Item Justification For Aggregated Items: FY 2018 Navy																Date: May 2017				
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 2									P-1 Line Item Number / Title: 0200 / Surface Combatant HM&E							Aggregated Items Title: GB004 - Maritime Energy Initiatives (Bow Bulb)				

Item Number / Title [DODIC]	ID CD	MDAP/MAIS Code	Prior Years			FY 2016			FY 2017			FY 2018 Base			FY 2018 OCO			FY 2018 Total		
			Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)
B Kits/Recurring																				
Bow Bulb Equipment -- Procurement	A		-	-	-	-	-	-	-	-	-	1,205K	1	1.205	-	-	-	1,205K	1	1.205
Bow Bulb Equipment -- Installation	A		-	-	-	-	-	-	-	-	-	-	-	0.259	-	-	-	-	-	0.259
Subtotal: B Kits/Recurring			-	-	0.000	-	-	-	-	-	-	-	-	1.464	-	-	-	-	-	1.464
Support Cost																				
Bow Bulb Engineering Services	A		-	-	-	-	-	-	-	-	-	-	-	0.080	-	-	-	-	-	0.080
Subtotal: Support Cost			-	-	0.000	-	-	-	-	-	-	-	-	0.080	-	-	-	-	-	0.080
Total			-	-	0.000	-	-	0.000	-	-	0.000	-	-	1.544	-	-	0.000	-	-	1.544

Note: Subtotals or Totals in this Exhibit P-40a may not be exact or sum exactly, due to rounding.

Remarks:
Bow bulb is a near surface, small volume design for installation on the destroyer's bow in combination with the existing sonar dome. Modification of bow shape reduces hull wave drag without an increase in hull resistance, reducing fuel consumption.

Engineering Services:
It includes five (5) elements that are related to the production and delivery of a usable end-item: Production Engineering, Quality Assurance, Product Improvement, Acceptance Test and Evaluation, and Contractor Engineering and Technical Services (CETS).

Five (5) elements and approximate breakdown is as follows:

Production Engineering includes preparation, test and technical evaluation of engineering changes to correct deficiencies in the production items; production configuration control; review and evaluation of production design data and documentation; and logistic supportability efforts.

Quality Assurance includes the preparation of procedures and the conduct of inspections, examinations and test during production that are necessary to deliver an item of the required quality as specified by the terms of the contract.

Product Improvement includes improving reliability/maintainability/availability, and the correction of deficiencies exclusive of contractual specifications.

Acceptance Test and Evaluation of a production item includes preparation of test plans, testing, data analysis, and data evaluation.

Contractor Engineering and Technical Services (CETS) includes the furnishing of advice, instruction, and training by commercial or industrial companies.

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Exhibit P-40a, Budget Item Justification For Aggregated Items: FY 2018 Navy															Date: May 2017					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 2							P-1 Line Item Number / Title: 0200 / Surface Combatant HM&E							Aggregated Items Title: GB004 - Maritime Energy Initiatives (VSD for CPS)						
Item Number / Title [DODIC]	ID CD	MDAP/MAIS Code	Prior Years			FY 2016			FY 2017			FY 2018 Base			FY 2018 OCO			FY 2018 Total		
			Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)
B Kits/Recurring																				
Variable Speed Drive Equipment -- Procurement ⁽⁹⁾	A		799,500.00	2	1.599	722,000.00	3	2.166	743,170.00	1	0.743	756,547.00	4	3.026	-	-	-	756,547.00	4	3.026
Variable Speed Drive Equipment -- Installation	A		-	-	0.336	-	-	2.049	-	-	2.765	-	-	1.211	-	-	-	-	-	1.211
Subtotal: B Kits/Recurring			-	-	1.935	-	-	4.215	-	-	3.508	-	-	4.237	-	-	-	-	-	4.237
Support Cost																				
Variable Speed Drive Engineering Services	A		-	-	0.082	-	-	0.202	-	-	0.105	-	-	0.107	-	-	-	-	-	0.107
Subtotal: Support Cost			-	-	0.082	-	-	0.202	-	-	0.105	-	-	0.107	-	-	-	-	-	0.107
Total			-	-	2.017	-	-	4.417	-	-	3.613	-	-	4.344	-	-	0.000	-	-	4.344
Note: Subtotals or Totals in this Exhibit P-40a may not be exact or sum exactly, due to rounding.																				
Remarks: The Collective Protective System (CPS) is a full time air filtration system integrated into the ship's HVAC system. The amount of outside supply air delivered to CPS zones varies with filter loading over time and is almost always higher than needed, resulting in above average HVAC loads. Variable Speed Drive (VSD) will be installed as an airflow control component to optimize supply air flow, realizing energy savings from fan motor and reduced HVAC loads. Engineering Services: It includes five (5) elements that are related to the production and delivery of a usable end-item: Production Engineering, Quality Assurance, Product Improvement, Acceptance Test and Evaluation, and Contractor Engineering and Technical Services (CETS). Five (5) elements and approximate breakdown is as follows: Production Engineering includes preparation, test and technical evaluation of engineering changes to correct deficiencies in the production items; production configuration control; review and evaluation of production design data and documentation; and logistic supportability efforts. Quality Assurance includes the preparation of procedures and the conduct of inspections, examinations and test during production that are necessary to deliver an item of the required quality as specified by the terms of the contract. Product Improvement includes improving reliability/maintainability/availability, and the correction of deficiencies exclusive of contractual specifications. Acceptance Test and Evaluation of a production item includes preparation of test plans, testing, data analysis, and data evaluation. Contractor Engineering and Technical Services (CETS) includes the furnishing of advice, instruction, and training by commercial or industrial companies.																				
Footnotes: ⁽⁹⁾ Installation costs include planning support that is conducted the year prior to installation (i.e., \$0.513M installation cost in FY16 refers to the prior year planning for FY17 installation). Installation cost increases starting in FY22 vary depending on current port rates. Port rates are updated every year by a CNRMC letter based on the forecasted port loading model. Port loading rate forecasts are the rates recommended for all budgeted maintenance and organic modernization within a specific port. Individual ship's availability durations vary dependent upon the integration of ship's maintenance and modernization work packages.																				

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Exhibit P-40a, Budget Item Justification For Aggregated Items: FY 2018 Navy															Date: May 2017					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 2							P-1 Line Item Number / Title: 0200 / Surface Combatant HM&E							Aggregated Items Title: GB004 - Maritime Energy Initiatives (SSL)						
Item Number / Title [DODIC]	ID CD	MDAP/MAIS Code	Prior Years			FY 2016			FY 2017			FY 2018 Base			FY 2018 OCO			FY 2018 Total		
			Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)
B Kits/Recurring																				
Solid State Lighting Equipment -- Procurement	A		496,333.33	6	2.978	498,000.00	4	1.992	495,667.00	3	1.487	504,600.00	5	2.523	-	-	-	504,600.00	5	2.523
Solid State Lighting Equipment -- Installation	A		-	-	2.245	-	-	2.080	-	-	1.583	-	-	2.521	-	-	-	-	-	2.521
Hanger Bay Solid State Lighting Equipment (SSL) -- Procurement	A		-	-	-	-	-	-	-	-	-	41,667.00	3	0.125	-	-	-	41,667.00	3	0.125
Hanger Bay Solid State Lighting Equipment (SSL) -- Installation	A		-	-	-	-	-	-	-	-	-	-	-	0.280	-	-	-	-	-	0.280
Subtotal: B Kits/Recurring			-	-	5.223	-	-	4.072	-	-	3.070	-	-	5.449	-	-	-	-	-	5.449
Support Cost																				
Solid State Lighting Engineering Services	A		-	-	0.039	-	-	0.093	-	-	0.049	-	-	0.094	-	-	-	-	-	0.094
Subtotal: Support Cost			-	-	0.039	-	-	0.093	-	-	0.049	-	-	0.094	-	-	-	-	-	0.094
Total			-	-	5.262	-	-	4.165	-	-	3.119	-	-	5.543	-	-	0.000	-	-	5.543
Note: Subtotals or Totals in this Exhibit P-40a may not be exact or sum exactly, due to rounding.																				
Remarks: Solid State Lighting (SSL) lamps consist of individual Light Emitting Diodes (LEDs), which serve as replacements for incandescent and fluorescent lighting fixtures. SSL replacements are engineered to meet military specifications. SSL replacements for incandescent and fluorescent fixtures reduce energy usage by approximately 85% and 50%, respectively. Additionally, this install will drastically reduce the electrical lighting load, maintenance actions, and the space needed for spare parts. Engineering Services: It includes five (5) elements that are related to the production and delivery of a usable end-item: Production Engineering, Quality Assurance, Product Improvement, Acceptance Test and Evaluation, and Contractor Engineering and Technical Services (CETS). Five (5) elements and approximate breakdown is as follows: Production Engineering includes preparation, test and technical evaluation of engineering changes to correct deficiencies in the production items; production configuration control; review and evaluation of production design data and documentation; and logistic supportability efforts. Quality Assurance includes the preparation of procedures and the conduct of inspections, examinations and test during production that are necessary to deliver an item of the required quality as specified by the terms of the contract. Product Improvement includes improving reliability/maintainability/availability, and the correction of deficiencies exclusive of contractual specifications. Acceptance Test and Evaluation of a production item includes preparation of test plans, testing, data analysis, and data evaluation. Contractor Engineering and Technical Services (CETS) includes the furnishing of advice, instruction, and training by commercial or industrial companies.																				

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Exhibit P-40a, Budget Item Justification For Aggregated Items: FY 2018 Navy														Date: May 2017						
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 2							P-1 Line Item Number / Title: 0200 / Surface Combatant HM&E							Aggregated Items Title: GB004 - Maritime Energy Initiatives (Shipboard Energy Dashboard FLT IIA)						
Item Number / Title [DODIC]	ID CD	MDAP/MAIS Code	Prior Years			FY 2016			FY 2017			FY 2018 Base			FY 2018 OCO			FY 2018 Total		
			Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)
B Kits/Recurring																				
Shipboard Energy Dashboard FLT IIA Equipment -- Procurement ⁽¹⁰⁾	A		41,000.00	5	0.205	41,500.00	2	0.083	43,000.00	2	0.086	-	-	-	-	-	-	-	-	-
Shipboard Energy Dashboard FLT IIA Equipment -- Installation	A		-	-	-	-	-	0.419	-	-	0.171	-	-	0.174	-	-	-	-	-	0.174
Subtotal: B Kits/Recurring			-	-	0.205	-	-	0.502	-	-	0.257	-	-	0.174	-	-	-	-	-	0.174
Support Cost																				
Shipboard Energy Dashboard FLT IIA Engineering Services	A		-	-	0.041	-	-	0.110	-	-	0.041	-	-	0.043	-	-	-	-	-	0.043
Subtotal: Support Cost			-	-	0.041	-	-	0.110	-	-	0.041	-	-	0.043	-	-	-	-	-	0.043
Total			-	-	0.246	-	-	0.612	-	-	0.298	-	-	0.217	-	-	0.000	-	-	0.217
Note: Subtotals or Totals in this Exhibit P-40a may not be exact or sum exactly, due to rounding.																				
Remarks: The Shipboard Energy Dashboard FLT IIA technology is a shipboard tool providing real time situational awareness of the energy demand associated with equipment lineup and mission. Technology raises operator awareness of how certain engineering plant lineups and equipment affect fuel consumption rates. Energy savings will be realized through energy usage culture change. Engineering Services: It includes five (5) elements that are related to the production and delivery of a usable end-item: Production Engineering, Quality Assurance, Product Improvement, Acceptance Test and Evaluation, and Contractor Engineering and Technical Services (CETS). Five (5) elements and approximate breakdown is as follows: Production Engineering includes preparation, test and technical evaluation of engineering changes to correct deficiencies in the production items; production configuration control; review and evaluation of production design data and documentation; and logistic supportability efforts. Quality Assurance includes the preparation of procedures and the conduct of inspections, examinations and test during production that are necessary to deliver an item of the required quality as specified by the terms of the contract. Product Improvement includes improving reliability/maintainability/availability, and the correction of deficiencies exclusive of contractual specifications. Acceptance Test and Evaluation of a production item includes preparation of test plans, testing, data analysis, and data evaluation. Contractor Engineering and Technical Services (CETS) includes the furnishing of advice, instruction, and training by commercial or industrial companies.																				
Footnotes: ⁽¹⁰⁾ Shipboard Energy Dashboard Flt IIA effort planned to complete in FY18.																				

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Exhibit P-40, Budget Line Item Justification: FY 2018 Navy										Date: May 2017		
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 01: Ships Support Equipment / BSA 6: Navigation Equipment							P-1 Line Item Number / Title: 0670 / Other Navigation Equipment					
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 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	To Complete	Total
Procurement Quantity (<i>Units in Each</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost (<i>\$ in Millions</i>)	271.479	63.481	63.942	65.943	0.000	65.943	107.588	122.148	124.705	57.665	Continuing	Continuing
Less PY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (<i>\$ in Millions</i>)	271.479	63.481	63.942	65.943	0.000	65.943	107.588	122.148	124.705	57.665	Continuing	Continuing
Plus CY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority (<i>\$ in Millions</i>)	271.479	63.481	63.942	65.943	0.000	65.943	107.588	122.148	124.705	57.665	Continuing	Continuing
<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 Dollars</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost (<i>\$ in Dollars</i>)	-	-	-	-	-	-	-	-	-	-	-	-

Description:

This budget exhibit represents a considerable departure from PB17 and prior submissions. Many of the field changes and upgrades previously included in P40A Cost Elements have been broken out into separate P3A Cost Elements in order to capture individual procurement and installation costs of specific field changes and upgrades. This change results in significant changes from PB17. In addition, FY16 amounts reflect current actuals and P3A installation plans reflect current system fielding plans.

This program provides procurement and improvements of navigation equipment to include Inertial Navigation equipment for Ballistic Missile Defense such as gyrocompasses, speed sensors, Electronic Chart Display and Information System - Navy (ECDIS-N) and major components for other navigation systems. ECDIS-N provides Fleet-wide electronic charting capability, increases navigation and situational awareness, improves safety at sea, and eliminates reliance on paper charts. These systems provide mission critical navigation data to Ballistic Missile Defense, shipboard, combat, and gun and missile systems.

[P40A / GW013: CONVENTIONAL NAVIGATION FIELD CHANGE KITS]: Use of this Cost Element ends with FY16 and future planned efforts have been moved to associated product-specific P3A Cost Elements for FY17 and beyond. For FY16 and prior, these funds are required to procure Navigation Field Change Kits for reliability and maintainability improvements and corrections for various conventional navigation equipment including the Dead Reckoning Equipment (DRE), Computer Aided Dead Reckoning Tracer (CADRT), plotters, gyrocompasses, Electromagnetic Log (EM Log), Doppler Sonar Velocity Log (DSVL), Digital Flux Gate Magnetic Compass, Digital Depth Detector and Synchronization Signal Amplifier. These improvements are required to keep Fleet-installed equipment operating to a basic level. This cost element funds multiple Field Changes of various quantities, costs, and fielding plans.

[P40A / GW029: INERTIAL NAVIGATION SYSTEMS FIELD CHANGE KITS]: Use of this Cost Element ends with FY16 and future planned efforts have been moved to associated product-specific P3A Cost Elements for FY17 and beyond. For FY16 and prior, these funds are required in order to support procurement and implementation of Engineering Change Proposals (ECPs)/ Field Change (FC) Kits, alterations and update of associated technical documentation which provide reliability and maintainability improvements, corrections and upgrades for various Inertial Navigation Systems (INS), (AN/WSN-7/7A/7B), the associated IP-1747 Control Display Unit (CDU), and IP-1747 Enhanced Control Display Unit (ECDU) and Aircraft Inertial Alignment System (AIAS) (AN/SRC-40, OU-174, TS-3543A). Funds also support procurement of hardware and software changes to the navigation suite required to integrate with Ring Laser Gyro Navigator (AN/WSN-7/7A), and Ring Laser Gyrocompass (AN/WSN-7B) and Test & Integration. Funds will support technology refresh to replace parts obsolescence and keep pace with technology. Funds required to perform navigation certification required as prerequisite to TOMAHAWK certification. This cost element funds multiple Field Changes of various quantities, costs, and fielding plans.

[P40A / GW038: BPS ECDIS-N/VMS FC KITS]: These funds are required to provide AN/BPS-15/16 - Voyage Management System (VMS) Field Changes to provide ECDIS-N capability and to support obsolescence replacement on submarines.

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Exhibit P-40, Budget Line Item Justification: FY 2018 Navy		Date: May 2017
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 01: Ships Support Equipment / BSA 6: Navigation Equipment		P-1 Line Item Number / Title: 0670 / Other Navigation Equipment
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		
[P40A / GW051: SCALABLE ECDIS-N ECP/FIELD CHANGE KITS:]: This Cost Element was transitioned from P40A to P3A to capture specific fielding of ECDIS-N hardware and software upgrades. These funds are required for the procurement and installation of ECDIS-N ECP/Field Change Kits to support hardware tech refresh, software upgrades to incorporate latest functions and safety enhancements, obsolescence replacement, and for engineering services associated with interfacing systems on multiple platforms. [P40A / GW054: NAVIGATION TRAINING EQUIPMENT]: Funds are required for the procurement of training equipment for multiple Navigation classrooms in support of Navigation System Technician pipeline training and ECDIS-N Operator Training. This includes computer upgrades and software licenses. These upgrades are critical to maintaining Fleet proficiency on operation and maintenance of navigation systems. Field Changes include ECDIS-N Operator Course Classroom Tech Refresh and additional seats and licenses and upgrade/update Mariner Skills Simulator (MSS) to support Fleet Training Requirements (Radar/Data bases/Models). [P40A / GW056 ECDIS-N MODERNIZATION]: This Cost Element was transitioned from P40A to P3A to capture specific fielding of Navy ECDIS. These funds are required to provide centralized and cost effective lifecycle sustainment and modernization of ECDIS-N solutions. Funding is required to manage and execute ECDIS-N hardware and software upgrades and competitive efforts for follow-on ECDIS-N solution. [P40A / GW063: NAVIGATION CERTIFICATION]: These funds are required for conducting Navigation Certification (NAVCERT) on amphibious, surface, submarine, and carrier platforms as part of fielded upgrades and tech refresh. FY16 funds also include the initial effort for the establishment of a land-based Navigation Certification Suite lab to verify navigation equipment field changes and tech refresh interoperability with existing systems prior to shipboard installation. [P40A / GW064: OWN SHIP SPEED (OSS) AND COURSE REPEATERS]: These funds are required for the fielding of Own Ship Speed (OSS) and Course Repeaters. [P40A / GW065: NAVIGATION SHORESITE EQUIPMENT]: These funds are required for the procurement and NRE/ILS/Support of navigation system shoresite equipment. Shoresite equipment does not have any associated installation costs. [P40A / GW066: SSBN NAVIGATION SENSOR OBSOLESCENCE]: These funds are required for Procurement and NRE/ILS/Support of replacement Navigation Sensors on SSBN Platforms. [P40A / GW068: NAVIGATION CERTIFICATION SUITE]: This Cost Element is new from PB17 and was created by splitting Cost Element GW063 to differentiate efforts. These funds are required for the procurement of hardware and software to maintain and upgrade a land-based Navigation Certification Suite lab to verify navigation equipment field changes and tech refresh interoperability with existing systems prior to shipboard installation. [P40A / GW830: PRODUCTION ENGINEERING]: These funds are required for the production engineering support of all navigation system hardware, software, and tech refresh procurements and system test and integration. Amounts will vary from those in PB17. Previous budget exhibits captured only production engineering costs directly associated with the individual P40A and P3A field changes and upgrades. This Cost Element now includes indirect costs associated with the procurement and installation of individual field changes and upgrades. These costs would include field change and upgrade support, consolidated engineering support, Program Office support, and other costs. These costs will fluctuate with increases and decreases of overall budget, number and type of field changes and upgrades, and required support. [P40AMOD / GW036: AN/WSN-7B]: These funds are required for the procurement and installation of the AN/WSN-7B Ring Laser Gyrocompass (RLG) for SSN, MCM, and LSD platforms. System peripherals include Sync Amps, BIT Cables, and installation kits. MCM ships require quantity (2) AN/WSN-7B per ship. Also, provides funding for part obsolescence solutions to maintain manufacturing capability. [P40AMOD / GW051: ECDIS-N MODERNIZATION]: This P3A Cost Element was created by converting and renaming funding from PB17 P40A Cost Element GW051 (SCALABLE ECDIS-N ECP/FIELD CHANGE KITS) to identify individual modernization field changes and tech refresh. These funds are for the procurement and installation of ECDIS-N hardware and software Tech Refresh on amphibious, surface and carrier platforms.		

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Exhibit P-40, Budget Line Item Justification: FY 2018 Navy		Date: May 2017
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 01: Ships Support Equipment / BSA 6: Navigation Equipment		P-1 Line Item Number / Title: 0670 / Other Navigation Equipment
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		
[P40AMOD / GW055: SPEED LOGS]: This Cost Element was renamed from PB17 P3A Cost Element (AN/WSN-9 SPEED LOG PROCUREMENT) as a result of expanding to encompass all non-AN/WSN-9 speed log efforts that were previously included in Cost Element GW013. These funds are for the procurement and installation of Speed Log upgrades and Tech Refresh on amphibious, surface, submarine, and carrier platforms. [P40AMOD / GW058: NAVSSI CAPSTONE]: These funds are required for the procurement, installation, and NRE/ILS/Support of NAVSSI Capstone upgrades on LHD platforms to support Ship Self Defense System (SSDS) upgrades. [P40AMOD / GW059: EMERGENCY NAVIGATION LAPTOP]: These funds are required for the procurement and installation of Emergency Navigation Laptops (ENL) on amphibious, surface and carrier platforms. [P40AMOD / GW060: NEXT GENERATION FATHOMETER]: These funds are required for the procurement, installation, and NRE/ILS/support of Next Generation Fathometers to replace legacy AN/UQN-4/4A systems on amphibious, surface and carrier platforms. [P40AMOD / GW061: MK 27 REPLACEMENT]: These funds are required for the procurement and installation of replacement for legacy MK27 Backup Heading Reference systems on amphibious, surface, and submarine platforms. [P40AMOD / GW062: AN/WSN-7 MODERNIZATION]: These funds are required for the procurement and installation of field changes, upgrades, and Tech Refresh of AN/WSN-7 Inertial Navigation System on amphibious, surface, submarine, and carrier platforms. [P40AMOD / GW067: DIGITAL DEPTH DETECTOR]: This Cost Element is new from PB17 and is one of the P3A Cost Elements that was created from the GW013 P40A Cost Element. These funds are required for the procurement and installation of Digital Depth Detector to replace legacy depth detectors on submarine platforms. [P3A - 3 / GW053: AN/WSN-12]: These funds are for the procurement and installation of AN/WSN-12 Inertial Navigation Systems on surface and submarine platforms. [P3A - 5 / GW056: NAVY ECDIS]: This Cost Element was converted and renamed from PB17 P40A Cost Element GW056 (ECDIS-N MODERNIZATION) to P3A to identify non-recurring and recurring costs associated with the fielding of new ECDIS software. These funds are required for the software build, procurement, and installation of Navy ECDIS hardware and software to replace legacy ECDIS-N capability on amphibious and surface platforms. [P3A - 12 / GW069: BOUNDARY DEFENSE CABINET]: This Cost Element is new from PB17 and was created to capture costs associated with the fielding of cybersecurity solutions. These funds are required for the procurement and installation of Boundary Defense Cabinets on surface platforms.		

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Exhibit P-40, Budget Line Item Justification: FY 2018 Navy					Date: May 2017				
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 01: Ships Support Equipment / BSA 6: Navigation Equipment					P-1 Line Item Number / Title: 0670 / Other Navigation Equipment				

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 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 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-40a	Other Navigation Equipment				- / 201.136	- / 41.869	- / 19.823	- / 19.925	- / -	- / 19.925
P-40a	GW036: AN/WSN-7B				- / 66.404	- / 4.060	- / 1.325	- / 0.050	- / 0.000	- / 0.050
P-40a	GW051: ECDIS-N MODERNIZATION				- / 0.000	- / 0.000	- / 15.833	- / 4.786	- / 0.000	- / 4.786
P-40a	GW055: SPEED LOGS				- / 3.939	- / 4.191	- / 9.695	- / 6.081	- / 0.000	- / 6.081
P-40a	GW058: NAVSSI CAPSTONE				- / 0.000	- / 0.281	- / 2.652	- / 3.010	- / 0.000	- / 3.010
P-40a	GW059: EMERGENCY NAVIGATION LAPTOP				- / 0.000	- / 4.095	- / 0.000	- / 0.000	- / 0.000	- / 0.000
P-40a	GW060: NEXT GENERATION FATHOMETER				- / 0.000	- / 3.509	- / 3.035	- / 2.792	- / 0.000	- / 2.792
P-40a	GW061: MK 27 REPLACEMENT				- / 0.000	- / 2.088	- / 2.575	- / 1.355	- / 0.000	- / 1.355
P-40a	GW062: AN/WSN-7 MODERNIZATION				- / 0.000	- / 3.388	- / 2.349	- / 8.811	- / 0.000	- / 8.811
P-40a	GW067: DIGITAL DEPTH DETECTOR				- / 0.000	- / 0.000	- / 0.775	- / 1.013	- / 0.000	- / 1.013
P-3a	5 / GW056: NAVY ECDIS (NAVY ECDIS)				- / 0.000	- / 0.000	- / 5.880	- / 18.120	- / 0.000	- / 18.120
P-40	Total Gross/Weapon System Cost				- / 271.479	- / 63.481	- / 63.942	- / 65.943	- / 0.000	- / 65.943

*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. Title represents the P-40a Title when only the P-40a Summary/Total is shown.

Note: Totals in this Exhibit P-40 set may not be exact or sum exactly due to rounding.

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Exhibit P-40a, Budget Item Justification For Aggregated Items: FY 2018 Navy																Date: May 2017				
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 6									P-1 Line Item Number / Title: 0670 / Other Navigation Equipment							Aggregated Items Title: Other Navigation Equipment				
Item Number / Title [DODIC]	ID CD	MDAP/MAIS Code	Prior Years			FY 2016			FY 2017			FY 2018 Base			FY 2018 OCO			FY 2018 Total		
			Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)
1) GW013: CONVENTIONAL NAVIGATION FIELD CHANGE KITS																				
1.1) SURFACE CONVENTIONAL NAVIGATION FC KITS	A		-	-	7.168	-	-	0.656	-	-	-	-	-	-	-	-	-	-	-	-
1.2) SUBMARINE CONVENTIONAL NAVIGATION FC KITS	A		-	-	19.835	-	-	0.516	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: 1) GW013: CONVENTIONAL NAVIGATION FIELD CHANGE KITS			-	-	27.003	-	-	1.172	-	-	-	-	-	-	-	-	-	-	-	-
2) GW029: INERTIAL NAVIGATION SYSTEMS FIELD CHANGE KITS																				
2.1) SURFACE INERTIAL NAV SYS ECP/FC KITS	A		-	-	17.470	-	-	3.533	-	-	-	-	-	-	-	-	-	-	-	-
2.2) SUBMARINE INERTIAL NAV SYS ECP/FC KITS	A		-	-	34.090	-	-	4.578	-	-	-	-	-	-	-	-	-	-	-	-
2.3) CARRIER INERTIAL NAV SYS ECP/FC KITS	A		-	-	15.949	-	-	1.071	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: 2) GW029: INERTIAL NAVIGATION SYSTEMS FIELD CHANGE KITS			-	-	67.509	-	-	9.182	-	-	-	-	-	-	-	-	-	-	-	-
3) GW038: BPS ECDIS-N/VMS FC KITS:																				
3.1) SUBMARINE BPS ECDIS-N/VMS FC KITS:	A		-	-	44.392	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: 3) GW038: BPS ECDIS-N/VMS FC KITS:			-	-	44.392	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4) GW051: SCALABLE ECDIS-N ECP/FIELD CHANGE KITS:																				
4.1) SURFACE SCALABLE ECDIS-N ECP/ FIELD CHANGE KITS	A		-	-	32.327	-	-	15.235	-	-	-	-	-	-	-	-	-	-	-	-
4.2) CARRIER SCALABLE ECDIS-N ECP/FIELD CHANGE KITS:	A		-	-	5.831	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: 4) GW051: SCALABLE ECDIS-N ECP/FIELD CHANGE KITS:			-	-	38.158	-	-	15.235	-	-	-	-	-	-	-	-	-	-	-	-
5) GW054: NAVIGATION TRAINING EQUIPMENT																				
5.1) SURFACE NAVIGATION TRAINING EQUIPMENT	A		-	-	2.408	-	-	0.598	-	-	0.601	-	-	1.346	-	-	-	-	-	1.346

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Exhibit P-40a, Budget Item Justification For Aggregated Items: FY 2018 Navy																Date: May 2017					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 6									P-1 Line Item Number / Title: 0670 / Other Navigation Equipment							Aggregated Items Title: Other Navigation Equipment					
Item Number / Title [DODIC]	ID CD	MDAP/MAIS Code	Prior Years			FY 2016			FY 2017			FY 2018 Base			FY 2018 OCO			FY 2018 Total			
			Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	
Subtotal: 5) GW054: NAVIGATION TRAINING EQUIPMENT			-	-	2.408	-	-	0.598	-	-	0.601	-	-	1.346	-	-	-	-	-	1.346	
6) GW056 ECDIS-N MODERNIZATION																					
6.1) SURFACE ECDIS-N MODERNIZATION	A		-	-	3.970	-	-	0.771	-	-	-	-	-	-	-	-	-	-	-	-	
Subtotal: 6) GW056 ECDIS-N MODERNIZATION			-	-	3.970	-	-	0.771	-	-	-	-	-	-	-	-	-	-	-	-	
7) GW063: NAVIGATION CERTIFICATION																					
7.1) AMPHIB NAVIGATION CERTIFICATION	A		-	-	-	-	-	1.707	-	-	1.485	-	-	0.855	-	-	-	-	-	0.855	
7.2) SURFACE NAVIGATION CERTIFICATION	A		-	-	-	-	-	6.826	-	-	5.805	-	-	2.835	-	-	-	-	-	2.835	
7.3) SUBMARINE NAVIGATION CERTIFICATION	A		-	-	-	-	-	-	-	-	1.350	-	-	1.080	-	-	-	-	-	1.080	
7.4) CARRIER NAVIGATION CERTIFICATION	A		-	-	-	-	-	-	-	-	0.450	-	-	0.180	-	-	-	-	-	0.180	
Subtotal: 7) GW063: NAVIGATION CERTIFICATION			-	-	0.000	-	-	8.533	-	-	9.090	-	-	4.950	-	-	-	-	-	4.950	
8) GW064: OWN SHIP SPEED (OSS) AND COURSE REPEATERS																					
8.1) SURFACE OSS AND COURSE REPEATERS	A		-	-	-	-	-	0.200	-	-	0.135	-	-	-	-	-	-	-	-	-	
Subtotal: 8) GW064: OWN SHIP SPEED (OSS) AND COURSE REPEATERS			-	-	0.000	-	-	0.200	-	-	0.135	-	-	-	-	-	-	-	-	-	
9) GW065: NAVIGATION SHORESITE EQUIPMENT																					
9.1) NAVIGATION SHORESITE EQUIPMENT ⁽¹⁾	A		-	-	-	598,899.00	4	2.396	-	-	0.360	-	-	-	-	-	-	-	-	-	
Subtotal: 9) GW065: NAVIGATION SHORESITE EQUIPMENT			-	-	0.000	-	-	2.396	-	-	0.360	-	-	-	-	-	-	-	-	-	
10) GW066: SSBN NAVIGATION SENSOR OBSOLESCENCE																					
10.1) SSBN NAVIGATION SENSOR OBSOLESCENCE ⁽²⁾	A		-	-	-	-	-	-	-	-	1.300	-	-	3.017	-	-	-	-	-	3.017	
Subtotal: 10) GW066: SSBN NAVIGATION SENSOR OBSOLESCENCE			-	-	0.000	-	-	-	-	-	1.300	-	-	3.017	-	-	-	-	-	3.017	
11) GW068: NAVIGATION CERTIFICATION SUITE																					

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Exhibit P-40a, Budget Item Justification For Aggregated Items: FY 2018 Navy															Date: May 2017					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 6							P-1 Line Item Number / Title: 0670 / Other Navigation Equipment								Aggregated Items Title: Other Navigation Equipment					
Item Number / Title [DODIC]	ID CD	MDAP/MAIS Code	Prior Years			FY 2016			FY 2017			FY 2018 Base			FY 2018 OCO			FY 2018 Total		
			Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)
11.3) CARRIER NAVIGATION CERTIFICATION SUITE	A		-	-	-	-	-	-	-	-	2.034	-	-	-	-	-	-	-	-	-
Subtotal: 11) GW068: NAVIGATION CERTIFICATION SUITE			-	-	0.000	-	-	-	-	-	2.034	-	-	-	-	-	-	-	-	-
12) GW830: PRODUCTION ENGINEERING																				
12.1) AMPHIB PRODUCTION ENGINEERING ⁽³⁾	A		-	-	-	-	-	-	-	-	0.915	-	-	1.608	-	-	-	-	-	1.608
12.2) SURFACE PRODUCTION ENGINEERING ⁽⁴⁾	A		-	-	8.619	-	-	2.383	-	-	2.769	-	-	6.494	-	-	-	-	-	6.494
12.3) SUBMARINE PRODUCTION ENGINEERING ⁽⁵⁾	A		-	-	6.143	-	-	0.990	-	-	1.656	-	-	2.245	-	-	-	-	-	2.245
12.4) CARRIER PRODUCTION ENGINEERING	A		-	-	2.934	-	-	0.409	-	-	0.963	-	-	0.265	-	-	-	-	-	0.265
Subtotal: 12) GW830: PRODUCTION ENGINEERING			-	-	17.696	-	-	3.782	-	-	6.303	-	-	10.612	-	-	-	-	-	10.612
Total			-	-	201.136	-	-	41.869	-	-	19.823	-	-	19.925	-	-	-	-	-	19.925

Note: Subtotals or Totals in this Exhibit P-40a may not be exact or sum exactly, due to rounding.

Footnotes:

- ⁽¹⁾ GW065: FY17 amount (\$0.360) increased from PB17 (\$0.000) due to overall lead time exceeding 12 months and funds contractor's annual program and manufacturing management costs.
- ⁽²⁾ GW066: FY17 funding is for NRE to define Field Change Kits to address navigation sensor obsolescence in support of SSBN modernization. FY18-19 funding is for procurement and installation of Field Change Kits on all 14 SSBN.
- ⁽³⁾ GW830 (Amphib): Increase from FY17 to FY18 due to increased procurement and installation of navigation equipment (P3A) on amphibious platforms.
- ⁽⁴⁾ GW830 (Surface): Increase from FY17 to FY18 due to increased procurement and installation of navigation equipment (P3A) on surface platforms.
- ⁽⁵⁾ GW830 (Submarine): Increase from FY17 to FY18 due to increased procurement and installation of navigation equipment (P3A) on submarines.

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Exhibit P-40a, Budget Item Justification For Aggregated Items: FY 2018 Navy																Date: May 2017			
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 6								P-1 Line Item Number / Title: 0670 / Other Navigation Equipment								Aggregated Items Title: GW036: AN/WSN-7B			

Item Number / Title [DODIC]	ID CD	MDAP/ MAIS Code	Prior Years			FY 2016			FY 2017			FY 2018 Base			FY 2018 OCO			FY 2018 Total		
			Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)
B Kits/Non-Recurring -- PARTS OBSOLESCENCE																				
PARTS OBSOLESCENCE NON-RECURRING ⁽⁶⁾	A		-	-	-	-	-	2.733	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: B Kits/Non-Recurring -- PARTS OBSOLESCENCE			-	-	0.000	-	-	2.733	-	-	-	-	-	-	-	-	-	-	-	-
B Kits/Recurring -- AMPHIB AN/WSN-7B																				
AMPHIB AN/WSN-7B PROCUREMENT -- Procurement ⁽⁷⁾	A		418,593.41	91	38.092	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AMPHIB AN/WSN-7B PROCUREMENT -- Installation	A		-	-	28.312	-	-	1.327	-	-	1.325	-	-	-	-	-	-	-	-	-
Subtotal: B Kits/Recurring -- AMPHIB AN/WSN-7B			-	-	66.404	-	-	1.327	-	-	1.325	-	-	-	-	-	-	-	-	-
B Kits/Recurring -- SUBMARINE AN/WSN-7B																				
SUBMARINE AN/WSN-7B FIELD CHANGE 1 -- Procurement ⁽⁸⁾	A		-	-	-	-	-	-	-	-	-	50,000.00	1	0.050	-	-	-	50,000.00	1	0.050
SUBMARINE AN/WSN-7B FIELD CHANGE 1 -- Installation	A		-	-	-	-	-	0.000	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: B Kits/Recurring -- SUBMARINE AN/WSN-7B			-	-	0.000	-	-	-	-	-	-	-	-	0.050	-	-	-	-	-	0.050
Total			-	-	66.404	-	-	4.060	-	-	1.325	-	-	0.050	-	-	0.000	-	-	0.050

Note: Subtotals or Totals in this Exhibit P-40a may not be exact or sum exactly, due to rounding.

Remarks:

Models of Systems Affected: GW036: RING LASER GYRO NAVIGATION RING LASER GYROCOMPASS (AN/WSN-7B)
Type Modification: AN/WSN-7B

These funds are required for the procurement and installation of the AN/WSN-7B Ring Laser Gyrocompass (RLG) for SSN, MCM, and LSD platforms. System peripherals include Sync Amps, BIT Cables, and installation kits. MCM ships require quantity (2) AN/WSN-7B per ship. Also, provides funding for part obsolescence solutions to maintain manufacturing capability.

AN/WSN-7B Field Change 1: Processor upgrade to Rev-N.

Footnotes:

⁽⁶⁾ PARTS OBSOLESCENCE NON-RECURRING: Funds are provided for life-time buys, material substitutions, and other parts obsolescence solutions to maintain ability to manufacture systems.

⁽⁷⁾ AMPHIB AN/WSN-7 PROCUREMENT: Systems procured in prior years as Economic Ordering Quantities based on previous fielding plans. Current fielding plan now aligns with SSDS modernization on LSD platforms and results in later installation of systems that were procured in prior years. FY16 installation funding includes \$0.332 for DSA and \$0.995 for AIT. FY17 installation funding includes \$0.203 for DSA and \$0.608 for AIT. FY19 installation funding includes \$0.203 for DSA and \$0.608 for AIT.

⁽⁸⁾ SUBMARINE AN/WSN-7B FIELD CHANGE 1: Field Change consists of reprogramming existing circuit cards and involves minimal installation effort. Installation costs are included in procurement costs.

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Exhibit P-40a, Budget Item Justification For Aggregated Items: FY 2018 Navy															Date: May 2017					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 6									P-1 Line Item Number / Title: 0670 / Other Navigation Equipment						Aggregated Items Title: GW051: ECDIS-N MODERNIZATION					
Item Number / Title [DODIC]	ID CD	MDAP/MAIS Code	Prior Years			FY 2016			FY 2017			FY 2018 Base			FY 2018 OCO			FY 2018 Total		
			Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)
B Kits/Recurring -- AMPHIB ECDIS-N FIELD CHANGES																				
AMPHIB SCALABLE ECDIS-N HARDWARE/ SOFTWARE -- Procurement ⁽⁹⁾	A		-	-	-	-	-	-	309,583.33	12	3.715	-	-	-	-	-	-	-	-	-
AMPHIB SCALABLE ECDIS-N HARDWARE/ SOFTWARE -- Installation	A		-	-	-	-	-	-	-	-	1.020	-	-	1.457	-	-	-	-	-	1.457
AMPHIB SCALABLE ECDIS-N SOFTWARE -- Installation	A		-	-	-	-	-	-	-	-	0.092	-	-	0.094	-	-	-	-	-	0.094
Subtotal: B Kits/Recurring -- AMPHIB ECDIS-N FIELD CHANGES			-	-	0.000	-	-	-	-	-	4.827	-	-	1.551	-	-	-	-	-	1.551
B Kits/Recurring -- SURFACE ECDIS-N FIELD CHANGES																				
SURFACE INTEGRATED BRIDGE SYSTEM (IBS) HARDWARE/ SOFTWARE -- Procurement ⁽¹⁰⁾	A		-	-	-	-	-	-	1,040K	3	3.121	-	-	-	-	-	-	-	-	-
SURFACE INTEGRATED BRIDGE SYSTEM (IBS) HARDWARE/ SOFTWARE -- Installation	A		-	-	-	-	-	-	-	-	-	-	-	2.185	-	-	-	-	-	2.185
SURFACE SCALABLE ECDIS-N HARDWARE/ SOFTWARE -- Procurement ⁽¹¹⁾	A		-	-	-	-	-	-	308,166.67	12	3.698	-	-	-	-	-	-	-	-	-
SURFACE SCALABLE ECDIS-N HARDWARE/ SOFTWARE -- Installation	A		-	-	-	-	-	-	-	-	1.632	-	-	0.832	-	-	-	-	-	0.832
SURFACE SCALABLE ECDIS-N SOFTWARE -- Installation	A		-	-	-	-	-	-	-	-	0.734	-	-	0.218	-	-	-	-	-	0.218
Subtotal: B Kits/Recurring -- SURFACE ECDIS-N FIELD CHANGES			-	-	0.000	-	-	-	-	-	9.185	-	-	3.235	-	-	-	-	-	3.235
B Kits/Recurring -- CARRIER ECDIS-N FIELD CHANGES																				

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Exhibit P-40a, Budget Item Justification For Aggregated Items: FY 2018 Navy															Date: May 2017				
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 6								P-1 Line Item Number / Title: 0670 / Other Navigation Equipment							Aggregated Items Title: GW051: ECDIS-N MODERNIZATION				

Item Number / Title [DODIC]	ID CD	MDAP/MAIS Code	Prior Years			FY 2016			FY 2017			FY 2018 Base			FY 2018 OCO			FY 2018 Total		
			Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)
CARRIER SCALABLE ECDIS-N HARDWARE/ SOFTWARE -- Procurement ⁽¹²⁾	A		-	-	-	-	-	-	306,000.00	3	0.918	-	-	-	-	-	-	-	-	-
CARRIER SCALABLE ECDIS-N HARDWARE/ SOFTWARE -- Installation	A		-	-	-	-	-	-	-	-	0.689	-	-	-	-	-	-	-	-	-
CARRIER SCALABLE ECDIS-N SOFTWARE -- Installation	A		-	-	-	-	-	-	-	-	0.214	-	-	-	-	-	-	-	-	-
Subtotal: B Kits/Recurring -- CARRIER ECDIS-N FIELD CHANGES			-	-	0.000	-	-	-	-	-	1.821	-	-	-	-	-	-	-	-	-
Total			-	-	0.000	-	-	0.000	-	-	15.833	-	-	4.786	-	-	0.000	-	-	4.786

Note: Subtotals or Totals in this Exhibit P-40a may not be exact or sum exactly, due to rounding.

Remarks:

Models of Systems Affected: GW051: ECDIS-N MODERNIZATION
Type Modification: ECDIS-N MODERNIZATION

These funds are for the procurement and installation of ECDIS-N hardware and software Tech Refresh on amphibious, surface and carrier platforms.

Footnotes:

- ⁽⁹⁾ AMPHIB SCALABLE ECDIS-N HARDWARE/SOFTWARE: Systems to be procured in FY17 as Economic Ordering Quantities and to maintain shipboard configuration for installation in FY17 and FY18.
- ⁽¹⁰⁾ SURFACE INTEGRATED BRIDGE SYSTEM (IBS) HARDWARE/SOFTWARE: Systems to be procured/delivered in FY17 to undergo land-based integration testing prior to installation in FY18. IBS is a full ECDIS-N system that is interfaced with ship control and other ship systems and consists of additional hardware as compared to scalable systems (items 1.1, 2.2, and 3.1).
- ⁽¹¹⁾ SURFACE SCALABLE ECDIS-N HARDWARE/SOFTWARE: Systems to be procured in FY17 as Economic Ordering Quantities and to maintain shipboard configuration for installation in FY17 and FY18.
- ⁽¹²⁾ CARRIER SCALABLE ECDIS-N HARDWARE/SOFTWARE: Systems to be procured in FY17 as Economic Ordering Quantities and to maintain shipboard configuration for installation in FY17.

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Exhibit P-40a, Budget Item Justification For Aggregated Items: FY 2018 Navy															Date: May 2017					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 6							P-1 Line Item Number / Title: 0670 / Other Navigation Equipment							Aggregated Items Title: GW055: SPEED LOGS						
Item Number / Title [DODIC]	ID CD	MDAP/MAIS Code	Prior Years			FY 2016			FY 2017			FY 2018 Base			FY 2018 OCO			FY 2018 Total		
			Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)
B Kits/Recurring -- AMPHIB SPEED LOG																				
AMPHIB AN/WSN-9 PROCUREMENT -- Procurement ⁽¹³⁾	A		465,833.33	6	2.795	214,443.00	10	2.144	-	-	-	194,000.00	2	0.388	-	-	-	194,000.00	2	0.388
AMPHIB AN/WSN-9 PROCUREMENT -- Installation	A		-	-	1.144	-	-	0.369	-	-	-	-	-	0.760	-	-	-	-	-	0.760
AMPHIB SWITCHBOARD -- Procurement ⁽¹⁴⁾	A		-	-	-	-	-	-	50,000.00	7	0.350	-	-	-	-	-	-	-	-	-
AMPHIB SWITCHBOARD -- Installation	A		-	-	-	-	-	0.000	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: B Kits/Recurring -- AMPHIB SPEED LOG			-	-	3.939	-	-	2.513	-	-	0.350	-	-	1.148	-	-	-	-	-	1.148
B Kits/Recurring -- SURFACE SPEED LOG																				
SURFACE AN/WSN-9 PROCUREMENT	A		-	-	-	117,823.00	6	0.707	194,000.00	31	6.014	-	-	-	-	-	-	-	-	-
SURFACE AN/WSN-9 PROCUREMENT -- Installation	A		-	-	-	-	-	0.438	-	-	1.140	-	-	3.040	-	-	-	-	-	3.040
Subtotal: B Kits/Recurring -- SURFACE SPEED LOG			-	-	0.000	-	-	1.145	-	-	7.154	-	-	3.040	-	-	-	-	-	3.040
B Kits/Recurring -- SUBMARINE SPEED LOG																				
SUBMARINE AN/WSN-9 PROCUREMENT (SSBN) -- Procurement ⁽¹⁵⁾	A		0.00	2	0.000	-	-	-	100,000.00	3	0.300	100,000.00	3	0.300	-	-	-	100,000.00	3	0.300
SUBMARINE AN/WSN-9 PROCUREMENT (SSBN) -- Installation	A		-	-	-	-	-	-	-	-	0.475	-	-	0.713	-	-	-	-	-	0.713
SUBMARINE AN/WSN-9 PROCUREMENT (SSN) -- Procurement ⁽¹⁶⁾	A		0.00	2	0.000	148,060.00	1	0.148	-	-	-	155,000.00	4	0.620	-	-	-	155,000.00	4	0.620
SUBMARINE AN/WSN-9 PROCUREMENT (SSN) -- Installation	A		-	-	-	-	-	0.385	-	-	0.190	-	-	-	-	-	-	-	-	-
Subtotal: B Kits/Recurring -- SUBMARINE SPEED LOG			-	-	0.000	-	-	0.533	-	-	0.965	-	-	1.633	-	-	-	-	-	1.633
B Kits/Recurring -- CARRIER SPEED LOG																				

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Exhibit P-40a, Budget Item Justification For Aggregated Items: FY 2018 Navy															Date: May 2017					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 6						P-1 Line Item Number / Title: 0670 / Other Navigation Equipment									Aggregated Items Title: GW055: SPEED LOGS					
Item Number / Title [DODIC]	ID CD	MDAP/MAIS Code	Prior Years			FY 2016			FY 2017			FY 2018 Base			FY 2018 OCO			FY 2018 Total		
			Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)
CARRIER AN/WSN-9 PROCUREMENT -- Installation	A		-	-	-	-	-	-	-	-	0.190	-	-	-	-	-	-	-	-	-
CARRIER AN/WSN-8 TECH REFRESH -- Procurement ⁽¹⁷⁾	A		-	-	-	-	-	-	194,000.00	4	0.776	-	-	-	-	-	-	-	-	-
CARRIER AN/WSN-8 TECH REFRESH -- Installation	A		-	-	-	-	-	-	-	-	0.260	-	-	0.260	-	-	-	-	-	0.260
Subtotal: B Kits/Recurring -- CARRIER SPEED LOG			-	-	0.000	-	-	-	-	-	1.226	-	-	0.260	-	-	-	-	-	0.260
Total			-	-	3.939	-	-	4.191	-	-	9.695	-	-	6.081	-	-	0.000	-	-	6.081
Note: Subtotals or Totals in this Exhibit P-40a may not be exact or sum exactly, due to rounding.																				
Remarks: Models of Systems Affected: GW055: SPEED LOGS Type Modification: SPEED LOGS These funds are for the procurement and installation of Speed Log upgrades and Tech Refresh on amphibious, surface, submarine, and carrier platforms.																				
Footnotes: ⁽¹³⁾ AMPHIB AN/WSN-9 PROCUREMENT: Systems to be procured in FY16 as Economic Ordering Quantities and to maintain shipboard configuration for installation in FY16-19. ⁽¹⁴⁾ AMPHIB SWITCHBOARD: Hardware to be procured in FY17 as Economic Ordering Quantities for installation in FY17 and FY18. Installation costs included in procurement costs. ⁽¹⁵⁾ SUBMARINE AN/WSN-9 PROCUREMENT (SSBN): Prior year systems procured and funded under P40A Cost Element GW013. Delays in at-sea testing and modernization documentation have delayed fielding from FY16 to no earlier than FY17. ⁽¹⁶⁾ SUBMARINE AN/WSN-9 PROCUREMENT (SSN): Prior year systems procured and funded under P40A Cost Element GW013. ⁽¹⁷⁾ CARRIER AN/WSN-8 TECH REFRESH: Systems to be procured in FY17 as Economic Ordering Quantities and to maintain shipboard configuration for installation in FY18 and FY19.																				

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Exhibit P-40a, Budget Item Justification For Aggregated Items: FY 2018 Navy															Date: May 2017					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 6							P-1 Line Item Number / Title: 0670 / Other Navigation Equipment							Aggregated Items Title: GW058: NAVSSI CAPSTONE						
Item Number / Title [DODIC]	ID CD	MDAP/MAIS Code	Prior Years			FY 2016			FY 2017			FY 2018 Base			FY 2018 OCO			FY 2018 Total		
			Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)
B Kits/Recurring -- NAVSSI CAPSTONE																				
AMPHIB NAVSSI CAPSTONE -- Procurement ⁽¹⁸⁾	A		-	-	-	-	-	0.060	1,338K	1	1.338	1,449K	1	1.449	-	-	-	1,449K	1	1.449
AMPHIB NAVSSI CAPSTONE -- Installation	A		-	-	-	-	-	0.221	-	-	1.314	-	-	1.561	-	-	-	-	-	1.561
Subtotal: B Kits/Recurring -- NAVSSI CAPSTONE			-	-	0.000	-	-	0.281	-	-	2.652	-	-	3.010	-	-	-	-	-	3.010
Total			-	-	0.000	-	-	0.281	-	-	2.652	-	-	3.010	-	-	0.000	-	-	3.010

Note: Subtotals or Totals in this Exhibit P-40a may not be exact or sum exactly, due to rounding.

Remarks:

Models of Systems Affected: GW058: NAVSSI CAPSTONE
Type Modification: NAVSSI CAPSTONE

These funds are required for the procurement, installation, and NRE/ILS/Support of NAVSSI Capstone upgrades on LHD platforms to support Ship Self Defense System (SSDS) upgrades.

Footnotes:

⁽¹⁸⁾ AMPHIB NAVSSI CAPSTONE: FY16 installation funding (\$0.221) is for DSA. FY7 installation funding includes \$0.088 for DSA and \$1.226 for AIT. FY18 installation funding includes \$0.390 for DSA and \$1.171 for AIT. FY19 installation funding (\$0.227) is for DSA. FY20 installation funding includes \$0.347 for DSA and \$1.040 for AIT.

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Exhibit P-40a, Budget Item Justification For Aggregated Items: FY 2018 Navy																Date: May 2017			
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 6								P-1 Line Item Number / Title: 0670 / Other Navigation Equipment								Aggregated Items Title: GW059: EMERGENCY NAVIGATION LAPTOP			

Item Number / Title [DODIC]	ID CD	MDAP/MAIS Code	Prior Years			FY 2016			FY 2017			FY 2018 Base			FY 2018 OCO			FY 2018 Total		
			Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)
B Kits/Recurring -- EMERGENCY NAVIGATION LAPTOP																				
AMPHIB EMERGENCY NAVIGATION LAPTOP -- Procurement ⁽¹⁹⁾	A		-	-	-	13,460.00	51	0.686	-	-	-	-	-	-	-	-	-	-	-	-
AMPHIB EMERGENCY NAVIGATION LAPTOP -- Installation	A		-	-	-	-	-	0.449	-	-	-	-	-	-	-	-	-	-	-	-
SURFACE EMERGENCY NAVIGATION LAPTOP -- Procurement ⁽²⁰⁾	A		-	-	-	13,460.32	189	2.544	-	-	-	-	-	-	-	-	-	-	-	-
SURFACE EMERGENCY NAVIGATION LAPTOP -- Installation	A		-	-	-	-	-	0.189	-	-	-	-	-	-	-	-	-	-	-	-
CARRIER EMERGENCY NAVIGATION LAPTOP -- Procurement ⁽²¹⁾	A		-	-	-	13,460.00	10	0.135	-	-	-	-	-	-	-	-	-	-	-	-
CARRIER EMERGENCY NAVIGATION LAPTOP -- Installation	A		-	-	-	-	-	0.092	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: B Kits/Recurring -- EMERGENCY NAVIGATION LAPTOP			-	-	0.000	-	-	4.095	-	-	-	-	-	-	-	-	-	-	-	-
Total			-	-	0.000	-	-	4.095	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000

Note: Subtotals or Totals in this Exhibit P-40a may not be exact or sum exactly, due to rounding.

Remarks:

Models of Systems Affected: GW059: EMERGENCY NAVIGATION LAPTOP
Type Modification: EMERGENCY NAVIGATION LAPTOP

These funds are required for the procurement and installation of Emergency Navigation Laptops (ENL) on amphibious, surface and carrier platforms.

Footnotes:

- ⁽¹⁹⁾ AMPHIB EMERGENCY NAVIGATION LAPTOP: Procurement and install were planned for FY16. Delay in procurement has delayed all installations to FY17. The installs in FY17 are being funded with FY16 dollars. Quantity increase from PB17 (20) reflects additional systems for shore sites and spares.
- ⁽²⁰⁾ SURFACE EMERGENCY NAVIGATION LAPTOP: Procurement and install were planned for FY16. Delay in procurement has delayed all installations to FY17. The installs in FY17 are being funded with FY16 dollars. Quantity increase from PB17 (121) reflects additional systems for shore sites and spares.

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Exhibit P-40a, Budget Item Justification For Aggregated Items: FY 2018 Navy		Date: May 2017
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 6	P-1 Line Item Number / Title: 0670 / Other Navigation Equipment	Aggregated Items Title: GW059: EMERGENCY NAVIGATION LAPTOP

(21) CARRIER EMERGENCY NAVIGATION LAPTOP: Procurement and install were planned for FY16. Delay in procurement has delayed all installations to FY17. The installs in FY17 are being funded with FY16 dollars. Quantity increase from PB17 (9) reflects additional system for shore site.

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Exhibit P-40a, Budget Item Justification For Aggregated Items: FY 2018 Navy															Date: May 2017					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 6							P-1 Line Item Number / Title: 0670 / Other Navigation Equipment								Aggregated Items Title: GW060: NEXT GENERATION FATHOMETER					
Item Number / Title [DODIC]	ID CD	MDAP/MAIS Code	Prior Years			FY 2016			FY 2017			FY 2018 Base			FY 2018 OCO			FY 2018 Total		
			Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)
B Kits/Recurring -- NEXT GENERATION FATHOMETER																				
AMPHIB NEXT GENERATION FATHOMETER -- Procurement ⁽²²⁾	A		-	-	-	120,818.18	5	0.604	90,000.00	8	0.720	91,818.18	11	1.010	-	-	-	91,818.18	11	1.010
AMPHIB NEXT GENERATION FATHOMETER -- Installation	A		-	-	-	-	-	0.569	-	-	0.120	-	-	0.168	-	-	-	-	-	0.168
SURFACE NEXT GENERATION FATHOMETER -- Procurement ⁽²³⁾	A		-	-	-	120,700.00	10	1.207	90,000.00	19	1.710	91,833.33	12	1.102	-	-	-	91,833.33	12	1.102
SURFACE NEXT GENERATION FATHOMETER -- Installation	A		-	-	-	-	-	1.021	-	-	0.285	-	-	0.184	-	-	-	-	-	0.184
CARRIER NEXT GENERATION FATHOMETER -- Procurement ⁽²⁴⁾	A		-	-	-	108,122.00	1	0.108	-	-	-	93,666.67	3	0.281	-	-	-	93,666.67	3	0.281
CARRIER NEXT GENERATION FATHOMETER -- Installation	A		-	-	-	-	-	-	-	-	0.200	-	-	0.047	-	-	-	-	-	0.047
Subtotal: B Kits/Recurring -- NEXT GENERATION FATHOMETER			-	-	0.000	-	-	3.509	-	-	3.035	-	-	2.792	-	-	-	-	-	2.792
Total			-	-	0.000	-	-	3.509	-	-	3.035	-	-	2.792	-	-	0.000	-	-	2.792
Note: Subtotals or Totals in this Exhibit P-40a may not be exact or sum exactly, due to rounding.																				
Remarks: Models of Systems Affected: GW060: NEXT GENERATION FATHOMETER Type Modification: NEXT GENERATION FATHOMETER These funds are required for the procurement, installation, and NRE/ILS/support of Next Generation Fathometers to replace legacy AN/UQN-4/4A systems on amphibious, surface and carrier platforms.																				
Footnotes: ⁽²²⁾ AMPHIB NEXT GENERATION FATHOMETER: FY16 installation funding includes \$0.407 for DSA and \$0.162 for AIT. ⁽²³⁾ SURFACE NEXT GENERATION FATHOMETER: FY16 installation funding includes \$0.727 for DSA and \$0.294 for AIT. ⁽²⁴⁾ CARRIER NEXT GENERATION FATHOMETER: Quantity increase from PB17 (5) reflects additional system to complete upgrades.																				

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Exhibit P-40a, Budget Item Justification For Aggregated Items: FY 2018 Navy															Date: May 2017					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 6							P-1 Line Item Number / Title: 0670 / Other Navigation Equipment								Aggregated Items Title: GW061: MK 27 REPLACEMENT					
Item Number / Title [DODIC]	ID CD	MDAP/MAIS Code	Prior Years			FY 2016			FY 2017			FY 2018 Base			FY 2018 OCO			FY 2018 Total		
			Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)
B Kits/Recurring -- MK27 REPLACEMENT																				
AMPHIB AN/WSN-11 PROCUREMENT -- Procurement ⁽²⁵⁾	A		-	-	-	123,800.00	5	0.619	125,000.00	7	0.875	-	-	-	-	-	-	-	-	-
AMPHIB AN/WSN-11 PROCUREMENT -- Installation	A		-	-	-	-	-	0.375	-	-	-	-	-	0.340	-	-	-	-	-	0.340
SURFACE AN/WSN-11 PROCUREMENT -- Procurement ⁽²⁶⁾	A		-	-	-	108,333.33	6	0.650	125,000.00	9	1.125	-	-	-	-	-	-	-	-	-
SURFACE AN/WSN-11 PROCUREMENT -- Installation	A		-	-	-	-	-	0.444	-	-	-	-	-	0.340	-	-	-	-	-	0.340
SUBMARINE AN/WSN-11 PROCUREMENT -- Procurement ⁽²⁷⁾	A		0.00	2	0.000	-	-	-	125,000.00	3	0.375	125,000.00	3	0.375	-	-	-	125,000.00	3	0.375
SUBMARINE AN/WSN-11 PROCUREMENT -- Installation	A		-	-	-	-	-	-	-	-	0.200	-	-	0.300	-	-	-	-	-	0.300
Subtotal: B Kits/Recurring -- MK27 REPLACEMENT			-	-	0.000	-	-	2.088	-	-	2.575	-	-	1.355	-	-	-	-	-	1.355
Total			-	-	0.000	-	-	2.088	-	-	2.575	-	-	1.355	-	-	0.000	-	-	1.355
Note: Subtotals or Totals in this Exhibit P-40a may not be exact or sum exactly, due to rounding.																				
Remarks: Models of Systems Affected: GW061: MK 27 REPLACEMENT Type Modification: MK 27 REPLACEMENT These funds are required for the procurement and installation of replacement for legacy MK27 Backup Heading Reference systems on amphibious, surface, and submarine platforms. Footnotes: ⁽²⁵⁾ AMPHIB AN/WSN-11 PROCUREMENT: Systems to be procured in FY17 as Economic Ordering Quantities and to maintain shipboard configuration for installation in FY18 and FY19. ⁽²⁶⁾ SURFACE AN/WSN-11 PROCUREMENT: Systems to be procured in FY17 as Economic Ordering Quantities and to maintain shipboard configuration for installation in FY18 and FY19. ⁽²⁷⁾ SUBMARINE AN/WSN-11 PROCUREMENT: Prior year systems procured and funded under P40A Cost Element GW013.																				

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Exhibit P-40a, Budget Item Justification For Aggregated Items: FY 2018 Navy															Date: May 2017					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 6								P-1 Line Item Number / Title: 0670 / Other Navigation Equipment							Aggregated Items Title: GW062: AN/WSN-7 MODERNIZATION					
Item Number / Title [DODIC]	ID CD	MDAP/MAIS Code	Prior Years			FY 2016			FY 2017			FY 2018 Base			FY 2018 OCO			FY 2018 Total		
			Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)
B Kits/Recurring -- AMPHIB FIELD CHANGES																				
AMPHIB AN/WSN-7 FIELD CHANGE 22 -- Procurement	A		-	-	-	-	-	-	12,000.00	2	0.024	12,000.00	2	0.024	-	-	-	12,000.00	2	0.024
AMPHIB AN/WSN-7 FIELD CHANGE 22 -- Installation	A		-	-	-	-	-	-	-	-	0.150	-	-	0.150	-	-	-	-	-	0.150
AMPHIB AN/WSN-7 CDU TECH REFRESH -- Procurement ⁽²⁸⁾	A		-	-	-	-	-	-	-	-	-	140,000.00	4	0.560	-	-	-	140,000.00	4	0.560
AMPHIB AN/WSN-7 CDU TECH REFRESH -- Installation	A		-	-	-	-	-	0.000	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: B Kits/Recurring -- AMPHIB FIELD CHANGES			-	-	0.000	-	-	-	-	-	0.174	-	-	0.734	-	-	-	-	-	0.734
B Kits/Recurring -- SURFACE FIELD CHANGES																				
SURFACE AN/WSN-7 FIELD CHANGE 22 -- Procurement	A		-	-	-	-	-	-	12,000.00	12	0.144	12,000.00	16	0.192	-	-	-	12,000.00	16	0.192
SURFACE AN/WSN-7 FIELD CHANGE 22 -- Installation	A		-	-	-	-	-	-	-	-	0.900	-	-	1.200	-	-	-	-	-	1.200
SURFACE AN/WSN-7 CDU TECH REFRESH EQT ⁽²⁹⁾	A		-	-	-	-	-	0.475	-	-	-	-	-	-	-	-	-	-	-	-
SURFACE AN/WSN-7 CDU TECH FRESH -- Procurement ⁽³⁰⁾	A		-	-	-	141,533.00	15	2.123	-	-	-	140,000.00	16	2.240	-	-	-	140,000.00	16	2.240
SURFACE AN/WSN-7 CDU TECH FRESH -- Installation	A		-	-	-	-	-	0.750	-	-	0.050	-	-	0.850	-	-	-	-	-	0.850
Subtotal: B Kits/Recurring -- SURFACE FIELD CHANGES			-	-	0.000	-	-	3.348	-	-	1.094	-	-	4.482	-	-	-	-	-	4.482
B Kits/Recurring -- SUBMARINE FIELD CHANGES																				
SUBMARINE SHIPALT 4507 -- Installation	A		-	-	-	-	-	0.040	-	-	-	-	-	-	-	-	-	-	-	-
SUBMARINE ECI 14-006-VA -- Procurement ⁽³¹⁾	A		-	-	-	-	-	-	5,000.00	1	0.005	5,000.00	2	0.010	-	-	-	5,000.00	2	0.010
SUBMARINE ECI 14-006-VA -- Installation	A		-	-	-	-	-	0.000	-	-	-	-	-	-	-	-	-	-	-	-

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Exhibit P-40a, Budget Item Justification For Aggregated Items: FY 2018 Navy															Date: May 2017					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 6								P-1 Line Item Number / Title: 0670 / Other Navigation Equipment							Aggregated Items Title: GW062: AN/WSN-7 MODERNIZATION					
Item Number / Title [DODIC]	ID CD	MDAP/MAIS Code	Prior Years			FY 2016			FY 2017			FY 2018 Base			FY 2018 OCO			FY 2018 Total		
			Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)
SUBMARINE ECI (TI-10/12/14) -- Procurement ⁽³²⁾	A		-	-	-	-	-	-	25,000.00	27	0.675	25,000.00	13	0.325	-	-	-	25,000.00	13	0.325
SUBMARINE ECI (TI-10/12/14) -- Installation	A		-	-	-	-	-	0.000	-	-	-	-	-	-	-	-	-	-	-	-
SUBMARINE AN/WSN-7 FIELD CHANGE 21 -- Procurement	A		-	-	-	-	-	-	-	-	-	60,000.00	6	0.360	-	-	-	60,000.00	6	0.360
SUBMARINE AN/WSN-7 FIELD CHANGE 21 -- Installation	A		-	-	-	-	-	-	-	-	-	-	-	0.480	-	-	-	-	-	0.480
SUBMARINE AN/WSN-7 FIELD CHANGE 22 -- Procurement	A		-	-	-	-	-	-	-	-	-	60,000.00	6	0.360	-	-	-	60,000.00	6	0.360
SUBMARINE AN/WSN-7 FIELD CHANGE 22 -- Installation	A		-	-	-	-	-	-	-	-	-	-	-	0.045	-	-	-	-	-	0.045
SUBMARINE AN/WSN-7 FIELD CHANGE 23 -- Procurement ⁽³³⁾	A		0.00	3	0.000	-	-	-	-	-	-	172,000.00	4	0.688	-	-	-	172,000.00	4	0.688
SUBMARINE AN/WSN-7 FIELD CHANGE 23 -- Installation	A		-	-	-	-	-	-	-	-	0.240	-	-	-	-	-	-	-	-	-
SUBMARINE AN/WSN-7 FIELD CHANGE 24 -- Procurement	A		-	-	-	-	-	-	-	-	-	179,000.00	3	0.537	-	-	-	179,000.00	3	0.537
SUBMARINE AN/WSN-7 FIELD CHANGE 24 -- Installation	A		-	-	-	-	-	0.000	-	-	-	-	-	-	-	-	-	-	-	-
SUBMARINE AN/WSN-7 ECI (TI-16/APB-17) -- Procurement ⁽³⁴⁾	A		-	-	-	-	-	-	-	-	-	35,000.00	2	0.070	-	-	-	35,000.00	2	0.070
SUBMARINE AN/WSN-7 ECI (TI-16/APB-17) -- Installation	A		-	-	-	-	-	0.000	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: B Kits/Recurring -- SUBMARINE FIELD CHANGES			-	-	0.000	-	-	0.040	-	-	0.920	-	-	2.875	-	-	-	-	-	2.875
B Kits/Recurring -- CARRIER FIELD CHANGES																				

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Exhibit P-40a, Budget Item Justification For Aggregated Items: FY 2018 Navy																Date: May 2017			
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 6								P-1 Line Item Number / Title: 0670 / Other Navigation Equipment								Aggregated Items Title: GW062: AN/WSN-7 MODERNIZATION			

Item Number / Title [DODIC]	ID CD	MDAP/MAIS Code	Prior Years			FY 2016			FY 2017			FY 2018 Base			FY 2018 OCO			FY 2018 Total		
			Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)
CARRIER AN/WSN-7 FIELD CHANGE 22 -- Procurement	A		-	-	-	-	-	-	12,000.00	3	0.036	-	-	-	-	-	-	-	-	-
CARRIER AN/WSN-7 FIELD CHANGE 22 -- Installation	A		-	-	-	-	-	-	-	-	0.075	-	-	0.150	-	-	-	-	-	0.150
CARRIER AN/WSN-7 CDU TECH REFRESH -- Procurement ⁽³⁵⁾	A		0.00	4	0.000	-	-	-	-	-	-	140,000.00	3	0.420	-	-	-	140,000.00	3	0.420
CARRIER AN/WSN-7 CDU TECH REFRESH -- Installation	A		-	-	-	-	-	-	-	-	0.050	-	-	0.150	-	-	-	-	-	0.150
Subtotal: B Kits/Recurring -- CARRIER FIELD CHANGES			-	-	0.000	-	-	-	-	-	0.161	-	-	0.720	-	-	-	-	-	0.720
Total			-	-	0.000	-	-	3.388	-	-	2.349	-	-	8.811	-	-	0.000	-	-	8.811

Note: Subtotals or Totals in this Exhibit P-40a may not be exact or sum exactly, due to rounding.

Remarks:

Models of Systems Affected: GW062: AN/WSN-7 MODERNIZATION
Type Modification: AN/WSN-7 MODERNIZATION

These funds are required for the procurement and installation of field changes, upgrades, and Tech Refresh of AN/WSN-7 Inertial Navigation System on amphibious, surface, submarine, and carrier platforms.

Field Change 21: Technical Insertion (TI-14). Upgrades include SAASM GPS Receivers, improved health monitoring, Bathymetric fixes, enhanced networked sensor interfaces, TI-14 IA compliance, and SWFTS Display Standards and Conventions compliance.

Field Change 22: Upgrades include AN/WSN-7 NAV processor firmware Rev-AG and I/O processor firmware Rev-AC.

Field Change 23: Technical Insertion (TI-16). Improvements include transition from CORBA to AMQP.

Field Change 24: Technical Insertion (TI-18).

Field Change 26: Technical Insertion (TI-20).

Field Change 28: Technical Insertion (TI-22).

Submarine Shipalt 4507: Mounting baseplate modification.

Submarine ECI 14-006 VA: ECDU Shock Mount Mod VME Pin Replacement

Submarine ECI (TI-10/12/14): ECDU GVRC, RTP, and WINP firmware upgrades

Submarine ECI (TI-16/APB-17): ECDU Time Monitoring

Submarine ECI (TI-18/APB-19):

Submarine ECI (TI-20/APB-21):

Submarine TRID TBD (TI-20):

ECI installation costs may be combined with procurement costs.

Footnotes:

⁽²⁸⁾ AMPHIB AN/WSN-7 CDU TECH REFRESH: Prior year systems procured and funded under P40A Cost Element GW029.

⁽²⁹⁾ Funds are for the Environmental Qualification Testing of the AN/WSN-7 CDU Tech Refresh. No system procurements under this item.

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Exhibit P-40a, Budget Item Justification For Aggregated Items: FY 2018 Navy		Date: May 2017
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 6	P-1 Line Item Number / Title: 0670 / Other Navigation Equipment	Aggregated Items Title: GW062: AN/WSN-7 MODERNIZATION
⁽³⁰⁾ SURFACE AN/WSN-7 CDU TECH REFRESH: Systems to be procured in FY16 as Economic Ordering Quantities and to maintain shipboard configuration for installation in FY17, FY18, and FY19. FY16 installation funding (\$0.750) is for DSA. ⁽³¹⁾ SUBMARINE ECI 14-006-VA: Installation costs included in procurement costs. ⁽³²⁾ SUBMARINE ECI (TI-10/12/14): Installation costs included in procurement costs. ⁽³³⁾ SUBMARINE AN/WSN-7 FIELD CHANGE 23: Prior year systems procured and funded under P40A Cost Element GW029 for integration testing prior to installation in FY17. ⁽³⁴⁾ SUBMARINE AN/WSN-7 ECI (TI-16/APB-17): Installation costs included in procurement costs. ⁽³⁵⁾ CARRIER AN/WSN-7 CDU TECH REFRESH: Prior year systems procured and funded under P40A Cost Element GW029. Delays in testing and changes in platform availabilities have resulted in later installation.		

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Exhibit P-40a, Budget Item Justification For Aggregated Items: FY 2018 Navy															Date: May 2017				
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 6								P-1 Line Item Number / Title: 0670 / Other Navigation Equipment							Aggregated Items Title: GW067: DIGITAL DEPTH DETECTOR				

Item Number / Title [DODIC]	ID CD	MDAP/MAIS Code	Prior Years			FY 2016			FY 2017			FY 2018 Base			FY 2018 OCO			FY 2018 Total		
			Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)
B Kits/Recurring -- SUBMARINE DIGITAL DEPTH DETECTOR																				
SUBMARINE DIGITAL DEPTH DETECTOR PROCUREMENT -- Procurement ⁽³⁶⁾	A		0.00	2	0.000	-	-	-	100,000.00	3	0.300	100,000.00	3	0.300	-	-	-	100,000.00	3	0.300
SUBMARINE DIGITAL DEPTH DETECTOR PROCUREMENT -- Installation	A		-	-	-	-	-	-	-	-	0.475	-	-	0.713	-	-	-	-	-	0.713
Subtotal: B Kits/Recurring -- SUBMARINE DIGITAL DEPTH DETECTOR			-	-	0.000	-	-	-	-	-	0.775	-	-	1.013	-	-	-	-	-	1.013
Total			-	-	0.000	-	-	0.000	-	-	0.775	-	-	1.013	-	-	0.000	-	-	1.013

Note: Subtotals or Totals in this Exhibit P-40a may not be exact or sum exactly, due to rounding.

Remarks:

Models of Systems Affected: GW067: DIGITAL DEPTH DETECTOR
Type Modification: DIGITAL DEPTH DETECTOR

These funds are required for the procurement and installation of Digital Depth Detector to replace legacy depth detectors on submarine platforms.

Footnotes:

⁽³⁶⁾ SUBMARINE DIGITAL DEPTH DETECTOR: Prior year systems procured and funded under P40A Cost Element GW013.

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Exhibit P-3a, Individual Modification: FY 2018 Navy					Date: May 2017		
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 6		P-1 Line Item Number / Title: 0670 / Other Navigation Equipment			Modification Number / Title: 5 / GW056: NAVY ECDIS		
ID Code (A=Service Ready, B=Not Service Ready) :				MDAP/MAIS Code:			
Resource Summary		Prior Years	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
Procurement Quantity (Units in Each)		-	-	-	-	-	-
Gross/Weapon System Cost (\$ in Millions)		0.000	0.000	5.880	18.120	0.000	18.120
Less PY Advance Procurement (\$ in Millions)		-	-	-	-	-	-
Net Procurement (P-1) (\$ in Millions)		0.000	0.000	5.880	18.120	0.000	18.120
Plus CY Advance Procurement (\$ in Millions)		-	-	-	-	-	-
Total Obligation Authority (\$ in Millions)		0.000	0.000	5.880	18.120	0.000	18.120
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)							
Initial Spares (\$ in Millions)		-	-	-	-	-	-
Gross/Weapon System Unit Cost (\$ in Dollars)		-	-	-	-	-	-

Description:

These funds are required for the software build, procurement, and installation of Navy ECDIS hardware and software to replace legacy ECDIS-N capability on amphibious and surface platforms.

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Exhibit P-3a, Individual Modification: FY 2018 Navy					Date: May 2017	
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 6			P-1 Line Item Number / Title: 0670 / Other Navigation Equipment		Modification Number / Title: 5 / GW056: NAVY ECDIS	
ID Code (A=Service Ready, B=Not Service Ready) :				MDAP/MAIS Code:		
Models of Systems Affected: GW056: NAVY ECDIS		Modification Type: NAVY ECDIS			Related RDT&E PEs:	
Financial Plan	Prior Years	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
	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)
Procurement						
Modification Item 1 of 2: NAVY ECDIS NON-RECURRING						
B Kits						
Non-Recurring						
1.1.1) NAVY ECDIS ACQUISITION DOCUMENTATION - Organic ⁽³⁷⁾	- / -	- / -	- / 5.880	- / -	- / -	- / -
<i>Subtotal: Non-Recurring</i>	- / 0.000	- / -	- / 5.880	- / -	- / -	- / -
<i>Subtotal: NAVY ECDIS NON-RECURRING</i>	- / -	- / -	- / 5.880	- / -	- / -	- / -
Modification Item 2 of 2: NAVY ECDIS PROCUREMENT						
B Kits						
Recurring						
2.1.1) NAVY ECDIS SOFTWARE PRODUCTION - Organic ⁽³⁸⁾	- / -	- / -	- / -	- / 16.620	- / -	- / 16.620
2.1.3) SURFACE NAVY ECDIS HARDWARE - NonOrganic ⁽³⁹⁾	- / -	- / -	- / -	1 / 1.000	- / -	1 / 1.000
<i>Subtotal: Recurring</i>	- / 0.000	- / -	- / -	- / 17.620	- / -	- / 17.620
<i>Subtotal: NAVY ECDIS PROCUREMENT</i>	- / -	- / -	- / -	1 / 17.620	- / -	1 / 17.620
<i>Subtotal: Procurement, All Modification Items</i>	- / 0.000	- / -	- / 5.880	- / 17.620	- / -	- / 17.620
Installation						
Modification Item 2 of 2: NAVY ECDIS PROCUREMENT						
<i>Subtotal: Installation</i>	- / 0.000	- / -	- / -	- / 0.500	- / -	- / 0.500
Total						
Total Cost (Procurement + Support + Installation)	0.000	0.000	5.880	18.120	0.000	18.120

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Exhibit P-3a, Individual Modification: FY 2018 Navy		Date: May 2017
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 6	P-1 Line Item Number / Title: 0670 / Other Navigation Equipment	Modification Number / Title: 5 / GW056: NAVY ECDIS
ID Code (A=Service Ready, B=Not Service Ready) :		MDAP/MAIS Code:
Modification Item 1 of 2: NAVY ECDIS NON-RECURRING		

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Exhibit P-3a, Individual Modification: FY 2018 Navy							Date: May 2017							
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 6					P-1 Line Item Number / Title: 0670 / Other Navigation Equipment					Modification Number / Title: 5 / GW056: NAVY ECDIS				
ID Code (A=Service Ready, B=Not Service Ready) :							MDAP/MAIS Code:							
Modification Item 2 of 2: NAVY ECDIS PROCUREMENT														
Manufacturer Information														
Manufacturer Name: TBD							Manufacturer Location: TBD							
Administrative Leadtime <i>(in Months)</i> : 0							Production Leadtime <i>(in Months)</i> : 0							
Dates			FY 2016				FY 2017				FY 2018			
Contract Dates											Dec 2017			
Delivery Dates											Jul 2018			
Installation Information														
Method of Implementation: AIT:: Installation Name: SURFACE NAVY ECDIS HARDWARE														
Installation Cost		Prior Years		FY 2016		FY 2017		FY 2018 Base		FY 2018 OCO		FY 2018 Total		
		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>		Qty <i>(Each)</i> / Total Cost <i>(\$ M)</i>		Qty <i>(Each)</i> / Total Cost <i>(\$ M)</i>		
Prior Years		- / -		- / -		- / -		- / -		- / -		- / -		
FY 2016		- / -		- / -		- / -		- / -		- / -		- / -		
FY 2017		- / -		- / -		- / -		- / -		- / -		- / -		
FY 2018		- / -		- / -		- / -		1 / 0.500		0 / 0.000		1 / 0.500		
Total		- / -		- / -		- / -		1 / 0.500		0 / 0.000		1 / 0.500		
Installation Schedule														
	PYS	FY 2016				FY 2017				FY 2018				
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	
In	-	-	-	-	-	-	-	-	-	-	-	-	1	
Out	-	-	-	-	-	-	-	-	-	-	-	-	1	
Footnotes: ⁽³⁷⁾ NAVY ECDIS ACQUISITION DOCUMENTATION: Support funding required for the execution of new software to replace legacy ECDIS-N Voyage Management Software (VMS). Funding supports generation of Navy ECDIS ACAT III Program Acquisition Documentation to support award of software production contract in FY18 (item 2.1). ⁽³⁸⁾ NAVY ECDIS SOFTWARE PRODUCTION: Funding is for initial Navy ECDIS software production build and follow-on Navy ECDIS software maintenance builds on a two-year cycle. ⁽³⁹⁾ SURFACE NAVY ECDIS HARDWARE: Funds provide for the procurement and installation of hardware upgrades to replace legacy ECDIS-N capability on surface platforms.														

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Exhibit P-40, Budget Line Item Justification: FY 2018 Navy								Date: May 2017				
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 01: Ships Support Equipment / BSA 8: Periscopes							P-1 Line Item Number / Title: 0831 / Sub Periscopes & Imaging Equip					
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 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	To Complete	Total
Procurement Quantity (Units in Each)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost (\$ in Millions)	623.478	63.109	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	-	686.587
Less PY Advance Procurement (\$ in Millions)	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (\$ in Millions)	623.478	63.109	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	-	686.587
Plus CY Advance Procurement (\$ in Millions)	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority (\$ in Millions)	623.478	63.109	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	-	686.587
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)												
Initial Spares (\$ in Millions)	-	5.797	-	-	-	-	-	-	-	-	-	5.797
Flyaway Unit Cost (\$ in Dollars)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost (\$ in Dollars)	-	-	-	-	-	-	-	-	-	-	-	-
Description: Note: Submarine Electromagnetic Systems including Imaging, Electronic Warfare and Radar programs are managed by PMS435. Imaging Budget Line Item 0831 and Electronic Warfare Budget Line Item 2560 (including Radar) OPN funds will consolidate under BLI 0840 in FY17 and out. The Submarine Periscopes and Imaging Equipment Program procures the Type 18 and Type 8 periscope upgrades; all variants of Photonics Mast (PM), including Low Profile Photonics Mast (LPPM) and 360 degree imaging capability and incorporates it in the Integrated Submarine Imaging System (ISIS), and VIRGINIA Class imaging upgrades and Photonics land based spares. Commander Naval Submarine Force (CNSF), Operations Review Group (ORG) selected the Periscope Acquisition, Tracking, and Ranging with Improved Observation Techniques (PATRIOT) Type 18 Periscope Rangefinder and the Night Owl Type 8 Infra-Red (IR) Periscope as high priority tactical control technologies to field. By OPNAV Ltr Ser. N77/3U629209, 12 June 2003, OPNAV N87 established the ISIS to rapidly field these systems and integrate existing periscope imagery systems into a single system for installation on board submarines. An ISIS capability development document (CDD) was approved 22 Dec, 2011. The CDD is used to fully integrate the ISIS program of record into the submarine force's rapid insertion technology process and to incorporate Fleet-endorsed requirements such as LPPM that are not levied by the ISIS Operational Requirements Documents. ISIS supports high intensity operations in the littorals, providing the submarine force with the tactical imaging systems necessary to safely and effectively employ its surveillance and weapons capabilities. The IR imaging capability improves imaging at night and in low visibility conditions. The PATRIOT Automated Range Finder provides a 360 degree search independent of the visual search, enhanced situational awareness and provides a collision avoidance capability. Tactical Imagery Technology Insertion (TI) includes the common control and displays hardware and software on all platforms regardless of imaging sensors, an integrated imaging system that provides for operator alerts, imaging enhancement tools and contact analysis tools, and a fully Submarine Warfare Federated Tactical Systems (SWFTS) integrated system providing "any display anywhere." Funding improves submarine imaging capability in the areas of: ship safety, Intelligence, Surveillance and Reconnaissance (ISR), tactical control (contact management in the littorals) to provide high quality imaging 24 hours a day, 7 days a week in all weather conditions to support submarine operations worldwide. ISIS provides for the modernization of imaging systems to improve imaging capabilities for the submarine force in support of ISR requirements. This includes the integration of new capabilities, both inboard hardware and software, into the Type 18 and Type 8 Periscopes for LOS ANGELES Class and SEAWOLF Class submarines, the Photonics Mast Variant (PMV) for SSGN, and Photonics Mast upgrades to the VIRGINIA Class AN/BVS-1 including the AN/BVY-1 ISIS capability and LPPM. PL010 - Imaging ISIS Technical Insertions - Continuing in FY17 funding procures Imaging systems and Technical Insertion kits and spares to upgrade ISIS systems on LOS ANGELES, SEAWOLF, VA and OHIO Class SSGN platforms to allow for Capability Insertion and obsolescence avoidance. FY16 procurement also adds funding for improved copper-fiber optic diploops and hull penetrators required to support advanced Imaging and Early Warning capabilities included in Low Profile Photonics Mast and future 360 degree Imaging masts.												

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Exhibit P-40, Budget Line Item Justification: FY 2018 Navy		Date: May 2017
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 01: Ships Support Equipment / BSA 8: Periscopes		P-1 Line Item Number / Title: 0831 / Sub Periscopes & Imaging Equip
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		
PL011 - Imaging Block Upgrades - FY17 funding continues procurement of Periscopes and Imaging Equipment reliability, capability, and maintainability upgrades, e.g., Eyepiece Box, periscope mechanical hoisting mechanism upgrades, inboard electronic processing hardware and associated Integrated Logistics Support (ILS), Robust Surveillance Program, Certification of regional repair centers for Imaging System maintenance and technical data. Variable quantities and types are bought in each fiscal year. PL012 - Funds procure replacement in support of Special Support Equipment (SSE) for each maintenance level to ensure systems are maintained in a state of operational readiness. Equipment includes Q-Band Test Equipment, Mast Dynamic Collimator, Eyebow/Mast Test Set, and Antenna/Outer Head Simulator required due to obsolescence and age of existing imaging systems SSE. PL015 - Funding is for Interim Contract Support provided by the periscope manufacturer. The majority of the funding is for Type18 service life extension, depot repair and upgrades for all configurations of Photonics Masts. It also funds all levels of repairs for all types of tactical submarine imaging systems. PL016 - Funding is for imaging systems training requirements to include curriculum development, training materials, and initial factory training pilot course conduct, Navy Training Plans, and instructor advisory services. PL022 - Funding is for the procurement of SSN ISIS Imaging Systems. ISIS provides for the modernization of imaging systems to improve imaging capabilities for the submarine force in support of ISR requirements. This includes the integration of the Type 18 PATRIOT Automated Range Finder and Type 8 IR Periscope as well as other new capabilities into the Type 18 and Type 8 Periscopes. PL023 - Funding is for the procurement and support of VIRGINIA Class ISIS Imaging Systems, as well as, Technical Insertions required for sustainment of VIRGINIA Class platforms, including the integration of the Mast Technical Insertions into the Photonics Mast. These systems support submarine force ISR requirements through the modernization of legacy hardware which allows for Capability Insertion, obsolescence avoidance, and improved system reliability. PL025 - Funding is for the procurement, support and technical insertion of VIRGINIA Class LPPM production and land based spare masts and associated components. The spares will be used for replacement Imaging Masts on VIRGINIA Class Submarines. Quantity of spares will increase with VIRGINIA submarine procurements. PL830 - Production Engineering funds provide the following functions: value engineering; review and evaluation of production design data and documentation; production configuration control; maintenance engineering efforts designed and incorporated into the production manufacturing process, and other related engineering functions that are integral to all of the Imaging Systems and ancillary components. PL900 - Imaging Systems engineering, technical and maintenance services funds provide the following functions: In-Service engineering and technical support to deployed Periscope and Imaging Equipment, imaging system installation and integration planning, SHIPALT and TEMPALT technical data preparation, production hardware design review, engineering/technical support for installations, training materials development, field engineering and technical problem resolution, block upgrade installation planning, configuration management, and maintenance planning including inventory, management, repair, and restoration scheduling. PL927 - Funding is for the installation of Fleet Modernization Program Equipment. PL4M7 - Funding is for the installation of non-Fleet Modernization Program Equipment.		
Justification: Note: Submarine Electromagnetic Systems including Imaging, Electronic Warfare and Radar programs are managed by PMS435. Imaging Budget Line Item 0831 and Electronic Warfare Budget Line Item 2560 (including Radar) OPN funds will consolidate under BLI 0840 in FY17 and out.		

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Exhibit P-40, Budget Line Item Justification: FY 2018 Navy										Date: May 2017		
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 01: Ships Support Equipment / BSA 9: Other Shipboard Equipment							P-1 Line Item Number / Title: 0840 / Sub Periscope, Imaging and Supt Equip Prog					
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 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	To Complete	Total
Procurement Quantity (<i>Units in Each</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost (<i>\$ in Millions</i>)	0.000	0.000	154.421	151.240	0.000	151.240	203.895	244.660	228.294	220.000	Continuing	Continuing
Less PY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (<i>\$ in Millions</i>)	0.000	0.000	154.421	151.240	0.000	151.240	203.895	244.660	228.294	220.000	Continuing	Continuing
Plus CY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority (<i>\$ in Millions</i>)	0.000	0.000	154.421	151.240	0.000	151.240	203.895	244.660	228.294	220.000	Continuing	Continuing
<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>)	-	-	2.377	5.665	-	5.665	3.492	2.967	2.608	2.304	Continuing	Continuing
Flyaway Unit Cost (<i>\$ in Dollars</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost (<i>\$ in Dollars</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Description: Note: Submarine Electromagnetic Systems including Imaging, Electronic Warfare and Radar programs are managed by PMS435. Imaging Budget Line Item 0831 and Electronic Warfare Budget Line Item 2560 (including Radar) OPN funds were consolidated under BLI 0840 in FY17 and out. The Submarine Periscopes and Imaging Equipment Program procures the Type 18 and Type 8 periscope upgrades; all variants of Photonics Mast (PM), including Low Profile Photonics Mast (LPPM) and 360 degree imaging capability and incorporates it in the Integrated Submarine Imaging System (ISIS), and VIRGINIA Class imaging upgrades and Photonics and LPPM land based spares. Commander Naval Submarine Force (CNSF), Operations Review Group (ORG) selected the Periscope Acquisition, Tracking, and Ranging with Improved Observation Techniques (PATRIOT) Type 18 Periscope Rangefinder and the Night Owl Type 8 Infra-Red (IR) Periscope as high priority tactical control technologies to field. By OPNAV Ltr Ser. N77/3U629209, 12 June 2003, OPNAV N87 established the ISIS to rapidly field these systems and integrate existing periscope imagery systems into a single system for installation on board submarines. An ISIS capability development document (CDD) was approved 22 Dec, 2011. The CDD is used to fully integrate the ISIS program of record into the submarine force's rapid insertion technology process and to incorporate Fleet-endorsed requirements such as LPPM. ISIS supports high intensity operations in the littorals, providing the submarine force with the tactical imaging systems necessary to safely and effectively employ its surveillance and weapons capabilities. The IR imaging capability improves imaging at night and in low visibility conditions. The PATRIOT Automated Range Finder provides a 360 degree search independent of the visual search, enhanced situational awareness and provides a collision avoidance capability. Tactical Imagery Technology Insertion includes the common control and displays hardware and software on all platforms regardless of imaging sensors, an integrated imaging system that provides for operator alerts, imaging enhancement tools and contact analysis tools, and a fully Submarine Warfare Federated Tactical Systems (SWFTS) integrated system providing "any display anywhere." Funding improves submarine imaging capability in the areas of: ship safety, Intelligence, Surveillance and Reconnaissance (ISR), tactical control (contact management in the littorals) to provide high quality imaging 24 hours a day, 7 days a week in all weather conditions to support submarine operations worldwide. ISIS provides for the modernization of imaging systems to improve imaging capabilities for the submarine force in support of ISR requirements. This includes the integration of new capabilities, both outboard, inboard hardware and software, into the Type 18 and Type 8 Periscopes for LOS ANGELES Class and SEAWOLF Class submarines, the Photonics Mast Variant (PMV) for SSGN, Photonics Mast upgrades to the Virginia Class AN/BVY-1 ISIS capability, LPPM and future Task Oriented Tech Insertion Mast (TOTIM). PL010 - Imaging ISIS Technical Insertions - Continuing in FY18 funding procures Imaging systems and Technical Insertion kits, Design Services Allocation (DSA) installation support, and spares to upgrade ISIS systems on LOS ANGELES, SEAWOLF, VA and OHIO Class SSGN platforms to allow for Capability Insertion and obsolescence avoidance. FY16 and later procurements also adds funding for improved copper-fiber optic diploops and hull penetrators required to support advanced Imaging and Early Warning capabilities included in Low Profile Photonics Mast and future 360 degree Imaging masts.												

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Exhibit P-40, Budget Line Item Justification: FY 2018 Navy		Date: May 2017
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 01: Ships Support Equipment / BSA 9: Other Shipboard Equipment		P-1 Line Item Number / Title: 0840 / Sub Periscope, Imaging and Supt Equip Prog
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		
PL011 - Imaging Block Upgrades - FY18 funding continues procurement of Periscopes and Imaging Equipment reliability, capability, and maintainability upgrades, e.g., Eyepiece Box, periscope mechanical hoisting mechanism upgrades, inboard electronic processing hardware and associated Integrated Logistics Support (ILS), Robust Surveillance Program, Certification of regional repair centers for Imaging System maintenance and technical data. Variable quantities and types are bought in each fiscal year.		
PL012 - Funds procure replacements in support of Special Support Equipment (SSE) for each maintenance level to ensure systems are maintained in a state of operational readiness. Equipment includes Q-Band Test Equipment, Mast Dynamic Collimator, Eyebox/Mast Test Set, and Antenna/Outer Head Simulator required due to obsolescence of existing imaging systems SSE.		
PL015 - Funding is for Interim Contract Support provided by the periscope manufacturer. The majority of the funding is for Type18 service life extension, depot repair and upgrades for all configurations of Photonics Masts including LPPM. It also funds all levels of repairs for all types of tactical submarine imaging systems.		
PL016 - Funding is for imaging systems training requirements to include curriculum development, training materials, and initial factory training pilot course conduct, Navy Training Plans, and instructor advisory services.		
PL025 - Funding is for the procurement, support and technical insertion of VIRGINIA Class LPPM and TOTIM production and land based spare masts and associated components. The spares will be used for replacement Imaging Masts on VIRGINIA Class Submarines. Quantity of spares will increase with VIRGINIA submarine procurements.		
PL830 - Production Engineering funds provide the following functions: value engineering; review and evaluation of production design data and documentation; production configuration control; maintenance engineering efforts designed and incorporated into the production manufacturing process, and other related engineering functions that are integral to all of the Imaging Systems and ancillary components.		
PL900 - Imaging Systems engineering, technical and maintenance services funds provide the following functions: In-Service engineering and technical support to deployed Periscope and Imaging Equipment, imaging system installation and integration planning, SHIPALT and TEMPALT technical data preparation, production hardware design review, engineering/technical support for installations, training materials development, field engineering and technical problem resolution, block upgrade installation planning, configuration management, and maintenance planning including inventory, management, repair, and restoration scheduling.		
PL927 - Funding is for the installation of Fleet Modernization Program Equipment.		
PL4M7 - Funding is for the installation of non-Fleet Modernization Program Equipment.		
(U) The Submarine Support Equipment Program (SSEP) was established to develop and support systems which provide the capability to exploit signal intercepts for tactical support and early warning of threat sensors. The Electronic Warfare Support (ES) Operational Requirements Document (ORD) Serial. No. 570-77-00 dated 20 Dec. 2000, established funding to procure AN/BLQ-10 Electronic Warfare Support and Improved Communication Acquisition/Direction Finding (ICADF) systems to provide a modern ES capability to LOS ANGELES, SEAWOLF, and SSGN Class submarines. Funds procure AN/BLQ-10B(V) Non-Recurring Engineering (NRE), Pre-Production Units (PPU) and augmentation systems for ES Modernization upgrades for all submarine platforms. Funds also procure modification kits for the AN/BLQ-10(V) ES System, Reliability & Maintainability, obsolescence and Operational Field Change Kits for the legacy AN/WLR-8(V)2 ESM system, and the legacy AN/BRD-7 direction finding system. Funds buy unique equipment in limited quantities that are maintained in a pool and rotated among attack submarines as dictated by scheduled operations and to provide specific capability improvements to major SSN sensor systems.		
ML003 - SSEP special support equipment allows the procurement of special purpose test equipment utilized by the Type Commander Groom Teams. Exact quantities vary from year to year based on Fleet requirements.		
ML007 - Procures the ICADF communications direction finding system below deck units for installation on LOS ANGELES and SEAWOLF Class submarines.		

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Exhibit P-40, Budget Line Item Justification: FY 2018 Navy		Date: May 2017
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 01: Ships Support Equipment / BSA 9: Other Shipboard Equipment		P-1 Line Item Number / Title: 0840 / Sub Periscope, Imaging and Supt Equip Prog
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		
ML008 - Procures the ICADF Multi-Function Modular Mast (MMM) Antenna for installation on LOS ANGELES Class submarines and advanced EW collection masts for future modernization.		
ML010 - Procures Technical Insertions (TI) for installation on LOS ANGELES, SSGN, SEAWOLF, and VIRGINIA Class submarines that provide updates to the AN/BLQ-10(V) configuration baseline which incorporate current Commercial off the Shelf (COTS) processing technology and software to account for obsolescence avoidance, and Reliability, Maintainability and Availability (RMA), DSA installation support and associated Integrated Logistics Support (ILS) and technical data. Hardware builds include supporting platform level Submarine Warfare Federated Tactical Systems (SWFTS) interfaces. TI upgrade kits are procured under various configurations in each fiscal year including required NRE for TI-14, TI-16, TI-18, TI-20 and TI-22.		
ML014 - FY18 continues legacy Submarine Electronic Surveillance Measures (SubESM) procurement including AN/BRD-7 and AN/WLR-8 Reliability and Maintainability (R&M) obsolescence and operational Field Change Kits and other materials for Obsolescence Mitigation, e.g., Digital Display Unit (DDU) obsolescence upgrade, Solid State Memory, Heat Dissipation improvement, related H,M&E sail components, Analog relay replacement, antenna cabling replacement, related Hull, Mechanical & Electrical (H,M&E) sail components and associated Integrated Logistics Support (ILS), and technical data.		
ML015 - Procures the AN/BLQ-10(V)2/3/4 ES System for installation on LOS ANGELES, SEAWOLF, and SSGN Class submarines.		
ML017 - Procures AN/BLQ-10(V) and ICADF subsystem Product Improvement Field Change Kits including: emergent Engineering Changes, SIGINT carry-on equipment racks, SWFTS upgrades and associated Integrated Logistics Support (ILS) and technical data. Provide AN/BLQ-10 intermediate level repairs, changes and maintenance activities and associated materials that improve the overall Reliability, Maintainability and Availability of fielded SubESM systems. Procures maintenance and sustainment efforts for AN/BLQ-10 active, deploying fleet assets. Increased funding throughout the FYDP for Submarine Launched Decoy Buoy to reduce risk of counter-detection for operating submarines. Also, increased funding throughout the FYDP for accelerated procurement of MMM Payload Module antennas to support submarine Fleet required improved communications/Tactical Data Link (TDL)/Electronic Warfare (EW) capability.		
ML018 - Funds procure ES Modernization upgrades to the VIRGINIA Class AN/BLQ-10(V)1 ES System including Photonics ES Product Improvement (PEPI-3), PATRIOT Phase B radar and Technical Insertions (TI).		
ML020 - Funds procure AN/BLQ-10B(V) Non-Recurring Engineering (NRE) and modernization kits for ES Modernization upgrades on all SSN/SSGN platforms. OPNAV direction provided for Next Generation EW Digital Submarine Electronic Warfare System Serial N97/12U144403 dated 17 June 12. The AN/BLQ-10B(V) efforts transform the current AN/BLQ-10(V) system to a digital hardware system that will enable a sustainable, cost effective, software application based modernization process for the rapid fielding of required capabilities to address changing and emerging threats in the Radio Frequency (RF) spectrum. AN/BLQ-10B(V) incorporates a five layered approach including: RF, Digitizing, Interface, Processing, and Display. These layers serve as building blocks to the AN/BLQ-10(V) Modular, Open system, Scalable Architecture (MOSA) approach. In addition, each procurement aligns with hardware builds supporting platform level Submarine Warfare Federated Tactical Systems (SWFTS) interfaces.		
ML021 - Submarine RADAR funds provide BPS 15/16 Reliability and Maintainability (R&M) Field Change Kits and other materials for Obsolescence Mitigation. Provide in-service and systems engineering, logistics, material, configuration management, quality assurance, installation and test certification support only for the Submarine Surface Navigation (AN/BPS-15/16) Radar. Also provides for interface with the conjoined Voyage Management System (VMS) and Electronic Chart & Display Information System - Navy (ECDIS-N). Out-year funding addresses sustainability of PATRIOT Phase B radar including repair/ refurbishment, in-service engineering, and modernization.		
ML830 - Production Engineering funds provide the following functions: value engineering; review and evaluation of production design data and documentation; production configuration control; maintenance engineering efforts designed and incorporated into the production manufacturing process, and other related engineering functions that are integral to all production ES Systems and upgrades.		
ML927 - Provides for the Installation of Equipment including Fleet Modernization Program Installations for shipboard systems.		
ML4M7 - Provides for the Installation of non-Fleet Modernization Program Equipment.		

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Exhibit P-40, Budget Line Item Justification: FY 2018 Navy								Date: May 2017		
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 01: Ships Support Equipment / BSA 9: Other Shipboard Equipment						P-1 Line Item Number / Title: 0840 / Sub Periscope, Imaging and Supt Equip Prog				
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 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 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-40a	SUBMARINE PERISCOPES & IMAGING EQUIPMENT				- / 0.000	- / -	- / 15.958	- / 15.848	- / -	- / 15.848
P-40a	Submarine Supt Equip Prog				- / 0.000	- / -	- / 5.338	- / 5.232	- / -	- / 5.232
P-40a	PL011 Imaging Upgrades/Technical Insertions Imaging: Type 8/Type 18				- / 0.000	- / 0.000	- / 0.369	- / 0.376	- / 0.000	- / 0.376
P-40a	PL025 Low Profile Photonics Mast (LPPM)				- / 0.000	- / 0.000	- / 0.000	- / 5.994	- / 0.000	- / 5.994
P-40a	ML007 ICADF				- / 0.000	- / 0.000	- / 1.245	- / 0.000	- / 0.000	- / 0.000
P-40a	ML008 ICADF MMM ANTENNA				- / 0.000	- / 0.000	- / 1.159	- / 0.000	- / 0.000	- / 0.000
P-40a	ML015 AN/BLQ-10(V) SSN ES SYSTEM				- / 0.000	- / 0.000	- / 1.380	- / 0.000	- / 0.000	- / 0.000
P-40a	ML018 VA CLASS ES MODERNIZATION PATRIOT				- / 0.000	- / 0.000	- / 2.726	- / 2.955	- / 0.000	- / 2.955
P-3a	1 / PL010 - Imaging ISIS Technical Insertion (SWFTS) (ORDALT)				- / 0.000	- / 0.000	- / 63.822	- / 44.863	- / 0.000	- / 44.863
P-3a	6 / ML010 TECHNICAL INSERTION (SWFTS) (SHIPALT)				- / 0.000	- / 0.000	- / 19.230	- / 22.842	- / 0.000	- / 22.842
P-3a	8 / ML017 ANBLQ-10(V) FIELD CHANGE KITS (ORDALT)				- / 0.000	- / 0.000	- / 7.404	- / 17.663	- / 0.000	- / 17.663
P-3a	10 / ML020 AN/BLQ-10B (V) (SHIPALT)				- / 0.000	- / 0.000	- / 35.790	- / 35.467	- / 0.000	- / 35.467
P-40	Total Gross/Weapon System Cost				- / 0.000	- / 0.000	- / 154.421	- / 151.240	- / 0.000	- / 151.240
*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. Title represents the P-40a Title when only the P-40a Summary/Total is shown. Note: Totals in this Exhibit P-40 set may not be exact or sum exactly due to rounding.										

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Exhibit P-40a, Budget Item Justification For Aggregated Items: FY 2018 Navy																Date: May 2017			
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9								P-1 Line Item Number / Title: 0840 / Sub Periscope, Imaging and Supt Equip Prog								Aggregated Items Title: SUBMARINE PERISCOPES & IMAGING EQUIPMENT			

Item Number / Title [DODIC]	ID CD	MDAP/MAIS Code	Prior Years			FY 2016			FY 2017			FY 2018 Base			FY 2018 OCO			FY 2018 Total		
			Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)
1) PL012 PERISCOPE SPECIAL SUPPORT EQUIPMENT																				
1.1) SPECIAL SUPPORT EQUIPMENT	A		-	-	-	-	-	-	-	-	0.546	-	-	0.556	-	-	-	-	-	0.556
Subtotal: 1) PL012 PERISCOPE SPECIAL SUPPORT EQUIPMENT			-	-	0.000	-	-	-	-	-	0.546	-	-	0.556	-	-	-	-	-	0.556
2) PL015 PERISCOPE INTERIM CONTRACTOR SUPPORT																				
2.1) INTERIM CONTRACTOR SUPPORT	A		-	-	-	-	-	-	-	-	11.179	-	-	11.392	-	-	-	-	-	11.392
Subtotal: 2) PL015 PERISCOPE INTERIM CONTRACTOR SUPPORT			-	-	0.000	-	-	-	-	-	11.179	-	-	11.392	-	-	-	-	-	11.392
3) PL016 PERISCOPE TRAINING																				
3.1) TRAINING	A		-	-	-	-	-	-	-	-	0.182	-	-	0.185	-	-	-	-	-	0.185
Subtotal: 3) PL016 PERISCOPE TRAINING			-	-	0.000	-	-	-	-	-	0.182	-	-	0.185	-	-	-	-	-	0.185
4) PL830 PERISCOPE PRODUCTION ENGINEERING																				
4.1) PRODUCTION ENGINEERING	A		-	-	-	-	-	-	-	-	3.646	-	-	3.715	-	-	-	-	-	3.715
Subtotal: 4) PL830 PERISCOPE PRODUCTION ENGINEERING			-	-	0.000	-	-	-	-	-	3.646	-	-	3.715	-	-	-	-	-	3.715
5) PL900 PERISCOPE CONSULTING SERVICES ⁽¹⁾																				
5.1) CONSULTING SERVICES	A		-	-	-	-	-	-	-	-	0.405	-	-	-	-	-	-	-	-	-
Subtotal: 5) PL900 PERISCOPE CONSULTING SERVICES			-	-	0.000	-	-	-	-	-	0.405	-	-	-	-	-	-	-	-	-
Total			-	-	0.000	-	-	-	-	-	15.958	-	-	15.848	-	-	-	-	-	15.848

Note: Subtotals or Totals in this Exhibit P-40a may not be exact or sum exactly, due to rounding.

Footnotes:

⁽¹⁾ FY18 and out, PL900 requirements are consolidated under PL010.

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Exhibit P-40a, Budget Item Justification For Aggregated Items: FY 2018 Navy															Date: May 2017					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9							P-1 Line Item Number / Title: 0840 / Sub Periscope, Imaging and Supt Equip Prog								Aggregated Items Title: Submarine Supt Equip Prog					
Item Number / Title [DODIC]	ID CD	MDAP/MAIS Code	Prior Years			FY 2016			FY 2017			FY 2018 Base			FY 2018 OCO			FY 2018 Total		
			Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)
1) ML003 SSEP SPECIAL SUPPORT EQUIPMENT																				
1.1) SPECIAL SUPPORT EQUIPMENT	A		-	-	-	-	-	-	-	-	0.329	-	-	0.335	-	-	-	-	-	0.335
Subtotal: 1) ML003 SSEP SPECIAL SUPPORT EQUIPMENT			-	-	0.000	-	-	-	-	-	0.329	-	-	0.335	-	-	-	-	-	0.335
2) ML014 Legacy Submarine Electronic Surveillance Measures (SubESM)																				
2.1) LEGACY SubESM	A		-	-	-	-	-	-	-	-	0.480	-	-	0.400	-	-	-	-	-	0.400
Subtotal: 2) ML014 Legacy Submarine Electronic Surveillance Measures (SubESM)			-	-	0.000	-	-	-	-	-	0.480	-	-	0.400	-	-	-	-	-	0.400
3) ML830 PRODUCTION ENGINEERING																				
3.1) PRODUCTION ENGINEERING	A		-	-	-	-	-	-	-	-	3.343	-	-	3.407	-	-	-	-	-	3.407
Subtotal: 3) ML830 PRODUCTION ENGINEERING			-	-	0.000	-	-	-	-	-	3.343	-	-	3.407	-	-	-	-	-	3.407
4) ML021 Submarine RADARs																				
4.1) Submarine RADARs	A		-	-	-	-	-	-	-	-	1.186	-	-	1.090	-	-	-	-	-	1.090
Subtotal: 4) ML021 Submarine RADARs			-	-	0.000	-	-	-	-	-	1.186	-	-	1.090	-	-	-	-	-	1.090
Total			-	-	0.000	-	-	-	-	-	5.338	-	-	5.232	-	-	-	-	-	5.232
Note: Subtotals or Totals in this Exhibit P-40a may not be exact or sum exactly, due to rounding.																				

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Exhibit P-40a, Budget Item Justification For Aggregated Items: FY 2018 Navy															Date: May 2017					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9							P-1 Line Item Number / Title: 0840 / Sub Periscope, Imaging and Supt Equip Prog								Aggregated Items Title: PL011 Imaging Upgrades/Technical Insertions Imaging: Type 8/Type 18					
Item Number / Title [DODIC]	ID CD	MDAP/MAIS Code	Prior Years			FY 2016			FY 2017			FY 2018 Base			FY 2018 OCO			FY 2018 Total		
			Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)
B Kits/Recurring																				
TYPE 8/TYPE 18 -- Procurement	A		0.00	66	0.000	0.00	1	0.000	251,000.00	1	0.251	256,000.00	1	0.256	-	-	-	256,000.00	1	0.256
TYPE 8/TYPE 18 -- Installation	A		-	-	-	-	-	-	-	-	0.118	-	-	0.120	-	-	-	-	-	0.120
Subtotal: B Kits/Recurring			-	-	0.000	-	-	-	-	-	0.369	-	-	0.376	-	-	-	-	-	0.376
Total			-	-	0.000	-	-	0.000	-	-	0.369	-	-	0.376	-	-	0.000	-	-	0.376
Note: Subtotals or Totals in this Exhibit P-40a may not be exact or sum exactly, due to rounding.																				
Remarks: Models of Systems Affected: TYPE 8/TYPE 18 Type Modification: ORDALT Provides obsolescence related upgrades for Submarine Periscopes. One (1) set is procured in each fiscal year that includes variable quantities.																				

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Exhibit P-40a, Budget Item Justification For Aggregated Items: FY 2018 Navy															Date: May 2017					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9							P-1 Line Item Number / Title: 0840 / Sub Periscope, Imaging and Supt Equip Prog								Aggregated Items Title: PL025 Low Profile Photonics Mast (LPPM)					
Item Number / Title [DODIC]	ID CD	MDAP/MAIS Code	Prior Years			FY 2016			FY 2017			FY 2018 Base			FY 2018 OCO			FY 2018 Total		
			Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)
B Kits/Recurring																				
LPPM -- Installation	A		-	-	-	-	-	-	-	-	-	-	-	0.115	-	-	-	-	-	0.115
LPPM SPARE ⁽²⁾	A		-	-	-	-	-	-	-	-	-	5,879K	1	5.879	-	-	-	5,879K	1	5.879
Subtotal: B Kits/Recurring			-	-	0.000	-	-	-	-	-	-	-	-	5.994	-	-	-	-	-	5.994
Total			-	-	0.000	-	-	0.000	-	-	0.000	-	-	5.994	-	-	0.000	-	-	5.994
Note: Subtotals or Totals in this Exhibit P-40a may not be exact or sum exactly, due to rounding.																				
Remarks: Models of Systems Affected: Photonics Mast Type Modification: SHIPALT VA Class advanced Low Profile Imaging masts including Low Profile Photonics Mast (LPPM). Procures initial modernization assets as well as spare masts later in FYDP to maintain overall spares ratio for imaging masts as quantity of imaging equipped ships increases. Maintaining sufficient quantities of installed and spare low profile masts imaging is essential to meet PACFLT requirements for all deploying VA class submarines in the Pacific to be equipped with low profile imaging masts. Beginning in FY20, procurement of Task Oriented Tech Insertion Mast (TOTIM) will provide vastly increased capability, reduced maintenance costs and increased development flexibility for new mast sensors.																				
Footnotes: ⁽²⁾ FY18 and Out Procurement production lead times decrease to 24 months.																				

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Exhibit P-40a, Budget Item Justification For Aggregated Items: FY 2018 Navy															Date: May 2017					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9						P-1 Line Item Number / Title: 0840 / Sub Periscope, Imaging and Supt Equip Prog						Aggregated Items Title: ML007 ICADF								
Item Number / Title [DODIC]	ID CD	MDAP/MAIS Code	Prior Years			FY 2016			FY 2017			FY 2018 Base			FY 2018 OCO			FY 2018 Total		
			Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)
B Kits/Recurring																				
NIOC TRANSFER EQUIPMENT -- Installation	A		-	-	-	-	-	-	-	-	1.245	-	-	-	-	-	-	-	-	-
Subtotal: B Kits/Recurring			-	-	0.000	-	-	-	-	-	1.245	-	-	-	-	-	-	-	-	-
Total			-	-	0.000	-	-	0.000	-	-	1.245	-	-	0.000	-	-	0.000	-	-	0.000
Note: Subtotals or Totals in this Exhibit P-40a may not be exact or sum exactly, due to rounding. Remarks: Models of Systems Affected: ICADF Type Modification: SHIPALT (ES SYSTEM COMMS DF) Provides advanced low-band COMINT Direction Finding (DF) capability compatible with CLASSIC TROLL and AN/BLQ-10 SSN ES system. Replaces obsolete AN/BRD-7 below decks equipment with modern, open architecture system compliant with Maritime Cryptologic Architecture.																				

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Exhibit P-40a, Budget Item Justification For Aggregated Items: FY 2018 Navy															Date: May 2017						
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9							P-1 Line Item Number / Title: 0840 / Sub Periscope, Imaging and Supt Equip Prog									Aggregated Items Title: ML008 ICADF MMM ANTENNA					
Item Number / Title [DODIC]	ID CD	MDAP/MAIS Code	Prior Years			FY 2016			FY 2017			FY 2018 Base			FY 2018 OCO			FY 2018 Total			
			Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	
B Kits/Recurring																					
Multi Functional Modular Mast -- Installation	A		-	-	-	-	-	-	-	-	1.159	-	-	-	-	-	-	-	-	-	
Subtotal: B Kits/Recurring			-	-	0.000	-	-	-	-	-	1.159	-	-	-	-	-	-	-	-	-	
Total			-	-	0.000	-	-	0.000	-	-	1.159	-	-	0.000	-	-	0.000	-	-	0.000	
Note: Subtotals or Totals in this Exhibit P-40a may not be exact or sum exactly, due to rounding.																					
Remarks: Models of Systems Affected: MULTI FUNCTION MODULAR MAST Type Modification: SHIPALT Synchronizes improved low-band direction finding SIGINT sensor with coordinated N77/CNSG CLASSIC TROLL procurement. Replaces obsolete AN/BRD-7 antenna equipment with modern, open-architecture system compliant with Maritime Cryptologic Architecture.																					

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Exhibit P-40a, Budget Item Justification For Aggregated Items: FY 2018 Navy															Date: May 2017					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9						P-1 Line Item Number / Title: 0840 / Sub Periscope, Imaging and Supt Equip Prog						Aggregated Items Title: ML015 AN/BLQ-10(V) SSN ES SYSTEM								
Item Number / Title [DODIC]	ID CD	MDAP/MAIS Code	Prior Years			FY 2016			FY 2017			FY 2018 Base			FY 2018 OCO			FY 2018 Total		
			Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)
B Kits/Recurring																				
AN/BLQ-10(V) SSN ES SYSTEM -- Installation	A		-	-	-	-	-	-	-	-	1.380	-	-	-	-	-	-	-	-	-
Subtotal: B Kits/Recurring			-	-	0.000	-	-	-	-	-	1.380	-	-	-	-	-	-	-	-	-
Total			-	-	0.000	-	-	0.000	-	-	1.380	-	-	0.000	-	-	0.000	-	-	0.000
Note: Subtotals or Totals in this Exhibit P-40a may not be exact or sum exactly, due to rounding. Remarks: Models of Systems Affected: AN/BLQ-10(V)2/3/4 Type Modification: SHIPALT Provides fully integrated, covert, forward area radar signal intercept and ID capability for installation on LOS ANGELES, SEAWOLF and SSGN Class Submarines.																				

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Exhibit P-40a, Budget Item Justification For Aggregated Items: FY 2018 Navy														Date: May 2017						
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9							P-1 Line Item Number / Title: 0840 / Sub Periscope, Imaging and Supt Equip Prog							Aggregated Items Title: ML018 VA CLASS ES MODERNIZATION PATRIOT						
Item Number / Title [DODIC]	ID CD	MDAP/MAIS Code	Prior Years			FY 2016			FY 2017			FY 2018 Base			FY 2018 OCO			FY 2018 Total		
			Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)
B Kits/Recurring																				
VA PATRIOT -- Procurement	A		0.00	11	0.000	0.00	3	0.000	1,190K	2	2.379	1,212K	2	2.424	-	-	-	1,212K	2	2.424
VA PATRIOT -- Installation	A		-	-	-	-	-	-	-	-	0.347	-	-	0.531	-	-	-	-	-	0.531
Subtotal: B Kits/Recurring			-	-	0.000	-	-	-	-	-	2.726	-	-	2.955	-	-	-	-	-	2.955
Total			-	-	0.000	-	-	0.000	-	-	2.726	-	-	2.955	-	-	0.000	-	-	2.955
Note: Subtotals or Totals in this Exhibit P-40a may not be exact or sum exactly, due to rounding.																				
Remarks: Models of Systems Affected: VA PATRIOT Type Modification: SHIPALT Procures Electronic Warfare Support (ES) Modernization upgrade of PATRIOT Phase B RADAR range finder for incorporation into the VIRGINIA CLASS Photonics Mast.																				

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Exhibit P-3a, Individual Modification: FY 2018 Navy					Date: May 2017	
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9			P-1 Line Item Number / Title: 0840 / Sub Periscope, Imaging and Supt Equip Prog		Modification Number / Title: 1 / PL010 - Imaging ISIS Technical Insertion (SWFTS)	
ID Code (A=Service Ready, B=Not Service Ready) :				MDAP/MAIS Code:		
Resource Summary	Prior Years	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
Procurement Quantity <i>(Units in Each)</i>	-	-	-	-	-	-
Gross/Weapon System Cost <i>(\$ in Millions)</i>	0.000	0.000	63.822	44.863	0.000	44.863
Less PY Advance Procurement <i>(\$ in Millions)</i>	-	-	-	-	-	-
Net Procurement (P-1) <i>(\$ in Millions)</i>	0.000	0.000	63.822	44.863	0.000	44.863
Plus CY Advance Procurement <i>(\$ in Millions)</i>	-	-	-	-	-	-
Total Obligation Authority <i>(\$ in Millions)</i>	0.000	0.000	63.822	44.863	0.000	44.863
<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>	-	-	-	-	-	-
Gross/Weapon System Unit Cost <i>(\$ in Dollars)</i>	-	-	-	-	-	-
Description: Provides for the modernization of Imaging systems and Technical Insertion kits to upgrade Integrated Submarine Imaging System (ISIS) on LOS ANGELES, SEAWOLF, VIRGINIA and OHIO Class SSGN platforms in support of Intelligence, Surveillance and Reconnaissance (ISR) requirements. VIRGINIA Tech Insertion unit costs reflect copper/fiber diploops and hull penetrators needed to field Low Profile Photonics Mast (LPPM) and the Task Oriented Tech Insertion Mast (TOTIM) on these modernization hulls as well as higher base unit cost of VIRGINIA Tech Insertions. VIRGINIA Initial ISIS Backfits also contain copper/fiber updates for those hulls. This line item aligns the periscope, imaging, and support equipment with the Submarine Warfare Federated Tactical System (SWFTS) interface with the Combat Control and Acoustic upgrades in budget line items 5420 and 2150.						

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Exhibit P-3a, Individual Modification: FY 2018 Navy					Date: May 2017	
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9		P-1 Line Item Number / Title: 0840 / Sub Periscope, Imaging and Supt Equip Prog			Modification Number / Title: 1 / PL010 - Imaging ISIS Technical Insertion (SWFTS)	
ID Code (A=Service Ready, B=Not Service Ready) :				MDAP/MAIS Code:		
Models of Systems Affected: ISIS TI		Modification Type: ORDALT			Related RDT&E PEs:	
Financial Plan	Prior Years	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
	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)
Procurement						
Modification Item 1 of 1: PL010 - Imaging ISIS Technical Insertion (SWFTS)						
B Kits						
Recurring						
1.1.1) 688/21 TECHNICAL INSERTION (SWFTS) - NonOrganic	6 / 0.000	7 / 0.000	1 / 1.018	7 / 7.262	- / -	7 / 7.262
1.1.2) VA TECHNICAL INSERTION (SWFTS) - NonOrganic ⁽³⁾	- / -	- / -	5 / 24.387	3 / 14.910	- / -	3 / 14.910
1.1.4) VA ISIS BACKFIT (SWFTS) - NonOrganic	- / -	2 / 0.000	2 / 14.243	- / -	- / -	- / -
1.1.5) SSBN BACKFIT (SWFTS) - NonOrganic	- / -	2 / 0.000	3 / 0.580	3 / 0.591	- / -	3 / 0.591
Subtotal: Recurring	- / 0.000	- / -	- / 40.228	- / 22.763	- / -	- / 22.763
Subtotal: PL010 - Imaging ISIS Technical Insertion (SWFTS)	6 / 0.000	11 / 0.000	11 / 40.228	13 / 22.763	- / -	13 / 22.763
Subtotal: Procurement, All Modification Items	- / 0.000	- / -	- / 40.228	- / 22.763	- / -	- / 22.763
Support (All Modification Items)						
2.1) ISIS TECHNICAL INSERTION NRE ⁽⁴⁾	- / -	- / -	- / 19.473	- / 17.088	- / -	- / 17.088
Subtotal: Support	- / 0.000	- / -	- / 19.473	- / 17.088	- / -	- / 17.088
Installation						
Modification Item 1 of 1: PL010 - Imaging ISIS Technical Insertion (SWFTS)	- / 0.000	- / 0.000	- / 4.121	- / 5.012	- / 0.000	- / 5.012
Subtotal: Installation	- / 0.000	- / -	- / 4.121	- / 5.012	- / -	- / 5.012
Total						
Total Cost (Procurement + Support + Installation)	0.000	0.000	63.822	44.863	0.000	44.863

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Exhibit P-3a, Individual Modification: FY 2018 Navy						Date: May 2017							
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9				P-1 Line Item Number / Title: 0840 / Sub Periscope, Imaging and Supt Equip Prog				Modification Number / Title: 1 / PL010 - Imaging ISIS Technical Insertion (SWFTS)					
ID Code (A=Service Ready, B=Not Service Ready) :						MDAP/MAIS Code:							
Modification Item 1 of 1: PL010 - Imaging ISIS Technical Insertion (SWFTS)													
Manufacturer Information													
Manufacturer Name: Multiple Vendors						Manufacturer Location: Various							
Administrative Leadtime (in Months): 6						Production Leadtime (in Months): 12							
Dates		FY 2016				FY 2017				FY 2018			
Contract Dates		Mar 2016				Mar 2017				Mar 2018			
Delivery Dates		Mar 2017				Mar 2018				Mar 2019			
Installation Information													
Method of Implementation: AIT:: Installation Name: 688/21 TECHNICAL INSERTION (SWFTS)													
Installation Cost		Prior Years		FY 2016		FY 2017		FY 2018 Base		FY 2018 OCO		FY 2018 Total	
		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)	
Prior Years		- / -		6 / 0.000		- / -		- / -		- / -		- / -	
FY 2016		- / -		- / -		7 / 2.170		- / -		- / -		- / -	
FY 2017		- / -		- / -		- / -		1 / 0.316		0 / 0.000		1 / 0.316	
FY 2018		- / -		- / -		- / -		- / -		- / -		- / -	
Total		- / -		6 / 0.000		7 / 2.170		1 / 0.316		0 / 0.000		1 / 0.316	
Installation Schedule													
	PYS	FY 2016				FY 2017				FY 2018			
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
In	-	-	2	2	2	-	3	2	2	-	1	-	-
Out	-	-	2	2	2	-	3	2	2	-	1	-	-
Method of Implementation: AIT:: Installation Name: VA TECHNICAL INSERTION (SWFTS)													
Installation Cost		Prior Years		FY 2016		FY 2017		FY 2018 Base		FY 2018 OCO		FY 2018 Total	
		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)	
Prior Years		- / -		- / -		- / -		- / -		- / -		- / -	
FY 2016		- / -		- / -		- / -		- / -		- / -		- / -	
FY 2017		- / -		- / -		- / -		3 / 2.587		0 / 0.000		3 / 2.587	
FY 2018		- / -		- / -		- / -		- / -		- / -		- / -	
Total		- / -		- / -		- / -		3 / 2.587		0 / 0.000		3 / 2.587	

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Exhibit P-3a, Individual Modification: FY 2018 Navy										Date: May 2017			
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9					P-1 Line Item Number / Title: 0840 / Sub Periscope, Imaging and Supt Equip Prog					Modification Number / Title: 1 / PL010 - Imaging ISIS Technical Insertion (SWFTS)			
ID Code (A=Service Ready, B=Not Service Ready) :								MDAP/MAIS Code:					
Modification Item 1 of 1: PL010 - Imaging ISIS Technical Insertion (SWFTS)													
Installation Information													
Method of Implementation: AIT:: Installation Name: VA TECHNICAL INSERTION (SWFTS)													
Installation Schedule													
	PYS	FY 2016				FY 2017				FY 2018			
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
In	-	-	-	-	-	-	-	-	-	-	1	1	1
Out	-	-	-	-	-	-	-	-	-	-	1	1	1
Method of Implementation: AIT:: Installation Name: VA ISIS BACKFIT (SWFTS)													
Installation Cost	Prior Years		FY 2016		FY 2017		FY 2018 Base		FY 2018 OCO		FY 2018 Total		
	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)		
Prior Years	- / -		- / -		- / -		- / -		- / -		- / -		
FY 2016	- / -		- / -		2 / 1.715		- / -		- / -		- / -		
FY 2017	- / -		- / -		- / -		2 / 1.748		0 / 0.000		2 / 1.748		
FY 2018	- / -		- / -		- / -		- / -		- / -		- / -		
Total	- / -		- / -		2 / 1.715		2 / 1.748		0 / 0.000		2 / 1.748		
Installation Schedule													
	PYS	FY 2016				FY 2017				FY 2018			
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
In	-	-	-	-	-	-	1	1	-	-	1	1	-
Out	-	-	-	-	-	-	1	1	-	-	1	1	-
Method of Implementation: AIT:: Installation Name: SSBN BACKFIT (SWFTS)													
Installation Cost	Prior Years		FY 2016		FY 2017		FY 2018 Base		FY 2018 OCO		FY 2018 Total		
	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)		
Prior Years	- / -		- / -		- / -		- / -		- / -		- / -		
FY 2016	- / -		- / -		2 / 0.236		- / -		- / -		- / -		
FY 2017	- / -		- / -		- / -		3 / 0.361		0 / 0.000		3 / 0.361		
FY 2018	- / -		- / -		- / -		- / -		- / -		- / -		
Total	- / -		- / -		2 / 0.236		3 / 0.361		0 / 0.000		3 / 0.361		

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Exhibit P-3a, Individual Modification: FY 2018 Navy										Date: May 2017			
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9					P-1 Line Item Number / Title: 0840 / Sub Periscope, Imaging and Supt Equip Prog					Modification Number / Title: 1 / PL010 - Imaging ISIS Technical Insertion (SWFTS)			
ID Code (A=Service Ready, B=Not Service Ready) :								MDAP/MAIS Code:					
Modification Item 1 of 1: PL010 - Imaging ISIS Technical Insertion (SWFTS)													
Installation Information													
Method of Implementation: AIT:: Installation Name: SSBN BACKFIT (SWFTS)													
Installation Schedule													
	PYS	FY 2016				FY 2017				FY 2018			
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
In	-	-	-	-	-	-	1	1	-	-	1	1	1
Out	-	-	-	-	-	-	1	1	-	-	1	1	1

Footnotes:

⁽³⁾ FY18 unit costs comparable to FY17 plus inflation and include funds for one (1) copper/fiber diploop and hull penetrator sets required for VA Class Submarines receiving ISIS TI-16 upgrade to field LPPM and future masts as well as base TI increased obsolescence change-out. The installation costs for 2 Kits procured as part of the PB17 Request for Additional Appropriations (RAA) will be addressed in PB19 submission. Pending resolution of the RAA, these kits installation funding is being maintained in the "To Complete" column of the Installation Information Table.

⁽⁴⁾ TI/APB NRE funding levels are adjusted annually in response to the change in the quantity and the complexity of each new capability being incorporated into the inboard imaging software. TI/APB NRE reduction in FY20 is funded through a corresponding increase in FY20 RDT&E PE 0604777N Project 0253 funding to support development activities.

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Exhibit P-3a, Individual Modification: FY 2018 Navy					Date: May 2017	
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9		P-1 Line Item Number / Title: 0840 / Sub Periscope, Imaging and Supt Equip Prog			Modification Number / Title: 6 / ML010 TECHNICAL INSERTION (SWFTS)	
ID Code (A=Service Ready, B=Not Service Ready) :				MDAP/MAIS Code:		
Resource Summary	Prior Years	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
Procurement Quantity <i>(Units in Each)</i>	-	-	-	-	-	-
Gross/Weapon System Cost <i>(\$ in Millions)</i>	0.000	0.000	19.230	22.842	0.000	22.842
Less PY Advance Procurement <i>(\$ in Millions)</i>	-	-	-	-	-	-
Net Procurement (P-1) <i>(\$ in Millions)</i>	0.000	0.000	19.230	22.842	0.000	22.842
Plus CY Advance Procurement <i>(\$ in Millions)</i>	-	-	-	-	-	-
Total Obligation Authority <i>(\$ in Millions)</i>	0.000	0.000	19.230	22.842	0.000	22.842
<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>	-	-	-	-	-	-
Gross/Weapon System Unit Cost <i>(\$ in Dollars)</i>	-	-	-	-	-	-
Description: TI Processor upgrade provides additional computing capability over previous TI baselines and replaces out of production systems for installation on LOS ANGELES, SSGN, SEAWOLF, and VIRGINIA Class submarines. Provides updates to the AN/BLQ-10 (V) configuration baseline which incorporates current Commercial off the Shelf (COTS) processing technology and software to account for obsolescence avoidance, and Reliability, Maintainability and Availability (RMA) and associated Integrated Logistics Support (ILS) and technical data. Hardware builds include supporting platform level Submarine Warfare Federated Tactical Systems (SWFTS) interfaces. Capability and Technical Insertion for AN/BLQ-10(V) provide spiral improvements to the baseline system which are designed to counter against new and evolving threat emitters. This effort is the transition of the EW AN/BLQ-10 TI modernization process to synchronize with SWFTS TI/APB process and model. TI-16 baseline represents a significant change and increase in capabilities to enable software processing of digital data provided by EW Next Generation Architecture (NGA) hardware. TI-16 introduces the EW Server system that centralizes in software many functions that were previously handled in older, less capable hardware systems. Vastly increases coordination and dissemination of data. Due to proliferation of multiple, older TI configurations, TI-16 still required to procure significant hardware updates to baseline older systems prior to installing new capabilities. TI-16 is a concurrent requirement for installing EW NGA hardware.						

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Exhibit P-3a, Individual Modification: FY 2018 Navy						Date: May 2017	
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9			P-1 Line Item Number / Title: 0840 / Sub Periscope, Imaging and Supt Equip Prog			Modification Number / Title: 6 / ML010 TECHNICAL INSERTION (SWFTS)	
ID Code (A=Service Ready, B=Not Service Ready) :					MDAP/MAIS Code:		
Models of Systems Affected: TECHNICAL INSERTION			Modification Type: SHIPALT			Related RDT&E PEs:	
Financial Plan	Prior Years	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	
	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)	
Procurement							
<i>Modification Item 1 of 1:</i> ML010 TECHNICAL INSERTION (SWFTS)							
B Kits							
Recurring							
1.1.1) TI/APB (SWFTS) - NonOrganic ⁽⁵⁾	20 / 0.000	7 / 0.000	8 / 13.781	10 / 17.736	- / -	10 / 17.736	
<i>Subtotal: Recurring</i>	- / 0.000	- / -	- / 13.781	- / 17.736	- / -	- / 17.736	
<i>Subtotal: ML010 TECHNICAL INSERTION (SWFTS)</i>	20 / 0.000	7 / 0.000	8 / 13.781	10 / 17.736	- / -	10 / 17.736	
<i>Subtotal: Procurement, All Modification Items</i>	- / 0.000	- / -	- / 13.781	- / 17.736	- / -	- / 17.736	
Support (All Modification Items)							
2.1) TI/APB NRE	- / -	- / -	- / 2.405	- / 2.449	- / -	- / 2.449	
2.2) TI/APB CCM	3 / 0.000	- / -	- / -	- / -	- / -	- / -	
<i>Subtotal: Support</i>	- / 0.000	- / -	- / 2.405	- / 2.449	- / -	- / 2.449	
Installation							
<i>Modification Item 1 of 1:</i> ML010 TECHNICAL INSERTION (SWFTS)	- / 0.000	- / 0.000	- / 3.044	- / 2.657	- / 0.000	- / 2.657	
<i>Subtotal: Installation</i>	- / 0.000	- / -	- / 3.044	- / 2.657	- / -	- / 2.657	
Total							
Total Cost (Procurement + Support + Installation)	0.000	0.000	19.230	22.842	0.000	22.842	

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Exhibit P-3a, Individual Modification: FY 2018 Navy						Date: May 2017							
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9				P-1 Line Item Number / Title: 0840 / Sub Periscope, Imaging and Supt Equip Prog				Modification Number / Title: 6 / ML010 TECHNICAL INSERTION (SWFTS)					
ID Code (A=Service Ready, B=Not Service Ready) :						MDAP/MAIS Code:							
Modification Item 1 of 1: ML010 TECHNICAL INSERTION (SWFTS)													
Manufacturer Information													
Manufacturer Name: Lockheed Martin						Manufacturer Location: Syracuse, NY							
Administrative Leadtime <i>(in Months)</i> : 6						Production Leadtime <i>(in Months)</i> : 12							
Dates		FY 2016		FY 2017		FY 2018							
Contract Dates		Mar 2016		Mar 2017		Mar 2018							
Delivery Dates		Mar 2017		Mar 2018		Mar 2019							
Installation Information													
Method of Implementation: AIT:: Installation Name: TI/APB (SWFTS)													
Installation Cost		Prior Years		FY 2016		FY 2017		FY 2018 Base		FY 2018 OCO		FY 2018 Total	
		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>		Qty <i>(Each)</i> / Total Cost <i>(\$ M)</i>		Qty <i>(Each)</i> / Total Cost <i>(\$ M)</i>	
Prior Years		16 / 0.000		4 / 0.000		- / -		- / -		- / -		- / -	
FY 2016		- / -		- / -		7 / 3.044		- / -		- / -		- / -	
FY 2017		- / -		- / -		- / -		6 / 2.657		0 / 0.000		6 / 2.657	
FY 2018		- / -		- / -		- / -		- / -		- / -		- / -	
Total		16 / 0.000		4 / 0.000		7 / 3.044		6 / 2.657		0 / 0.000		6 / 2.657	
Installation Schedule													
	PYS	FY 2016				FY 2017				FY 2018			
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
In	16	-	1	2	1	-	4	2	1	-	3	2	1
Out	16	-	1	2	1	-	4	2	1	-	3	2	1
Footnotes:													
⁽⁵⁾ Unit costs are hull dependent and build on previous baselines to add both existing and future capabilities supported by higher costs. As a result, there is a slight increase to the FY18 unit cost. In addition, higher unit costs in the out-years are realized for FY20 as TI20 systems are procured in conjunction with TI18 systems. FY21 increases because only TI20 systems are being procured. FY22 increases as procurement of the more expensive TI22 units begin. The installation costs for 2 SWFTS Kits procured as part of the PB17 Request for Additional Appropriations (RAA) will be addressed in PB19 submission. Pending resolution of the RAA, these kits installation funding is being maintained in the "To Complete" column of the Installation Information Table.													

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Exhibit P-3a, Individual Modification: FY 2018 Navy					Date: May 2017	
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9		P-1 Line Item Number / Title: 0840 / Sub Periscope, Imaging and Supt Equip Prog			Modification Number / Title: 8 / ML017 ANBLQ-10(V) FIELD CHANGE KITS	
ID Code (A=Service Ready, B=Not Service Ready) :				MDAP/MAIS Code:		
Resource Summary	Prior Years	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
Procurement Quantity <i>(Units in Each)</i>	-	-	-	-	-	-
Gross/Weapon System Cost <i>(\$ in Millions)</i>	0.000	0.000	7.404	17.663	0.000	17.663
Less PY Advance Procurement <i>(\$ in Millions)</i>	-	-	-	-	-	-
Net Procurement (P-1) <i>(\$ in Millions)</i>	0.000	0.000	7.404	17.663	0.000	17.663
Plus CY Advance Procurement <i>(\$ in Millions)</i>	-	-	-	-	-	-
Total Obligation Authority <i>(\$ in Millions)</i>	0.000	0.000	7.404	17.663	0.000	17.663
<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>	-	-	-	-	-	-
Gross/Weapon System Unit Cost <i>(\$ in Dollars)</i>	-	-	-	-	-	-
Description: Procures AN/BLQ-10(V) and ICADF subsystem Product Improvement Field Change Kits (FCK). AN/BLQ-10 FCKs are procured in variable quantities and types, and are bought from a variety of vendors each fiscal year. Increased funding throughout the FYDP for Submarine Launched Decoy Buoy to reduce risk of counter-detection for operating submarines. Procurement funding profile for the buoys are as follows: FY17 \$1.400M FY18 \$0.694M FY19 \$0.775M FY20 \$0.810M FY21 \$2.019M FY22 \$2.041M Also, increased funding throughout the FYDP for accelerated procurement of MMM Payload Module antennas to support submarine Fleet required improved communications/Tactical Data Link (TDL)/Electronic Warfare (EW) capability. Procurement funding profile for the improved communications are as follows: FY18 \$10.700M FY19 \$10.914M FY20 \$11.132M FY21 \$11.354M FY22 \$11.582M Procurement funding profile for the TDL are as follows: FY20 \$3.000M FY21 \$3.060M FY22 \$3.120M						

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Exhibit P-3a, Individual Modification: FY 2018 Navy					Date: May 2017	
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9		P-1 Line Item Number / Title: 0840 / Sub Periscope, Imaging and Supt Equip Prog			Modification Number / Title: 8 / ML017 ANBLQ-10(V) FIELD CHANGE KITS	
ID Code (A=Service Ready, B=Not Service Ready) :				MDAP/MAIS Code:		
Models of Systems Affected: AN/BLQ-10(V)		Modification Type: ORDALT			Related RDT&E PEs:	
Financial Plan	Prior Years	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
	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)
Procurement						
Modification Item 1 of 1: ML017 ANBLQ-10(V) FIELD CHANGE KITS						
B Kits						
Recurring						
1.1.1) AN/BLQ-10(V) FCKs - NonOrganic ⁽⁶⁾	4 / 0.000	1 / 0.000	1 / 6.781	1 / 16.879	- / -	1 / 16.879
<i>Subtotal: Recurring</i>	- / 0.000	- / -	- / 6.781	- / 16.879	- / -	- / 16.879
<i>Subtotal: ML017 ANBLQ-10(V) FIELD CHANGE KITS</i>	4 / 0.000	1 / 0.000	1 / 6.781	1 / 16.879	- / -	1 / 16.879
<i>Subtotal: Procurement, All Modification Items</i>	- / 0.000	- / -	- / 6.781	- / 16.879	- / -	- / 16.879
Installation						
Modification Item 1 of 1: ML017 ANBLQ-10(V) FIELD CHANGE KITS						
<i>Subtotal: Installation</i>	- / 0.000	- / 0.000	- / 0.623	- / 0.784	- / 0.000	- / 0.784
<i>Subtotal: Installation</i>	- / 0.000	- / -	- / 0.623	- / 0.784	- / -	- / 0.784
Total						
Total Cost (Procurement + Support + Installation)	0.000	0.000	7.404	17.663	0.000	17.663

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Exhibit P-3a, Individual Modification: FY 2018 Navy						Date: May 2017							
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9				P-1 Line Item Number / Title: 0840 / Sub Periscope, Imaging and Supt Equip Prog				Modification Number / Title: 8 / ML017 ANBLQ-10(V) FIELD CHANGE KITS					
ID Code (A=Service Ready, B=Not Service Ready) :						MDAP/MAIS Code:							
Modification Item 1 of 1: ML017 ANBLQ-10(V) FIELD CHANGE KITS													
Manufacturer Information													
Manufacturer Name: Lockheed Martin						Manufacturer Location: Syracuse, NY							
Administrative Leadtime (in Months): 6						Production Leadtime (in Months): 6							
Dates		FY 2016		FY 2017		FY 2018							
Contract Dates		Dec 2015		Dec 2016		Dec 2017							
Delivery Dates		Jun 2016		Jun 2017		Jun 2018							
Installation Information													
Method of Implementation: AIT:: Installation Name: AN/BLQ-10(V) FCKs													
Installation Cost		Prior Years		FY 2016		FY 2017		FY 2018 Base		FY 2018 OCO		FY 2018 Total	
		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)	
Prior Years		4 / 0.000		- / -		- / -		- / -		- / -		- / -	
FY 2016		- / -		1 / 0.000		- / -		- / -		- / -		- / -	
FY 2017		- / -		- / -		1 / 0.623		- / -		- / -		- / -	
FY 2018		- / -		- / -		- / -		1 / 0.784		0 / 0.000		1 / 0.784	
Total		4 / 0.000		1 / 0.000		1 / 0.623		1 / 0.784		0 / 0.000		1 / 0.784	
Installation Schedule													
	PYS	FY 2016				FY 2017				FY 2018			
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
In	4	-	-	1	-	-	-	1	-	-	-	1	-
Out	4	-	-	1	-	-	-	1	-	-	-	1	-
Footnotes:													
(6) Increased funding throughout FYDP for Submarine Launched Decoy Buoy to reduce risk of counter-detection for operating submarines. Procurement funding profile for the buoys are as follows: \$1.400M (FY17), \$0.694M (FY18), \$0.775M (FY19), \$0.810M (FY20), \$2.019M (FY21), and \$2.041M (FY22). FY18 installation includes \$150K increase for Submarine Launched Decoy (SLD) TEMPALT. FY19 and out continues SLD TEMPALT cost. Also, increased funding throughout the FYDP for accelerated procurement of MMM Payload Module antennas to support submarine Fleet required improved communications/ Tactical Data Link (TDL)/Electronic Warfare (EW) capability. Procurement funding profile for the improved communications are as follows: \$10.700M (FY18), \$10.914M (FY19), \$11.132M (FY20), \$11.354M (FY21), and \$11.582M (FY22). Procurement funding profile for the TDL are as follows: \$3.000M (FY20), \$3.060M (FY21), and \$3.120M (FY22).													

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Exhibit P-3a, Individual Modification: FY 2018 Navy					Date: May 2017	
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9			P-1 Line Item Number / Title: 0840 / Sub Periscope, Imaging and Supt Equip Prog		Modification Number / Title: 10 / ML020 AN/BLQ-10B (V)	
ID Code (A=Service Ready, B=Not Service Ready) :				MDAP/MAIS Code:		
Resource Summary	Prior Years	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
Procurement Quantity <i>(Units in Each)</i>	-	-	-	-	-	-
Gross/Weapon System Cost <i>(\$ in Millions)</i>	0.000	0.000	35.790	35.467	0.000	35.467
Less PY Advance Procurement <i>(\$ in Millions)</i>	-	-	-	-	-	-
Net Procurement (P-1) <i>(\$ in Millions)</i>	0.000	0.000	35.790	35.467	0.000	35.467
Plus CY Advance Procurement <i>(\$ in Millions)</i>	-	-	-	-	-	-
Total Obligation Authority <i>(\$ in Millions)</i>	0.000	0.000	35.790	35.467	0.000	35.467
<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>	-	-	-	-	-	-
Gross/Weapon System Unit Cost <i>(\$ in Dollars)</i>	-	-	-	-	-	-
Description: Procurement of AN/BLQ-10B(V) NRE and modernization kits for ES Modernization upgrades for all submarine platforms. The rapid proliferation of complex radar, communications and navigation equipment available to potential adversaries creates a need for sustained and significant improvements to submarine systems in order to maintain tactical ship safety and operational effectiveness. Commander Submarine Forces and the Submarine Tactical Requirements Group (STRG) raised EW primary mission area in FY12 to be the number one modernization requirement. In addition, each procurement aligns with hardware builds supporting platform level Submarine Warfare Federated Tactical Systems (SWFTS) interfaces. FY18 AN/BLQ-10B(V) Next Generation Architecture (NGA)(TI-16/18) Backfit procurements reflect kits to be installed in conjunction with TI-16 and TI-18 modernization. AN/BLQ-10B(V)NGA (TI-16/18) Backfit procured jointly with NAVAIR and the US Army leveraging prior NAVAIR funded development and providing a common hardware set for synergistic software solutions to be developed and shared between all three programs. FY19 procurement of the AN/BLQ-10B(V)NGA (TI-20) Backfit in conjunction with TI-20 modernization.						

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Exhibit P-3a, Individual Modification: FY 2018 Navy					Date: May 2017	
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9			P-1 Line Item Number / Title: 0840 / Sub Periscope, Imaging and Supt Equip Prog		Modification Number / Title: 10 / ML020 AN/BLQ-10B (V)	
ID Code (A=Service Ready, B=Not Service Ready) :				MDAP/MAIS Code:		
Models of Systems Affected: AN/BLQ-10		Modification Type: SHIPALT			Related RDT&E PEs:	
Financial Plan	Prior Years	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
	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)
Procurement						
Modification Item 1 of 1: ML020 AN/BLQ-10B (V)						
B Kits						
Recurring						
1.1.1) AN/BLQ-10B(V) NGA (TI-16/18) Backfit Kits - NonOrganic ⁽⁷⁾	- / -	6 / 0.000	8 / 20.299	10 / 25.862	- / -	10 / 25.862
<i>Subtotal: Recurring</i>	<i>- / 0.000</i>	<i>- / -</i>	<i>- / 20.299</i>	<i>- / 25.862</i>	<i>- / -</i>	<i>- / 25.862</i>
<i>Subtotal: ML020 AN/BLQ-10B (V)</i>	<i>- / -</i>	<i>6 / 0.000</i>	<i>8 / 20.299</i>	<i>10 / 25.862</i>	<i>- / -</i>	<i>10 / 25.862</i>
<i>Subtotal: Procurement, All Modification Items</i>	<i>- / 0.000</i>	<i>- / -</i>	<i>- / 20.299</i>	<i>- / 25.862</i>	<i>- / -</i>	<i>- / 25.862</i>
Support (All Modification Items)						
2.1) NRE	- / -	- / -	- / 14.134	- / 8.213	- / -	- / 8.213
<i>Subtotal: Support</i>	<i>- / 0.000</i>	<i>- / -</i>	<i>- / 14.134</i>	<i>- / 8.213</i>	<i>- / -</i>	<i>- / 8.213</i>
Installation						
Modification Item 1 of 1: ML020 AN/BLQ-10B (V)	- / 0.000	- / 0.000	- / 1.357	- / 1.392	- / 0.000	- / 1.392
<i>Subtotal: Installation</i>	<i>- / 0.000</i>	<i>- / -</i>	<i>- / 1.357</i>	<i>- / 1.392</i>	<i>- / -</i>	<i>- / 1.392</i>
Total						
Total Cost (Procurement + Support + Installation)	0.000	0.000	35.790	35.467	0.000	35.467

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Exhibit P-3a, Individual Modification: FY 2018 Navy							Date: May 2017							
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9					P-1 Line Item Number / Title: 0840 / Sub Periscope, Imaging and Supt Equip Prog					Modification Number / Title: 10 / ML020 AN/BLQ-10B (V)				
ID Code (A=Service Ready, B=Not Service Ready) :							MDAP/MAIS Code:							
Modification Item 1 of 1: ML020 AN/BLQ-10B (V)														
Manufacturer Information														
Manufacturer Name: VARIOUS							Manufacturer Location: TBD							
Administrative Leadtime (in Months): 6							Production Leadtime (in Months): 12							
Dates		FY 2016				FY 2017				FY 2018				
Contract Dates						Mar 2016				Mar 2017				
Delivery Dates						Mar 2017				Mar 2018				
Manufacturer Name: VARIOUS							Manufacturer Location: TBD							
Administrative Leadtime (in Months): 6							Production Leadtime (in Months): 24							
Dates		FY 2016				FY 2017				FY 2018				
Contract Dates														
Delivery Dates														
Installation Information														
Method of Implementation: AIT:: Installation Name: AN/BLQ-10B(V) NGA (TI-16/18) Backfit Kits														
Installation Cost		Prior Years		FY 2016		FY 2017		FY 2018 Base		FY 2018 OCO		FY 2018 Total		
		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)		
Prior Years		- / -		- / -		- / -		- / -		- / -		- / -		
FY 2016		- / -		- / -		6 / 1.357		- / -		- / -		- / -		
FY 2017		- / -		- / -		- / -		6 / 1.392		0 / 0.000		6 / 1.392		
FY 2018		- / -		- / -		- / -		- / -		- / -		- / -		
Total		- / -		- / -		6 / 1.357		6 / 1.392		0 / 0.000		6 / 1.392		
Installation Schedule														
	PYS	FY 2016				FY 2017				FY 2018				
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	
In	-	-	-	-	-	-	2	2	2	-	3	2	1	
Out	-	-	-	-	-	-	2	2	2	-	3	2	1	
Footnotes:														
⁽⁷⁾ The installation costs for 2 SWFTS Kits procured as part of the PB17 Request for Additional Appropriations (RAA) will be addressed in PB19 submission. Pending resolution of the RAA, these kits installation funding is being maintained in the "To Complete" column of the Installation Information Table.														

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Exhibit P-40, Budget Line Item Justification: FY 2018 Navy										Date: May 2017		
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 01: Ships Support Equipment / BSA 9: Other Shipboard Equipment							P-1 Line Item Number / Title: 0900 / DDG Mod					
ID Code (A=Service Ready, B=Not Service Ready): A				Program Elements for Code B Items: 0204228N				Other Related Program Elements: 0604567N, 0604307N				
Line Item MDAP/MAIS Code: N/A												
Resource Summary	Prior Years	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	To Complete	Total
Procurement Quantity (<i>Units in Each</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost (<i>\$ in Millions</i>)	1,840.007	421.195	432.766	603.355	0.000	603.355	456.218	605.847	582.863	714.483	3,365.248	9,021.982
Less PY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (<i>\$ in Millions</i>)	1,840.007	421.195	432.766	603.355	0.000	603.355	456.218	605.847	582.863	714.483	3,365.248	9,021.982
Plus CY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority (<i>\$ in Millions</i>)	1,840.007	421.195	432.766	603.355	0.000	603.355	456.218	605.847	582.863	714.483	3,365.248	9,021.982
<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>)	-	18.313	12.862	15.672	-	15.672	0.850	19.096	13.838	12.223	Continuing	Continuing
Flyaway Unit Cost (<i>\$ in Dollars</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost (<i>\$ in Dollars</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Description: The DDG Modernization Program is required to upgrade the in-service Flight I, II, and IIA DDG-51 Class ships in order to keep them relevant and affordable components of the Navy's Sea Power 21 Plan. The DDG Modernization Program is composed of a series of improvements in both the Hull, Mechanical, and Electrical (HM&E) and Combat Systems (CS). The modernization installations are planned for each ship at approximately the midlife point for each hull. The quantity line represents the total DDG Modernization availabilities (HM&E and Combat Systems) started in each fiscal year. HM&E: 3-2-6-5-4-3-4 Combat System: 1-1-2-1-3-2-3. Large funding increase in FY 18 due to the increase in DDG Modernization installations from 2 in FY 17 to 6 in FY 18. The HM&E modernization will be comprised of the technologies transitioned from SCN funded DDG 111/112 and those additional improvements required to support the expected service life of the DDG 51 Class. The upgrades will focus on technologies that reduce workload and Total Ownership Costs (TOC) for the remaining hull life of each ship. The centerpiece of the CS modernization is the Aegis Weapon System (AWS) upgrade. This upgrade will consist of the introduction of displays, computing equipment and the computer program required to implement Aegis Open Architecture (AOA) and replacement of the existing SPY-1D Signal Processor (SIGPRO) with the Multi-Mission Signal Processor. Selected warfighting improvements will also be installed in conjunction with the combat systems upgrade. This modernization program will provide a core modernization of the infrastructure "foundation" of each ship including the core engineering plan, core computing plan, and Combat Information Center (CIC). This modernization program will also provide an infrastructure foundation that will function as a landing zone for future warfighting capabilities. [P40A / DM002 - LAND BASED ENGINEERING SITES]: Funds will be used to upgrade shore facilities for HM&E alterations providing risk reduction testing and provide for Combat System and HM&E training products. [P40A / DM013 - CONJUNCTIVE ALTERATION DEFINITION AND INTEGRATION]: Procures Conjunctive Alteration Definition and Integration that includes equipment procurement, non-recurring and recurring engineering, equipment integration and Integrated Logistics Support (ILS) products for DDG 51 Class ships. [P40A / DMCA1 - DDG-51 MODERNIZATION PROGRAM CONGRESSIONAL ADD]: Description: DDG Modernization Congressional Add Procures AN/SQQ-89 A(V)15 with Multi-Function Towed Array (MFTA) and other equipment for DDG Modernization Program that consist of hardware, software, system engineering, integrated logistics support, system test & evaluation, training, data, installation assistance teams, spare and repair parts, and program management for DDG 51 Class ships. [P40A / DMCA3 - COMMUNICATIONS UPGRADE FOR DDG MOD CONGRESSIONAL ADD]: Description: Communications Upgrade for DDG Modernization Congressional Add												

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Exhibit P-40, Budget Line Item Justification: FY 2018 Navy		Date: May 2017
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 01: Ships Support Equipment / BSA 9: Other Shipboard Equipment		P-1 Line Item Number / Title: 0900 / DDG Mod
ID Code (A=Service Ready, B=Not Service Ready): A	Program Elements for Code B Items: 0204228N	Other Related Program Elements: 0604567N, 0604307N
Line Item MDAP/MAIS Code: N/A		
Procures communications upgrades for DDG Modernization Program that consist of hardware, software, system engineering, integrated logistics support, system test & evaluation, training, data, installation assistance teams, spare and repair parts, and program management for DDG 51 Class ships.		
[P40A / DMCA4 - SMART VALVE AUTOMATIC FIRE SUPPRESSION SYSTEM]: Description: Congressional Add for Smart Valve system. The Smart Valve is the enabling technology behind the Automatic Fire Suppression System (AFSS), which provides the sensing capability to detect ruptures in the fire main piping system that occur during a damage event; the ability to isolate damaged sections of the piping system; and the embedded "intelligence" to reconfigure the system to maintain firefighting capability where it is most needed without any operator intervention for DDG 51 Class ships. [P40A / DM6IN - INSTALLATION]: Funds are for installation of DDG Modernization equipment in support of the Fleet Modernization Program. [P40A / MRG Procurement]: The contractor will engineer, manufacture, test and deliver a fully operational DDG 51 Class Main Reduction Gear (MRG). The MRG combines the input of two LM2500 engines to convert the high speed, low torque output suitable to drive the propulsion shafting, and the related support systems and equipment. [P40A / DDG MODERNIZATION ADDITIONAL SHIPSET FY17]: Procuring one DDG 51 Class combat system ship set in FY 2017 will enable modernization of an additional destroyer in FY 2019, increasing capacity to meet Combatant Command Ballistic Missile Defense(COCOM BMD)demand and provide Naval Integrated Fire Control - Counter Air (NIFC-CA) capabilities needed to counter advanced missiles and strike-fighter aircraft. [P40AMOD / DM001 - DDG MODERNIZATION HME (DVSS)]: Digital Video Surveillance System (DVSS) is a network of video cameras which are integrated into the Machinery Control system. This system is primarily a watch-stander situational awareness tool which supplements the workload reduction benefits of the new MCS. [P40AMOD / DM001 - DDG MODERNIZATION HME (WIRELESS COMMUNICATIONS)]: Shipwide Interior Wireless Communication System (SIWCS) - provides point-to-point coverage throughout the internal spaces of the ship as well as topside, topside-to-interior, line of sight ship-to-ship & line of sight ship-to-shore communications capabilities. [P40AMOD / DM006 - MULTI-MISSION SSA/CWI MICROWAVE TUBES]: Procures Multi-Mission Solid State Amplifier (SSA)/Continuous Wave Illumination (CWI) Microwave Tubes upgrades for DDG Modernization Program that includes equipment procurement, recurring engineering, equipment integration and Integrated Logistics Support (ILS) products for DDG 51 Class ships. [P40AMOD / DM008 - MULTI-MISSION BMD CAPABILITY]: Procures Multi-Mission Ballistic Missile Defense (BMD) Capability combat systems that includes equipment procurement, recurring engineering, equipment integration and Integrated Logistics Support (ILS) products for DDG 51 Class ships. [P40AMOD / DM010 - FCS STAMO]: Procures Stabilized Master Oscillator (STAMO) combat systems that include equipment procurement, recurring engineering, equipment integration and Integrated Logistics Support (ILS) products for DDG 51 Class ships. [P40AMOD / DM012 - CEC]: Procures Cooperative Engagement Capability (CEC) combat systems that includes equipment procurement, recurring engineering, equipment integration and Integrated Logistics Support (ILS) products for DDG 51 Class ships. [P3A / DM001 - DDG MODERNIZATION HME (GEDMS)]: Gigabit Ethernet Data Multiplexing System (GEDMS) replaces the obsolete copper machinery control LAN infrastructure with a new system based on the widely used Ethernet industry standard. [P3A - 2 / DM001 - DDG MODERNIZATION HME (MCS/DCS)]: Machinery Control System (MCS) replaces the obsolete control consoles while also delivering enhanced capability to the fleet through improved situational awareness and reconfigurable user stations. The new consoles use Commercial Off The Shelf (COTS)-based computers which connect via Versa Modular Eurocard (VME)-chassis technology. The VME architecture is expected to be supportable for the remaining service life of the ship and will enable computer upgrades within the chassis thereby mitigating future obsolescence concerns.		

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Exhibit P-40, Budget Line Item Justification: FY 2018 Navy		Date: May 2017
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 01: Ships Support Equipment / BSA 9: Other Shipboard Equipment		P-1 Line Item Number / Title: 0900 / DDG Mod
ID Code (A=Service Ready, B=Not Service Ready): A	Program Elements for Code B Items: 0204228N	Other Related Program Elements: 0604567N, 0604307N
Line Item MDAP/MAIS Code: N/A		
[P3A - 5 / DM001 - DDG MODERNIZATION HME (IBNS)]: The Integrated Bridge & Navigation System (IBNS) replaces obsolete bridge consoles and introduces flexibility with how the pilot house is managed during navigation. The key benefit is the ability for operating with fewer watch-standers, reduced watch standard workloads, and improved safety of navigation. [P3A - 6 / DM003 - MK 160 MOD 15 GWS]: Procures MK 160 Mod 15 Gun Weapon System (GWS) that includes equipment procurement, recurring engineering, equipment integration and Integrated Logistics Support (ILS) products for DDG 51 Class ships. [P3A - 7 / DM004 - AWS UPGRADE]: Procures equipment for the AWS Upgrades that includes equipment procurement, recurring engineering, equipment integration and Integrated Logistics Support (ILS) products for DDG 51 Class ships. [P3A - 8 / DM005 - MULTI-MISSION SIGPRO]: Procures Multi-Mission SIGPRO combat systems that includes equipment procurement, recurring engineering, equipment integration and Integrated Logistics Support (ILS) products for DDG 51 Class ships. [P3A - 10 / DM007 - SPY-1D TRANSMITTER UPGRADES]: Procures SPY-1D Transmitter Upgrades combat systems that includes equipment procurement, recurring engineering, equipment integration and Integrated Logistics Support (ILS) products for DDG 51 Class ships. [P3A - 12 / DM009 - VLS UPGRADES]: Procures Vertical Launch System (VLS) Modifications, Evolved Sea Sparrow Missile VLS Modifications, SM3 Operability Heating Ventilation Air Conditioning (HVAC) and VLS MODS for SM3 Block 3 combat systems that includes equipment procurement, recurring engineering, equipment integration and Integrated Logistics Support (ILS) products for DDG 51 Class ships. [P3A - 14 / DM011 - AN/SQQ-89 A(V15)]: Procures improved AN/SQQ-89(V)15 with Multi-Functional Towed Array (MFTA) combat systems to replace the installed MIL-STD AN/SQQ-89(V) that includes equipment procurement, recurring engineering, equipment integration and Integrated Logistics Support (ILS) products for DDG 51 Class ships.		

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Exhibit P-40, Budget Line Item Justification: FY 2018 Navy		Date: May 2017
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 01: Ships Support Equipment / BSA 9: Other Shipboard Equipment		P-1 Line Item Number / Title: 0900 / DDG Mod
ID Code (A=Service Ready, B=Not Service Ready): A	Program Elements for Code B Items: 0204228N	Other Related Program Elements: 0604567N, 0604307N
Line Item MDAP/MAIS Code: N/A		

Exhibits Schedule					Prior Years	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 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-40a	DDG Mod				- / 599.694	- / 105.384	- / 186.841	- / 131.833	- / -	- / 131.833
P-40a	DM001 - DDG MODERNIZATION HME (DVSS)				- / 16.326	- / 5.927	- / 5.068	- / 8.356	- / 0.000	- / 8.356
P-40a	DM001 - DDG MODERNIZATION HME (WIRELESS COMMUNICATIONS)				- / 10.209	- / 2.753	- / 2.097	- / 2.419	- / 0.000	- / 2.419
P-40a	DM006 - MULTI-MISSION SSA/CWI MICROWAVE TUBES				- / 7.772	- / 2.058	- / 1.048	- / 3.199	- / 0.000	- / 3.199
P-40a	DM008 - MULTI-MISSION BMD CAPABILITY				- / 13.520	- / 3.420	- / 1.741	- / 5.317	- / 0.000	- / 5.317
P-40a	DM010 - FCS STAMO				- / 14.443	- / 0.400	- / 0.000	- / 0.000	- / 0.000	- / 0.000
P-40a	DM012 - CEC				- / 39.710	- / 2.433	- / 0.000	- / 0.000	- / 0.000	- / 0.000
P-40a	DM013 - (MORIAH WIND SYSTEM)				- / 0.000	- / 0.000	- / 0.000	- / 7.065	- / 0.000	- / 7.065
P-40a	DM013 - Slewing Arm Davit (SLAD)				- / 0.000	- / 0.000	- / 0.000	- / 2.360	- / 0.000	- / 2.360
P-40a	DM013 - AN/SPA-25H				- / 0.000	- / 0.000	- / 0.000	- / 1.227	- / 0.000	- / 1.227
P-3a	1 / DM001 - DDG MODERNIZATION HME (GEDMS) (TBD)				- / 146.717	- / 33.869	- / 31.688	- / 45.348	- / 0.000	- / 45.348
P-3a	2 / DM001 - DDG MODERNIZATION HME (MCS/DCS) (TBD)				- / 226.531	- / 67.250	- / 63.198	- / 88.413	- / 0.000	- / 88.413
P-3a	5 / DM001 - DDG MODERNIZATION HME (IBNS) (TBD)				- / 104.510	- / 29.623	- / 28.429	- / 33.560	- / 0.000	- / 33.560
P-3a	6 / DM003 - MK 160 MOD 15 GWS (TBD)				- / 37.592	- / 9.504	- / 6.447	- / 14.957	- / 0.000	- / 14.957
P-3a	7 / DM004 - AWS UPGRADE (TBD)				- / 273.038	- / 66.186	- / 51.440	- / 112.438	- / 0.000	- / 112.438
P-3a	8 / DM005 - MULTI-MISSION SIGPRO (TBD)				- / 151.376	- / 38.224	- / 23.048	- / 58.848	- / 0.000	- / 58.848
P-3a	10 / DM007 - SPY-1D TRANSMITTER UPGRADES (TBD)				- / 37.029	- / 10.148	- / 5.523	- / 15.634	- / 0.000	- / 15.634
P-3a	12 / DM009 - VLS UPGRADES (TBD)				- / 68.145	- / 17.061	- / 13.013	- / 25.602	- / 0.000	- / 25.602
P-3a	14 / DM011 - AN/SQ-89 A(V15) (TBD)				- / 93.395	- / 26.955	- / 13.185	- / 10.859	- / 0.000	- / 10.859
P-3a	16 / DM013 - (1 MC/DIAS UPGRADE) (TBD)				- / 0.000	- / 0.000	- / 0.000	- / 16.936	- / 0.000	- / 16.936
P-3a	18 / DM013 - (IVCS UPGRADE) (TBD)				- / 0.000	- / 0.000	- / 0.000	- / 18.984	- / 0.000	- / 18.984
P-40	Total Gross/Weapon System Cost				- / 1,840.007	- / 421.195	- / 432.766	- / 603.355	- / 0.000	- / 603.355

*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. Title represents the P-40a Title when only the P-40a Summary/Total is shown.

Note: Totals in this Exhibit P-40 set may not be exact or sum exactly due to rounding.

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Exhibit P-40a, Budget Item Justification For Aggregated Items: FY 2018 Navy															Date: May 2017					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9								P-1 Line Item Number / Title: 0900 / DDG Mod							Aggregated Items Title: DDG Mod					
Item Number / Title [DODIC]	ID CD	MDAP/MAIS Code	Prior Years			FY 2016			FY 2017			FY 2018 Base			FY 2018 OCO			FY 2018 Total		
			Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)
1) DM002 - LAND BASED ENGINEERING SITES																				
1.1) DM002 - Land Based Engineering Sites ⁽¹⁾	A		-	-	175.576	-	-	6.767	-	-	6.889	-	-	10.718	-	-	-	-	-	10.718
Subtotal: 1) DM002 - LAND BASED ENGINEERING SITES			-	-	175.576	-	-	6.767	-	-	6.889	-	-	10.718	-	-	-	-	-	10.718
2) DM013 - CONJUNCTIVE ALTERATION DEFINITION AND INTEGRATION																				
2.1) DM013 - CONJUNCTIVE ALTERATION DEFINITION AND INTEGRATION	A		-	-	50.253	-	-	18.305	-	-	23.615	-	-	12.950	-	-	-	-	-	12.950
Subtotal: 2) DM013 - CONJUNCTIVE ALTERATION DEFINITION AND INTEGRATION			-	-	50.253	-	-	18.305	-	-	23.615	-	-	12.950	-	-	-	-	-	12.950
3) DMCA1 - DDG-51 MODERNIZATION PROGRAM CONGRESSIONAL ADD																				
3.1) DMCA1 - DDG-51 MODERNIZATION	A		-	-	5.000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
3.2) SQQ-89A (V) W/ MFTA	A		-	-	25.000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Subtotal: 3) DMCA1 - DDG-51 MODERNIZATION PROGRAM CONGRESSIONAL ADD			-	-	30.000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
4) DMCA3 - COMMUNICATIONS UPGRADE FOR DDG MOD CONGRESSIONAL ADD																				
4.1) DMCA3 - COMMUNICATIONS UPGRADE	A		-	-	3.120	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Subtotal: 4) DMCA3 - COMMUNICATIONS UPGRADE FOR DDG MOD CONGRESSIONAL ADD			-	-	3.120	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
5) DMCA4 - SMART VALVE AUTOMATIC FIRE SUPPRESSION SYSTEM																				
5.1) SMART VALVE EQUIPMENT	A		-	-	2.480	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Subtotal: 5) DMCA4 - SMART VALVE AUTOMATIC FIRE SUPPRESSION SYSTEM			-	-	2.480	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
6) DSA FOR FY14 AVAILABILITY																				
6.1) DSA FOR FY14 AVAILABILITY	A		-	-	39.067	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Subtotal: 6) DSA FOR FY14 AVAILABILITY			-	-	39.067	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
7) DM6IN - INSTALLATION																				

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Exhibit P-40a, Budget Item Justification For Aggregated Items: FY 2018 Navy															Date: May 2017				
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9								P-1 Line Item Number / Title: 0900 / DDG Mod							Aggregated Items Title: DDG Mod				

Item Number / Title [DODIC]	ID CD	MDAP/MAIS Code	Prior Years			FY 2016			FY 2017			FY 2018 Base			FY 2018 OCO			FY 2018 Total		
			Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)
7.1) AIT & CONJUNCTIVE ALTS INSTALLATION ⁽²⁾	A		-	-	299.198	-	-	65.312	-	-	91.337	-	-	108.165	-	-	-	-	-	108.165
Subtotal: 7) DM6IN - INSTALLATION			-	-	299.198	-	-	65.312	-	-	91.337	-	-	108.165	-	-	-	-	-	108.165
8) MRG Procurement																				
8.1) MRG Equipment	A		-	-	-	15,000K	1	15.000	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: 8) MRG Procurement			-	-	0.000	-	-	15.000	-	-	-	-	-	-	-	-	-	-	-	-
9) DDG MODERNIZATION ADDITIONAL SHIPSET FY17 ⁽³⁾																				
9.1) DDG MODERNIZATION ADDITIONAL SHIPSET FY17	A		-	-	-	-	-	-	65,000K	1	65.000	-	-	-	-	-	-	-	-	-
Subtotal: 9) DDG MODERNIZATION ADDITIONAL SHIPSET FY17			-	-	0.000	-	-	-	-	-	65.000	-	-	-	-	-	-	-	-	-
Total			-	-	599.694	-	-	105.384	-	-	186.841	-	-	131.833	-	-	-	-	-	131.833

Note: Subtotals or Totals in this Exhibit P-40a may not be exact or sum exactly, due to rounding.

Footnotes:

⁽¹⁾ Funds are used to upgrade shore facilities utilized for pre-installation testing and crew training of HM&E and Combat Systems alterations. Increase in cost from FY17 to FY18-FY20 due to procurement and testing of Contract III HM&E systems at NWSC/PD LBES.

⁽²⁾ Includes conjunctive alteration installation, installation support, future Design Services Allocation (DSA), and Alterations Installation Teams (AIT) support.

⁽³⁾ PB17 Amended Footnote: Procuring one DDG 51 Class combat system ship set in FY 2017 will enable modernization of an additional destroyer in FY 2019, increasing capacity to meet Combatant Command Ballistic Missile Defense(COCOM BMD)demand and provide Naval Integrated Fire Control - Counter Air (NIFC-CA) capabilities needed to counter advanced missiles and strike-fighter aircraft.

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Exhibit P-40a, Budget Item Justification For Aggregated Items: FY 2018 Navy														Date: May 2017						
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9							P-1 Line Item Number / Title: 0900 / DDG Mod							Aggregated Items Title: DM001 - DDG MODERNIZATION HME (DVSS)						
Item Number / Title [DODIC]	ID CD	MDAP/MAIS Code	Prior Years			FY 2016			FY 2017			FY 2018 Base			FY 2018 OCO			FY 2018 Total		
			Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)
B Kits/Recurring																				
DVSS Equipment -- Procurement ⁽⁴⁾	A		330,333.33	18	5.946	503,000.00	6	3.018	512,000.00	5	2.560	521,166.67	4	2.085	-	-	-	521,166.67	4	2.085
DVSS Equipment -- Installation	A		-	-	9.903	-	-	2.909	-	-	2.508	-	-	6.271	-	-	-	-	-	6.271
Subtotal: B Kits/Recurring			-	-	15.849	-	-	5.927	-	-	5.068	-	-	8.356	-	-	-	-	-	8.356
B Kits/Non-Recurring																				
DVSS 1st Article & NRE	A		-	-	0.477	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: B Kits/Non-Recurring			-	-	0.477	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total			-	-	16.326	-	-	5.927	-	-	5.068	-	-	8.356	-	-	0.000	-	-	8.356
Note: Subtotals or Totals in this Exhibit P-40a may not be exact or sum exactly, due to rounding.																				
Remarks: Digital Video Surveillance System (DVSS) is a network of video cameras which are integrated into the Machinery Control System. This system is primarily a watch-stander situational awareness tool which supplements the workload reduction benefits of the new MCS. Engineering Services: Production Support Services are phased over a three (3) year span starting two (2) years prior to installation on a per hull basis. It includes five (5) elements that are related to the production and delivery of a usable end-item: Production Engineering, Quality Assurance, Product Improvement, Acceptance Test and Evaluation, and Contractor Engineering and Technical Services (CETS). Due to the phasing of the requirement over a three year period, engineering services will fluctuate depending on the number of ships in each year. Five (5) elements and approximate breakdown is as follows: Production Engineering includes preparation, test and technical evaluation of engineering changes to correct deficiencies in the production items; production configuration control; review and evaluation of production design data and documentation; and logistic supportability efforts. Quality Assurance includes the preparation of procedures and the conduct of inspections, examinations and test during production that are necessary to deliver an item of the required quality as specified by the terms of the contract. Product Improvement includes improving reliability/maintainability/availability, and the correction of deficiencies exclusive of contractual specifications. Acceptance Test and Evaluation of a production item includes preparation of test plans, testing, data analysis, and data evaluation. Contractor Engineering and Technical Services (CETS) includes the furnishing of advice, instruction, and training by commercial or industrial companies.																				
Footnotes: ⁽⁴⁾ Installation costs across the FYDP may vary depending on current port rates. Port rates are updated every year by a CNRMC letter based on the forecasted port loading model. Port loading rate forecasts are the rates recommended for all budgeted maintenance and organic modernization within a specific port. Individual ship's availability durations vary dependent upon the integration of ship's maintenance and modernization work packages. Large funding increase in FY 18 due to increase in DDG Modernization installations from 2 in FY 17 to 6 in FY 18.																				

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Exhibit P-40a, Budget Item Justification For Aggregated Items: FY 2018 Navy															Date: May 2017					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9								P-1 Line Item Number / Title: 0900 / DDG Mod							Aggregated Items Title: DM001 - DDG MODERNIZATION HME (WIRELESS COMMUNICATIONS)					
Item Number / Title [DODIC]	ID CD	MDAP/MAIS Code	Prior Years			FY 2016			FY 2017			FY 2018 Base			FY 2018 OCO			FY 2018 Total		
			Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)
B Kits/Recurring																				
Wireless Communications Equipment -- Procurement ⁽⁵⁾	A		369,583.33	12	4.435	426,000.00	3	1.278	433,666.67	3	1.301	-	-	-	-	-	-	-	-	-
Wireless Communications Equipment -- Installation	A		-	-	5.774	-	-	1.475	-	-	0.796	-	-	2.419	-	-	-	-	-	2.419
Subtotal: B Kits/Recurring			-	-	10.209	-	-	2.753	-	-	2.097	-	-	2.419	-	-	-	-	-	2.419
Total			-	-	10.209	-	-	2.753	-	-	2.097	-	-	2.419	-	-	0.000	-	-	2.419

Note: Subtotals or Totals in this Exhibit P-40a may not be exact or sum exactly, due to rounding.

Remarks:
Shipwide Interior Wireless Communication System (SIWCS) - provides point-to-point coverage throughout the internal spaces of the ship as well as topside, topside-to-interior, line of sight ship-to-ship & line of sight ship-to-shore communications capabilities. All FLT IIAs (DDG 79+) have a version of SIWCS installed.

Footnotes:
⁽⁵⁾ All flight I & II require SIWCS with the exception of DDGs 53-56 and 63 (previously installed). All flight IIA's have a version of SIWCS installed. Installation costs across the FYDP may vary depending on current port rates. Port rates are updated every year by a CNRMC letter based on the forecasted port loading model. Port loading rate forecasts are the rates recommended for all budgeted maintenance and organic modernization within a specific port. Individual ship's availability durations vary dependent upon the integration of ship's maintenance and modernization work packages.

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Exhibit P-40a, Budget Item Justification For Aggregated Items: FY 2018 Navy															Date: May 2017				
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9								P-1 Line Item Number / Title: 0900 / DDG Mod							Aggregated Items Title: DM006 - MULTI-MISSION SSA/CWI MICROWAVE TUBES				

Item Number / Title [DODIC]	ID CD	MDAP/MAIS Code	Prior Years			FY 2016			FY 2017			FY 2018 Base			FY 2018 OCO			FY 2018 Total		
			Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)
B Kits/Recurring																				
MULTI-MISSION SSA/CWI MICROWAVE TUBES EQUIPMENT ⁽⁶⁾	A		971,500.00	8	7.772	1,029K	2	2.058	1,048K	1	1.048	1,066K	3	3.199	-	-	-	1,066K	3	3.199
Subtotal: B Kits/Recurring			-	-	7.772	-	-	2.058	-	-	1.048	-	-	3.199	-	-	-	-	-	3.199
Total			-	-	7.772	-	-	2.058	-	-	1.048	-	-	3.199	-	-	0.000	-	-	3.199

Note: Subtotals or Totals in this Exhibit P-40a may not be exact or sum exactly, due to rounding.

Remarks:

Procures Multi-Mission Solid State Amplifier (SSA)/Continuous Wave Illumination (CWI) Microwave Tubes upgrades for DDG Modernization Program that includes equipment procurement, recurring engineering, equipment integration and Integrated Logistics Support (ILS) products for DDG 51 Class ships.

Footnotes:

⁽⁶⁾ Installation costs for this equipment are captured in P40A/DM6IN-Installation.

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Exhibit P-40a, Budget Item Justification For Aggregated Items: FY 2018 Navy															Date: May 2017					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9								P-1 Line Item Number / Title: 0900 / DDG Mod							Aggregated Items Title: DM008 - MULTI-MISSION BMD CAPABILITY					
Item Number / Title [DODIC]	ID CD	MDAP/ MAIS Code	Prior Years			FY 2016			FY 2017			FY 2018 Base			FY 2018 OCO			FY 2018 Total		
			Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)
B Kits/Recurring																				
MULTI-MISSION BMD EQUIPMENT ⁽⁷⁾	A		1,690K	8	13.520	1,710K	2	3.420	1,741K	1	1.741	1,772K	3	5.317	-	-	-	1,772K	3	5.317
Subtotal: B Kits/Recurring			-	-	13.520	-	-	3.420	-	-	1.741	-	-	5.317	-	-	-	-	-	5.317
Total			-	-	13.520	-	-	3.420	-	-	1.741	-	-	5.317	-	-	0.000	-	-	5.317

Note: Subtotals or Totals in this Exhibit P-40a may not be exact or sum exactly, due to rounding.

Remarks:
Procures Multi-Mission Ballistic Missile Defense (BMD) Capability combat systems that includes equipment procurement, recurring engineering, equipment integration and Integrated Logistics Support (ILS) products for DDG 51 Class ships.

Footnotes:
⁽⁷⁾ Installation costs for this equipment are captured in P40A/DM6IN-Installation.

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Exhibit P-40a, Budget Item Justification For Aggregated Items: FY 2018 Navy										Date: May 2017	
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9					P-1 Line Item Number / Title: 0900 / DDG Mod					Aggregated Items Title: DM010 - FCS STAMO	

Item Number / Title [DODIC]	ID CD	MDAP/MAIS Code	Prior Years			FY 2016			FY 2017			FY 2018 Base			FY 2018 OCO			FY 2018 Total		
			Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)
B Kits/Recurring																				
FCS STAMO EQUIPMENT -- Procurement ⁽⁸⁾	A		2,124K	6	12.743	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
FCS STAMO EQUIPMENT -- Installation	A		-	-	1.700	-	-	0.400	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: B Kits/Recurring			-	-	14.443	-	-	0.400	-	-	-	-	-	-	-	-	-	-	-	-
Total			-	-	14.443	-	-	0.400	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000

Note: Subtotals or Totals in this Exhibit P-40a may not be exact or sum exactly, due to rounding.

Remarks:

Procures Stabilized Master Oscillator (STAMO) combat systems that include equipment procurement, recurring engineering, equipment integration and Integrated Logistics Support (ILS) products for DDG 51 Class ships.

Footnotes:

⁽⁸⁾ STAMO has previously been installed on all DDG Flight IIA's, i.e. DDG 79 and follow previously received STAMO. Installation costs across the FYDP may vary depending on current port rates. Port rates are updated every year by a CNRMC letter based on the forecasted port loading model. Port loading rate forecasts are the rates recommended for all budgeted maintenance and organic modernization within a specific port. Individual ship's availability durations vary dependent upon the integration of ship's maintenance and modernization work packages.

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Exhibit P-40a, Budget Item Justification For Aggregated Items: FY 2018 Navy															Date: May 2017					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9						P-1 Line Item Number / Title: 0900 / DDG Mod						Aggregated Items Title: DM012 - CEC								
Item Number / Title [DODIC]	ID CD	MDAP/MAIS Code	Prior Years			FY 2016			FY 2017			FY 2018 Base			FY 2018 OCO			FY 2018 Total		
			Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)
B Kits/Recurring																				
CEC EQUIPMENT -- Procurement		A		4,465K	6	26.790	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CEC EQUIPMENT -- Installation		A		-	-	11.602	-	-	2.389	-	-	-	-	-	-	-	-	-	-	-
Subtotal: B Kits/Recurring			-	-	38.392	-	-	2.389	-	-	-	-	-	-	-	-	-	-	-	-
Support Cost																				
ENGINEERING SERVICES		A		-	-	1.318	-	-	0.044	-	-	-	-	-	-	-	-	-	-	-
Subtotal: Support Cost			-	-	1.318	-	-	0.044	-	-	-	-	-	-	-	-	-	-	-	-
Total			-	-	39.710	-	-	2.433	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000
Note: Subtotals or Totals in this Exhibit P-40a may not be exact or sum exactly, due to rounding.																				
Remarks: Procures Cooperative Engagement Capability (CEC) combat systems that includes equipment procurement, recurring engineering, equipment integration and Integrated Logistics Support (ILS) products for DDG 51 Class ships. Flight IIA DDGs have previously received CEC installation.																				
Engineering Services: Production Support Services are phased over a three (3) year span starting two (2) years prior to installation on a per hull basis. It includes five (5) elements that are related to the production and delivery of a usable end-item: Production Engineering, Quality Assurance, Product Improvement, Acceptance Test and Evaluation, and Contractor Engineering and Technical Services (CETS). Due to the phasing of the requirement over a three year period, engineering services will fluctuate depending on the number of ships in each year. Five (5) elements and approximate breakdown is as follows: Production Engineering includes preparation, test and technical evaluation of engineering changes to correct deficiencies in the production items; production configuration control; review and evaluation of production design data and documentation; and logistic supportability efforts. Quality Assurance includes the preparation of procedures and the conduct of inspections, examinations and test during production that are necessary to deliver an item of the required quality as specified by the terms of the contract. Product Improvement includes improving reliability/maintainability/availability, and the correction of deficiencies exclusive of contractual specifications. Acceptance Test and Evaluation of a production item includes preparation of test plans, testing, data analysis, and data evaluation. Contractor Engineering and Technical Services (CETS) includes the furnishing of advice, instruction, and training by commercial or industrial companies.																				

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Exhibit P-40a, Budget Item Justification For Aggregated Items: FY 2018 Navy															Date: May 2017					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9								P-1 Line Item Number / Title: 0900 / DDG Mod							Aggregated Items Title: DM013 - (MORIAH WIND SYSTEM)					
Item Number / Title [DODIC]	ID CD	MDAP/MAIS Code	Prior Years			FY 2016			FY 2017			FY 2018 Base			FY 2018 OCO			FY 2018 Total		
			Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)
B Kits/Recurring																				
MORIAH WIND SYSTEM EQUIPMENT -- Procurement ⁽⁹⁾	A		-	-	-	0.00	6	0.000	0.00	5	0.000	302,750.00	4	1.211	-	-	-	302,750.00	4	1.211
MORIAH WIND SYSTEM EQUIPMENT -- Installation	A		-	-	-	-	-	-	-	-	-	-	-	5.854	-	-	-	-	-	5.854
Subtotal: B Kits/Recurring			-	-	0.000	-	-	-	-	-	-	-	-	7.065	-	-	-	-	-	7.065
Total			-	-	0.000	-	-	0.000	-	-	0.000	-	-	7.065	-	-	0.000	-	-	7.065

Note: Subtotals or Totals in this Exhibit P-40a may not be exact or sum exactly, due to rounding.

Remarks:
Procures the Moriah Wind System (MWS) that provides DDGs with a digital wind speed and directional information to support safe execution of air, combat and casualty operations.

Footnotes:
⁽⁹⁾ Installation costs across the FYDP may vary depending on current port rates. Port rates are updated every year by a Commander, Navy Regional Maintenance Centers (CNRMC) letter based on the forecasted port loading model. Port loading rate forecasts are the rates recommended for all budgeted maintenance and organic modernization within a specific port. Individual ship's availability durations vary dependent upon the integration of ship's maintenance and modernization work packages. Procurement costs for FY 16 & FY 17 are shown in Conjunctive Alteration Definition and Integration P40-A. Installation cost for FY 16 & FY 17 are shown in DM6IN Installation P40-A. All cost from FY 18 and follows will be captured in this P3-A exhibit.

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Exhibit P-40a, Budget Item Justification For Aggregated Items: FY 2018 Navy															Date: May 2017					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9							P-1 Line Item Number / Title: 0900 / DDG Mod							Aggregated Items Title: DM013 - Slewing Arm Davit (SLAD)						
Item Number / Title [DODIC]	ID CD	MDAP/MAIS Code	Prior Years			FY 2016			FY 2017			FY 2018 Base			FY 2018 OCO			FY 2018 Total		
			Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)
B Kits/Recurring																				
SLAD EQUIPMENT -- Procurement ⁽¹⁰⁾	A		-	-	-	0.00	2	0.000	0.00	2	0.000	610,666.67	3	1.832	-	-	-	610,666.67	3	1.832
SLAD EQUIPMENT -- Installation	A		-	-	-	-	-	-	-	-	-	-	-	0.528	-	-	-	-	-	0.528
Subtotal: B Kits/Recurring			-	-	0.000	-	-	-	-	-	-	-	-	2.360	-	-	-	-	-	2.360
Total			-	-	0.000	-	-	0.000	-	-	0.000	-	-	2.360	-	-	0.000	-	-	2.360

Note: Subtotals or Totals in this Exhibit P-40a may not be exact or sum exactly, due to rounding.

Remarks:

Procures Slewing Arm Davit (SLAD) that replaces current SLAD with an all-electric davit, leveraging the current Navy Standard SLAD design. Legacy system has documented reliability and maintenance issues.

Footnotes:

⁽¹⁰⁾ Installation costs across the FYDP may vary depending on current port rates. Port rates are updated every year by a Commander, Navy Regional Maintenance Centers (CNRMC) letter based on the forecasted port loading model. Port loading rate forecasts are the rates recommended for all budgeted maintenance and organic modernization within a specific port. Individual ship's availability durations vary dependent upon the integration of ship's maintenance and modernization work packages. Procurement costs for FY 16 & FY 17 are shown in Conjunctive Alteration Definition and Integration P40-A. Installation cost for FY 16 & FY 17 are shown in DM6IN Installation P40-A. All cost from FY 18 and follows will be captured in this P3-A exhibit.

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Exhibit P-40a, Budget Item Justification For Aggregated Items: FY 2018 Navy															Date: May 2017					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9							P-1 Line Item Number / Title: 0900 / DDG Mod							Aggregated Items Title: DM013 - AN/SPA-25H						
Item Number / Title [DODIC]	ID CD	MDAP/MAIS Code	Prior Years			FY 2016			FY 2017			FY 2018 Base			FY 2018 OCO			FY 2018 Total		
			Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)
B Kits/Recurring																				
AN/SPA-25H EQUIPMENT -- Procurement	A		-	-	-	0.00	2	0.000	0.00	1	0.000	187,000.00	3	0.561	-	-	-	187,000.00	3	0.561
AN/SPA-25H EQUIPMENT -- Installation	A		-	-	-	-	-	-	-	-	-	-	-	0.666	-	-	-	-	-	0.666
Subtotal: B Kits/Recurring			-	-	0.000	-	-	-	-	-	-	-	-	1.227	-	-	-	-	-	1.227
Total			-	-	0.000	-	-	0.000	-	-	0.000	-	-	1.227	-	-	0.000	-	-	1.227
Note: Subtotals or Totals in this Exhibit P-40a may not be exact or sum exactly, due to rounding.																				
Remarks: Procures AN/SPA-25H Radar Indicator Group that replaces the legacy AN/SPA-25G Installation costs across the FYDP may vary depending on current port rates. Port rates are updated every year by a Commander, Navy Regional Maintenance Centers (CNRMC) letter based on the forecasted port loading model. Port loading rate forecasts are the rates recommended for all budgeted maintenance and organic modernization within a specific port. Individual ship's availability durations vary dependent upon the integration of ship's maintenance and modernization work packages. Procurement costs for FY 16 & FY 17 are shown in Conjunctive Alteration Definition and Integration P40-A. Installation cost for FY 16 & FY 17 are shown in DM6IN Installation P40-A. All cost from FY 18 and follows will be captured in this P3-A exhibit.																				

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Exhibit P-3a, Individual Modification: FY 2018 Navy					Date: May 2017	
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9			P-1 Line Item Number / Title: 0900 / DDG Mod		Modification Number / Title: 1 / DM001 - DDG MODERNIZATION HME (GEDMS)	
ID Code (A=Service Ready, B=Not Service Ready) :				MDAP/MAIS Code:		
Resource Summary	Prior Years	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
Procurement Quantity <i>(Units in Each)</i>	-	-	-	-	-	-
Gross/Weapon System Cost <i>(\$ in Millions)</i>	146.717	33.869	31.688	45.348	0.000	45.348
Less PY Advance Procurement <i>(\$ in Millions)</i>	-	-	-	-	-	-
Net Procurement (P-1) <i>(\$ in Millions)</i>	146.717	33.869	31.688	45.348	0.000	45.348
Plus CY Advance Procurement <i>(\$ in Millions)</i>	-	-	-	-	-	-
Total Obligation Authority <i>(\$ in Millions)</i>	146.717	33.869	31.688	45.348	0.000	45.348
<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>	-	-	-	-	-	-
Gross/Weapon System Unit Cost <i>(\$ in Dollars)</i>	-	-	-	-	-	-
Description: Gigabit Ethernet Data Multiplexing System (GEDMS) replaces the obsolete copper machinery control LAN infrastructure with a new system based on the widely used Ethernet industry standard. Engineering Services: Production Support Services are phased over a three (3) year span starting two (2) years prior to installation on a per hull basis. It includes five (5) elements that are related to the production and delivery of a usable end-item: Production Engineering, Quality Assurance, Product Improvement, Acceptance Test and Evaluation, and Contractor Engineering and Technical Services (CETS). Due to the phasing of the requirement over a three year period, engineering services will fluctuate depending on the number of ships in each year. Five (5) elements and approximate breakdown is as follows: Production Engineering includes preparation, test and technical evaluation of engineering changes to correct deficiencies in the production items; production configuration control; review and evaluation of production design data and documentation; and logistic supportability efforts. Quality Assurance includes the preparation of procedures and the conduct of inspections, examinations and test during production that are necessary to deliver an item of the required quality as specified by the terms of the contract. Product Improvement includes improving reliability/maintainability/availability, and the correction of deficiencies exclusive of contractual specifications. Acceptance Test and Evaluation of a production item includes preparation of test plans, testing, data analysis, and data evaluation. Contractor Engineering and Technical Services (CETS) includes the furnishing of advice, instruction, and training by commercial or industrial companies.						

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Exhibit P-3a, Individual Modification: FY 2018 Navy					Date: May 2017	
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9			P-1 Line Item Number / Title: 0900 / DDG Mod		Modification Number / Title: 1 / DM001 - DDG MODERNIZATION HME (GEDMS)	
ID Code (A=Service Ready, B=Not Service Ready) :				MDAP/MAIS Code:		
Models of Systems Affected: [No Model Specified]		Modification Type: TBD			Related RDT&E PEs: 0604567N	
Financial Plan	Prior Years	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
	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)
Procurement						
Modification Item 1 of 1: DM001 - DDG MODERNIZATION HME (GEDMS)						
B Kits						
Recurring						
1.1.1) GEDMS Equipment - NonOrganic ⁽¹¹⁾	17 / 67.736	4 / 10.898	3 / 8.321	1 / 2.823	- / -	1 / 2.823
1.1.2) GEDMS EQUIPMENT FLIGHT IIA - NonOrganic ⁽¹²⁾	1 / 1.285	2 / 2.616	2 / 2.663	3 / 4.066	- / -	3 / 4.066
<i>Subtotal: Recurring</i>	- / 69.021	- / 13.514	- / 10.984	- / 6.889	- / -	- / 6.889
<i>Subtotal: DM001 - DDG MODERNIZATION HME (GEDMS)</i>	18 / 69.021	6 / 13.514	5 / 10.984	4 / 6.889	- / -	4 / 6.889
<i>Subtotal: Procurement, All Modification Items</i>	- / 69.021	- / 13.514	- / 10.984	- / 6.889	- / -	- / 6.889
Support (All Modification Items)						
2.1) GEDMS ENGINEERING SERVICES	- / 21.782	- / 4.623	- / 4.814	- / 4.950	- / -	- / 4.950
<i>Subtotal: Support</i>	- / 21.782	- / 4.623	- / 4.814	- / 4.950	- / -	- / 4.950
Installation						
Modification Item 1 of 1: DM001 - DDG MODERNIZATION HME (GEDMS)	- / 55.914	- / 15.732	- / 15.890	- / 33.509	- / 0.000	- / 33.509
<i>Subtotal: Installation</i>	- / 55.914	- / 15.732	- / 15.890	- / 33.509	- / -	- / 33.509
Total						
Total Cost (Procurement + Support + Installation)	146.717	33.869	31.688	45.348	0.000	45.348

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Exhibit P-3a, Individual Modification: FY 2018 Navy						Date: May 2017							
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9				P-1 Line Item Number / Title: 0900 / DDG Mod				Modification Number / Title: 1 / DM001 - DDG MODERNIZATION HME (GEDMS)					
ID Code (A=Service Ready, B=Not Service Ready) :						MDAP/MAIS Code:							
Modification Item 1 of 1: DM001 - DDG MODERNIZATION HME (GEDMS)													
Manufacturer Information													
Manufacturer Name: Boeing					Manufacturer Location: Anaheim, CA								
Administrative Leadtime (in Months): 6					Production Leadtime (in Months): 16								
Dates		FY 2016			FY 2017			FY 2018					
Contract Dates		Jul 2016			Jul 2017			Jul 2018					
Delivery Dates		Nov 2017			Nov 2018			Nov 2019					
Installation Information													
Method of Implementation: SHIPYARD:: Installation Name: GEDMS Equipment													
Installation Cost		Prior Years		FY 2016		FY 2017		FY 2018 Base		FY 2018 OCO		FY 2018 Total	
		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)	
Prior Years		13 / 55.676		3 / 12.690		1 / 2.158		- / -		- / -		- / -	
FY 2016		- / -		0 / 0.996		0 / 5.907		4 / 16.711		0 / 0.000		4 / 16.711	
FY 2017		- / -		- / -		0 / 0.649		0 / 3.925		0 / 0.000		0 / 3.925	
FY 2018		- / -		- / -		- / -		0 / 0.306		0 / 0.000		0 / 0.306	
Total		13 / 55.676		3 / 13.686		1 / 8.714		4 / 20.942		0 / 0.000		4 / 20.942	
Installation Schedule													
	PYS	FY 2016				FY 2017				FY 2018			
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
In	13	-	2	-	1	-	-	-	1	-	1	2	1
Out	13	-	-	1	1	-	-	-	1	-	-	1	-
Method of Implementation: [none specified]:: Installation Name: GEDMS EQUIPMENT FLIGHT IIA													
Installation Cost		Prior Years		FY 2016		FY 2017		FY 2018 Base		FY 2018 OCO		FY 2018 Total	
		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)	
Prior Years		0 / 0.238		0 / 1.547		1 / 3.684		- / -		- / -		- / -	
FY 2016		- / -		0 / 0.499		0 / 2.954		2 / 8.387		0 / 0.000		2 / 8.387	
FY 2017		- / -		- / -		0 / 0.538		0 / 3.381		0 / 0.000		0 / 3.381	
FY 2018		- / -		- / -		- / -		0 / 0.799		0 / 0.000		0 / 0.799	
Total		0 / 0.238		0 / 2.046		1 / 7.176		2 / 12.567		0 / 0.000		2 / 12.567	

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Exhibit P-3a, Individual Modification: FY 2018 Navy		Date: May 2017
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	P-1 Line Item Number / Title: 0900 / DDG Mod	Modification Number / Title: 1 / DM001 - DDG MODERNIZATION HME (GEDMS)

ID Code (A=Service Ready, B=Not Service Ready) :	MDAP/MAIS Code:

Modification Item 1 of 1: DM001 - DDG MODERNIZATION HME (GEDMS)

Installation Information

Method of Implementation: [none specified]:: Installation Name: GEDMS EQUIPMENT FLIGHT IIA

Installation Schedule

	PYS	FY 2016				FY 2017				FY 2018			
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
In	-	-	-	-	-	-	-	1	-	-	2	-	-
Out	-	-	-	-	-	-	-	-	-	-	-	-	1

Footnotes:

⁽¹¹⁾ Engineering Services line includes both Flight I/II and Flight IIA ships. Installation costs across the FYDP may vary depending on current port rates. Port rates are updated every year by a Commander, Navy Regional Maintenance Centers (CNRMC) letter based on the forecasted port loading model. Port loading rate forecasts are the rates recommended for all budgeted maintenance and organic modernization within a specific port. Individual ship's availability durations vary dependent upon the integration of ship's maintenance and modernization work packages.

⁽¹²⁾ Due to ship specific differences, the unit cost for a Flight IIA ship is less than that for a Flight I/II ship. DDG 111 & 112 received GEDMS during new construction. Large funding increase in FY 18 due to increase in DDG Modernization installations from 2 in FY 17 to 6 in FY 18.

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Exhibit P-3a, Individual Modification: FY 2018 Navy					Date: May 2017	
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9		P-1 Line Item Number / Title: 0900 / DDG Mod			Modification Number / Title: 2 / DM001 - DDG MODERNIZATION HME (MCS/DCS)	
ID Code (A=Service Ready, B=Not Service Ready) :				MDAP/MAIS Code:		
Resource Summary	Prior Years	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
Procurement Quantity <i>(Units in Each)</i>	-	-	-	-	-	-
Gross/Weapon System Cost <i>(\$ in Millions)</i>	226.531	67.250	63.198	88.413	0.000	88.413
Less PY Advance Procurement <i>(\$ in Millions)</i>	-	-	-	-	-	-
Net Procurement (P-1) <i>(\$ in Millions)</i>	226.531	67.250	63.198	88.413	0.000	88.413
Plus CY Advance Procurement <i>(\$ in Millions)</i>	-	-	-	-	-	-
Total Obligation Authority <i>(\$ in Millions)</i>	226.531	67.250	63.198	88.413	0.000	88.413
<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>	-	-	-	-	-	-
Gross/Weapon System Unit Cost <i>(\$ in Dollars)</i>	-	-	-	-	-	-
Description: Machinery Control System (MCS) replaces the obsolete control consoles while also delivering enhanced capability to the fleet through improved situational awareness and reconfigurable user stations. The new consoles use COTS-based computers which connect via Versa Modular Eurocard (VME)-chassis technology. The VME architecture is expected to be supportable for the remaining service life of the ship and will enable computer upgrades within the chassis thereby mitigating future obsolescence concerns. Engineering Services: Production Support Services are phased over a three (3) year span starting two (2) years prior to installation on a per hull basis. It includes five (5) elements that are related to the production and delivery of a usable end-item: Production Engineering, Quality Assurance, Product Improvement, Acceptance Test and Evaluation, and Contractor Engineering and Technical Services (CETS). Due to the phasing of the requirement over a three year period, engineering services will fluctuate depending on the number of ships in each year. Five (5) elements and approximate breakdown is as follows: Production Engineering includes preparation, test and technical evaluation of engineering changes to correct deficiencies in the production items; production configuration control; review and evaluation of production design data and documentation; and logistic supportability efforts. Quality Assurance includes the preparation of procedures and the conduct of inspections, examinations and test during production that are necessary to deliver an item of the required quality as specified by the terms of the contract. Product Improvement includes improving reliability/maintainability/availability, and the correction of deficiencies exclusive of contractual specifications. Acceptance Test and Evaluation of a production item includes preparation of test plans, testing, data analysis, and data evaluation. Contractor Engineering and Technical Services (CETS) includes the furnishing of advice, instruction, and training by commercial or industrial companies.						

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Exhibit P-3a, Individual Modification: FY 2018 Navy					Date: May 2017	
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9			P-1 Line Item Number / Title: 0900 / DDG Mod		Modification Number / Title: 2 / DM001 - DDG MODERNIZATION HME (MCS/DCS)	
ID Code (A=Service Ready, B=Not Service Ready) :				MDAP/MAIS Code:		
Models of Systems Affected: [No Model Specified]		Modification Type: TBD			Related RDT&E PEs: 0604567N	
Financial Plan	Prior Years	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
	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)
Procurement						
Modification Item 1 of 1: DM001 - DDG MODERNIZATION HME (MCS/DCS)						
B Kits						
Recurring						
1.1.1) MCS/DCS EQUIPMENT - NonOrganic ⁽¹³⁾	18 / 68.110	6 / 25.671	5 / 21.936	4 / 17.865	- / -	4 / 17.865
<i>Subtotal: Recurring</i>	- / 68.110	- / 25.671	- / 21.936	- / 17.865	- / -	- / 17.865
Non-Recurring						
1.2.1) MCS/DCS 1ST ARTICLE & NRE - Organic	- / 8.643	- / -	- / -	- / -	- / -	- / -
<i>Subtotal: Non-Recurring</i>	- / 8.643	- / -	- / -	- / -	- / -	- / -
<i>Subtotal: DM001 - DDG MODERNIZATION HME (MCS/DCS)</i>	18 / 76.753	6 / 25.671	5 / 21.936	4 / 17.865	- / -	4 / 17.865
<i>Subtotal: Procurement, All Modification Items</i>	- / 76.753	- / 25.671	- / 21.936	- / 17.865	- / -	- / 17.865
Support (All Modification Items)						
2.1) MCS/DCS ENGINEERING SERVICES	- / 44.793	- / 12.836	- / 12.100	- / 11.472	- / -	- / 11.472
<i>Subtotal: Support</i>	- / 44.793	- / 12.836	- / 12.100	- / 11.472	- / -	- / 11.472
Installation						
Modification Item 1 of 1: DM001 - DDG MODERNIZATION HME (MCS/DCS)	- / 104.985	- / 28.743	- / 29.162	- / 59.076	- / 0.000	- / 59.076
<i>Subtotal: Installation</i>	- / 104.985	- / 28.743	- / 29.162	- / 59.076	- / -	- / 59.076
Total						
Total Cost (Procurement + Support + Installation)	226.531	67.250	63.198	88.413	0.000	88.413

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Exhibit P-3a, Individual Modification: FY 2018 Navy						Date: May 2017							
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9				P-1 Line Item Number / Title: 0900 / DDG Mod				Modification Number / Title: 2 / DM001 - DDG MODERNIZATION HME (MCS/DCS)					
ID Code (A=Service Ready, B=Not Service Ready) :						MDAP/MAIS Code:							
Modification Item 1 of 1: DM001 - DDG MODERNIZATION HME (MCS/DCS)													
Manufacturer Information													
Manufacturer Name: Lockheed Martin						Manufacturer Location: Orlando, FL							
Administrative Leadtime <i>(in Months)</i> : 6						Production Leadtime <i>(in Months)</i> : 16							
Dates		FY 2016		FY 2017		FY 2018							
Contract Dates		Jul 2016		Jul 2017		Jul 2018							
Delivery Dates		Nov 2017		Nov 2018		Nov 2019							
Installation Information													
Method of Implementation: [none specified]:: Installation Name: MCS/DCS EQUIPMENT													
Installation Cost		Prior Years		FY 2016		FY 2017		FY 2018 Base		FY 2018 OCO		FY 2018 Total	
		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)	
Prior Years		13 / 104.985		3 / 26.022		2 / 8.912		- / -		- / -		- / -	
FY 2016		- / -		0 / 2.721		0 / 17.920		6 / 40.807		0 / 0.000		6 / 40.807	
FY 2017		- / -		- / -		0 / 2.330		0 / 16.097		0 / 0.000		0 / 16.097	
FY 2018		- / -		- / -		- / -		0 / 2.172		0 / 0.000		0 / 2.172	
Total		13 / 104.985		3 / 28.743		2 / 29.162		6 / 59.076		0 / 0.000		6 / 59.076	
Installation Schedule													
	PYS	FY 2016				FY 2017				FY 2018			
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
In	13	-	2	-	1	-	-	1	1	-	3	2	1
Out	13	-	-	1	1	-	-	-	1	-	-	1	1
Footnotes: (13) Installation costs across the FYDP may vary depending on current port rates. Port rates are updated every year by a CNRMC letter based on the forecasted port loading model. Port loading rate forecasts are the rates recommended for all budgeted maintenance and organic modernization within a specific port. Individual ship's availability durations vary dependent upon the integration of ship's maintenance and modernization work packages. Large funding increase in FY 18 due to increase in DDG Modernization installations from 2 in FY 17 to 6 in FY 18.													

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Exhibit P-3a, Individual Modification: FY 2018 Navy					Date: May 2017	
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9			P-1 Line Item Number / Title: 0900 / DDG Mod		Modification Number / Title: 5 / DM001 - DDG MODERNIZATION HME (IBNS)	
ID Code (A=Service Ready, B=Not Service Ready) :				MDAP/MAIS Code:		
Resource Summary	Prior Years	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
Procurement Quantity <i>(Units in Each)</i>	-	-	-	-	-	-
Gross/Weapon System Cost <i>(\$ in Millions)</i>	104.510	29.623	28.429	33.560	0.000	33.560
Less PY Advance Procurement <i>(\$ in Millions)</i>	-	-	-	-	-	-
Net Procurement (P-1) <i>(\$ in Millions)</i>	104.510	29.623	28.429	33.560	0.000	33.560
Plus CY Advance Procurement <i>(\$ in Millions)</i>	-	-	-	-	-	-
Total Obligation Authority <i>(\$ in Millions)</i>	104.510	29.623	28.429	33.560	0.000	33.560
<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>	-	-	-	-	-	-
Gross/Weapon System Unit Cost <i>(\$ in Dollars)</i>	-	-	-	-	-	-
Description: The Integrated Bridge & Navigation System (IBNS) replaces obsolete bridge consoles and introduces flexibility with how the pilot house is managed during navigation. The key benefit is the ability for operating with fewer watch-standers, reduced watch standard workloads, and improved safety of navigation. Engineering Services: Production Support Services are phased over a three (3) year span starting two (2) years prior to installation on a per hull basis. It includes five (5) elements that are related to the production and delivery of a usable end-item: Production Engineering, Quality Assurance, Product Improvement, Acceptance Test and Evaluation, and Contractor Engineering and Technical Services (CETS). Due to the phasing of the requirement over a three year period, engineering services will fluctuate depending on the number of ships in each year. Five (5) elements and approximate breakdown is as follows: Production Engineering includes preparation, test and technical evaluation of engineering changes to correct deficiencies in the production items; production configuration control; review and evaluation of production design data and documentation; and logistic supportability efforts. Quality Assurance includes the preparation of procedures and the conduct of inspections, examinations and test during production that are necessary to deliver an item of the required quality as specified by the terms of the contract. Product Improvement includes improving reliability/maintainability/availability, and the correction of deficiencies exclusive of contractual specifications. Acceptance Test and Evaluation of a production item includes preparation of test plans, testing, data analysis, and data evaluation. Contractor Engineering and Technical Services (CETS) includes the furnishing of advice, instruction, and training by commercial or industrial companies.						

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Exhibit P-3a, Individual Modification: FY 2018 Navy					Date: May 2017	
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9			P-1 Line Item Number / Title: 0900 / DDG Mod		Modification Number / Title: 5 / DM001 - DDG MODERNIZATION HME (IBNS)	
ID Code (A=Service Ready, B=Not Service Ready) :				MDAP/MAIS Code:		
Models of Systems Affected: [No Model Specified]		Modification Type: TBD			Related RDT&E PEs: 0604567N	
Financial Plan	Prior Years	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
	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)
Procurement						
Modification Item 1 of 1: DM001 - DDG MODERNIZATION HME (IBNS)						
B Kits						
Recurring						
1.1.1) IBNS Equipment - NonOrganic ⁽¹⁴⁾	18 / 55.472	6 / 19.309	5 / 16.381	4 / 13.340	- / -	4 / 13.340
<i>Subtotal: Recurring</i>	- / 55.472	- / 19.309	- / 16.381	- / 13.340	- / -	- / 13.340
Non-Recurring						
1.2.1) IBNS 1st Article & NRE - Organic	- / 4.186	- / -	- / -	- / -	- / -	- / -
<i>Subtotal: Non-Recurring</i>	- / 4.186	- / -	- / -	- / -	- / -	- / -
<i>Subtotal: DM001 - DDG MODERNIZATION HME (IBNS)</i>	18 / 59.658	6 / 19.309	5 / 16.381	4 / 13.340	- / -	4 / 13.340
<i>Subtotal: Procurement, All Modification Items</i>	- / 59.658	- / 19.309	- / 16.381	- / 13.340	- / -	- / 13.340
Support (All Modification Items)						
2.1) IBNS ENGINEERING SERVICES	- / 5.260	- / 1.165	- / 1.968	- / 1.468	- / -	- / 1.468
<i>Subtotal: Support</i>	- / 5.260	- / 1.165	- / 1.968	- / 1.468	- / -	- / 1.468
Installation						
Modification Item 1 of 1: DM001 - DDG MODERNIZATION HME (IBNS)	- / 39.592	- / 9.149	- / 10.080	- / 18.752	- / 0.000	- / 18.752
<i>Subtotal: Installation</i>	- / 39.592	- / 9.149	- / 10.080	- / 18.752	- / -	- / 18.752
Total						
Total Cost (Procurement + Support + Installation)	104.510	29.623	28.429	33.560	0.000	33.560

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Exhibit P-3a, Individual Modification: FY 2018 Navy						Date: May 2017							
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9				P-1 Line Item Number / Title: 0900 / DDG Mod				Modification Number / Title: 5 / DM001 - DDG MODERNIZATION HME (IBNS)					
ID Code (A=Service Ready, B=Not Service Ready) :						MDAP/MAIS Code:							
Modification Item 1 of 1: DM001 - DDG MODERNIZATION HME (IBNS)													
Manufacturer Information													
Manufacturer Name: Northrop Grumman Sperry						Manufacturer Location: Charlottesville, VA							
Administrative Leadtime <i>(in Months)</i> : 6						Production Leadtime <i>(in Months)</i> : 16							
Dates		FY 2016		FY 2017		FY 2018							
Contract Dates		Jul 2016		Jul 2017		Jul 2018							
Delivery Dates		Nov 2017		Nov 2018		Nov 2019							
Installation Information													
Method of Implementation: [none specified]:: Installation Name: IBNS Equipment													
Installation Cost		Prior Years		FY 2016		FY 2017		FY 2018 Base		FY 2018 OCO		FY 2018 Total	
		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>		Qty <i>(Each)</i> / Total Cost <i>(\$ M)</i>		Qty <i>(Each)</i> / Total Cost <i>(\$ M)</i>	
Prior Years		13 / 39.592		3 / 8.221		2 / 2.777		- / -		- / -		- / -	
FY 2016		- / -		0 / 0.928		0 / 6.567		6 / 12.651		0 / 0.000		6 / 12.651	
FY 2017		- / -		- / -		0 / 0.736		0 / 5.415		0 / 0.000		0 / 5.415	
FY 2018		- / -		- / -		- / -		0 / 0.686		0 / 0.000		0 / 0.686	
Total		13 / 39.592		3 / 9.149		2 / 10.080		6 / 18.752		0 / 0.000		6 / 18.752	
Installation Schedule													
	PYS	FY 2016				FY 2017				FY 2018			
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
In	13	-	2	-	1	-	-	1	1	-	3	2	1
Out	13	-	-	1	1	-	-	-	1	-	-	1	1
Footnotes: ⁽¹⁴⁾ Installation costs across the FYDP may vary depending on current port rates. Port rates are updated every year by a CNRMC letter based on the forecasted port loading model. Port loading rate forecasts are the rates recommended for all budgeted maintenance and organic modernization within a specific port. Individual ship's availability durations vary dependent upon the integration of ship's maintenance and modernization work packages. Large funding increase in FY 18 due to increase in DDG Modernization installations from 2 in FY 17 to 6 in FY 18.													

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Exhibit P-3a, Individual Modification: FY 2018 Navy					Date: May 2017	
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9			P-1 Line Item Number / Title: 0900 / DDG Mod		Modification Number / Title: 6 / DM003 - MK 160 MOD 15 GWS	
ID Code (A=Service Ready, B=Not Service Ready) :				MDAP/MAIS Code:		
Resource Summary	Prior Years	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
Procurement Quantity <i>(Units in Each)</i>	-	-	-	-	-	-
Gross/Weapon System Cost <i>(\$ in Millions)</i>	37.592	9.504	6.447	14.957	0.000	14.957
Less PY Advance Procurement <i>(\$ in Millions)</i>	-	-	-	-	-	-
Net Procurement (P-1) <i>(\$ in Millions)</i>	37.592	9.504	6.447	14.957	0.000	14.957
Plus CY Advance Procurement <i>(\$ in Millions)</i>	-	-	-	-	-	-
Total Obligation Authority <i>(\$ in Millions)</i>	37.592	9.504	6.447	14.957	0.000	14.957
<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>	-	-	-	-	-	-
Gross/Weapon System Unit Cost <i>(\$ in Dollars)</i>	-	-	-	-	-	-
Description: Procures MK 160 Mod 15 Gun Weapon System (GWS) that includes equipment procurement, recurring engineering, equipment integration and Integrated Logistics Support (ILS) products for DDG 51 Class ships. Engineering Services: Production Support Services are phased over a three (3) year span starting two (2) years prior to installation on a per hull basis. It includes five (5) elements that are related to the production and delivery of a usable end-item: Production Engineering, Quality Assurance, Product Improvement, Acceptance Test and Evaluation, and Contractor Engineering and Technical Services (CETS). Due to the phasing of the requirement over a three year period, engineering services will fluctuate depending on the number of ships in each year. Five (5) elements and approximate breakdown is as follows: Production Engineering includes preparation, test and technical evaluation of engineering changes to correct deficiencies in the production items; production configuration control; review and evaluation of production design data and documentation; and logistic supportability efforts. Quality Assurance includes the preparation of procedures and the conduct of inspections, examinations and test during production that are necessary to deliver an item of the required quality as specified by the terms of the contract. Product Improvement includes improving reliability/maintainability/availability, and the correction of deficiencies exclusive of contractual specifications. Acceptance Test and Evaluation of a production item includes preparation of test plans, testing, data analysis, and data evaluation. Contractor Engineering and Technical Services (CETS) includes the furnishing of advice, instruction, and training by commercial or industrial companies.						

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Exhibit P-3a, Individual Modification: FY 2018 Navy					Date: May 2017	
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9			P-1 Line Item Number / Title: 0900 / DDG Mod		Modification Number / Title: 6 / DM003 - MK 160 MOD 15 GWS	
ID Code (A=Service Ready, B=Not Service Ready) :				MDAP/MAIS Code:		
Models of Systems Affected: [No Model Specified]		Modification Type: TBD			Related RDT&E PEs:	
Financial Plan	Prior Years	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
	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)
Procurement						
Modification Item 1 of 1: DM003 - MK 160 MOD 15 GWS						
B Kits						
Recurring						
1.1.1) MK 160 MOD 15 GWS EQUIPMENT - NonOrganic ⁽¹⁵⁾	7 / 20.961	2 / 6.540	1 / 3.329	3 / 10.167	- / -	3 / 10.167
<i>Subtotal: Recurring</i>	- / 20.961	- / 6.540	- / 3.329	- / 10.167	- / -	- / 10.167
<i>Subtotal: DM003 - MK 160 MOD 15 GWS</i>	7 / 20.961	2 / 6.540	1 / 3.329	3 / 10.167	- / -	3 / 10.167
<i>Subtotal: Procurement, All Modification Items</i>	- / 20.961	- / 6.540	- / 3.329	- / 10.167	- / -	- / 10.167
Support (All Modification Items)						
2.1) ENGINEERING SERVICES	- / 11.142	- / 1.673	- / 1.703	- / 2.549	- / -	- / 2.549
<i>Subtotal: Support</i>	- / 11.142	- / 1.673	- / 1.703	- / 2.549	- / -	- / 2.549
Installation						
Modification Item 1 of 1: DM003 - MK 160 MOD 15 GWS	- / 5.489	- / 1.291	- / 1.415	- / 2.241	- / 0.000	- / 2.241
<i>Subtotal: Installation</i>	- / 5.489	- / 1.291	- / 1.415	- / 2.241	- / -	- / 2.241
Total						
Total Cost (Procurement + Support + Installation)	37.592	9.504	6.447	14.957	0.000	14.957

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Exhibit P-3a, Individual Modification: FY 2018 Navy						Date: May 2017							
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9				P-1 Line Item Number / Title: 0900 / DDG Mod				Modification Number / Title: 6 / DM003 - MK 160 MOD 15 GWS					
ID Code (A=Service Ready, B=Not Service Ready) :						MDAP/MAIS Code:							
Modification Item 1 of 1: DM003 - MK 160 MOD 15 GWS													
Manufacturer Information													
Manufacturer Name: VARIOUS					Manufacturer Location: VARIOUS								
Administrative Leadtime <i>(in Months)</i> : 6					Production Leadtime <i>(in Months)</i> : 18								
Dates		FY 2016			FY 2017			FY 2018					
Contract Dates		Jun 2016			Jun 2017			Jun 2018					
Delivery Dates		Dec 2017			Dec 2018			Dec 2019					
Installation Information													
Method of Implementation: [none specified]:: Installation Name: MK 160 MOD 15 GWS EQUIPMENT													
Installation Cost		Prior Years		FY 2016		FY 2017		FY 2018 Base		FY 2018 OCO		FY 2018 Total	
		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>		Qty <i>(Each)</i> / Total Cost <i>(\$ M)</i>		Qty <i>(Each)</i> / Total Cost <i>(\$ M)</i>	
Prior Years		5 / 5.489		1 / 1.186		1 / 0.756		- / -		- / -		- / -	
FY 2016		- / -		0 / 0.105		0 / 0.596		2 / 1.733		0 / 0.000		2 / 1.733	
FY 2017		- / -		- / -		0 / 0.063		0 / 0.339		0 / 0.000		0 / 0.339	
FY 2018		- / -		- / -		- / -		0 / 0.169		0 / 0.000		0 / 0.169	
Total		5 / 5.489		1 / 1.291		1 / 1.415		2 / 2.241		0 / 0.000		2 / 2.241	
Installation Schedule													
	PYS	FY 2016				FY 2017				FY 2018			
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
In	5	-	-	-	1	-	-	1	-	-	2	-	-
Out	3	-	-	-	2	-	-	-	1	-	-	-	1
Footnotes: (15) Installation costs across the FYDP may vary depending on current port rates. Port rates are updated every year by a CNRMC letter based on the forecasted port loading model. Port loading rate forecasts are the rates recommended for all budgeted maintenance and organic modernization within a specific port. Individual ship's availability durations vary dependent upon the integration of ship's maintenance and modernization work packages.													

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Exhibit P-3a, Individual Modification: FY 2018 Navy					Date: May 2017	
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9			P-1 Line Item Number / Title: 0900 / DDG Mod		Modification Number / Title: 7 / DM004 - AWS UPGRADE	
ID Code (A=Service Ready, B=Not Service Ready) :				MDAP/MAIS Code:		
Resource Summary	Prior Years	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
Procurement Quantity <i>(Units in Each)</i>	-	-	-	-	-	-
Gross/Weapon System Cost <i>(\$ in Millions)</i>	273.038	66.186	51.440	112.438	0.000	112.438
Less PY Advance Procurement <i>(\$ in Millions)</i>	-	-	-	-	-	-
Net Procurement (P-1) <i>(\$ in Millions)</i>	273.038	66.186	51.440	112.438	0.000	112.438
Plus CY Advance Procurement <i>(\$ in Millions)</i>	-	-	-	-	-	-
Total Obligation Authority <i>(\$ in Millions)</i>	273.038	66.186	51.440	112.438	0.000	112.438
<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>	-	-	-	-	-	-
Gross/Weapon System Unit Cost <i>(\$ in Dollars)</i>	-	-	-	-	-	-
Description: Procures equipment for the Aegis Weapon System (AWS) Upgrades that includes equipment procurement, recurring engineering, equipment integration and Integrated Logistics Support (ILS) products for DDG 51 Class ships. Engineering Services: Production Support Services are phased over a three (3) year span starting two (2) years prior to installation on a per hull basis. It includes five (5) elements that are related to the production and delivery of a usable end-item: Production Engineering, Quality Assurance, Product Improvement, Acceptance Test and Evaluation, and Contractor Engineering and Technical Services (CETS). Due to the phasing of the requirement over a three year period, engineering services will fluctuate depending on the number of ships in each year. Five (5) elements and approximate breakdown is as follows: Production Engineering includes preparation, test and technical evaluation of engineering changes to correct deficiencies in the production items; production configuration control; review and evaluation of production design data and documentation; and logistic supportability efforts. Quality Assurance includes the preparation of procedures and the conduct of inspections, examinations and test during production that are necessary to deliver an item of the required quality as specified by the terms of the contract. Product Improvement includes improving reliability/maintainability/availability, and the correction of deficiencies exclusive of contractual specifications. Acceptance Test and Evaluation of a production item includes preparation of test plans, testing, data analysis, and data evaluation. Contractor Engineering and Technical Services (CETS) includes the furnishing of advice, instruction, and training by commercial or industrial companies.						

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Exhibit P-3a, Individual Modification: FY 2018 Navy					Date: May 2017	
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9			P-1 Line Item Number / Title: 0900 / DDG Mod		Modification Number / Title: 7 / DM004 - AWS UPGRADE	
ID Code (A=Service Ready, B=Not Service Ready) :				MDAP/MAIS Code:		
Models of Systems Affected: [No Model Specified]		Modification Type: TBD			Related RDT&E PEs:	
Financial Plan	Prior Years	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
	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)
Procurement						
<i>Modification Item 1 of 1:</i> DM004 - AWS UPGRADE						
B Kits						
Recurring						
1.1.1) AWS EQUIPMENT - NonOrganic ⁽¹⁶⁾	7 / 151.390	2 / 37.432	1 / 20.560	3 / 62.792	- / -	3 / 62.792
<i>Subtotal: Recurring</i>	- / 151.390	- / 37.432	- / 20.560	- / 62.792	- / -	- / 62.792
<i>Subtotal: DM004 - AWS UPGRADE</i>	7 / 151.390	2 / 37.432	1 / 20.560	3 / 62.792	- / -	3 / 62.792
<i>Subtotal: Procurement, All Modification Items</i>	- / 151.390	- / 37.432	- / 20.560	- / 62.792	- / -	- / 62.792
Support (All Modification Items)						
2.1) ENGINEERING SERVICES	- / 12.364	- / 3.050	- / 3.284	- / 4.272	- / -	- / 4.272
<i>Subtotal: Support</i>	- / 12.364	- / 3.050	- / 3.284	- / 4.272	- / -	- / 4.272
Installation						
<i>Modification Item 1 of 1:</i> DM004 - AWS UPGRADE	- / 109.284	- / 25.704	- / 27.596	- / 45.374	- / 0.000	- / 45.374
<i>Subtotal: Installation</i>	- / 109.284	- / 25.704	- / 27.596	- / 45.374	- / -	- / 45.374
Total						
Total Cost (Procurement + Support + Installation)	273.038	66.186	51.440	112.438	0.000	112.438

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Exhibit P-3a, Individual Modification: FY 2018 Navy						Date: May 2017							
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9				P-1 Line Item Number / Title: 0900 / DDG Mod				Modification Number / Title: 7 / DM004 - AWS UPGRADE					
ID Code (A=Service Ready, B=Not Service Ready) :						MDAP/MAIS Code:							
Modification Item 1 of 1: DM004 - AWS UPGRADE													
Manufacturer Information													
Manufacturer Name: LOCKHEED MARTIN						Manufacturer Location: MOORESTOWN, NJ							
Administrative Leadtime <i>(in Months)</i> : 6						Production Leadtime <i>(in Months)</i> : 20							
Dates		FY 2016		FY 2017		FY 2018							
Contract Dates		Apr 2016		Apr 2017		Apr 2018							
Delivery Dates		Dec 2017		Dec 2018		Dec 2019							
Installation Information													
Method of Implementation: [none specified]:: Installation Name: AWS EQUIPMENT													
Installation Cost		Prior Years		FY 2016		FY 2017		FY 2018 Base		FY 2018 OCO		FY 2018 Total	
		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)	
Prior Years		5 / 109.284		1 / 23.740		1 / 16.063		- / -		- / -		- / -	
FY 2016		- / -		0 / 1.964		0 / 10.365		2 / 36.328		0 / 0.000		2 / 36.328	
FY 2017		- / -		- / -		0 / 1.168		0 / 5.912		0 / 0.000		0 / 5.912	
FY 2018		- / -		- / -		- / -		0 / 3.134		0 / 0.000		0 / 3.134	
Total		5 / 109.284		1 / 25.704		1 / 27.596		2 / 45.374		0 / 0.000		2 / 45.374	
Installation Schedule													
	PYS	FY 2016				FY 2017				FY 2018			
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
In	5	-	-	-	1	-	-	1	-	-	2	-	-
Out	3	-	-	-	2	-	-	-	1	-	-	-	1
Footnotes: ⁽¹⁶⁾ Installation costs across the FYDP may vary depending on current port rates. Port rates are updated every year by a CNRMC letter based on the forecasted port loading model. Port loading rate forecasts are the rates recommended for all budgeted maintenance and organic modernization within a specific port. Individual ship's availability durations vary dependent upon the integration of ship's maintenance and modernization work packages.													

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Exhibit P-3a, Individual Modification: FY 2018 Navy					Date: May 2017		
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9		P-1 Line Item Number / Title: 0900 / DDG Mod			Modification Number / Title: 8 / DM005 - MULTI-MISSION SIGPRO		
ID Code (A=Service Ready, B=Not Service Ready) :				MDAP/MAIS Code:			
Resource Summary		Prior Years	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
Procurement Quantity (Units in Each)		-	-	-	-	-	-
Gross/Weapon System Cost (\$ in Millions)		151.376	38.224	23.048	58.848	0.000	58.848
Less PY Advance Procurement (\$ in Millions)		-	-	-	-	-	-
Net Procurement (P-1) (\$ in Millions)		151.376	38.224	23.048	58.848	0.000	58.848
Plus CY Advance Procurement (\$ in Millions)		-	-	-	-	-	-
Total Obligation Authority (\$ in Millions)		151.376	38.224	23.048	58.848	0.000	58.848
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)							
Initial Spares (\$ in Millions)		-	-	-	-	-	-
Gross/Weapon System Unit Cost (\$ in Dollars)		-	-	-	-	-	-

Description:

Procures Multi-Mission SIGPRO combat systems that includes equipment procurement, recurring engineering, equipment integration and Integrated Logistics Support (ILS) products for DDG 51 Class ships.

Engineering Services:

Production Support Services are phased over a three (3) year span starting two (2) years prior to installation on a per hull basis. It includes five (5) elements that are related to the production and delivery of a usable end-item: Production Engineering, Quality Assurance, Product Improvement, Acceptance Test and Evaluation, and Contractor Engineering and Technical Services (CETS). Due to the phasing of the requirement over a three year period, engineering services will fluctuate depending on the number of ships in each year.

Five (5) elements and approximate breakdown is as follows:

Production Engineering includes preparation, test and technical evaluation of engineering changes to correct deficiencies in the production items; production configuration control; review and evaluation of production design data and documentation; and logistic supportability efforts.

Quality Assurance includes the preparation of procedures and the conduct of inspections, examinations and test during production that are necessary to deliver an item of the required quality as specified by the terms of the contract.

Product Improvement includes improving reliability/maintainability/availability, and the correction of deficiencies exclusive of contractual specifications.

Acceptance Test and Evaluation of a production item includes preparation of test plans, testing, data analysis, and data evaluation.

Contractor Engineering and Technical Services (CETS) includes the furnishing of advice, instruction, and training by commercial or industrial companies.

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Exhibit P-3a, Individual Modification: FY 2018 Navy					Date: May 2017	
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9			P-1 Line Item Number / Title: 0900 / DDG Mod		Modification Number / Title: 8 / DM005 - MULTI-MISSION SIGPRO	
ID Code (A=Service Ready, B=Not Service Ready) :				MDAP/MAIS Code:		
Models of Systems Affected: [No Model Specified]		Modification Type: TBD			Related RDT&E PEs:	
Financial Plan	Prior Years	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
	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)
Procurement						
<i>Modification Item 1 of 1:</i> DM005 - MULTI-MISSION SIGPRO						
B Kits						
Recurring						
1.1.1) MULTI-MISSION SIGPRO EQUIPMENT - NonOrganic ⁽¹⁷⁾	8 / 122.321	2 / 31.531	1 / 16.049	3 / 49.014	- / -	3 / 49.014
<i>Subtotal: Recurring</i>	- / 122.321	- / 31.531	- / 16.049	- / 49.014	- / -	- / 49.014
<i>Subtotal: DM005 - MULTI-MISSION SIGPRO</i>	8 / 122.321	2 / 31.531	1 / 16.049	3 / 49.014	- / -	3 / 49.014
<i>Subtotal: Procurement, All Modification Items</i>	- / 122.321	- / 31.531	- / 16.049	- / 49.014	- / -	- / 49.014
Support (All Modification Items)						
2.1) ENGINEERING SERVICES	- / 11.719	- / 2.744	- / 2.793	- / 2.865	- / -	- / 2.865
<i>Subtotal: Support</i>	- / 11.719	- / 2.744	- / 2.793	- / 2.865	- / -	- / 2.865
Installation						
<i>Modification Item 1 of 1:</i> DM005 - MULTI-MISSION SIGPRO	- / 17.336	- / 3.949	- / 4.206	- / 6.969	- / 0.000	- / 6.969
<i>Subtotal: Installation</i>	- / 17.336	- / 3.949	- / 4.206	- / 6.969	- / -	- / 6.969
Total						
Total Cost (Procurement + Support + Installation)	151.376	38.224	23.048	58.848	0.000	58.848

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Exhibit P-3a, Individual Modification: FY 2018 Navy						Date: May 2017							
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9				P-1 Line Item Number / Title: 0900 / DDG Mod				Modification Number / Title: 8 / DM005 - MULTI-MISSION SIGPRO					
ID Code (A=Service Ready, B=Not Service Ready) :						MDAP/MAIS Code:							
Modification Item 1 of 1: DM005 - MULTI-MISSION SIGPRO													
Manufacturer Information													
Manufacturer Name: LOCKHEED MARTIN						Manufacturer Location: MOORESTOWN, NJ							
Administrative Leadtime <i>(in Months)</i> : 6						Production Leadtime <i>(in Months)</i> : 18							
Dates		FY 2016		FY 2017		FY 2018							
Contract Dates		Jun 2016		Jun 2017		Jun 2018							
Delivery Dates		Dec 2017		Dec 2018		Dec 2019							
Installation Information													
Method of Implementation: [none specified]:: Installation Name: MULTI-MISSION SIGPRO EQUIPMENT													
Installation Cost		Prior Years		FY 2016		FY 2017		FY 2018 Base		FY 2018 OCO		FY 2018 Total	
		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>		Qty <i>(Each)</i> / Total Cost <i>(\$ M)</i>		Qty <i>(Each)</i> / Total Cost <i>(\$ M)</i>	
Prior Years		6 / 17.336		1 / 3.632		1 / 2.433		- / -		- / -		- / -	
FY 2016		- / -		0 / 0.317		0 / 1.584		2 / 5.557		0 / 0.000		2 / 5.557	
FY 2017		- / -		- / -		0 / 0.189		0 / 0.903		0 / 0.000		0 / 0.903	
FY 2018		- / -		- / -		- / -		0 / 0.509		0 / 0.000		0 / 0.509	
Total		6 / 17.336		1 / 3.949		1 / 4.206		2 / 6.969		0 / 0.000		2 / 6.969	
Installation Schedule													
	PYS	FY 2016				FY 2017				FY 2018			
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
In	6	-	-	-	1	-	-	1	-	-	2	-	-
Out	4	-	-	-	2	-	-	-	1	-	-	-	1
Footnotes: ⁽¹⁷⁾ Installation costs across the FYDP may vary depending on current port rates. Port rates are updated every year by a CNRMC letter based on the forecasted port loading model. Port loading rate forecasts are the rates recommended for all budgeted maintenance and organic modernization within a specific port. Individual ship's availability durations vary dependent upon the integration of ship's maintenance and modernization work packages.													

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Exhibit P-3a, Individual Modification: FY 2018 Navy					Date: May 2017	
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9			P-1 Line Item Number / Title: 0900 / DDG Mod		Modification Number / Title: 10 / DM007 - SPY-1D TRANSMITTER UPGRADES	
ID Code (A=Service Ready, B=Not Service Ready) :				MDAP/MAIS Code:		
Resource Summary	Prior Years	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
Procurement Quantity <i>(Units in Each)</i>	-	-	-	-	-	-
Gross/Weapon System Cost <i>(\$ in Millions)</i>	37.029	10.148	5.523	15.634	0.000	15.634
Less PY Advance Procurement <i>(\$ in Millions)</i>	-	-	-	-	-	-
Net Procurement (P-1) <i>(\$ in Millions)</i>	37.029	10.148	5.523	15.634	0.000	15.634
Plus CY Advance Procurement <i>(\$ in Millions)</i>	-	-	-	-	-	-
Total Obligation Authority <i>(\$ in Millions)</i>	37.029	10.148	5.523	15.634	0.000	15.634
<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>	-	-	-	-	-	-
Gross/Weapon System Unit Cost <i>(\$ in Dollars)</i>	-	-	-	-	-	-
Description: Procures SPY-1D Transmitter Upgrades combat systems that includes equipment procurement, recurring engineering, equipment integration and Integrated Logistics Support (ILS) products for DDG 51 Class ships. Engineering Services: Production Support Services are phased over a three (3) year span starting two (2) years prior to installation on a per hull basis. It includes five (5) elements that are related to the production and delivery of a usable end-item: Production Engineering, Quality Assurance, Product Improvement, Acceptance Test and Evaluation, and Contractor Engineering and Technical Services (CETS). Due to the phasing of the requirement over a three year period, engineering services will fluctuate depending on the number of ships in each year. Five (5) elements and approximate breakdown is as follows: Production Engineering includes preparation, test and technical evaluation of engineering changes to correct deficiencies in the production items; production configuration control; review and evaluation of production design data and documentation; and logistic supportability efforts. Quality Assurance includes the preparation of procedures and the conduct of inspections, examinations and test during production that are necessary to deliver an item of the required quality as specified by the terms of the contract. Product Improvement includes improving reliability/maintainability/availability, and the correction of deficiencies exclusive of contractual specifications. Acceptance Test and Evaluation of a production item includes preparation of test plans, testing, data analysis, and data evaluation. Contractor Engineering and Technical Services (CETS) includes the furnishing of advice, instruction, and training by commercial or industrial companies.						

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Exhibit P-3a, Individual Modification: FY 2018 Navy					Date: May 2017	
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9		P-1 Line Item Number / Title: 0900 / DDG Mod			Modification Number / Title: 10 / DM007 - SPY-1D TRANSMITTER UPGRADES	
ID Code (A=Service Ready, B=Not Service Ready) :				MDAP/MAIS Code:		
Models of Systems Affected: [No Model Specified]		Modification Type: TBD			Related RDT&E PEs:	
Financial Plan	Prior Years	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
	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)
Procurement						
<i>Modification Item 1 of 1:</i> DM007 - SPY-1D TRANSMITTER UPGRADES						
B Kits						
Recurring						
1.1.1) SPY-1D TRANSMITTER UPGRADES EQUIPMENT - Organic ⁽¹⁸⁾	8 / 34.739	2 / 9.446	1 / 4.808	3 / 14.683	- / -	3 / 14.683
<i>Subtotal: Recurring</i>	- / 34.739	- / 9.446	- / 4.808	- / 14.683	- / -	- / 14.683
<i>Subtotal: DM007 - SPY-1D TRANSMITTER UPGRADES</i>	8 / 34.739	2 / 9.446	1 / 4.808	3 / 14.683	- / -	3 / 14.683
<i>Subtotal: Procurement, All Modification Items</i>	- / 34.739	- / 9.446	- / 4.808	- / 14.683	- / -	- / 14.683
Support (All Modification Items)						
2.1) ENGINEERING SERVICES	- / 2.290	- / 0.702	- / 0.715	- / 0.951	- / -	- / 0.951
<i>Subtotal: Support</i>	- / 2.290	- / 0.702	- / 0.715	- / 0.951	- / -	- / 0.951
Installation						
<i>Subtotal: Installation</i>	- / -	- / -	- / -	- / -	- / -	- / -
Total						
Total Cost (Procurement + Support + Installation)	37.029	10.148	5.523	15.634	0.000	15.634

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Exhibit P-3a, Individual Modification: FY 2018 Navy		Date: May 2017	
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9		P-1 Line Item Number / Title: 0900 / DDG Mod	
		Modification Number / Title: 10 / DM007 - SPY-1D TRANSMITTER UPGRADES	
ID Code (A=Service Ready, B=Not Service Ready) :		MDAP/MAIS Code:	
Modification Item 1 of 1: DM007 - SPY-1D TRANSMITTER UPGRADES			
Manufacturer Information			
Manufacturer Name: Raytheon		Manufacturer Location: Marlborough, MA	
Administrative Leadtime (<i>in Months</i>): 6		Production Leadtime (<i>in Months</i>): 18	
Dates	FY 2016	FY 2017	FY 2018
Contract Dates	Jun 2016	Jun 2017	Jun 2018
Delivery Dates	Dec 2017	Dec 2018	Dec 2019
Footnotes: ⁽¹⁸⁾ SPY-1D Transmitter Upgrades aren't required for DDG 91 and follow. Installation costs for this equipment are captured in P40A/DM6IN-Installation.			

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Exhibit P-3a, Individual Modification: FY 2018 Navy		Date: May 2017
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	P-1 Line Item Number / Title: 0900 / DDG Mod	Modification Number / Title: 12 / DM009 - VLS UPGRADES

ID Code (A=Service Ready, B=Not Service Ready) :			MDAP/MAIS Code:			
Resource Summary	Prior Years	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
Procurement Quantity <i>(Units in Each)</i>	-	-	-	-	-	-
Gross/Weapon System Cost <i>(\$ in Millions)</i>	68.145	17.061	13.013	25.602	0.000	25.602
Less PY Advance Procurement <i>(\$ in Millions)</i>	-	-	-	-	-	-
Net Procurement (P-1) <i>(\$ in Millions)</i>	68.145	17.061	13.013	25.602	0.000	25.602
Plus CY Advance Procurement <i>(\$ in Millions)</i>	-	-	-	-	-	-
Total Obligation Authority <i>(\$ in Millions)</i>	68.145	17.061	13.013	25.602	0.000	25.602
<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>	-	-	-	-	-	-
Gross/Weapon System Unit Cost <i>(\$ in Dollars)</i>	-	-	-	-	-	-

Description:

Procures Vertical Launch System (VLS) Modifications, Evolved Sea Sparrow Missile VLS Modifications, SM3 Operability Heating Ventilation Air Conditioning (HVAC) and VLS MODS for SM3 Block 3 combat systems that includes equipment procurement, recurring engineering, equipment integration and Integrated Logistics Support (ILS) products for DDG 51 Class ships.

Engineering Services:

Production Support Services are phased over a three (3) year span starting two (2) years prior to installation on a per hull basis. It includes five (5) elements that are related to the production and delivery of a usable end-item: Production Engineering, Quality Assurance, Product Improvement, Acceptance Test and Evaluation, and Contractor Engineering and Technical Services (CETS). Due to the phasing of the requirement over a three year period, engineering services will fluctuate depending on the number of ships in each year.

Five (5) elements and approximate breakdown is as follows:

Production Engineering includes preparation, test and technical evaluation of engineering changes to correct deficiencies in the production items; production configuration control; review and evaluation of production design data and documentation; and logistic supportability efforts.

Quality Assurance includes the preparation of procedures and the conduct of inspections, examinations and test during production that are necessary to deliver an item of the required quality as specified by the terms of the contract.

Product Improvement includes improving reliability/maintainability/availability, and the correction of deficiencies exclusive of contractual specifications.

Acceptance Test and Evaluation of a production item includes preparation of test plans, testing, data analysis, and data evaluation.

Contractor Engineering and Technical Services (CETS) includes the furnishing of advice, instruction, and training by commercial or industrial companies.

[VLS EQUIPMENT] Engineering services increase in FY 18 due to increased number of Combat System availabilities in FY 20.

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Exhibit P-3a, Individual Modification: FY 2018 Navy					Date: May 2017	
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9			P-1 Line Item Number / Title: 0900 / DDG Mod		Modification Number / Title: 12 / DM009 - VLS UPGRADES	
ID Code (A=Service Ready, B=Not Service Ready) :				MDAP/MAIS Code:		
Models of Systems Affected: [No Model Specified]		Modification Type: TBD			Related RDT&E PEs:	
Financial Plan	Prior Years	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
	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)
Procurement						
Modification Item 1 of 1: DM009 - VLS UPGRADES						
B Kits						
Recurring						
1.1.1) VLS EQUIPMENT - NonOrganic ⁽¹⁹⁾	7 / 43.441	2 / 10.286	1 / 5.235	3 / 15.989	- / -	3 / 15.989
<i>Subtotal: Recurring</i>	- / 43.441	- / 10.286	- / 5.235	- / 15.989	- / -	- / 15.989
<i>Subtotal: DM009 - VLS UPGRADES</i>	7 / 43.441	2 / 10.286	1 / 5.235	3 / 15.989	- / -	3 / 15.989
<i>Subtotal: Procurement, All Modification Items</i>	- / 43.441	- / 10.286	- / 5.235	- / 15.989	- / -	- / 15.989
Support (All Modification Items)						
2.1) ENGINEERING SERVICES	- / 15.889	- / 4.800	- / 5.656	- / 6.158	- / -	- / 6.158
<i>Subtotal: Support</i>	- / 15.889	- / 4.800	- / 5.656	- / 6.158	- / -	- / 6.158
Installation						
Modification Item 1 of 1: DM009 - VLS UPGRADES	- / 8.815	- / 1.975	- / 2.122	- / 3.455	- / 0.000	- / 3.455
<i>Subtotal: Installation</i>	- / 8.815	- / 1.975	- / 2.122	- / 3.455	- / -	- / 3.455
Total						
Total Cost (Procurement + Support + Installation)	68.145	17.061	13.013	25.602	0.000	25.602

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Exhibit P-3a, Individual Modification: FY 2018 Navy						Date: May 2017							
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9				P-1 Line Item Number / Title: 0900 / DDG Mod				Modification Number / Title: 12 / DM009 - VLS UPGRADES					
ID Code (A=Service Ready, B=Not Service Ready) :						MDAP/MAIS Code:							
Modification Item 1 of 1: DM009 - VLS UPGRADES													
Manufacturer Information													
Manufacturer Name: LOCKHEED MARTIN						Manufacturer Location: MOORESTOWN, NJ							
Administrative Leadtime (in Months): 6						Production Leadtime (in Months): 18							
Dates		FY 2016		FY 2017		FY 2018							
Contract Dates		Jun 2016		Jun 2017		Jun 2018							
Delivery Dates		Dec 2017		Dec 2018		Dec 2019							
Installation Information													
Method of Implementation: [none specified]:: Installation Name: VLS EQUIPMENT													
Installation Cost		Prior Years		FY 2016		FY 2017		FY 2018 Base		FY 2018 OCO		FY 2018 Total	
		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)	
Prior Years		5 / 8.815		1 / 1.809		1 / 1.173		- / -		- / -		- / -	
FY 2016		- / -		0 / 0.166		0 / 0.850		2 / 2.704		0 / 0.000		2 / 2.704	
FY 2017		- / -		- / -		0 / 0.099		0 / 0.485		0 / 0.000		0 / 0.485	
FY 2018		- / -		- / -		- / -		0 / 0.266		0 / 0.000		0 / 0.266	
Total		5 / 8.815		1 / 1.975		1 / 2.122		2 / 3.455		0 / 0.000		2 / 3.455	
Installation Schedule													
	PYS	FY 2016				FY 2017				FY 2018			
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
In	5	-	-	-	1	-	-	1	-	-	2	-	-
Out	3	-	-	-	2	-	-	-	1	-	-	-	1
Footnotes:													
(19) Installation costs across the FYDP may vary depending on current port rates. Port rates are updated every year by a CNRMC letter based on the forecasted port loading model. Port loading rate forecasts are the rates recommended for all budgeted maintenance and organic modernization within a specific port. Individual ship's availability durations vary dependent upon the integration of ship's maintenance and modernization work packages.													

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Exhibit P-3a, Individual Modification: FY 2018 Navy					Date: May 2017	
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9			P-1 Line Item Number / Title: 0900 / DDG Mod		Modification Number / Title: 14 / DM011 - AN/SQQ-89 A(V15)	
ID Code (A=Service Ready, B=Not Service Ready) :				MDAP/MAIS Code:		
Resource Summary	Prior Years	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
Procurement Quantity <i>(Units in Each)</i>	-	-	-	-	-	-
Gross/Weapon System Cost <i>(\$ in Millions)</i>	93.395	26.955	13.185	10.859	0.000	10.859
Less PY Advance Procurement <i>(\$ in Millions)</i>	-	-	-	-	-	-
Net Procurement (P-1) <i>(\$ in Millions)</i>	93.395	26.955	13.185	10.859	0.000	10.859
Plus CY Advance Procurement <i>(\$ in Millions)</i>	-	-	-	-	-	-
Total Obligation Authority <i>(\$ in Millions)</i>	93.395	26.955	13.185	10.859	0.000	10.859
<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>	-	-	-	-	-	-
Gross/Weapon System Unit Cost <i>(\$ in Dollars)</i>	-	-	-	-	-	-

Description:
 Procures improved AN/SQQ-89 A(V)15 with Multi-Functional Towed Array (MFTA) combat systems to replace the installed MIL-STD AN/SQQ-89(V) that includes equipment procurement, recurring engineering, equipment integration and Integrated Logistics Support (ILS) products for DDG 51 Class ships. Flight IIA DDGs have previously received an SQQ-89(A)V15 installation.

Engineering Services:

Production Support Services are phased over a three (3) year span starting two (2) years prior to installation on a per hull basis. It includes five (5) elements that are related to the production and delivery of a usable end-item: Production Engineering, Quality Assurance, Product Improvement, Acceptance Test and Evaluation, and Contractor Engineering and Technical Services (CETS). Due to the phasing of the requirement over a three year period, engineering services will fluctuate depending on the number of ships in each year.

Five (5) elements and approximate breakdown is as follows:

Production Engineering includes preparation, test and technical evaluation of engineering changes to correct deficiencies in the production items; production configuration control; review and evaluation of production design data and documentation; and logistic supportability efforts.

Quality Assurance includes the preparation of procedures and the conduct of inspections, examinations and test during production that are necessary to deliver an item of the required quality as specified by the terms of the contract.

Product Improvement includes improving reliability/maintainability/availability, and the correction of deficiencies exclusive of contractual specifications.

Acceptance Test and Evaluation of a production item includes preparation of test plans, testing, data analysis, and data evaluation.

Contractor Engineering and Technical Services (CETS) includes the furnishing of advice, instruction, and training by commercial or industrial companies.

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Exhibit P-3a, Individual Modification: FY 2018 Navy					Date: May 2017	
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9			P-1 Line Item Number / Title: 0900 / DDG Mod		Modification Number / Title: 14 / DM011 - AN/SQQ-89 A(V15)	
ID Code (A=Service Ready, B=Not Service Ready) :				MDAP/MAIS Code:		
Models of Systems Affected: [No Model Specified]		Modification Type: TBD			Related RDT&E PEs:	
Financial Plan	Prior Years	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
	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)
Procurement						
<i>Modification Item 1 of 1:</i> DM011 - AN/SQQ-89 A(V15)						
B Kits						
Recurring						
1.1.1) AN/SQQ-89 EQUIPMENT A(V15) - NonOrganic (20)	7 / 53.422	2 / 15.688	1 / 7.985	- / -	- / -	- / -
<i>Subtotal: Recurring</i>	- / 53.422	- / 15.688	- / 7.985	- / -	- / -	- / -
<i>Subtotal: DM011 - AN/SQQ-89 A(V15)</i>	7 / 53.422	2 / 15.688	1 / 7.985	- / -	- / -	- / -
<i>Subtotal: Procurement, All Modification Items</i>	- / 53.422	- / 15.688	- / 7.985	- / -	- / -	- / -
Support (All Modification Items)						
2.1) ENGINEERING SERVICES	- / 16.136	- / 2.795	- / 2.845	- / 2.896	- / -	- / 2.896
<i>Subtotal: Support</i>	- / 16.136	- / 2.795	- / 2.845	- / 2.896	- / -	- / 2.896
Installation						
<i>Modification Item 1 of 1:</i> DM011 - AN/SQQ-89 A(V15)	- / 23.837	- / 8.472	- / 2.355	- / 7.963	- / 0.000	- / 7.963
<i>Subtotal: Installation</i>	- / 23.837	- / 8.472	- / 2.355	- / 7.963	- / -	- / 7.963
Total						
Total Cost (Procurement + Support + Installation)	93.395	26.955	13.185	10.859	0.000	10.859

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Exhibit P-3a, Individual Modification: FY 2018 Navy						Date: May 2017							
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9				P-1 Line Item Number / Title: 0900 / DDG Mod				Modification Number / Title: 14 / DM011 - AN/SQQ-89 A(V15)					
ID Code (A=Service Ready, B=Not Service Ready) :						MDAP/MAIS Code:							
Modification Item 1 of 1: DM011 - AN/SQQ-89 A(V15)													
Manufacturer Information													
Manufacturer Name: Lockheed Martin						Manufacturer Location: Syracuse, NY							
Administrative Leadtime <i>(in Months)</i> : 6						Production Leadtime <i>(in Months)</i> : 18							
Dates		FY 2016		FY 2017		FY 2018							
Contract Dates		Nov 2016		Dec 2017									
Delivery Dates		May 2018		Jun 2019									
Installation Information													
Method of Implementation: [none specified]:: Installation Name: AN/SQQ-89 EQUIPMENT A(V15)													
Installation Cost		Prior Years		FY 2016		FY 2017		FY 2018 Base		FY 2018 OCO		FY 2018 Total	
		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>		Qty <i>(Each)</i> / Total Cost <i>(\$ M)</i>		Qty <i>(Each)</i> / Total Cost <i>(\$ M)</i>	
Prior Years		5 / 23.837		2 / 8.056		- / -		- / -		- / -		- / -	
FY 2016		- / -		0 / 0.416		0 / 2.133		2 / 7.085		0 / 0.000		2 / 7.085	
FY 2017		- / -		- / -		0 / 0.222		0 / 0.878		0 / 0.000		0 / 0.878	
FY 2018		- / -		- / -		- / -		- / -		- / -		- / -	
Total		5 / 23.837		2 / 8.472		0 / 2.355		2 / 7.963		0 / 0.000		2 / 7.963	
Installation Schedule													
	PYS	FY 2016				FY 2017				FY 2018			
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
In	5	-	2	-	-	-	-	-	-	-	-	1	1
Out	3	-	-	1	3	-	-	-	-	-	-	-	-
Footnotes: ⁽²⁰⁾ Flight IIA DDGs have previously received an SQQ-89(A)V15 installation. Installation costs across the FYDP may vary depending on current port rates. Port rates are updated every year by a CNRMC letter based on the forecasted port loading model. Port loading rate forecasts are the rates recommended for all budgeted maintenance and organic modernization within a specific port. Individual ship's availability durations vary dependent upon the integration of ship's maintenance and modernization work packages.													

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Exhibit P-3a, Individual Modification: FY 2018 Navy					Date: May 2017	
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9			P-1 Line Item Number / Title: 0900 / DDG Mod		Modification Number / Title: 16 / DM013 - (1 MC/DIAS UPGRADE)	
ID Code (A=Service Ready, B=Not Service Ready) :				MDAP/MAIS Code:		
Resource Summary	Prior Years	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
Procurement Quantity <i>(Units in Each)</i>	-	-	-	-	-	-
Gross/Weapon System Cost <i>(\$ in Millions)</i>	0.000	0.000	0.000	16.936	0.000	16.936
Less PY Advance Procurement <i>(\$ in Millions)</i>	-	-	-	-	-	-
Net Procurement (P-1) <i>(\$ in Millions)</i>	0.000	0.000	0.000	16.936	0.000	16.936
Plus CY Advance Procurement <i>(\$ in Millions)</i>	-	-	-	-	-	-
Total Obligation Authority <i>(\$ in Millions)</i>	0.000	0.000	0.000	16.936	0.000	16.936
<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>	-	-	-	-	-	-
Gross/Weapon System Unit Cost <i>(\$ in Dollars)</i>	-	-	-	-	-	-
Description: Procures the Dynalec Integrated Announcing System (DIAS) that replaces the ship's existing obsolete and unreliable general announcing system, that enables key control stations to publish critical information to the ship by voice. Integrated Logistics Support includes development of ILS documentation, review and certification. Environmental Quality Testing includes Shock, Vibration and EMI certification to ensure DIAS meets survivability requirements.						

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Exhibit P-3a, Individual Modification: FY 2018 Navy					Date: May 2017	
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9			P-1 Line Item Number / Title: 0900 / DDG Mod		Modification Number / Title: 16 / DM013 - (1 MC/DIAS UPGRADE)	
ID Code (A=Service Ready, B=Not Service Ready) :				MDAP/MAIS Code:		
Models of Systems Affected: [No Model Specified]		Modification Type: TBD			Related RDT&E PEs:	
Financial Plan	Prior Years	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
	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)
Procurement						
<i>Modification Item 1 of 1:</i> DM013 - (1 MC/DIAS UPGRADE)						
B Kits						
Recurring						
1.1.1) 1 MC/DIAS EQUIPMENT - NonOrganic ⁽²¹⁾	- / -	6 / 0.000	4 / 0.000	4 / 1.168	- / -	4 / 1.168
<i>Subtotal: Recurring</i>	<i>- / 0.000</i>	<i>- / -</i>	<i>- / -</i>	<i>- / 1.168</i>	<i>- / -</i>	<i>- / 1.168</i>
<i>Subtotal: DM013 - (1 MC/DIAS UPGRADE)</i>	<i>- / -</i>	<i>6 / 0.000</i>	<i>4 / 0.000</i>	<i>4 / 1.168</i>	<i>- / -</i>	<i>4 / 1.168</i>
<i>Subtotal: Procurement, All Modification Items</i>	<i>- / 0.000</i>	<i>- / -</i>	<i>- / -</i>	<i>- / 1.168</i>	<i>- / -</i>	<i>- / 1.168</i>
Installation						
<i>Modification Item 1 of 1:</i> DM013 - (1 MC/DIAS UPGRADE)						
	- / 0.000	- / 0.000	- / 0.000	- / 15.768	- / 0.000	- / 15.768
<i>Subtotal: Installation</i>	<i>- / 0.000</i>	<i>- / -</i>	<i>- / -</i>	<i>- / 15.768</i>	<i>- / -</i>	<i>- / 15.768</i>
Total						
Total Cost (Procurement + Support + Installation)	0.000	0.000	0.000	16.936	0.000	16.936

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Exhibit P-3a, Individual Modification: FY 2018 Navy							Date: May 2017						
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9					P-1 Line Item Number / Title: 0900 / DDG Mod				Modification Number / Title: 16 / DM013 - (1 MC/DIAS UPGRADE)				
ID Code (A=Service Ready, B=Not Service Ready) :							MDAP/MAIS Code:						
Modification Item 1 of 1: DM013 - (1 MC/DIAS UPGRADE)													
Manufacturer Information													
Manufacturer Name: Spawar Systems Center Atlantic							Manufacturer Location: Charleston, SC						
Administrative Leadtime <i>(in Months)</i> : 6							Production Leadtime <i>(in Months)</i> : 16						
Dates		FY 2016			FY 2017			FY 2018					
Contract Dates								Jul 2018					
Delivery Dates								Nov 2019					
Installation Information													
Method of Implementation: [none specified]:: Installation Name: 1 MC/DIAS EQUIPMENT													
Installation Cost		Prior Years		FY 2016		FY 2017		FY 2018 Base		FY 2018 OCO		FY 2018 Total	
		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>		Qty <i>(Each)</i> / Total Cost <i>(\$ M)</i>		Qty <i>(Each)</i> / Total Cost <i>(\$ M)</i>	
Prior Years		- / -		- / -		- / -		- / -		- / -		- / -	
FY 2016		- / -		- / -		- / -		6 / 12.291		0 / 0.000		6 / 12.291	
FY 2017		- / -		- / -		- / -		0 / 2.929		0 / 0.000		0 / 2.929	
FY 2018		- / -		- / -		- / -		0 / 0.548		0 / 0.000		0 / 0.548	
Total		- / -		- / -		- / -		6 / 15.768		0 / 0.000		6 / 15.768	
Installation Schedule													
	PYS	FY 2016				FY 2017				FY 2018			
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
In	-	-	-	-	-	-	-	-	-	-	3	2	1
Out	-	-	-	-	-	-	-	-	-	-	-	-	-
Footnotes: ⁽²¹⁾ Installation costs across the FYDP may vary depending on current port rates. Port rates are updated every year by a Commander, Navy Regional Maintenance Centers (CNRMC) letter based on the forecasted port loading model. Port loading rate forecasts are the rates recommended for all budgeted maintenance and organic modernization within a specific port. Individual ship's availability durations vary dependent upon the integration of ship's maintenance and modernization work packages. Procurement costs for FY 16 & FY 17 are shown in Conjunctive Alteration Definition and Integration P40-A. Installation cost for FY 16 & FY 17 are shown in DM6IN Installation P40-A. All cost from FY 18 and follows will be captured in this P3-A exhibit.													

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Exhibit P-3a, Individual Modification: FY 2018 Navy					Date: May 2017	
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9			P-1 Line Item Number / Title: 0900 / DDG Mod		Modification Number / Title: 18 / DM013 - (IVCS UPGRADE)	
ID Code (A=Service Ready, B=Not Service Ready) :				MDAP/MAIS Code:		
Resource Summary	Prior Years	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
Procurement Quantity <i>(Units in Each)</i>	-	-	-	-	-	-
Gross/Weapon System Cost <i>(\$ in Millions)</i>	0.000	0.000	0.000	18.984	0.000	18.984
Less PY Advance Procurement <i>(\$ in Millions)</i>	-	-	-	-	-	-
Net Procurement (P-1) <i>(\$ in Millions)</i>	0.000	0.000	0.000	18.984	0.000	18.984
Plus CY Advance Procurement <i>(\$ in Millions)</i>	-	-	-	-	-	-
Total Obligation Authority <i>(\$ in Millions)</i>	0.000	0.000	0.000	18.984	0.000	18.984
<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>	-	-	-	-	-	-
Gross/Weapon System Unit Cost <i>(\$ in Dollars)</i>	-	-	-	-	-	-
Description: Procures the AN/STC-3(V)3 Internal Voice Communication System that replaces the ship's existing obsolete telephone services system that provides voice communications between spaces in the ship, along with ship to shore services. Integrated Logistics Support includes development of ILS documentation, review and certification. Environmental Quality Testing includes Shock, Vibration and EMI certification to ensure IVCS meets survivability requirements.						

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Exhibit P-3a, Individual Modification: FY 2018 Navy					Date: May 2017	
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9			P-1 Line Item Number / Title: 0900 / DDG Mod		Modification Number / Title: 18 / DM013 - (IVCS UPGRADE)	
ID Code (A=Service Ready, B=Not Service Ready) :				MDAP/MAIS Code:		
Models of Systems Affected: [No Model Specified]		Modification Type: TBD			Related RDT&E PEs:	
Financial Plan	Prior Years	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
	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)
Procurement						
Modification Item 1 of 1: DM013 - (IVCS UPGRADE)						
B Kits						
Recurring						
1.1.1) IVCS EQUIPMENT - NonOrganic ⁽²²⁾	- / -	2 / 0.000	1 / 0.000	3 / 7.902	- / -	3 / 7.902
<i>Subtotal: Recurring</i>	<i>- / 0.000</i>	<i>- / -</i>	<i>- / -</i>	<i>- / 7.902</i>	<i>- / -</i>	<i>- / 7.902</i>
<i>Subtotal: DM013 - (IVCS UPGRADE)</i>	<i>- / -</i>	<i>2 / 0.000</i>	<i>1 / 0.000</i>	<i>3 / 7.902</i>	<i>- / -</i>	<i>3 / 7.902</i>
<i>Subtotal: Procurement, All Modification Items</i>	<i>- / 0.000</i>	<i>- / -</i>	<i>- / -</i>	<i>- / 7.902</i>	<i>- / -</i>	<i>- / 7.902</i>
Installation						
Modification Item 1 of 1: DM013 - (IVCS UPGRADE)	- / 0.000	- / 0.000	- / 0.000	- / 11.082	- / 0.000	- / 11.082
<i>Subtotal: Installation</i>	<i>- / 0.000</i>	<i>- / -</i>	<i>- / -</i>	<i>- / 11.082</i>	<i>- / -</i>	<i>- / 11.082</i>
Total						
Total Cost (Procurement + Support + Installation)	0.000	0.000	0.000	18.984	0.000	18.984

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Exhibit P-3a, Individual Modification: FY 2018 Navy							Date: May 2017							
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9					P-1 Line Item Number / Title: 0900 / DDG Mod					Modification Number / Title: 18 / DM013 - (IVCS UPGRADE)				
ID Code (A=Service Ready, B=Not Service Ready) :							MDAP/MAIS Code:							
Modification Item 1 of 1: DM013 - (IVCS UPGRADE)														
Manufacturer Information														
Manufacturer Name: Spawar Systems Center Atlantic							Manufacturer Location: Charleston, SC							
Administrative Leadtime <i>(in Months)</i> : 6							Production Leadtime <i>(in Months)</i> : 16							
Dates			FY 2016				FY 2017				FY 2018			
Contract Dates											Jul 2018			
Delivery Dates											Nov 2019			
Installation Information														
Method of Implementation: [none specified]:: Installation Name: IVCS EQUIPMENT														
Installation Cost		Prior Years		FY 2016		FY 2017		FY 2018 Base		FY 2018 OCO		FY 2018 Total		
		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>		Qty <i>(Each)</i> / Total Cost <i>(\$ M)</i>		Qty <i>(Each)</i> / Total Cost <i>(\$ M)</i>		
Prior Years		- / -		- / -		- / -		- / -		- / -		- / -		
FY 2016		- / -		- / -		- / -		2 / 8.714		0 / 0.000		2 / 8.714		
FY 2017		- / -		- / -		- / -		0 / 1.481		0 / 0.000		0 / 1.481		
FY 2018		- / -		- / -		- / -		0 / 0.887		0 / 0.000		0 / 0.887		
Total		- / -		- / -		- / -		2 / 11.082		0 / 0.000		2 / 11.082		
Installation Schedule														
	PYS	FY 2016				FY 2017				FY 2018				
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	
In	-	-	-	-	-	-	-	-	-	-	2	-	-	
Out	-	-	-	-	-	-	-	-	-	-	-	-	-	
Footnotes: (22) Installation costs across the FYDP may vary depending on current port rates. Port rates are updated every year by a Commander, Navy Regional Maintenance Centers (CNRMC) letter based on the forecasted port loading model. Port loading rate forecasts are the rates recommended for all budgeted maintenance and organic modernization within a specific port. Individual ship's availability durations vary dependent upon the integration of ship's maintenance and modernization work packages. Procurement costs for FY 16 & FY 17 are shown in Conjunctive Alteration Definition and Integration P40-A. Installation cost for FY 16 & FY 17 are shown in DM6IN Installation P40-A. All cost from FY 18 and follows will be captured in this P3-A exhibit.														

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Exhibit P-40, Budget Line Item Justification: FY 2018 Navy								Date: May 2017				
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 01: Ships Support Equipment / BSA 9: Other Shipboard Equipment							P-1 Line Item Number / Title: 0910 / Firefighting Equipment					
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 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	To Complete	Total
Procurement Quantity (<i>Units in Each</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost (<i>\$ in Millions</i>)	74.816	13.983	14.743	15.887	0.000	15.887	19.414	17.811	18.173	18.538	276.920	470.285
Less PY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (<i>\$ in Millions</i>)	74.816	13.983	14.743	15.887	0.000	15.887	19.414	17.811	18.173	18.538	276.920	470.285
Plus CY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority (<i>\$ in Millions</i>)	74.816	13.983	14.743	15.887	0.000	15.887	19.414	17.811	18.173	18.538	276.920	470.285
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)												
Initial Spares (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Flyaway Unit Cost (<i>\$ in Dollars</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost (<i>\$ in Dollars</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Description:												
The Department decided that a number of survivability improvements needed to be incorporated into mission-essential ship and combat systems during their acquisition and modernization. Shipboard fires have emphasized the urgent need to upgrade features and design standards that contribute to survivability.												
[P40A / HB003 - EMERGENCY ESCAPE BREATHING DEVICE (EEBD)]: Emergency Escape Breathing Device (EEBD) breathing apparatus for firefighters are reaching their service life of 15 years and must be replaced. EEBDs address a high priority CNO effort to replace expired breathing equipment aboard ships throughout the Fleet. The requirement for this capability has been validated by the experience of numerous shipboard casualties. EEBD replacement is required to ensure that ships will deploy with operational safety equipment on-board to allow for emergency escape from shipboard fires.												
[P40A / HB830 - PRODUCTION ENGINEERING (PE)]: PE includes development of technical manuals, Planned Maintenance System (PMS), Provisioning Technical Documentation (PTD), Program Support Data (PSD) and Allowance Parts List (APLs); engineering to manage procurement and material; support of design reviews.												
[P3A / HB002 - MAGAZINE SPRINKLING IMPROVEMENT]: Replaces the detection system designed in the 1960s which has performance deficiencies and is difficult to support and maintain. Replacement includes the Fire Detection and Actuation System (FDAS) and the Motor-Operated Pilot Valves (MOPV). When the FDAS detects a fire, the MOPV opens to provide the sprinkling for the magazine. The FDAS consists of heat detectors, smoke detectors for amphibious ships, and associated controls. MOPV is the same item procured under HB007 - SOPV Replacement. FDAS/MOPV provides increased fire performance and reduced unit and logistics costs.												
[P3A - 2 / HB007 - SOPV REPLACEMENT]: The Solenoid Operated Pilot Valve (SOPV) provides a way for remote control of the Aqueous Film Forming Foam (AFFF) and Countermeasure Wash Down (CMWD) systems. Existing SOPVs are unreliable, costly to repair, and produce the longest downtime for the AFFF system. Top Management Attention/Top Management Initiative (TMA/TMI) and INSURV interest due to impact of this item on AFFF system operation. Replacement of the SOPV with the Motor Operated Pilot Valve (MOPV) is required to ensure these systems are operational for emergencies. MOPV has a 50 year service life and will provide a significant reduction in preventative maintenance and cost.												
[P3A - 3 / HB008 - SCBA REPLACEMENT]: Self-Contained Breathing Apparatus (SCBA) is a compressed air breathing device compatible with a firefighter's protective wear and helmet, and other damage control equipment. The SCBA are reaching the end of their service life of 15 years and are being replaced with 30 year cylinders. SCBA replacement is required to ensure that ships will deploy with operational safety equipment on-board to provide breathable air while fighting shipboard fires.												

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Exhibit P-40, Budget Line Item Justification: FY 2018 Navy		Date: May 2017
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 01: Ships Support Equipment / BSA 9: Other Shipboard Equipment		P-1 Line Item Number / Title: 0910 / Firefighting Equipment
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 [P3A - 4 / HB009 - FIREFIGHTER ACCESS]: Funds the Firefighter Extraction System (FES) and Ladder Safety System (LSS) installations. FES provides rescue lifting capability to remove injured or exhausted firefighters from the bottom of escape trunks. LSS provides firefighters fall protection while using escape trunks for vertical entry firefighting.		

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Exhibit P-40, Budget Line Item Justification: FY 2018 Navy										Date: May 2017		
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 01: Ships Support Equipment / BSA 9: Other Shipboard Equipment							P-1 Line Item Number / Title: 0925 / Command and Control Switchboard					
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 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	To Complete	Total
Procurement Quantity (<i>Units in Each</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost (<i>\$ in Millions</i>)	66.981	2.255	2.140	2.240	0.000	2.240	2.293	2.343	2.399	2.446	-	83.097
Less PY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (<i>\$ in Millions</i>)	66.981	2.255	2.140	2.240	0.000	2.240	2.293	2.343	2.399	2.446	-	83.097
Plus CY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority (<i>\$ in Millions</i>)	66.981	2.255	2.140	2.240	0.000	2.240	2.293	2.343	2.399	2.446	-	83.097
<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 Dollars</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost (<i>\$ in Dollars</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Description: The switchboard program provides mission critical switching capability required to link shipboard combat equipment including weapons, launchers, sensors, computers and navigation equipment. In essence, switchboards serve as the central connection point for most elements of combat and weapon systems, interior communications, data transfer, and command and control systems. They are designed to accommodate either analog, digital interfaces, or a combination of both. In total, this budget item supports approximately 200 ships and 1,000 pieces of equipment throughout the acquisition life cycle. Functions include: data routing; action cutout; test and operating mode selection (including casualty back-up modes); power monitoring and control; circuit protection; peripheral equipment isolation; and signal processing, frequency conversion amplification and switching. In summary, the primary purpose is to provide systems intra and interface compatibility. Changes in other elements of the combat and Interior Communication (IC) systems will frequently mandate either conjunctive modification to switchboards via ship change documents (SCDs), ordnance alteration (ORDALT)/field changes (FCs) or partial or complete replacement of existing switchboards. Typical switchboard mods include hardware/field change kits, ORDALT/SCD/FC instructions, technical manual updates and revisions to other supporting documentation. Hull unique switchboard configurations require hull unique documentation. Subsequent alterations to these switchboards require hull unique design, hardware, installation, and checkout procedures. New Switchboards are normally installed during a regular overhaul by a shipyard. Command and control switchboards are currently installed on and are required for almost all surface combatants and amphibious warfare ships. Individual switchboard unit cost varies from ship to ship, depending upon size, complexity, and whether analog or digital interfaces or some combination thereof are utilized. Modifications to existing switchboards via Ship Alterations (SHIPALTs), SCDs, ORDALTs or FCs are quantified by kits or change packages rather than individual units. The number of kits required for different classes of ships are as follows: DDGs/CGs require three to four (3 - 4) per ship, LSDs require two (2) per ship, LPDs require one (1) per ship, MCMS												

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Exhibit P-40, Budget Line Item Justification: FY 2018 Navy		Date: May 2017
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 01: Ships Support Equipment / BSA 9: Other Shipboard Equipment		P-1 Line Item Number / Title: 0925 / Command and Control Switchboard
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		
require (3) per ship and LHDs require two (2) per ship. The magnitude of modifications also varies, as Cruiser Modernization is considerably more complex than the Amphibious Class hulls. Switchboard hardware is normally procured by the Invitation For Bids (IFB) process, from manufacturers on Qualified Products List (QPL)-17000. There are currently six companies listed on QPL-17000. All contracts awarded are competitive, fixed price. [P40A / GE003 ENG UPGRADES/MODS TO EQUIPMENT & TECH DOCUMENTATION]: Combat Systems & Interior Communication Switchboard Engineering and Modifications Upgrades to Equipment, Drawings, Technical Manuals (TMs) Allowance Parts Lists (APLs) and Allowance Equipage Lists (AELs). This line covers the costs to upgrade/modify existing equipment and associated technical documentation to implement and validate upgraded switching configurations essential for the ships' switchboards to properly integrate all elements of the Combat System and Interior Communication interfaces. The upgraded engineering modification drives the procurement of hardware modification kits (i.e., ORDALTs & Field Changes). These engineering modifications are essential to the functional deployment of Battle Force Interoperability.		

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Exhibit P-40, Budget Line Item Justification: FY 2018 Navy										Date: May 2017		
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 01: Ships Support Equipment / BSA 9: Other Shipboard Equipment							P-1 Line Item Number / Title: 0933 / LHA/LHD Midlife					
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 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	To Complete	Total
Procurement Quantity (<i>Units in Each</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost (<i>\$ in Millions</i>)	20.176	11.017	24.939	30.287	0.000	30.287	18.167	42.887	28.207	28.479	13.162	217.321
Less PY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (<i>\$ in Millions</i>)	20.176	11.017	24.939	30.287	0.000	30.287	18.167	42.887	28.207	28.479	13.162	217.321
Plus CY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority (<i>\$ in Millions</i>)	20.176	11.017	24.939	30.287	0.000	30.287	18.167	42.887	28.207	28.479	13.162	217.321
<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 Dollars</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost (<i>\$ in Dollars</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Description: This budget provides funding for targeted modernization of various HM&E systems on board Amphibious Assault Ships. Modernization efforts include the procurement and installation of: High Efficiency Small-Capacity (HES-C) Air Conditioning Compressors; various Interior Communications (IC) systems; automated Electric Plant controls and circuit breakers as part of the Power Management Platform (PMP); Brushless Generators for the PMP; main feed pump replacement; steam fire pump replacement; Shipboard Air Traffic Control Communications (SATCC); and Navigation Critical Data System (NCDS/NavCrit). HES-C provides additional air conditioning capability to support growing electronic cooling requirements. IC Systems modernization provides up to date IC system installations necessary to maintain critical communications internal to the ships. Electric Plant controls and circuit breaker installation provides modern electric plant controls as part of the overall PMP to improve survivability and increase electric plant reliability. Brushless Generator replacement will reduce down time, total ownership costs, and maintenance costs associated with antiquated brush type generators. Main feed pump procurement and install replaces obsolete main feed pumps for the main propulsion boiler. Steam driven fire pumps are replaced with variable speed drive (VSD) electric fire pumps eliminating a substantial maintenance driver for the LHA/LHD Class Ships. Additionally, funding supports procurement and installation of SATCC and Navigation Critical Data Distribution (NavCrit) systems in support of capability requirements on Amphibious Assault Ships. [P40A / Conjunctive HM&E Alterations]: LH002 Conjunctive HM&E Alterations includes design integration, equipment procurement, recurring equipment engineering, equipment integration and Integrated Logistics Services (ILS). [P40A / Conjunctive HM&E Alterations]: LH002 Conjunctive HM&E Alterations includes design integration, equipment procurement, recurring equipment engineering, equipment integration and Integrated Logistics Services (ILS).												

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Exhibit P-40, Budget Line Item Justification: FY 2018 Navy								Date: May 2017		
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 01: Ships Support Equipment / BSA 9: Other Shipboard Equipment						P-1 Line Item Number / Title: 0933 / LHA/LHD Midlife				
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 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 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-40a	LHA/LHD Midlife				- / 0.000	- / -	- / 10.208	- / -	- / -	- / -
P-40a	LH001 - LHD Midlife, Brushless Generator for PMP				- / 20.176	- / 8.520	- / 9.719	- / 0.000	- / 0.000	- / 0.000
P-40a	LH001 - LHD Midlife HVAC IMPROVEMENTS (HESC)				- / 0.000	- / 1.612	- / 2.758	- / 0.000	- / 0.000	- / 0.000
P-40a	LH001 - Main Feed Pump				- / 0.000	- / 0.885	- / 0.758	- / 0.000	- / 0.000	- / 0.000
P-40a	LH001- Navigation Critical Data Distribution (NavCrit)				- / 0.000	- / 0.000	- / 1.496	- / 4.582	- / 0.000	- / 4.582
P-40a	LH001 - Power Management Platform (Electric Plant Control)				- / 0.000	- / 0.000	- / 0.000	- / 3.465	- / 0.000	- / 3.465
P-40a	LH001 - Switchboard Breaker Replacement				- / 0.000	- / 0.000	- / 0.000	- / 6.816	- / 0.000	- / 6.816
P-40a	LH001 - Oneway Announcing Systems Upgrade				- / 0.000	- / 0.000	- / 0.000	- / 2.736	- / 0.000	- / 2.736
P-40a	LH001 - IVN System Upgrade				- / 0.000	- / 0.000	- / 0.000	- / 3.067	- / 0.000	- / 3.067
P-40a	LH001 - ICT Upgrade				- / 0.000	- / 0.000	- / 0.000	- / 3.037	- / 0.000	- / 3.037
P-40a	LH001 - HYDRA Upgrade (LHD 1-3)				- / 0.000	- / 0.000	- / 0.000	- / 3.309	- / 0.000	- / 3.309
P-40a	LH001 - HYDRA Upgrade (LHD 4-8)				- / 0.000	- / 0.000	- / 0.000	- / 3.275	- / 0.000	- / 3.275
P-40	Total Gross/Weapon System Cost				- / 20.176	- / 11.017	- / 24.939	- / 30.287	- / 0.000	- / 30.287
*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. Title represents the P-40a Title when only the P-40a Summary/Total is shown.										
Note: Totals in this Exhibit P-40 set may not be exact or sum exactly due to rounding.										

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Exhibit P-40a, Budget Item Justification For Aggregated Items: FY 2018 Navy															Date: May 2017					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9							P-1 Line Item Number / Title: 0933 / LHA/LHD Midlife							Aggregated Items Title: LHA/LHD Midlife						
Item Number / Title [DODIC]	ID CD	MDAP/MAIS Code	Prior Years			FY 2016			FY 2017			FY 2018 Base			FY 2018 OCO			FY 2018 Total		
			Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)
1) LH002 Conjunctive HM&E Alterations																				
1.1) Conjunctive HM&E Alterations	A		-	-	-	-	-	-	-	-	10.208	-	-	-	-	-	-	-	-	-
Subtotal: 1) LH002 Conjunctive HM&E Alterations			-	-	0.000	-	-	-	-	-	10.208	-	-	-	-	-	-	-	-	-
Total			-	-	0.000	-	-	-	-	-	10.208	-	-	-	-	-	-	-	-	-

Note: Subtotals or Totals in this Exhibit P-40a may not be exact or sum exactly, due to rounding.

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Exhibit P-40a, Budget Item Justification For Aggregated Items: FY 2018 Navy																Date: May 2017			
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9						P-1 Line Item Number / Title: 0933 / LHA/LHD Midlife						Aggregated Items Title: LH001 - LHD Midlife, Brushless Generator for PMP							

Item Number / Title [DODIC]	ID CD	MDAP/MAIS Code	Prior Years			FY 2016			FY 2017			FY 2018 Base			FY 2018 OCO			FY 2018 Total		
			Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)
B Kits/Recurring																				
Brushless Generator for PMP -- Procurement ⁽¹⁾	A		7,479K	1	7.479	5,720K	1	5.720	-	-	-	-	-	-	-	-	-	-	-	-
Brushless Generator for PMP -- Installation	A		-	-	2.500	-	-	2.800	-	-	9.719	-	-	-	-	-	-	-	-	-
Subtotal: B Kits/Recurring			-	-	9.979	-	-	8.520	-	-	9.719	-	-	-	-	-	-	-	-	-
Support Cost																				
Non-Recurring Engineering	A		-	-	10.197	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: Support Cost			-	-	10.197	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total			-	-	20.176	-	-	8.520	-	-	9.719	-	-	0.000	-	-	0.000	-	-	0.000

Note: Subtotals or Totals in this Exhibit P-40a may not be exact or sum exactly, due to rounding.

Remarks:
Models of Systems Affected: LHD Midlife PMP

The Brushless Generator replacement will reduce down time, total ownership costs, and maintenance costs associated with antiquated brush type generators.

-Five (5) Generators are required to complete a shipset; The FY2015 procurement funding includes one shipset (5 generators) and one additional generator (1 generator) to be used for engineering testing (shock and vibration, etc).
-The FY2016 procurement funding includes only one shipset (5 generators).

Footnotes:
⁽¹⁾ FY 2016 Brushless Generator installation was cancelled due to technical design problems discovered during the installation planning process. The ship set procured in FY 2015 is now planned to be installed in FY 2017. FY 2017 Brushless Generator install cost estimate increased due to a change in the rigging path driven by actual passageway and compartment dimensions captured during the ship check. Additional access cuts and interference removal are required. The ship set procured in FY 2016 will be installed in the next planned LHD availability, scheduled for FY 2022.

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Exhibit P-40a, Budget Item Justification For Aggregated Items: FY 2018 Navy																Date: May 2017				
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9						P-1 Line Item Number / Title: 0933 / LHA/LHD Midlife						Aggregated Items Title: LH001 - LHD Midlife HVAC IMPROVEMENTS (HESC)								
Item Number / Title [DODIC]	ID CD	MDAP/MAIS Code	Prior Years			FY 2016			FY 2017			FY 2018 Base			FY 2018 OCO			FY 2018 Total		
			Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)
Support Cost																				
Engineering Services (2)	A		-	-	-	-	-	1.612	-	-	2.758	-	-	-	-	-	-	-	-	-
Subtotal: Support Cost			-	-	0.000	-	-	1.612	-	-	2.758	-	-	-	-	-	-	-	-	-
Total			-	-	0.000	-	-	1.612	-	-	2.758	-	-	0.000	-	-	0.000	-	-	0.000
Note: Subtotals or Totals in this Exhibit P-40a may not be exact or sum exactly, due to rounding. Remarks: Models of Systems Affected: LHD Midlife HVAC This ship alteration improves the Heating, Ventilation, and Air Conditioning (HVAC) capability for the LHDs as part of the LHD midlife. Footnotes: (2) FY 2016 and FY 2017 funds are required for significant engineering services for Heating, Ventilation, and Air Conditioning (HVAC) improvements, which are required to resolve obsolescence issues in advance of the ship availability start in Q1 FY20. Funding In FY17 will be used to complete the HES-C Feasibility study, which will include NRE costs for the design of the chiller, production ROM costs, as well as start laying out the interface control document for the chiller that will be required by PY to install. In FY17 detailed design and production prototype manufacture will begin and anticipates put that unit through full first article testing.																				

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Exhibit P-40a, Budget Item Justification For Aggregated Items: FY 2018 Navy										Date: May 2017	
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9					P-1 Line Item Number / Title: 0933 / LHA/LHD Midlife					Aggregated Items Title: LH001 - Main Feed Pump	

Item Number / Title [DODIC]	ID CD	MDAP/MAIS Code	Prior Years			FY 2016			FY 2017			FY 2018 Base			FY 2018 OCO			FY 2018 Total		
			Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)
Support Cost																				
Non-Recurring Engineering	A		-	-	-	-	-	0.885	-	-	0.758	-	-	-	-	-	-	-	-	-
Subtotal: Support Cost			-	-	0.000	-	-	0.885	-	-	0.758	-	-	-	-	-	-	-	-	-
Total			-	-	0.000	-	-	0.885	-	-	0.758	-	-	0.000	-	-	0.000	-	-	0.000

Note: Subtotals or Totals in this Exhibit P-40a may not be exact or sum exactly, due to rounding.

Remarks:

Replacement of obsolete main feed pump with new shock qualified unit to meet service life.

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Exhibit P-40a, Budget Item Justification For Aggregated Items: FY 2018 Navy																Date: May 2017			
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9						P-1 Line Item Number / Title: 0933 / LHA/LHD Midlife						Aggregated Items Title: LH001- Navigation Critical Data Distribution (NavCrit)							

Item Number / Title [DODIC]	ID CD	MDAP/MAIS Code	Prior Years			FY 2016			FY 2017			FY 2018 Base			FY 2018 OCO			FY 2018 Total		
			Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)
B Kits/Recurring																				
Navigation Critical Data Distribution (NavCrit) -- Procurement ⁽³⁾	A		-	-	-	-	-	-	1,116K	1	1.116	-	-	-	-	-	-	-	-	-
Navigation Critical Data Distribution (NavCrit) -- Installation	A		-	-	-	-	-	-	-	-	0.380	-	-	4.582	-	-	-	-	-	4.582
Subtotal: B Kits/Recurring			-	-	0.000	-	-	-	-	-	1.496	-	-	4.582	-	-	-	-	-	4.582
Total			-	-	0.000	-	-	0.000	-	-	1.496	-	-	4.582	-	-	0.000	-	-	4.582

Note: Subtotals or Totals in this Exhibit P-40a may not be exact or sum exactly, due to rounding.

Remarks:
 The Navigation Critical Distribution System (NCDS) procurements will be installed on LHD Class ships to replace and consolidate current analog Interior Communications (IC) data signals on the MK 70 and IC Switchboards, as well as analog indicators throughout the ships. The removal of the AN/USQ-82(V) Shipboard Data Multiplexer System (SDMS) will also be included. Network switches will be installed to provide data transmission from the NAVSSI Real Time Subsystem (RTS) to all clients and devices that require navigation data. Input Output Controllers (IOC) will be installed to convert the Navigation Sensor System Interface (NAVSSI) Standard Navigation Message from Ethernet to the required analog signal. Programmable Logic Controllers will be installed to handle all Navigation related alarms. Navigation Displays and Navigation Management Data Terminals (Alarm Panels) will be installed in various locations to provide the NAVCERT required data and alarms in the appropriate locations. A distributed IRIG-B timing architecture is also included, which includes IRIG-B clocks.

Footnotes:
⁽³⁾ NAVCRIT must be installed conjunctive with both SSDS MK II and CIC Room Rearrangement SCDs. Budget/funding must remain aligned across the FYDP.

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Exhibit P-40a, Budget Item Justification For Aggregated Items: FY 2018 Navy																Date: May 2017			
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9								P-1 Line Item Number / Title: 0933 / LHA/LHD Midlife								Aggregated Items Title: LH001 - Power Management Platform (Electric Plant Control)			

Item Number / Title [DODIC]	ID CD	MDAP/ MAIS Code	Prior Years			FY 2016			FY 2017			FY 2018 Base			FY 2018 OCO			FY 2018 Total		
			Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)
B Kits/Recurring																				
Power Management Platform (Elecric Plant Controls) -- Procurement ⁽⁴⁾	A		-	-	-	-	-	-	-	-	-	3,232K	1	3.232	-	-	-	3,232K	1	3.232
Power Management Platform (Elecric Plant Controls) -- Installation	A		-	-	-	-	-	-	-	-	-	-	-	0.233	-	-	-	-	-	0.233
Subtotal: B Kits/Recurring			-	-	0.000	-	-	-	-	-	-	-	-	3.465	-	-	-	-	-	3.465
Total			-	-	0.000	-	-	0.000	-	-	0.000	-	-	3.465	-	-	0.000	-	-	3.465

Note: Subtotals or Totals in this Exhibit P-40a may not be exact or sum exactly, due to rounding.

Remarks:

Power Management Platform (PMP) modernization converts legacy controls to a digital automated control system. This system gathers and combines all Electric plant data so that it is available at any electric plant control station. PMP simplifies multiple step control sequences into single step operations and makes possible control capabilities that were previously too cumbersome for operators to perform. i.e. Baseload, and Real / Reactive power balancing. PMP implements a gradual Ship Service Turbine Generator (SSTG) turbine startup/shutdown sequence which allows the turbine to achieve stabilized temperatures more consistently, reducing stress on components and contributing to prolonged service life. System automation reduces electrical system transients and stress on breaker components by employing a Zero Power Transfer (ZPT) strategy, which limits the current flow through an individual breaker to zero during open/close evolutions. Switchboard Breaker Upgrade and Power Management Platform (Electric Plant Controls) must be installed concurrently. Collectively, these two non-severable modernization efforts provide enhanced electric plant (EP) situational awareness, reliability flexibility, and survivability through replacement of obsolete breakers with breakers currently used in other ship classes and through installation of modern electric plant controls and alarms. Brushless Generator Install must be accomplished prior to or concurrent with Switchboard Breaker Upgrade and Power Management Platform (Electric Plant Controls).

Footnotes:

⁽⁴⁾ Must be installed concurrent with or after Power Management Platform (Brushless Generator). Switchboard Breaker Replacement and Power Management Platform (Electric Plant Controls) must be installed concurrently.

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Exhibit P-40a, Budget Item Justification For Aggregated Items: FY 2018 Navy															Date: May 2017				
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9						P-1 Line Item Number / Title: 0933 / LHA/LHD Midlife						Aggregated Items Title: LH001 - Switchboard Breaker Replacement							

Item Number / Title [DODIC]	ID CD	MDAP/MAIS Code	Prior Years			FY 2016			FY 2017			FY 2018 Base			FY 2018 OCO			FY 2018 Total		
			Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)
B Kits/Recurring																				
Switchboard Breaker Replacement -- Procurement ⁽⁵⁾	A		-	-	-	-	-	-	-	-	-	6,258K	1	6.258	-	-	-	6,258K	1	6.258
Switchboard Breaker Replacement -- Installation	A		-	-	-	-	-	-	-	-	-	-	-	0.558	-	-	-	-	-	0.558
Subtotal: B Kits/Recurring			-	-	0.000	-	-	-	-	-	-	-	-	6.816	-	-	-	-	-	6.816
Total			-	-	0.000	-	-	0.000	-	-	0.000	-	-	6.816	-	-	0.000	-	-	6.816

Note: Subtotals or Totals in this Exhibit P-40a may not be exact or sum exactly, due to rounding.

Remarks:
 Switchboard Breaker Replacement modernizes main switchboard breakers. Legacy circuit breakers currently utilized on LHD-1 class ships are obsolete, problematic and have a high cost of ownership. These breakers will be replaced with a unit that is also installed across multiple classes of surface ships. The replacement circuit breakers have a high reliability and low cost of ownership. All generator output, load center and bus tie breakers will be replaced as a part of this modernization.
 Switchboard Breaker Upgrade and Power Management Platform (Electric Plant Controls) must be installed concurrently. Collectively, these two non-severable modernizations provide enhanced electric plant (EP) situational awareness, reliability flexibility, and survivability through replacement of obsolete breakers with breakers currently used in other ship Classes and through installation of modern electric plant controls and alarms. SCD 11159 Brushless Generator Install must be accomplished prior to or concurrent with Switchboard Breaker Upgrade and Power Management Platform (Electric Plant Controls).

Footnotes:
⁽⁵⁾ Must be installed concurrent with or after Power Management Platform (Brushless Generator). Switchboard Breaker Replacement and Power Management Platform (Electric Plant Controls) must be installed concurrently.

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Exhibit P-40a, Budget Item Justification For Aggregated Items: FY 2018 Navy															Date: May 2017						
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9							P-1 Line Item Number / Title: 0933 / LHA/LHD Midlife									Aggregated Items Title: LH001 - Oneway Announcing Systems Upgrade					
Item Number / Title [DODIC]	ID CD	MDAP/MAIS Code	Prior Years			FY 2016			FY 2017			FY 2018 Base			FY 2018 OCO			FY 2018 Total			
			Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	
B Kits/Recurring																					
Oneway Announcing System Upgrade -- Procurement ⁽⁶⁾	A		-	-	-	-	-	-	-	-	-	2,706K	1	2.706	-	-	-	2,706K	1	2.706	
Oneway Announcing System Upgrade -- Installation	A		-	-	-	-	-	-	-	-	-	-	-	0.030	-	-	-	-	-	0.030	
Subtotal: B Kits/Recurring			-	-	0.000	-	-	-	-	-	-	-	-	2.736	-	-	-	-	-	2.736	
Total			-	-	0.000	-	-	0.000	-	-	0.000	-	-	2.736	-	-	0.000	-	-	2.736	
Note: Subtotals or Totals in this Exhibit P-40a may not be exact or sum exactly, due to rounding.																					
Remarks: The One Way Announcing System modernization replaces the current obsolete 1/2/3/5/6/10 MC Announcing Systems with a Digital Integrated Announcing System (DIAS) controls and electronics. Installation of DIAS equipment resolves widespread obsolescence in order to restore announcing capability, and system operational availability, performance, and reliability necessary for support the ship's mission and secure crew safety.																					
Footnotes: ⁽⁶⁾ IVN Modernization, Conference Bridge Modernization (on applicable ships), One Way Announcing System Modernization, and ICT Modernization must be installed concurrently.																					

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Exhibit P-40a, Budget Item Justification For Aggregated Items: FY 2018 Navy															Date: May 2017					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9						P-1 Line Item Number / Title: 0933 / LHA/LHD Midlife						Aggregated Items Title: LH001 - IVN System Upgrade								
Item Number / Title [DODIC]	ID CD	MDAP/MAIS Code	Prior Years			FY 2016			FY 2017			FY 2018 Base			FY 2018 OCO			FY 2018 Total		
			Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)
B Kits/Recurring																				
IVN System Upgrade -- Procurement ⁽⁷⁾	A		-	-	-	-	-	-	-	-	-	3,007K	1	3.007	-	-	-	3,007K	1	3.007
IVN System Upgrade -- Installation	A		-	-	-	-	-	-	-	-	-	-	-	0.060	-	-	-	-	-	0.060
Subtotal: B Kits/Recurring			-	-	0.000	-	-	-	-	-	-	-	-	3.067	-	-	-	-	-	3.067
Total			-	-	0.000	-	-	0.000	-	-	0.000	-	-	3.067	-	-	0.000	-	-	3.067

Note: Subtotals or Totals in this Exhibit P-40a may not be exact or sum exactly, due to rounding.

Remarks:

Integrated Voice Network (IVN) system modernization replaces the existing Ships Service Telephone System (SSTS) aboard LHD 1 through LHD 4 with IVN. The legacy SSTS is obsolete and unsupported and contains single points of failure. IVN is a survivable telephony network providing Vital and Tactical internal communications capabilities. System architecture, end user, and interface configurations will provide commonality with the LHD 8 IVN.

Footnotes:

⁽⁷⁾ IVN Modernization, Conference Bridge Modernization (on applicable ships), One Way Announcing System Modernization, and ICT Modernization must be installed concurrently.

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Exhibit P-40a, Budget Item Justification For Aggregated Items: FY 2018 Navy															Date: May 2017					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9						P-1 Line Item Number / Title: 0933 / LHA/LHD Midlife						Aggregated Items Title: LH001 - ICT Upgrade								
Item Number / Title [DODIC]	ID CD	MDAP/MAIS Code	Prior Years			FY 2016			FY 2017			FY 2018 Base			FY 2018 OCO			FY 2018 Total		
			Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)
B Kits/Recurring																				
ICT System Upgrade -- Procurement ⁽⁸⁾	A		-	-	-	-	-	-	-	-	-	3,007K	1	3.007	-	-	-	3,007K	1	3.007
ICT System Upgrade -- Installation	A		-	-	-	-	-	-	-	-	-	-	-	0.030	-	-	-	-	-	0.030
Subtotal: B Kits/Recurring			-	-	0.000	-	-	-	-	-	-	-	-	3.037	-	-	-	-	-	3.037
Total			-	-	0.000	-	-	0.000	-	-	0.000	-	-	3.037	-	-	0.000	-	-	3.037

Note: Subtotals or Totals in this Exhibit P-40a may not be exact or sum exactly, due to rounding.

Remarks:

ICT modernization replaces the obsolete 7300-Series Programmable Integrated Communications Terminals (PICTs) with modern, supported Integrated Communication Terminals (ICT). ICT modernization will align LHD1 - 7 ICT configurations with LHD 8 through additions, deletions and/or one for one replacement to achieve United States Marine Corp (USMC) requirements.

Footnotes:

⁽⁸⁾ IVN Modernization, Conference Bridge Modernization (on applicable ships), One Way Announcing System Modernization, and ICT Modernization must be installed concurrently.

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Exhibit P-40a, Budget Item Justification For Aggregated Items: FY 2018 Navy															Date: May 2017					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9						P-1 Line Item Number / Title: 0933 / LHA/LHD Midlife						Aggregated Items Title: LH001 - HYDRA Upgrade (LHD 1-3)								
Item Number / Title [DODIC]	ID CD	MDAP/MAIS Code	Prior Years			FY 2016			FY 2017			FY 2018 Base			FY 2018 OCO			FY 2018 Total		
			Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)
B Kits/Recurring																				
HYDRA Upgrade (LHD1-3) -- Procurement	A		-	-	-	-	-	-	-	-	-	3,157K	1	3.157	-	-	-	3,157K	1	3.157
HYDRA Upgrade (LHD1-3) -- Installation	A		-	-	-	-	-	-	-	-	-	-	-	0.152	-	-	-	-	-	0.152
Subtotal: B Kits/Recurring			-	-	0.000	-	-	-	-	-	-	-	-	3.309	-	-	-	-	-	3.309
Total			-	-	0.000	-	-	0.000	-	-	0.000	-	-	3.309	-	-	0.000	-	-	3.309
Note: Subtotals or Totals in this Exhibit P-40a may not be exact or sum exactly, due to rounding.																				
Remarks: LHD 1 Class HYDRA modernization replaces the out of production P7100/MRK fixed and portable radios with XG-75 radios, replaces obsolete AN/SRC-55 (HYDRA) electronic components, adds vital wireless encrypted communications capability in below deck spaces, and incorporates the industry standard Association of Public Safety Communications Officials (APCO) P-25 signaling protocol. The HYDRA Wireless Communication System provides wireless communications capability supporting Flight Deck, Small Boat operations, Damage Control, and Security efforts. HYDRA modernization will create commonality with equipment installed in the LSD 41/49 class, CG-47 class, and CVN-68 class, as well as new construction including LHA-7, LPD-28, CVN-79 and follow-on hulls.																				

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Exhibit P-40a, Budget Item Justification For Aggregated Items: FY 2018 Navy															Date: May 2017					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9						P-1 Line Item Number / Title: 0933 / LHA/LHD Midlife						Aggregated Items Title: LH001 - HYDRA Upgrade (LHD 4-8)								
Item Number / Title [DODIC]	ID CD	MDAP/MAIS Code	Prior Years			FY 2016			FY 2017			FY 2018 Base			FY 2018 OCO			FY 2018 Total		
			Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)
B Kits/Recurring																				
HYDRA Upgrade (LHD 4-8) -- Procurement	A		-	-	-	-	-	-	-	-	-	3,153K	1	3.153	-	-	-	3,153K	1	3.153
HYDRA Upgrade (LHD 4-8) -- Installation	A		-	-	-	-	-	-	-	-	-	-	-	0.122	-	-	-	-	-	0.122
Subtotal: B Kits/Recurring			-	-	0.000	-	-	-	-	-	-	-	-	3.275	-	-	-	-	-	3.275
Total			-	-	0.000	-	-	0.000	-	-	0.000	-	-	3.275	-	-	0.000	-	-	3.275

Note: Subtotals or Totals in this Exhibit P-40a may not be exact or sum exactly, due to rounding.

Remarks:

LHD 1 Class HYDRA modernization replaces the out of production P7100/MRK fixed and portable radios with XG-75 radios, replaces obsolete AN/SRC-55 (HYDRA) electronic components, adds vital wireless encrypted communications capability in below deck spaces, and incorporates the industry standard Association of Public Safety Communications Officials (APCO) P-25 signaling protocol. The HYDRA Wireless Communication System provides wireless communications capability supporting Flight Deck, Small Boat operations, Damage Control, and Security efforts. HYDRA modernization will create commonality with equipment installed in the LSD 41/49 class, CG-47 class, and CVN-68 class, as well as new construction including LHA-7, LPD-28, CVN-79 and follow-on hulls.

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Exhibit P-40, Budget Line Item Justification: FY 2018 Navy	Date: May 2017

Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 01: Ships Support Equipment / BSA 9: Other Shipboard Equipment	P-1 Line Item Number / Title: 0934 / LCC 19/20 Extended Service Life 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: N/A

Resource Summary	Prior Years	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	To Complete	Total
Procurement Quantity (<i>Units in Each</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost (<i>\$ in Millions</i>)	31.563	8.631	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	-	40.194
Less PY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (<i>\$ in Millions</i>)	31.563	8.631	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	-	40.194
Plus CY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority (<i>\$ in Millions</i>)	31.563	8.631	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	-	40.194
<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>)	-	0.022	-	-	-	-	-	-	-	-	-	0.022
Flyaway Unit Cost (<i>\$ in Dollars</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost (<i>\$ in Dollars</i>)	-	-	-	-	-	-	-	-	-	-	-	-

Description:

Funds provide for the procurement and installation of equipment in support of LCC 19/20 Class Extended Service Life Program (ESLP) extending the service life of both platforms to 2039 service life (70 year service life). Prior years include LCC electrical improvements, including new switchboards and brushless Ship Service Turbine Generators (SSTGs), VS-50+ oil water separator for environmental protection, and a qualified propulsion shaft.

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Exhibit P-40, Budget Line Item Justification: FY 2018 Navy										Date: May 2017		
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 01: Ships Support Equipment / BSA 9: Other Shipboard Equipment							P-1 Line Item Number / Title: 0935 / Pollution Control Equipment					
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 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	To Complete	Total
Procurement Quantity (<i>Units in Each</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost (<i>\$ in Millions</i>)	413.585	16.609	20.191	17.293	0.000	17.293	21.590	25.302	24.397	24.885	Continuing	Continuing
Less PY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (<i>\$ in Millions</i>)	413.585	16.609	20.191	17.293	0.000	17.293	21.590	25.302	24.397	24.885	Continuing	Continuing
Plus CY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority (<i>\$ in Millions</i>)	413.585	16.609	20.191	17.293	0.000	17.293	21.590	25.302	24.397	24.885	Continuing	Continuing
<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>)	-	0.206	0.078	0.129	-	0.129	0.045	-	-	-	-	0.458
Flyaway Unit Cost (<i>\$ in Dollars</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost (<i>\$ in Dollars</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Description: FY 2018 funding request reflect a reduction of \$3.171 million to account for the availability of prior year funds. POLLUTION CONTROL SYSTEMS/EQUIPMENT: This item provides funds for the procurement of pollution control systems and equipment that are required by Navy ships in order for them to comply with international regulations, federal laws, DOD Directives and Navy environmental protection regulations. These regulations, laws and directives restrict the discharge of oily waste, sewage, solid waste, plastic waste, medical waste and hazardous waste. Most of these applicable regulations require Navy ships to comply by fixed deadlines. Failure to comply carries potential personal, civil, and criminal liability, and significantly imposes constraints on the operational capabilities of Navy ships. In some instances, the compliance schedule has required an acceleration of the normal schedules in the procurement process. SHORE BASED POLLUTION EQUIPMENT - (Logistics) The shore based funds provide for equipment required to clean up Navy oil spills on the open sea as required by the Federal Water Pollution Control Act - Public Law 92-500. The law created a National Oil and Hazardous Substance Pollution Contingency Plan, and designates the Department of Defense as one of the primary agencies responsible for promotion of effective operation of the plan. The Supervisor of Salvage is assigned the responsibility to provide technical expertise, resources, and equipment for cleaning Navy-originated spills of oil and other hazardous material in coastal waters or the open sea. Major items of procurement are: [P40A / HF040 FIELD SUPPORT SYSTEMS]: These systems provide the auxiliary support required to keep Navy oil spill responders operating in the field without significant lapse of response time in all Navy Areas of Responsibility (AoR) according to Federal Law 33 CFR 155 and 154 and implemented by OPNAV5090.1D. As such, many Navy areas of operation are in remote and austere parts of the world with little to no operational support available, therefore the inventory objectives of equipment procured under this cost code are set to support emergency personnel in responding to the Navy's worst case oil or hazardous substance (OHS) discharge scenario in all AoR's and to be pre-positioned in the Emergency Ship Salvage Material (ESSM) Bases world-wide. Systems include Boom Handling Boats, Boom Tending Boats, Personnel Transfer Boats, Field Command & Control Centers, Field Conference Centers, Field Rigging Lockers, Field Repair Workshops, Personnel Berthing Modules, Field-grade Satellite Communications Systems, and Oil Spill Aerial Surveillance Systems. Unit cost varies greatly between systems. [P40A / HF051 OIL BOOM SYSTEMS]: These systems consist of inflatable or foam-filled oil booms of various sizes (18 inch, 26 inch, 42 inch). Inventory is based on the Federal requirements for Oil Spill Response Organizations (OSROs). Boom systems range in unit cost based on size (18 inch, 26 inch, 42 inch) and type (inflatable or non-inflatable). These systems include all associated equipment required to store, inflate, deploy, recover, and repair the boom, including lighting systems to mark the boom in navigable waterways. All inflatable boom systems also include shoreline transition booms to seal across beach areas. These systems are packaged in 8 foot x 8 foot x 20 foot standard shipping containers.												

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Exhibit P-40, Budget Line Item Justification: FY 2018 Navy		Date: May 2017
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 01: Ships Support Equipment / BSA 9: Other Shipboard Equipment		P-1 Line Item Number / Title: 0935 / Pollution Control Equipment
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		
[P40A / HF055 SALVAGE SUPPORT SYSTEMS]: These systems are a collection of small, special-purpose oil skimmers, containment booms, shoreline transition booms, transfer pumps, temporary oil storage, sorbents, and ancillary equipment intended as a stand-alone response package for small, salvage-related spills inside and adjacent to ships in distress or inland (river and lake) spills. These systems are packaged in an 8 foot x 8 foot x 20 foot standard shipping container. [P40A / HF056 EQUIPMENT CLEAN-UP SYSTEMS]: These systems provide a full array of tools and materials required to perform the extensive decontamination needed for oil spill and hazardous chemical response equipment and personnel during an operation and prior to demobilization once a spill has been contained and recovered. [P40A / HF057 OIL HANDLING SYSTEMS]: Oil handling systems provide the capability to recover and dispose of oil and debris during emergency oil spill response operations including temporary oil storage as required by 33 CFR 155 and 154. Equipment missions additionally include moving heavy oil or oil in cold conditions that exceed the capability of conventional skimmer systems and providing means of transferring oil from skimmers to temporary oil storage. Systems include Vacuum Pump Systems, Oil Bladder Transfer Systems, Annular Water Injection Systems, At-Sea Bladder Pumping Systems, and Temporary Oil Storage Systems (Bladders, Tanks, etc.)These different systems can range greatly in individual unit cost. [P40A / HF062 LIGHTERING SYSTEMS]: These systems are specially designed for lightering oil from aboard ships in distress whose transfer systems are inoperative or inaccessible or for extracting oil from sunken vessels where drilling and pumping through the hull of the vessel is often necessary at depths up to 20,000 feet. Various pump sizes and types as well as extraction tools are packaged together in fly-away systems meant to pump oil product in almost any emergency scenario. These systems are packaged in 8 foot x 8 foot x 20 foot standard shipping containers. [P40A / HF063 VESSEL OF OPPORTUNITY SKIMMER SYSTEMS]: The Vessel of Opportunity Skimmer Systems are oil skimmers designed and packaged to be deployed aboard any vessel that is available during an emergency oil spill response operation with enough deck space to support the operating equipment. These systems allow for mechanical recovery of oil on the water in situations where traditional skimmers may not be practical, such as far offshore or in inclement weather or high currents. These systems include all the ancillary support equipment required to maintain oil spill recovery operations onboard a vessel for an extended period of time. These systems are packaged in an 8 foot x 8 foot x 20 foot standard shipping container with an 8 foot x 8 foot x 8 foot support container. [P40A / HF067 VESSEL SKIMMER SYSTEMS]: These systems are self-propelled skimmers designed for near-shore and low sea-state open ocean environments and are used in conjunction with oil containment boom for mechanical recovery of oil on the water. They are designed to be rapidly transportable to the scene of an oil spill. [P40A / HF031 POLLUTION CONTROL EQUIPMENT FIELD CHANGES]: HF031 - POLLUTION CONTROL EQUIPMENT FIELD CHANGES - Funds field changes for reliability and maintainability improvements and corrections of conventional pollution control equipment systems. Oil Pollution Abatement (OPA) Systems Improvements: Existing OPA systems have demonstrated poor operational availability, maintainability, and reliability. This comprehensive effort addresses the entire OPA system, from holding tanks to overboard discharge, leveraging recommended improvements new to the Fleet and approved, partially completed alterations. The alterations needed to correct design deficiencies are ship specific and require ship checks to confirm the current configuration as prior alterations may have completed one or several of the recommended improvements. The alterations may include, but are not limited to: installation of new tank level sensors; upgrades to the Oily Water Separator (OWS) and the Oil Content Monitor (OCM), correction of OWS suction problems, correction of OCM inlet & outlet piping including related of flush water piping configuration problems, and upgrade of oily waste transfer pump relief valve. Extensive work will occur with LHD-1 Class upgrades to convert the existing OWS to the VS-50 OWS and DDG-51 through DDG-88 ships will receive the Oily Waste Membrane System to produce an effluent that meets the 15 ppm maximum oil discharge requirement. [P40A / HF830 PRODUCTION ENGINEERING]: HF830 PRODUCTION ENGINEERING: Air conditioning plant kit and software quality control, technical manual and complete conversion instruction revisions, technical reports based on investigative efforts of OEM quality assurance or obsolescence issues, and support equipment removal from inactive ships or other Navy assets. Development of technical manuals, Planned Maintenance System (PMS), Provisioning Technical Documentation (PTD), Program Support Data (PSD) and allowance Parts List (APLs), engineering to manage procurement and material, and in support of design reviews. [P3A / HF024 CFC-114 (R-114) AC CONVERSION]: HF024 - CFC CONVERSION PROGRAM The production of chlorofluorocarbon(CFC)-based refrigerants (including CFC-12 and CFC R-114) was prohibited after 31 DEC 95 by the Clean Air Act of 1990. Presidential Executive Order 13693 calls for federal agencies to " promote sustainable acquisition and procurement by ensuring that each of the following		

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Exhibit P-40, Budget Line Item Justification: FY 2018 Navy		Date: May 2017
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 01: Ships Support Equipment / BSA 9: Other Shipboard Equipment		P-1 Line Item Number / Title: 0935 / Pollution Control Equipment
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		
environmental performance and sustainability factors are included ... alternatives to ozone-depleting substances". The Navy is currently dependent on CFC-based refrigerants for the mission-critical cooling of (1) vital electronics and weapon systems, (2) food and medical stowage, and (3) inhabited spaces aboard surface ships and submarines. To counter the immediate threat of production cessation on uninterrupted Fleet operations, DoD directed the Defense Logistics Agency to establish a stockpile of CFC-based refrigerants. The stockpile was sized to support Fleet operations until the last CFC-based systems are retired or converted to ozone-friendly refrigerants. This program procures and installs conversion kits on existing CFC R-114 Air-Conditioning (A/C) plants onboard surface ships. The CFC R-114 conversion program began in FY 99 and is expected to complete FY2021. The inventory objective for CFC R-114 is 402 converted units. [P3A / HF024 CFC-114 (R-114) AC CONVERSION]: HF5IN - INSTALLATION OF EQUIPMENT Funding is for installation of equipment for the Fleet Modernization Program installations. HF6IN - INSTALLATION OF EQUIPMENT Funding is for installation of equipment for the Fleet Modernization Program installations.		
Justification: FY 2018 funding request reflect a reduction of \$3.171 million to account for the availability of prior year funds.		

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Exhibit P-40, Budget Line Item Justification: FY 2018 Navy										Date: May 2017		
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 01: Ships Support Equipment / BSA 9: Other Shipboard Equipment							P-1 Line Item Number / Title: 0941 / Submarine Support Equipment					
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 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	To Complete	Total
Procurement Quantity (<i>Units in Each</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost (<i>\$ in Millions</i>)	94.449	10.498	8.995	27.990	0.000	27.990	37.832	49.781	48.144	49.913	278.145	605.747
Less PY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (<i>\$ in Millions</i>)	94.449	10.498	8.995	27.990	0.000	27.990	37.832	49.781	48.144	49.913	278.145	605.747
Plus CY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority (<i>\$ in Millions</i>)	94.449	10.498	8.995	27.990	0.000	27.990	37.832	49.781	48.144	49.913	278.145	605.747
<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 Dollars</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost (<i>\$ in Dollars</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Description: The Submarine Support Equipment budget provides for equipment technical refresh and upgrades that consist of hardware, software, system engineering, integrated logistics support, system test and evaluation, training, data, installation assistance teams and program management. This funding also procures equipment and material used to implement the military high priority Submarine Silencing Program for operating nuclear submarines. This equipment technical refreshes and upgrades are not supported by other NAVSEA program offices and support SSN/SSBN/SSGN Class submarines and land based laboratories/facilities. The installation funds are provided for the Ship Service Turbine Generator (SSTG) Governors on SSN688 and SSN21 Class submarines, acoustic range array replacement, Ship Control System Processors for Seawolf Class submarines, and SSN Class Component Upgrades. [P40A / Fwd Automatic Bus Transfer Pwr Mod]: PB002 SSN Class Component Upgrades - Forward Automatic Bus Transfer (ABT) Power Modification - The in-service VA ships in Block I/II have received the Hotel Services SHIPALT which included Static ABTs and power transformers to support increased forward electronics processing capability for continuing SWFTS sonar/fire control tech insertions. At-sea operations have since identified problems with loss of electronics processing in conjunction with a loss of power to a forward electrical bus. A new construction change for blocks III/IV platforms is in progress, but a backfit SHIPALT for a power distribution upgrade on blocks I/II must be developed and fielded on SSN 774-783. Material lead time is estimated to be less than 12 months. [P40A / MRO Shock Mod SA 4629K]: PB002 SSN Class Component Upgrades - Manual Remote Operator (MRO) Shock Modification (SHIPALT 4620K) - Accomplishes design changes on 20 MROs per ship to meet shock qualification requirement. The MROs are for valves AHP-33, TD-138, DSW-1, DSW-2, TD-128, TD-65, TD-129, SDA-8I, PL-2, SDA-82, TD-127, TD-49, SDA-53, SDA-54, SDA-41, TD-125, PL-81, EAFW-244, EAFW-245 and EAFW-67. Backfit installation of the SHIPALT is planned for SSN 774-781 (782 - 783 received at PSA). [P40A / Circuit Cathodic Protection Sys OER]: PB002 SSN Class Component Upgrades - CKT D / Cathodic Protection System Obsolete Equipment Replacement (OER): Circuit D supports degaussing operations. The current design on block I/II ships is 1990's COTS and is obsolete, requiring tech refresh to block III design via a backfit SHIPALT design and fielding. Additionally, future upgrade of the VA Class SWFTS sonar/fire control systems to TI-16/APB-15 or greater involve a change of middleware from CORBA to AMPQ, requiring CKT D to also transition to AMPQ. This transition requires a CKT D redesign and upgrade by SHIPALT. The cathodic protection system on VA Class blocks I/II ships uses an Impressed Current Cathodic Protection electronics that is COTS-based. Due to continued obsolescence with in-service ships, a complete system redesign is planned in new construction block V that would require backfit on in-service ships to allow the ICCP system to continue providing hull structure corrosion protection and maintain interfaces with other systems like CKT D. The redesign effort for the two systems will result in separate SHIPALTS but are related due to system interfaces. Block I/II platforms (SSN 774-783) require upgrade. Change applicability to Block III platforms is under review.												

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Exhibit P-40, Budget Line Item Justification: FY 2018 Navy		Date: May 2017
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 01: Ships Support Equipment / BSA 9: Other Shipboard Equipment		P-1 Line Item Number / Title: 0941 / Submarine Support Equipment
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		
[P40A / SSTG Reliability Upgrades]: PB002 SSN Class Component Upgrades - Ships Service Turbine Generator (SSTG) Reliability Upgrades - Recent failures on in-service VA Class submarines of the SSTG bearing system design have identified the need for both short term and longer term corrective design actions. SHIPALT design development is required for several system improvements including modifications to the Bearing Thrust Housing Chamfer to increase air flow and reduce temperatures, the Bearing Thrust Moisture Sensor to seal sensor internals from moisture and reduce introduction of moisture to the thrust housing, and installation of a Flow Diverter to seal existing gaps between gland seals on the turbine and the forward end of the thrust bearing. Longer term corrective action for block I/II ships (SSN 774-783) involves redesign and possible replacement of bearing system, depending on results of ongoing failure analysis. Impact to Block III platforms is to be determined. [P40A / VA Class Acoustic Superiority Prog Acoustic Superior]: PB002 SSN Component Upgrades - VA Class Acoustic Superiority - Design Development - Funding will be utilized to execute requirements included in "PEO SUBMARINES ASW CAMPAIGN PLAN UPDATE, 9073 Ser 450W4K/S0116 of 2 Mar 2016". This letter (SECRET) provides details on the plan to backfit new design AS treatment on 5 BLK III submarines during their first EDSRA, with follow-on installs on 6 BLK IV submarines during their EDSRAs. In addition, design work for backfit SHIPALT development for selected machinery improvements is included. AS treatment installations will be based on design and material developed for installation on USS SOUTH DAKOTA (SSN 790) as part of the South Dakota Improvement Program (SDIP) during PSA. Beginning in FY18, funding is provided for development of SHIPALT products for backfit installation of the AS treatment by Naval Shipyards on VA Class hulls, as well as for SHIPALT development for backfit of AS-related machinery improvements by EDSRA Shipyards or Fleet IMAs. Funding is also provided for design and beginning in FY20 for fabrication of staging enclosures for use by the EDSRA shipyards and for handling and application equipment required for AS treatment installations. Engineering services are also funded to provide processes and procedures to the EDSRA shipyards for handling, setup and operation of staging enclosures and for the treatment handling and application equipment. [P40A / Acoustic Range Replacement Equipment]: PB004 Facilities/Lab Upgrades - Procures equipment and materials required to implement and support the military high priority Submarine Silencing Program for operating nuclear submarines. TYCOMs have consistently rated the conduct of noise trials as a high priority funding requirement. The requirements for this program are identified in Chief of Naval Operations (CNO) Specific Operational Requirements 46-28 and Naval Sea Systems Instruction (NAVSEAINST) C9073.2B. This is the only program in place to procure equipment for the purpose of measuring, monitoring, assessing and improving the detection capability and reducing the detectability of deployed submarines. The equipment is used on test vessels, listening platforms and at the laboratories. This program replaces or refurbishes broken or obsolete acquisition and analysis hardware and software used to ensure ship's safety; and the execution and completion of acoustic trials objectives identified in CNO SOR 46-28 (assessment of ship's acoustic posture, etc.) and NAVSEAINST C9073.2B (Acoustic Surveys Policy). These refurbishments and replacements are especially critical in order to maintain the technological advances recently made in the area of acoustic data acquisition under the Acoustic Measurement Facilities Improvement Program and to utilize the South Tongue of the Ocean Acoustic Facility (STAFAC). Specific items include hydrophone arrays, towed arrays, ranging and tracking systems, on-board array electronics, noise sources, shore power cables, data fiber optic cables, data analysis systems, workstations, data storage and retrieval, communications systems, analyzers, tape recorders, accelerometers, monitors, etc. [P40A / SW Class SC Proc Design & Dev]: PB007 SSN HM&E Threshold Modernization - Provides for replacement of Seawolf Class Ship Control System Microprocessing unit. The current Ship Control System microprocessors are obsolete and contain electronic components that are no longer support by industry. [P40A / LA/SW Class Design and Shipalt Dev. for SSTG Governors]: PB008 SSTG Governors - Provides for replacement of submarine Ship Service Turbine Generator (SSTG) Governors on Seawolf Class and Los Angeles Class (MOD 25). The SSTG Governors in these submarines classes are obsolete and contain electronic components that are no longer supported by industry.		

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Exhibit P-40, Budget Line Item Justification: FY 2018 Navy				Date: May 2017	
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 01: Ships Support Equipment / BSA 9: Other Shipboard Equipment				P-1 Line Item Number / Title: 0941 / Submarine Support Equipment	
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 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 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-40a	Submarine Support Equipment				- / 85.978	- / 6.752	- / 8.722	- / 8.532	- / -	- / 8.532
P-40a	PB002 Propulsor Upgrade				- / 0.000	- / 0.000	- / 0.000	- / 6.900	- / 0.000	- / 6.900
P-40a	PB002 SSTG Digital Voltage				- / 0.000	- / 0.000	- / 0.000	- / 4.100	- / 0.000	- / 4.100
P-40a	PB002 ICS Design Change				- / 0.000	- / 0.000	- / 0.000	- / 3.500	- / 0.000	- / 3.500
P-40a	PB002 Bulkhead 6 Tile Maintenance SA 4563K				- / 0.000	- / 0.000	- / 0.000	- / 0.705	- / 0.000	- / 0.705
P-40a	PB002 DGIOTS Shock Modification SA 4778K				- / 0.000	- / 0.000	- / 0.000	- / 0.500	- / 0.000	- / 0.500
P-40a	PB004 Acoustic Array				- / 6.539	- / 3.010	- / 0.000	- / 0.000	- / 0.000	- / 0.000
P-40a	PB007 SW Class Ship Control Processing Unit				- / 0.000	- / 0.000	- / 0.000	- / 1.753	- / 0.000	- / 1.753
P-40a	PB008 SW Class SSTG Governors				- / 1.932	- / 0.736	- / 0.221	- / 0.000	- / 0.000	- / 0.000
P-40a	PB008 LA Class SSTG Mod 25				- / 0.000	- / 0.000	- / 0.052	- / 2.000	- / 0.000	- / 2.000
P-40	Total Gross/Weapon System Cost				- / 94.449	- / 10.498	- / 8.995	- / 27.990	- / 0.000	- / 27.990

*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. Title represents the P-40a Title when only the P-40a Summary/Total is shown.

Note: Totals in this Exhibit P-40 set may not be exact or sum exactly due to rounding.

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Exhibit P-40a, Budget Item Justification For Aggregated Items: FY 2018 Navy																Date: May 2017				
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9							P-1 Line Item Number / Title: 0941 / Submarine Support Equipment									Aggregated Items Title: Submarine Support Equipment ⁽¹⁾				
Item Number / Title [DODIC]	ID CD	MDAP/MAIS Code	Prior Years			FY 2016			FY 2017			FY 2018 Base			FY 2018 OCO			FY 2018 Total		
			Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)
1) PB002 SSN Class Component Upgrades																				
1.1) Fwd Automatic Bus Transfer Pwr Mod	A		-	-	-	-	-	-	-	-	-	-	-	0.432	-	-	-	-	-	0.432
1.2) MRO Shock Mod SA 4629K	A		-	-	-	-	-	-	-	-	-	-	-	0.136	-	-	-	-	-	0.136
1.3) Circuit Cathodic Protection Sys OER	A		-	-	-	-	-	-	-	-	-	-	-	0.271	-	-	-	-	-	0.271
1.5) VA Class Acoustic Superiority Prog Acoustic Superior	A		-	-	-	-	-	-	-	-	-	-	-	2.200	-	-	-	-	-	2.200
Subtotal: 1) PB002 SSN Class Component Upgrades			-	-	0.000	-	-	-	-	-	-	-	-	3.039	-	-	-	-	-	3.039
2) PB004 Facilities/Lab Upgrades																				
2.1) Acoustic Range Replacement Equipment	A		-	-	53.144	-	-	2.925	-	-	3.406	-	-	3.594	-	-	-	-	-	3.594
Subtotal: 2) PB004 Facilities/Lab Upgrades			-	-	53.144	-	-	2.925	-	-	3.406	-	-	3.594	-	-	-	-	-	3.594
3) PB007 SW Class HM&E Threshold Modernization																				
3.1) SW Class SC Proc Design & Dev	A		-	-	19.248	-	-	3.492	-	-	2.824	-	-	0.136	-	-	-	-	-	0.136
Subtotal: 3) PB007 SW Class HM&E Threshold Modernization			-	-	19.248	-	-	3.492	-	-	2.824	-	-	0.136	-	-	-	-	-	0.136
4) PB008 SSTG Governors																				
4.1) LA/SW Class Design and Shipalt Dev. for SSTG Governors ⁽²⁾	A		-	-	13.586	-	-	0.335	-	-	2.492	-	-	1.763	-	-	-	-	-	1.763
Subtotal: 4) PB008 SSTG Governors			-	-	13.586	-	-	0.335	-	-	2.492	-	-	1.763	-	-	-	-	-	1.763
Total			-	-	85.978	-	-	6.752	-	-	8.722	-	-	8.532	-	-	-	-	-	8.532

Note: Subtotals or Totals in this Exhibit P-40a may not be exact or sum exactly, due to rounding.

Footnotes:

⁽¹⁾ Totals shown for SSN Class Component Upgrades (PB002), SEAWOLF Class HM&E Threshold Modernization (PB007) and SSTG Governors (PB008) are for SHIPALT design documentation and Integrated Logistics Support (ILS) product preparation costs. Procurement quantities and installation costs for these items are shown on the P-3a exhibits. Facilities/Lab Upgrades (PB004) procures equipment and materials required to implement and support the high priority Submarine Silencing Program for operating Strategic and Attack nuclear submarines.

⁽²⁾ The FY18 SHIPALT Design effort for LA Class Mod25 hulls continues from its start in FY17 and completes in FY19, decreasing from FY17 levels. In FY18, two procurements are started with one procurement and three installations to follow. The FY16 Design funding is completion of residual design effort for the SEAWOLF Class SSTG governor.

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Exhibit P-40a, Budget Item Justification For Aggregated Items: FY 2018 Navy															Date: May 2017						
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9							P-1 Line Item Number / Title: 0941 / Submarine Support Equipment							Aggregated Items Title: PB002 Propulsor Upgrade							
Item Number / Title [DODIC]	ID CD	MDAP/MAIS Code	Prior Years			FY 2016			FY 2017			FY 2018 Base			FY 2018 OCO			FY 2018 Total			
			Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	
B Kits/Recurring																					
Propulsor Upgrade -- Procurement ⁽³⁾		A		-	-	-	-	-	-	0.00	2	0.000	2,500K	1	2.500	-	-	-	2,500K	1	2.500
Propulsor Upgrade -- Installation		A		-	-	-	-	-	-	-	-	-	-	-	4.400	-	-	-	-	-	4.400
Subtotal: B Kits/Recurring			-	-	0.000	-	-	-	-	-	-	-	-	-	6.900	-	-	-	-	-	6.900
Total			-	-	0.000	-	-	0.000	-	-	0.000	-	-	6.900	-	-	0.000	-	-	6.900	
Note: Subtotals or Totals in this Exhibit P-40a may not be exact or sum exactly, due to rounding.																					
Remarks: PB002 SSN Class Component Upgrades - Propulsor Upgrade SHIPALT 4548K - Current propulsor design on VA class in-service ships exhibits excessive corrosion problems. A SHIPALT has been developed to accomplish modifications to the propulsor, shaft, bearing snubber, forward outer structure cover plate, rotor tailcone, rope guard, fastener system, and associated local cathodic protection system, to achieve a 156 month corrosion protection system for the propulsor without interim repairs or replacement. Backfit installation was initially started by the VA Class program office and has transitioned to PMS392 to procure the remaining three ships of the five shipsets and install the remaining five shipsets.																					
Footnotes: ⁽³⁾ VA Class Modernization is planned for installation during depot availabilities (EDSRA or DMP) of approx. 20 Months duration.																					

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Exhibit P-40a, Budget Item Justification For Aggregated Items: FY 2018 Navy															Date: May 2017				
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9								P-1 Line Item Number / Title: 0941 / Submarine Support Equipment								Aggregated Items Title: PB002 SSTG Digital Voltage			

Item Number / Title [DODIC]	ID CD	MDAP/MAIS Code	Prior Years			FY 2016			FY 2017			FY 2018 Base			FY 2018 OCO			FY 2018 Total		
			Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)
B Kits/Recurring																				
SSTG Digital Voltage Regulator SA 4884K – Procurement ⁽⁴⁾	A		-	-	-	-	-	-	0.00	1	0.000	1,800K	2	3.600	-	-	-	1,800K	2	3.600
SSTG Digital Voltage Regulator SA 4884K – Installation	A		-	-	-	-	-	-	-	-	-	-	-	0.500	-	-	-	-	-	0.500
Subtotal: B Kits/Recurring			-	-	0.000	-	-	-	-	-	-	-	-	4.100	-	-	-	-	-	4.100
Total			-	-	0.000	-	-	0.000	-	-	0.000	-	-	4.100	-	-	0.000	-	-	4.100

Note: Subtotals or Totals in this Exhibit P-40a may not be exact or sum exactly, due to rounding.

Remarks:

PB002 SSN Class Component Upgrades - Ships Service Turbine Generator (SSTG) Digital Voltage Regulator upgrade (SHIPALT 4884K) - Existing SSTGs on early VA Class submarines have analog voltage regulators, which are obsolete and unsustainable. SSN 780 and later ships were delivered with the new design Digital Voltage Regulator. A backfit SHIPALT has been developed to replace the analog voltage regulators on SSN 774-779 with the new digital design, targeted to begin in FY18. This effort began under budget line item 0942 and has transitioned to 0941 beginning in FY18 where the remaining five of six shipsets will be procured and all six shipsets will be installed.

Footnotes:

⁽⁴⁾ VA Class Modernization is planned for installation during depot availabilities (EDSRA or DMP) of approx. 20 Months duration.

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Exhibit P-40a, Budget Item Justification For Aggregated Items: FY 2018 Navy															Date: May 2017					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9							P-1 Line Item Number / Title: 0941 / Submarine Support Equipment								Aggregated Items Title: PB002 ICS Design Change					
Item Number / Title [DODIC]	ID CD	MDAP/MAIS Code	Prior Years			FY 2016			FY 2017			FY 2018 Base			FY 2018 OCO			FY 2018 Total		
			Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)
B Kits/Recurring																				
ICS Design Change -- Procurement ⁽⁵⁾	A		-	-	-	-	-	-	0.00	1	0.000	1,000K	1	1.000	-	-	-	1,000K	1	1.000
ICS Design Change -- Installation	A		-	-	-	-	-	-	-	-	-	-	-	2.500	-	-	-	-	-	2.500
Subtotal: B Kits/Recurring			-	-	0.000	-	-	-	-	-	-	-	-	3.500	-	-	-	-	-	3.500
Total			-	-	0.000	-	-	0.000	-	-	0.000	-	-	3.500	-	-	0.000	-	-	3.500

Note: Subtotals or Totals in this Exhibit P-40a may not be exact or sum exactly, due to rounding.

Remarks:

PB002 SSN Class Component Upgrades - Integrated Communications System (ICS) - The interior Integrated Communication System installation on VA Class ships Block I/II hulls is a COTS based system designed in the mid-1990s and first installed in 2002. Much of the design is now obsolete and unsupported. The ICS must be operational to meet underway requirements. Back-fitting the Block I/II platforms with the updated Block III system avoids a complete redesign, but there are parts of the updated Block III design that are projected to become obsolete in the future. The block III design is currently being evaluated for possible additional updates to processor cards, graphics cards, Asynchronous Transfer Mode switches, Linear Displacement Transducers, Absolute Pressure Transducers and touchscreen displays to resolve near term projected obsolescence, with development of a backfit SHIPALT in FY17 for fielding in FY 18 -FY22 on eight ships by PMS392. This effort began in line item 0942 and transitioned to 0941 in FY18 where the remaining seven shipsets will be procured and eight shipsets will be installed.

Footnotes:

⁽⁵⁾ VA Class Modernization is planned for installation during depot availabilities (EDSRA or DMP) of approx. 20 Months duration.

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Exhibit P-40a, Budget Item Justification For Aggregated Items: FY 2018 Navy															Date: May 2017					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9								P-1 Line Item Number / Title: 0941 / Submarine Support Equipment							Aggregated Items Title: PB002 Bulkhead 6 Tile Maintenance SA 4563K					
Item Number / Title [DODIC]	ID CD	MDAP/MAIS Code	Prior Years			FY 2016			FY 2017			FY 2018 Base			FY 2018 OCO			FY 2018 Total		
			Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)
B Kits/Recurring																				
Bulkhead 6 Tile Maintenance SA 4563K – Procurement (6)	A		-	-	-	-	-	-	0.00	1	0.000	60,000.00	1	0.060	-	-	-	60,000.00	1	0.060
Bulkhead 6 Tile Maintenance SA 4563K – Installation	A		-	-	-	-	-	-	-	-	-	-	-	0.645	-	-	-	-	-	0.645
Subtotal: B Kits/Recurring			-	-	0.000	-	-	-	-	-	-	-	-	0.705	-	-	-	-	-	0.705
Total			-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.705	-	-	0.000	-	-	0.705
Note: Subtotals or Totals in this Exhibit P-40a may not be exact or sum exactly, due to rounding.																				
Remarks: PB002 SSN Class Component Upgrades - Bulkhead 6 Tile Replacement (SHIPALT 4563K) - Modifies the Bulkhead 6 damping tile arrangement and tile design in the Main Ballast Tank to facilitate required recurring maintenance including ultrasonic hull inspection efforts, eliminating the need to remove/replace the attached damping tiles during scheduled availabilities, which is a significant cost and schedule savings during planned depot availabilities. This effort began under budget line item 0942 and has transitioned to 0941 beginning in FY18 where the remaining four of five shipsets will be procured and all five will be installed.																				
Footnotes: (6) VA Class Modernization is planned for installation during depot availabilities (EDSRA or DMP) of approx. 20 Months duration.																				

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Exhibit P-40a, Budget Item Justification For Aggregated Items: FY 2018 Navy														Date: May 2017						
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9							P-1 Line Item Number / Title: 0941 / Submarine Support Equipment							Aggregated Items Title: PB002 DGIOTS Shock Modification SA 4778K						
Item Number / Title [DODIC]	ID CD	MDAP/MAIS Code	Prior Years			FY 2016			FY 2017			FY 2018 Base			FY 2018 OCO			FY 2018 Total		
			Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)
B Kits/Recurring																				
DGIOTS Shock Modification SA 4778K – Procurement (7)	A		-	-	-	-	-	-	-	-	-	150,000.00	2	0.300	-	-	-	150,000.00	2	0.300
DGIOTS Shock Modification SA 4778K – Installation	A		-	-	-	-	-	-	-	-	-	-	-	0.200	-	-	-	-	-	0.200
Subtotal: B Kits/Recurring			-	-	0.000	-	-	-	-	-	-	-	-	0.500	-	-	-	-	-	0.500
Total			-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.500	-	-	0.000	-	-	0.500
Note: Subtotals or Totals in this Exhibit P-40a may not be exact or sum exactly, due to rounding.																				
Remarks: PB002 SSN Class Component Upgrades - Diesel Generator Independent Over Speed Trip System (DGIOTS) Shock Modification (SHIPALT 4778K) - The DGIOTS control panel on VA Class Blocks I/II has obsolete components and fails to meet requirements for shock and vibration. SHIPALT 4778K provides a shock/vibration-qualified control panel using current, supportable technology. Backfit installation of the SHIPALT is planned for SSN 774-781 (782 - 783 received at PSA). Material lead time is less than 12 months.																				
Footnotes: (7) VA Class Modernization is planned for installation during depot availabilities (EDSRA or DMP) of approx. 20 Months duration.																				

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Exhibit P-40a, Budget Item Justification For Aggregated Items: FY 2018 Navy															Date: May 2017					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9							P-1 Line Item Number / Title: 0941 / Submarine Support Equipment								Aggregated Items Title: PB004 Acoustic Array					
Item Number / Title [DODIC]	ID CD	MDAP/ MAIS Code	Prior Years			FY 2016			FY 2017			FY 2018 Base			FY 2018 OCO			FY 2018 Total		
			Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)
B Kits/Non-Recurring																				
PB004 ACOUSTIC ARRAY -- Procurement	A		3,461K	1	3.461	679,000.00	1	0.679	-	-	-	-	-	-	-	-	-	-	-	-
PB004 ACOUSTIC ARRAY -- Installation	A		-	-	3.078	-	-	2.331	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: B Kits/Non-Recurring			-	-	6.539	-	-	3.010	-	-	-	-	-	-	-	-	-	-	-	-
Total			-	-	6.539	-	-	3.010	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000

Note: Subtotals or Totals in this Exhibit P-40a may not be exact or sum exactly, due to rounding.

Remarks:

PB004 Acoustic Array - Funds provide for submerged North Acoustic Array procurement and installation at STAFAC.

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Exhibit P-40a, Budget Item Justification For Aggregated Items: FY 2018 Navy															Date: May 2017					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9							P-1 Line Item Number / Title: 0941 / Submarine Support Equipment								Aggregated Items Title: PB007 SW Class Ship Control Processing Unit					
Item Number / Title [DODIC]	ID CD	MDAP/MAIS Code	Prior Years			FY 2016			FY 2017			FY 2018 Base			FY 2018 OCO			FY 2018 Total		
			Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)
B Kits/Recurring																				
SSN 21 CL SHIP CONTROL PROCESSING UNIT -- Procurement	A		-	-	-	-	-	-	-	-	-	1,562K	1	1.562	-	-	-	1,562K	1	1.562
SSN 21 CL SHIP CONTROL PROCESSING UNIT -- Installation	A		-	-	-	-	-	-	-	-	-	-	-	0.174	-	-	-	-	-	0.174
Subtotal: B Kits/Recurring			-	-	0.000	-	-	-	-	-	-	-	-	1.736	-	-	-	-	-	1.736
Support Cost -- Support Costs																				
DSA	A		-	-	-	-	-	-	-	-	-	-	-	0.017	-	-	-	-	-	0.017
Subtotal: Support Cost -- Support Costs			-	-	0.000	-	-	-	-	-	-	-	-	0.017	-	-	-	-	-	0.017
Total			-	-	0.000	-	-	0.000	-	-	0.000	-	-	1.753	-	-	0.000	-	-	1.753
Note: Subtotals or Totals in this Exhibit P-40a may not be exact or sum exactly, due to rounding.																				
Remarks: PB007 Seawolf Class SC Processing Unit - This shipalt will replace SW Class submarine ship control processing unit. The ship control processors are obsolete and contain electronic components that are no longer supported by industry.																				

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Exhibit P-40a, Budget Item Justification For Aggregated Items: FY 2018 Navy															Date: May 2017					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9							P-1 Line Item Number / Title: 0941 / Submarine Support Equipment								Aggregated Items Title: PB008 SW Class SSTG Governors					
Item Number / Title [DODIC]	ID CD	MDAP/MAIS Code	Prior Years			FY 2016			FY 2017			FY 2018 Base			FY 2018 OCO			FY 2018 Total		
			Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)
B Kits/Recurring																				
SSTG GOVERNORS SEAWOLF CLASS PROCURMENT -- Procurement	A		712,000.00	2	1.424	736,000.00	1	0.736	-	-	-	-	-	-	-	-	-	-	-	-
SSTG GOVERNORS SEAWOLF CLASS PROCURMENT -- Installation	A		-	-	0.406	-	-	-	-	-	0.221	-	-	-	-	-	-	-	-	-
Subtotal: B Kits/Recurring			-	-	1.830	-	-	0.736	-	-	0.221	-	-	-	-	-	-	-	-	-
Support Cost																				
DSA -- Procurement	A		-	-	0.102	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DSA -- Installation	A		-	-	-	-	-	0.000	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: Support Cost			-	-	0.102	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total			-	-	1.932	-	-	0.736	-	-	0.221	-	-	0.000	-	-	0.000	-	-	0.000

Note: Subtotals or Totals in this Exhibit P-40a may not be exact or sum exactly, due to rounding.

Remarks:

PB008 - Seawolf Class SSTG Governors - Provides for replacement on Ship Service Turbine Generator (SSTG) Governors on Seawolf Class submarines. The SSTG Governors in these class of submarines are obsolete and contain electronic components that are no longer supported by industry.

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Exhibit P-40a, Budget Item Justification For Aggregated Items: FY 2018 Navy															Date: May 2017					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9						P-1 Line Item Number / Title: 0941 / Submarine Support Equipment									Aggregated Items Title: PB008 LA Class SSTG Mod 25					
Item Number / Title [DODIC]	ID CD	MDAP/MAIS Code	Prior Years			FY 2016			FY 2017			FY 2018 Base			FY 2018 OCO			FY 2018 Total		
			Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)
B Kits/Recurring																				
MOD 25 PROCUREMENT -- Procurement	A		-	-	-	-	-	-	-	-	-	1,000K	2	2.000	-	-	-	1,000K	2	2.000
MOD 25 PROCUREMENT -- Installation	A		-	-	-	-	-	0.000	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: B Kits/Recurring			-	-	0.000	-	-	-	-	-	-	-	-	2.000	-	-	-	-	-	2.000
Support Cost																				
DSA	A		-	-	-	-	-	-	-	-	0.052	-	-	-	-	-	-	-	-	-
Subtotal: Support Cost			-	-	0.000	-	-	-	-	-	0.052	-	-	-	-	-	-	-	-	-
Total			-	-	0.000	-	-	0.000	-	-	0.052	-	-	2.000	-	-	0.000	-	-	2.000
Note: Subtotals or Totals in this Exhibit P-40a may not be exact or sum exactly, due to rounding.																				
Remarks: PB008 - LA Class SSTG Mod 25 - Provides for replacement on Ship Service Turbine Generator (SSTG) Mod 25 Governors on Los Angeles Class submarines. The SSTG Governors in these class of submarines are obsolete and contain electronic components that are no longer supported by industry.																				

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Exhibit P-40, Budget Line Item Justification: FY 2018 Navy										Date: May 2017		
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 01: Ships Support Equipment / BSA 9: Other Shipboard Equipment							P-1 Line Item Number / Title: 0942 / Virginia Class Support Equipment					
ID Code (A=Service Ready, B=Not Service Ready): A			Program Elements for Code B Items: N/A				Other Related Program Elements: 0604558N, 0204281N					
Line Item MDAP/MAIS Code: 516												
Resource Summary	Prior Years	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	To Complete	Total
Procurement Quantity (<i>Units in Each</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost (<i>\$ in Millions</i>)	1,171.430	35.747	66.838	46.610	0.000	46.610	68.388	29.751	24.422	24.103	Continuing	Continuing
Less PY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (<i>\$ in Millions</i>)	1,171.430	35.747	66.838	46.610	0.000	46.610	68.388	29.751	24.422	24.103	Continuing	Continuing
Plus CY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority (<i>\$ in Millions</i>)	1,171.430	35.747	66.838	46.610	0.000	46.610	68.388	29.751	24.422	24.103	Continuing	Continuing
<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>)	-	1.856	1.894	2.124	-	2.124	2.632	3.404	2.990	2.643	Continuing	Continuing
Flyaway Unit Cost (<i>\$ in Dollars</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost (<i>\$ in Dollars</i>)	-	-	-	-	-	-	-	-	-	-	-	-

Description:

The VIRGINIA Class BLI 0942 provides a wide range of material required to operate, test, support and maintain the viability of VIRGINIA SSN-774 Class Submarines. The "Major Shore Spares" component includes rotatable pool and insurance spares. Propulsor rotatable pool assets support planned maintenance during scheduled availabilities by decreasing equipment turn-around time/availability duration. Rotatable pool program equipment includes the high pressure air compressor, various pump/motor assemblies, radar mast, ventilation fans and thin line towed array components and other components. There is a significant increase in the profile of this component from FY18 through FY20 in support of additional high speed machining capabilities at the Naval Foundry and Propeller Center (NFPC) in Philadelphia. This is the VIRGINIA Program Office portion of the propulsor foundry equipment as agreed to by PEO SUB, VIRGINIA Program Office, and ORP Program Office.

This funding line also includes upgrading the afloat acoustic system required to conduct TECHEVAL/OPEVAL satisfactorily, efficiently and with minimal risk of equipment failure. Conduct hardware and software development, procurement, maintenance, and operations as required to achieve and maintain submarine acoustic signatures trials program. The resultant capabilities support the Submarine Acoustic Trials Enterprise, which includes the VIRGINIA Class submarine test and evaluation program. Also included in the Vertical Launch System (VLS) Peculiar Support Equipment (PSE) are primarily All-Up Round Simulators (AURS)/All-Up Round (AUR) Ballast Cans necessary to conduct TECHEVAL/OPEVAL and provide ballast for ship operation.

The wireless LAN provides a ship wide (forward of the reactor compartment) intranet (Non-classified Internet Protocol (IP) Router Network (Unclassified Enclave) (NIPRNET)) that significantly enhances the quality of the work by facilitating electronic correspondence, personnel data management, collaborative services, interactive whiteboard, multi-user chat and access to these sites: Fleet Training Management & Planning System/Navy Training Management & Planning System (FTMPS/NTMPS), Composite Health Care System (CHCS), prescriptions, MYPAY-Defense Finance and Accounting Service (DFAS), Navy Personnel Command (NPC), Bureau of Naval Personnel (BUPERS), email, Fleet Technical Support Center, Atlantic (FTSCLANT), Submarine Maintenance Engineering, Planning and Procurement (SUBMEPP) and Navy Knowledge Online (NKO).

Maintenance Planning System funds will be used to help ship programs identify, plan and execute maintenance activities as well as improve efficiently at all levels (performed by ship's force as well as organizational/depot level) by creating a set of tools to provide a robust, disconnected and comprehensive training and maintenance solution delivering dynamic content. This set of tools and the associated ship-to-shore data environment will reduce O&MN funding over time. This will be fielded as part of the Non-Tactical Data Processing System (NTDPS) to VIRGINIA Class submarines.

Additionally, the continuous ship upgrades necessary to maintain class viability of the earlier ships are included in this funding line. This is particularly important for Commercial Off-the-Shelf (COTS) Technology Refreshment and Technology Upgrades for Non-Propulsion Electronic Systems (NPES). The class level of modernization and capability rests on available resources.

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Exhibit P-40, Budget Line Item Justification: FY 2018 Navy		Date: May 2017
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 01: Ships Support Equipment / BSA 9: Other Shipboard Equipment		P-1 Line Item Number / Title: 0942 / Virginia Class Support Equipment
ID Code (A=Service Ready, B=Not Service Ready): A	Program Elements for Code B Items: N/A	Other Related Program Elements: 0604558N, 0204281N
Line Item MDAP/MAIS Code: 516		

Exhibits Schedule					Prior Years	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 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-40a	Virginia Class Support Equipment				- / 680.285	- / 5.490	- / 4.501	- / 4.582	- / -	- / 4.582
P-40a	HRC13 - Hotel Services				- / 227.772	- / 9.100	- / 29.600	- / 9.100	- / 0.000	- / 9.100
P-40a	HRC13 - Infrastructure Upgrades				- / 13.765	- / 9.862	- / 9.453	- / 2.258	- / 0.000	- / 2.258
P-40a	HRC13 - Non-Tactical Data Processing System				- / 26.121	- / 2.600	- / 4.467	- / 4.549	- / 0.000	- / 4.549
P-40a	HRC13 - Ship Control System (SCS) Modernization Backfit				- / 23.188	- / 8.695	- / 11.792	- / 3.866	- / 0.000	- / 3.866
P-3a	1 / H1RC6 - Major Shore Spares (Various)				- / 200.299	- / 0.000	- / 7.025	- / 22.255	- / 0.000	- / 22.255
P-40	Total Gross/Weapon System Cost				- / 1,171.430	- / 35.747	- / 66.838	- / 46.610	- / 0.000	- / 46.610

*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. Title represents the P-40a Title when only the P-40a Summary/Total is shown.

Note: Totals in this Exhibit P-40 set may not be exact or sum exactly due to rounding.

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Exhibit P-40a, Budget Item Justification For Aggregated Items: FY 2018 Navy																Date: May 2017				
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9						P-1 Line Item Number / Title: 0942 / Virginia Class Support Equipment										Aggregated Items Title: Virginia Class Support Equipment				
Item Number / Title [DODIC]	ID CD	MDAP/MAIS Code	Prior Years			FY 2016			FY 2017			FY 2018 Base			FY 2018 OCO			FY 2018 Total		
			Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)
1) All Prior Years																				
1.1) All Prior Years (APY)	A		-	-	567.801	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: 1) All Prior Years			-	-	567.801	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2) H1RC2 TEST & EVALUATION EQUIPMENT																				
2.1) Test & Evaluation Measuring Equipment	A		-	-	26.060	-	-	1.975	-	-	2.011	-	-	2.047	-	-	-	-	-	2.047
Subtotal: 2) H1RC2 TEST & EVALUATION EQUIPMENT			-	-	26.060	-	-	1.975	-	-	2.011	-	-	2.047	-	-	-	-	-	2.047
3) H1RC13 TECH INSERTION TECH REFRESH & UPGRADES																				
3.1) HM&E Tech Refresh	A		-	-	7.350	-	-	0.500	-	-	-	-	-	-	-	-	-	-	-	-
3.2) NPES Tech Refresh	A		-	-	7.940	-	-	0.500	-	-	-	-	-	-	-	-	-	-	-	-
3.3) Shipboard Mobile Computing NTDPs (ULAN + SW Enclave + PDOCS + Upgrades)	A		-	-	11.954	-	-	2.446	-	-	2.490	-	-	2.535	-	-	-	-	-	2.535
3.4) System Level Activities PSA/Post PSA	A		-	-	7.076	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3.5) HM&E and CFE NPES Modernization	A		-	-	31.985	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3.6) Misc. Upgrades, Tech Refresh	A		-	-	18.612	-	-	0.069	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: 3) H1RC13 TECH INSERTION TECH REFRESH & UPGRADES			-	-	84.917	-	-	3.515	-	-	2.490	-	-	2.535	-	-	-	-	-	2.535
4) HRC14 SURVIVAL EQUIPMENT FOR SEA RIDERS																				
4.1) Survival Equipment for Sea Trial Riders	A		-	-	1.507	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: 4) HRC14 SURVIVAL EQUIPMENT FOR SEA RIDERS			-	-	1.507	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total			-	-	680.285	-	-	5.490	-	-	4.501	-	-	4.582	-	-	-	-	-	4.582

Note: Subtotals or Totals in this Exhibit P-40a may not be exact or sum exactly, due to rounding.

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Exhibit P-40a, Budget Item Justification For Aggregated Items: FY 2018 Navy															Date: May 2017					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9						P-1 Line Item Number / Title: 0942 / Virginia Class Support Equipment									Aggregated Items Title: HRC13 - Hotel Services					
Item Number / Title [DODIC]	ID CD	MDAP/MAIS Code	Prior Years			FY 2016			FY 2017			FY 2018 Base			FY 2018 OCO			FY 2018 Total		
			Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)
A Kits/Non-Recurring																				
Design	A		-	-	34.233	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TI-02 Baseline Upgrade -- Procurement	A		8,775K	8	70.200	9,100K	1	9.100	-	-	-	9,100K	1	9.100	-	-	-	9,100K	1	9.100
TI-02 Baseline Upgrade -- Installation	A		-	-	123.339	-	-	-	-	-	29.600	-	-	-	-	-	-	-	-	-
Subtotal: A Kits/Non-Recurring			-	-	227.772	-	-	9.100	-	-	29.600	-	-	9.100	-	-	-	-	-	9.100
Total			-	-	227.772	-	-	9.100	-	-	29.600	-	-	9.100	-	-	0.000	-	-	9.100
Note: Subtotals or Totals in this Exhibit P-40a may not be exact or sum exactly, due to rounding.																				
Remarks: Models of Systems Affected: VA Class Submarines Type Modification: Various																				
Provide procurement of materials necessary to modernize VIRGINIA Class Submarine Blocks I & II (774-783) infrastructure (i.e. power, cabling, cooling, and arrangements of the ship for the entire Government Furnished Equipment (GFE)/ Contractor Furnished Equipment (CFE) NPES configuration). This combination of Hull, Mechanical and Electrical (HM&E) alterations to VIRGINIA Class submarines is collectively referred to as the "Hotel Services" modification. This Hotel Service modification is necessary to accommodate modernization to major combat system alterations (i.e. A-RCI, AN/BYG-1, and ISIS) and are completed concurrently with those major combat system alterations. TI-02 baseline systems Hotel Services modernizations are completed during Post Shakedown Availability (PSA) for SSN777 and SSN779-783 and during EDSRA or TYCOM Operational Availability (TOA) for SSN774-SSN776 and SSN778. Block III and follow ships do not require this significant HM&E infrastructure upgrade as the baseline design for those ships accounts for the necessary power, cabling, cooling, etc. required to host upgrades to major combat systems.																				
Hotel Services modernization kit procurement for SSN778 takes place in FY16 and is installed during FY17 EDSRA. Kit procurement for SSN774 takes place in FY18 and is installed during FY19 DMP.																				
Note: Actual costs associated with the HSWG installation on SSN 775 during EDSRA (FY12-13) have necessitated the Department to increase planned installation budget on current and future installations (Budgeted: FY17-778 and Planned FY19-774).																				

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Exhibit P-40a, Budget Item Justification For Aggregated Items: FY 2018 Navy														Date: May 2017						
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9						P-1 Line Item Number / Title: 0942 / Virginia Class Support Equipment								Aggregated Items Title: HRC13 - Infrastructure Upgrades						
Item Number / Title [DODIC]	ID CD	MDAP/MAIS Code	Prior Years			FY 2016			FY 2017			FY 2018 Base			FY 2018 OCO			FY 2018 Total		
			Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)
A Kits/Recurring																				
Design	A		-	-	4.312	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: A Kits/Recurring			-	-	4.312	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
A Kits/Non-Recurring																				
Infrastructure Updates (from TI-08 and beyond baseline) -- Procurement	A		6,010K	1	6.010	6,354K	1	6.354	5,878K	1	5.878	-	-	-	-	-	-	-	-	-
Infrastructure Updates (from TI-08 and beyond baseline) -- Installation	A		-	-	3.443	-	-	3.508	-	-	3.575	-	-	2.258	-	-	-	-	-	2.258
Subtotal: A Kits/Non-Recurring			-	-	9.453	-	-	9.862	-	-	9.453	-	-	2.258	-	-	-	-	-	2.258
Total			-	-	13.765	-	-	9.862	-	-	9.453	-	-	2.258	-	-	0.000	-	-	2.258
Note: Subtotals or Totals in this Exhibit P-40a may not be exact or sum exactly, due to rounding.																				
Remarks: Models of Systems Affected: VA Class Submarines Type Modification: Various Provide procurement of materials necessary to modernize VIRGINIA Class unique Contractor Furnished Equipment (CFE) to sustain interfaces and technology baseline with the connecting Government Furnished sub-systems contained in the Non-Propulsion Electronics System suite. These sub-systems include; Portable Ship Control System (PSCS), Total Ship Monitoring System, Circuit D, Ship Control System, Light Weight Wide Aperture Array and Interior Communication System.																				

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Exhibit P-40a, Budget Item Justification For Aggregated Items: FY 2018 Navy																Date: May 2017				
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9						P-1 Line Item Number / Title: 0942 / Virginia Class Support Equipment						Aggregated Items Title: HRC13 - Non-Tactical Data Processing System								
Item Number / Title [DODIC]	ID CD	MDAP/MAIS Code	Prior Years			FY 2016			FY 2017			FY 2018 Base			FY 2018 OCO			FY 2018 Total		
			Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)
B Kits/Non-Recurring																				
NTDPS Software	A		-	-	26.121	-	-	2.600	-	-	4.467	-	-	4.549	-	-	-	-	-	4.549
Subtotal: B Kits/Non-Recurring			-	-	26.121	-	-	2.600	-	-	4.467	-	-	4.549	-	-	-	-	-	4.549
Total			-	-	26.121	-	-	2.600	-	-	4.467	-	-	4.549	-	-	0.000	-	-	4.549
Note: Subtotals or Totals in this Exhibit P-40a may not be exact or sum exactly, due to rounding. Remarks: Models of Systems Affected: VA Class Submarine Type Modification: Various Provide software and hardware updates, software licenses and technical and logistics support to the Non-Tactical Data Processing System (NTDPS).																				

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Exhibit P-40a, Budget Item Justification For Aggregated Items: FY 2018 Navy																Date: May 2017				
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9									P-1 Line Item Number / Title: 0942 / Virginia Class Support Equipment							Aggregated Items Title: HRC13 - Ship Control System (SCS) Modernization Backfit				
Item Number / Title [DODIC]	ID CD	MDAP/MAIS Code	Prior Years			FY 2016			FY 2017			FY 2018 Base			FY 2018 OCO			FY 2018 Total		
			Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)
A Kits/Non-Recurring																				
Modification Non-Recurring	A		-	-	5.300	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: A Kits/Non-Recurring			-	-	5.300	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
B Kits/Non-Recurring																				
Material and Install -- Procurement	A		4,531K	3	13.593	5,088K	1	5.088	5,187K	1	5.187	-	-	-	-	-	-	-	-	-
Material and Install -- Installation	A		-	-	4.295	-	-	3.607	-	-	6.605	-	-	3.866	-	-	-	-	-	3.866
Subtotal: B Kits/Non-Recurring			-	-	17.888	-	-	8.695	-	-	11.792	-	-	3.866	-	-	-	-	-	3.866
Total			-	-	23.188	-	-	8.695	-	-	11.792	-	-	3.866	-	-	0.000	-	-	3.866
Note: Subtotals or Totals in this Exhibit P-40a may not be exact or sum exactly, due to rounding. Remarks: Models of Systems Affected: VA Class Submarines Type Modification: Various Procure and install obsolescence redesign for Ship Control System (SCS) on Block I and II. The material procurement in FY14-17 includes long lead items for four shipsets for backfit (SSN776-SSN779).																				

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Exhibit P-3a, Individual Modification: FY 2018 Navy					Date: May 2017	
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9		P-1 Line Item Number / Title: 0942 / Virginia Class Support Equipment			Modification Number / Title: 1 / H1RC6 - Major Shore Spares	
ID Code (A=Service Ready, B=Not Service Ready) :				MDAP/MAIS Code:		
Resource Summary	Prior Years	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
Procurement Quantity <i>(Units in Each)</i>	-	-	-	-	-	-
Gross/Weapon System Cost <i>(\$ in Millions)</i>	200.299	0.000	7.025	22.255	0.000	22.255
Less PY Advance Procurement <i>(\$ in Millions)</i>	-	-	-	-	-	-
Net Procurement (P-1) <i>(\$ in Millions)</i>	200.299	0.000	7.025	22.255	0.000	22.255
Plus CY Advance Procurement <i>(\$ in Millions)</i>	-	-	-	-	-	-
Total Obligation Authority <i>(\$ in Millions)</i>	200.299	0.000	7.025	22.255	0.000	22.255
<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>	-	-	-	-	-	-
Gross/Weapon System Unit Cost <i>(\$ in Dollars)</i>	-	-	-	-	-	-
Description: Procure equipment and materials necessary to support the VIRGINIA Class submarine program. Materials are as large as rotors and as small as anodes and fasteners. Quantity is variable and would skew any attempt to determine a unit cost. VIRGINIA Class rotatable pool rotors are removed, refurbished, and placed into a pool. There is no set installation schedule as rotors, once available, are installed on subsequent availabilities. There is a significant increase in the profile of this component from FY18 through FY20 in support of additional high speed machining capabilities at the Naval Foundry and Propeller Center (NFPC) in Philadelphia. Investment will provide for the procurement and construction of large high speed milling machines with 28-foot table diameters that are required for semi-finish through finish machining and assembly of COLUMBIA and VIRGINIA components including rotors, stators, and ducts.						

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Exhibit P-3a, Individual Modification: FY 2018 Navy					Date: May 2017	
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9			P-1 Line Item Number / Title: 0942 / Virginia Class Support Equipment		Modification Number / Title: 1 / H1RC6 - Major Shore Spares	
ID Code (A=Service Ready, B=Not Service Ready) :				MDAP/MAIS Code:		
Models of Systems Affected: VA Class Submarine		Modification Type: Various			Related RDT&E PEs:	
Financial Plan	Prior Years	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
	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)
Procurement						
Modification Item 1 of 1: H1RC6 - Major Shore Spares						
B Kits						
Non-Recurring						
1.1.1) H1RC6 Prior Years - Organic	- / 172.620	- / -	- / -	- / -	- / -	- / -
1.1.2) Propulsor - Rotatable Pool - Organic	4 / 27.679	- / -	1 / 7.025	1 / 7.160	- / -	1 / 7.160
1.1.3) NFPC High Speed Machine - Organic ⁽¹⁾	- / -	- / -	- / -	- / 15.095	- / -	- / 15.095
<i>Subtotal: Non-Recurring</i>	<i>- / 200.299</i>	<i>- / -</i>	<i>- / 7.025</i>	<i>- / 22.255</i>	<i>- / -</i>	<i>- / 22.255</i>
<i>Subtotal: H1RC6 - Major Shore Spares</i>	<i>4 / 200.299</i>	<i>- / -</i>	<i>1 / 7.025</i>	<i>1 / 22.255</i>	<i>- / -</i>	<i>1 / 22.255</i>
<i>Subtotal: Procurement, All Modification Items</i>	<i>- / 200.299</i>	<i>- / -</i>	<i>- / 7.025</i>	<i>- / 22.255</i>	<i>- / -</i>	<i>- / 22.255</i>
Installation						
<i>Subtotal: Installation</i>	<i>- / -</i>	<i>- / -</i>	<i>- / -</i>	<i>- / -</i>	<i>- / -</i>	<i>- / -</i>
Total						
Total Cost (Procurement + Support + Installation)	200.299	0.000	7.025	22.255	0.000	22.255

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Exhibit P-3a, Individual Modification: FY 2018 Navy		Date: May 2017	
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9		P-1 Line Item Number / Title: 0942 / Virginia Class Support Equipment	
		Modification Number / Title: 1 / H1RC6 - Major Shore Spares	
ID Code (A=Service Ready, B=Not Service Ready) :		MDAP/MAIS Code:	
Modification Item 1 of 1: H1RC6 - Major Shore Spares			
Manufacturer Information			
Manufacturer Name: Naval Foundry & Propeller Center - Spare Rotor ⁽²⁾		Manufacturer Location: Philadelphia, PA	
Administrative Leadtime <i>(in Months)</i> : 0		Production Leadtime <i>(in Months)</i> : 32	
Dates	FY 2016	FY 2017	FY 2018
Contract Dates		Feb 2017	Feb 2018
Delivery Dates		Oct 2019	Oct 2020
Manufacturer Name: Naval Foundry & Propeller Center - High Speed Machine		Manufacturer Location: Philadelphia, PA	
Administrative Leadtime <i>(in Months)</i> : 0		Production Leadtime <i>(in Months)</i> : 12	
Dates	FY 2016	FY 2017	FY 2018
Contract Dates			Feb 2018
Delivery Dates			Feb 2019
Footnotes: ⁽¹⁾ The significant increase in the profile from FY18 through FY20 is in support of high speed machining at the Naval Foundry and Propeller Center (NFPC) in Philadelphia to support recapitalization of production capability. Investment will provide for the procurement and construction of large high speed milling machines with 28-foot table diameters that are required for semi-finish through finish machining and assembly of COLUMBIA and VIRGINIA components including rotors, stators, and ducts. ⁽²⁾ Spare Rotor: VIRGINIA Class rotatable pool rotors are removed, refurbished, and placed into a pool. There is no set installation schedule as rotors, once available, are installed on subsequent availabilities.			

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Exhibit P-40, Budget Line Item Justification: FY 2018 Navy										Date: May 2017		
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 01: Ships Support Equipment / BSA 9: Other Shipboard Equipment							P-1 Line Item Number / Title: 0944 / LCS Class Support Equipment					
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 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	To Complete	Total
Procurement Quantity (<i>Units in Each</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost (<i>\$ in Millions</i>)	85.335	39.349	54.823	47.955	0.000	47.955	75.882	77.029	65.380	66.683	-	512.436
Less PY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (<i>\$ in Millions</i>)	85.335	39.349	54.823	47.955	0.000	47.955	75.882	77.029	65.380	66.683	-	512.436
Plus CY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority (<i>\$ in Millions</i>)	85.335	39.349	54.823	47.955	0.000	47.955	75.882	77.029	65.380	66.683	-	512.436
<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>)	-	2.693	1.823	1.492	-	1.492	2.795	3.425	-	-	-	12.228
Flyaway Unit Cost (<i>\$ in Dollars</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost (<i>\$ in Dollars</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Description: This funding procures long-lead major end items required for repairs to both variants of Littoral Combat Ships (LCS). The items procured mitigate major long-lead replacement times due to unplanned system failures and casualties and increases availability of vital Fleet assets by reducing repair part procurement and delivery times. Funding procures support equipment, required ancillary equipment, and associated engineering and technical support services for LCS. LN001 - LCS Battle Spares This line procures shore-based battle spares, ensuring their availability in the event of a failure or major casualty to key systems. Systems that require shore-based spares include gas turbines, diesel engines and generators, propulsion systems, reduction gears, auxiliary propulsion units (APUs), and machinery plant control & monitoring systems (MPCMSs). Inventory objectives are determined by the LCS Reliability, Maintainability, and Availability (RMA) Plan, NAVSEA RMA guidance, the critical application of equipment, and vendor data. LN002 - LCS Water Jet Spares Both LCS variants are propelled by water jets; this line procures spare water jets and water jet components. There are two LCS designs, the FREEDOM variant and the INDEPENDENCE variant, each using four water jets. The FREEDOM variant uses Rolls-Royce water jets and the INDEPENDENCE variant uses Wartsila Lips water jets. The water jet assemblies are mounted externally on the ships' transom. These items will be designated 2S cog material and support a rotatable pool for life cycle sustainment. In the event of a casualty, the water jets are removed and sent to a depot to be repaired. LN003 - Engineering Services This funding provides engineering and technical support for LCS Class Support Equipment. Services include the establishment of Technical Data Packages (TDPs) and the creation of associated depot level repair parts lists/installation requirements. Funding is also provided for Non-Recurring Engineering (NRE) and Design Services Allocation (DSA) modernization efforts tied to the ship availabilities. LN004 - Habitability Modification In FY16, the budget funded Habitability Modifications (berthing racks and potable water) to increase permanent berthing to 98 for FREEDOM and INDEPENDENCE variants for LCS 5 thru LCS 8. FY17 budget funds berthing spaces, refrigeration (chill and freeze), dry provision stores, potable water, solid waste storage, and laundry. LN005 - LCS Ships Class Safety Design Changes												

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Exhibit P-40, Budget Line Item Justification: FY 2018 Navy		Date: May 2017
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 01: Ships Support Equipment / BSA 9: Other Shipboard Equipment		P-1 Line Item Number / Title: 0944 / LCS Class Support Equipment
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		
Safety modifications include the redesigned stern ramp for the FREEDOM variant ships to support 11M Rigid Hull Inflatable Boats (RHIB) operations and the installation of bridge wing for safe and effective operation on the INDEPENDENCE variant ships. In FY18, the budget for the LCS Ships Class Safety Design Changes was realigned to LI 1604, LCS In-Service Modernization. LN006 - LCS Ships Class Ancillary Equipment This funding procures the connective equipment necessary to ensure fit and function of procured LCS Class Support Equipment when installed. LN007 - AFSB SOF MODs This funding procures the 3-D Air Search Radar to modify the Mobile Landing Platform-Afloat Forward Staging Base (MLP-AFSB) (Expeditionary Mobile Base, ESB) to support Special Operations Forces (SOF) requirements.		

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Exhibit P-40, Budget Line Item Justification: FY 2018 Navy							Date: May 2017			
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 01: Ships Support Equipment / BSA 9: Other Shipboard Equipment					P-1 Line Item Number / Title: 0944 / LCS Class Support Equipment					
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 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 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-40a	LCS Class Support Equipment				- / 85.335	- / 39.349	- / 54.823	- / 47.955	- / -	- / 47.955
P-40	Total Gross/Weapon System Cost				- / 85.335	- / 39.349	- / 54.823	- / 47.955	- / 0.000	- / 47.955
*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. Title represents the P-40a Title when only the P-40a Summary/Total is shown.										
Note: Totals in this Exhibit P-40 set may not be exact or sum exactly due to rounding.										

Justification:

LN001 - LCS Battle Spares

This line procures shore-based battle spares to ensure their availability in the event of a failure or major casualty to key systems. FY18 procure 2 MT-30 Gas Turbine Engine procurement (Inclusive of all sub assemblies), as opposed to the procurement of individual/fully-usable sub-assemblies (stages) in previous years. Additionally Radars for both Variants are being procured along with Main Propulsion Diesel Engines (MPDE) for both variants.

LN002 - LCS Water Jet Spares

LCS water jets procurements in the event of a casualty, none procured in FY18.

LN003 - Engineering Services

This funding provides engineering and technical support for LCS Class Support Equipment develops Technical Data Packages (TDPs) and creates associated depot level repair parts lists/installation requirements.

LN004 - Habitability Modification

Habitability Modifications (racks, increased provisioning stowage, solid waste stowage, laundry capacity and potable water) to increase permanent berthing to 98 for FREEDOM and INDEPENDENCE variants.

LN005 - LCS Ships Class Safety Design Changes

Safety modifications include the redesigned stern ramp for the FREEDOM variant ships to support 11M Rigid Hull Inflatable Boats (RHIB) operations and the installation of bridge wing for safe and effective operation on the INDEPENDENCE variant ships.

LN006 - LCS Ships Class Ancillary Equipment

This funding procures the connective equipment necessary to ensure fit and function of procured Class Support Equipment when installed.

LN007 - AFSB SOF MODS

This funding procures the 3-D Air Search Radar to modify the Mobile Landing Platform-Afloat Forward Staging Base (MLP-AFSB) (Expeditionary Mobile Base, ESB) to support Special Operations Forces (SOF) requirements.

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Exhibit P-40a, Budget Item Justification For Aggregated Items: FY 2018 Navy															Date: May 2017					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9								P-1 Line Item Number / Title: 0944 / LCS Class Support Equipment							Aggregated Items Title: LCS Class Support Equipment					
Item Number / Title [DODIC]	ID CD	MDAP/MAIS Code	Prior Years			FY 2016			FY 2017			FY 2018 Base			FY 2018 OCO			FY 2018 Total		
			Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)
1) LN001 LCS Battle Spares																				
1.1) MAIN PROPULSION DIESEL ENGINE (INDEPENDENCE VARIANT)	A		4,825K	2	9.650	-	-	-	4,703K	1	4.703	4,797K	1	4.797	-	-	-	4,797K	1	4.797
1.2) MT-30 GAS TURBINE ENGINE (SUB-ASSEMBLY ENGINE FREEDOM VARIANT) ⁽¹⁾	A		4,903K	1	4.903	5,170K	1	5.170	-	-	-	-	-	-	-	-	-	-	-	-
1.3) MT-30 GAS TURBINE ENGINE (FULL ENGINE FREEDOM VARIANT) ⁽²⁾	A		-	-	-	-	-	-	-	-	-	15,955K	2	31.910	-	-	-	15,955K	2	31.910
1.4) SHIPS SERVICE DIESEL GENERATOR (INDEPENDENCE VARIANT)	A		3,812K	1	3.812	3,950K	1	3.950	4,029K	1	4.029	-	-	-	-	-	-	-	-	-
1.5) LAUNCH, RECOVERY, AND HANDLING SYSTEM (FREEDOM VARIANT)	A		3,598K	1	3.598	-	-	-	3,802K	1	3.802	-	-	-	-	-	-	-	-	-
1.6) INTEGRATED BRIDGE SYSTEM	A		924,000.00	1	0.924	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.8) MT-30 GAS TURBINE ENGINE ANCILLARY EQUIPMENT (FREEDOM VARIANT)	A		8,354K	1	8.354	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.9) MAIN PROP. CONTRL & MONITORING SYS (MPCMS)/ ENGINEERING CONTRL SYS (ECS)	A		-	-	-	750,000.00	1	0.750	-	-	-	-	-	-	-	-	-	-	-	-
1.10) TWIN-BOOM EXPANDABLE CRANE (INDEPENDENCE VARIANT)	A		3,700K	1	3.700	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.11) TRS-3D RADAR (FREEDOM VARIANT)	A		1,083K	2	2.166	1,400K	1	1.400	-	-	-	1,680K	1	1.680	-	-	-	1,680K	1	1.680

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Exhibit P-40a, Budget Item Justification For Aggregated Items: FY 2018 Navy															Date: May 2017					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9							P-1 Line Item Number / Title: 0944 / LCS Class Support Equipment								Aggregated Items Title: LCS Class Support Equipment					
Item Number / Title [DODIC]	ID CD	MDAP/MAIS Code	Prior Years			FY 2016			FY 2017			FY 2018 Base			FY 2018 OCO			FY 2018 Total		
			Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)
1.12) SEA GIRAFFE 3D RADAR (INDEPENDENCE VARIANT)	A		2,313K	1	2.313	1,400K	1	1.400	-	-	-	1,680K	1	1.680	-	-	-	1,680K	1	1.680
1.13) MULT. AIRCRAFT NOSE & TAILGEAR INTEGRATED SYS (INDEPENDENCE VARIANT)	A		-	-	-	900,000.00	1	0.900	-	-	-	-	-	-	-	-	-	-	-	-
1.14) REDUCTION GEAR (FREEDOM VARIANT)	A		13,614K	1	13.614	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.15) REDUCTION GEAR (INDEPENDENCE VARIANT)	A		6,449K	1	6.449	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.16) ELECTRONIC SUPPORT MEASURES	A		-	-	-	-	-	-	1,450K	1	1.450	-	-	-	-	-	-	-	-	-
1.17) AUXILIARY POWER UNIT	A		809,000.00	1	0.809	-	-	-	1,190K	2	2.379	-	-	-	-	-	-	-	-	-
1.18) MAIN PROPULSION DIESEL ENGINE (FREEDOM VARIANT)	A		5,647K	2	11.294	-	-	-	-	-	-	5,942K	1	5.942	-	-	-	5,942K	1	5.942
1.19) SHIPS SERVICE DIESEL GENERATOR (FREEDOM VARIANT)	A		801,000.00	2	1.602	815,000.00	1	0.815	831,000.00	1	0.831	-	-	-	-	-	-	-	-	-
Subtotal: 1) LN001 LCS Battle Spares			-	-	73.188	-	-	14.385	-	-	17.194	-	-	46.009	-	-	-	-	-	46.009
2) LN002 LCS Water jet Spares																				
2.1) WATERJET ASSEMBLY (FREEDOM VARIANT)	A		1,582K	4	6.328	-	-	-	2,424K	5	12.118	-	-	-	-	-	-	-	-	-
2.2) WATERJET IMPELLER (INDEPENDENCE VARIANT)	A		726,142.86	7	5.083	-	-	-	790,000.00	2	1.580	-	-	-	-	-	-	-	-	-
Subtotal: 2) LN002 LCS Water jet Spares			-	-	11.411	-	-	-	-	-	13.698	-	-	-	-	-	-	-	-	-
3) LN003 Engineering Services (TDPs & installation planning)																				
3.1) Engineering Services (TDPs & installation planning)	A		-	-	0.201	-	-	0.204	-	-	0.208	-	-	0.211	-	-	-	-	-	0.211

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Exhibit P-40a, Budget Item Justification For Aggregated Items: FY 2018 Navy															Date: May 2017					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9							P-1 Line Item Number / Title: 0944 / LCS Class Support Equipment								Aggregated Items Title: LCS Class Support Equipment					
Item Number / Title [DODIC]	ID CD	MDAP/MAIS Code	Prior Years			FY 2016			FY 2017			FY 2018 Base			FY 2018 OCO			FY 2018 Total		
			Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)
3.2) Modernization Design/Eng Changes for LCS 4	A		-	-	-	-	-	3.600	-	-	3.182	-	-	-	-	-	-	-	-	-
Subtotal: 3) LN003 Engineering Services (TDPs & installation planning)			-	-	0.201	-	-	3.804	-	-	3.390	-	-	0.211	-	-	-	-	-	0.211
4) LN004 Habitability Modification																				
4.1) HABITABILITY MOD (FREEDOM VARIANT) ⁽³⁾	A		-	-	-	2,262K	2	4.525	4,846K	1	4.846	-	-	-	-	-	-	-	-	-
4.2) HABITABILITY MOD (INDEPENDENCE VARIANT)	A		-	-	-	2,262K	2	4.525	4,845K	2	9.690	-	-	-	-	-	-	-	-	-
Subtotal: 4) LN004 Habitability Modification			-	-	0.000	-	-	9.050	-	-	14.536	-	-	-	-	-	-	-	-	-
5) LN005 LCS Ship Class Safety Design Changes																				
5.1) Stern Ramp (FREEDOM VARIANT)	A		-	-	-	600,000.00	2	1.200	600,000.00	1	0.600	-	-	-	-	-	-	-	-	-
5.2) Bridge Wings (INDEPENDENCE VARIANT)	A		-	-	-	2,600K	2	5.200	2,550K	2	5.100	-	-	-	-	-	-	-	-	-
Subtotal: 5) LN005 LCS Ship Class Safety Design Changes			-	-	0.000	-	-	6.400	-	-	5.700	-	-	-	-	-	-	-	-	-
6) LN006 Ancillary Equipment																				
6.1) Ancillary Equipment	A		-	-	0.535	-	-	-	-	-	-	-	-	0.444	-	-	-	-	-	0.444
Subtotal: 6) LN006 Ancillary Equipment			-	-	0.535	-	-	-	-	-	-	-	-	0.444	-	-	-	-	-	0.444
7) LN007 Afloat Foreward Staging Base SOF Mods																				
7.1) AFSB SOF Mods MLP-AFSB 3 Rev	A		-	-	-	-	-	5.710	-	-	0.305	-	-	1.291	-	-	-	-	-	1.291
Subtotal: 7) LN007 Afloat Foreward Staging Base SOF Mods			-	-	0.000	-	-	5.710	-	-	0.305	-	-	1.291	-	-	-	-	-	1.291
Total			-	-	85.335	-	-	39.349	-	-	54.823	-	-	47.955	-	-	-	-	-	47.955

Note: Subtotals or Totals in this Exhibit P-40a may not be exact or sum exactly, due to rounding.

Footnotes:

⁽¹⁾ CE 1.2 MT-30 FY17 procured separate stages/sub-assemblies (all usable-end-items) of the MT-30 Gas Turbine Engine.

⁽²⁾ CE 1.3 MT-30 FY18 procures 2 full MT-30 Gas Turbine Engines.

⁽³⁾ CE 4.1/4.2 Habitability Modifications - FY16 modifications included berthing racks and portable water only / FY17 modification included berthing racks, portable water, AND increased provisioning stowage, solid waste stowage, laundry capacity for increased crew size.

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Exhibit P-40, Budget Line Item Justification: FY 2018 Navy								Date: May 2017				
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 01: Ships Support Equipment / BSA 9: Other Shipboard Equipment							P-1 Line Item Number / Title: 0945 / Submarine Batteries					
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 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	To Complete	Total
Procurement Quantity (Units in Each)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost (\$ in Millions)	346.436	23.072	23.359	17.594	0.000	17.594	15.332	15.763	16.090	16.413	Continuing	Continuing
Less PY Advance Procurement (\$ in Millions)	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (\$ in Millions)	346.436	23.072	23.359	17.594	0.000	17.594	15.332	15.763	16.090	16.413	Continuing	Continuing
Plus CY Advance Procurement (\$ in Millions)	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority (\$ in Millions)	346.436	23.072	23.359	17.594	0.000	17.594	15.332	15.763	16.090	16.413	Continuing	Continuing
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)												
Initial Spares (\$ in Millions)	-	-	-	-	-	-	-	-	-	-	-	-
Flyaway Unit Cost (\$ in Dollars)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost (\$ in Dollars)	-	-	-	-	-	-	-	-	-	-	-	-
Description:												
Procurement of Valve Regulated Lead Acid (VRLA) batteries and Shipalt installation to modify submarines from use of legacy flooded battery (no longer in production at former sole source manufacturer) to new design VRLA battery. Initial installations of VRLA battery also requires the installation of an Automatic Battery Monitoring system (ABMS). The budget procures and installs initial and replacement VRLA batteries for SSN688 Class, SSN21 Class, SSGN726 Class, SSBN726 Class, and SSN774 Class Submarines. Batteries have a finite life and are consumables; therefore, the budget procures life-cycle replacement VRLA batteries at a notional 5 year replacement cycle. Procurements with Automated Battery Monitoring System (ABMS) are new installations, and procurements without ABMS are life-cycle replacements.												
[P40A / HM002 - LOS ANGELES Class Main Storage Battery]: HM002 procures replacement low maintenance sealed lead acid batteries for LOS ANGELES Class submarines, which involves adapting commercial VRLA technology to submarines. This replaces flooded battery technology for which the industrial base ceased manufacture and support of in FY05. Installation unit costs vary due to the availability types, location of installation and submarine type.												
[P40A / HM008 - OHIO Class Main Storage Battery]: HM008 procures replacement low maintenance sealed lead acid batteries for OHIO Class submarines, which involves adapting commercial VRLA technology to submarines. This replaces flooded battery technology for which the industrial base ceased manufacture and support of in FY05. Installation unit costs vary due to the availability types, location of installation and submarine type.												
[P40A / HM009 - SEAWOLF Class Main Storage Battery]: HM009 procures replacement low maintenance sealed lead acid batteries for SEAWOLF Class submarines, which involves adapting commercial VRLA technology to submarines. This replaces flooded battery technology for which the industrial base ceased manufacture and support of in FY05. Installation unit costs vary due to the availability types, location of installation and submarine type.												
[P40A / HM010 - VIRGINIA Class Main Storage Battery]: HM010 procures replacement low maintenance sealed lead acid batteries for VIRGINIA Class submarines, which involves adapting commercial VRLA technology to submarines. This replaces flooded battery technology for which the industrial base ceased manufacture and support of in FY05. Installation unit costs vary due to the availability types, location of installation and submarine type.												
[P40A / HM830 - Production Engineering]: Naval Surface Warfare Center (NSWC) Crane, as the designated procurement activity and In-Service Engineering Agent (ISEA) monitors battery performance and establishes replacement schedules with the fleet. NSWC Crane is also tasked with leading a Government & Industry Root Cause Analysis (RCA) team to identify and address causes for premature capacity decline seen with VLRA batteries. NSWC Crane conducts qualification testing of VRLA cells which, in addition to being a Performance Specification requirement, has proven very beneficial to the Navy in												

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Exhibit P-40, Budget Line Item Justification: FY 2018 Navy		Date: May 2017
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 01: Ships Support Equipment / BSA 9: Other Shipboard Equipment		P-1 Line Item Number / Title: 0945 / Submarine Batteries
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 detecting battery deficiencies that can be corrected before installation, thus alleviating critical emergent fleet impact. Funding is provided for Puget Sound and Portsmouth Naval Shipyards responsibilities for the flooded battery inventory storage, maintenance and inventory management, SHIPALT support, and AIT management. In addition, costs for Planning Yard SHIPALT completion and Lead Yard Services are funded through this line.		

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Exhibit P-40, Budget Line Item Justification: FY 2018 Navy										Date: May 2017		
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 01: Ships Support Equipment / BSA 9: Other Shipboard Equipment							P-1 Line Item Number / Title: 0946 / LPD Class Support Equipment					
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 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	To Complete	Total
Procurement Quantity (<i>Units in Each</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost (<i>\$ in Millions</i>)	69.252	37.929	40.321	61.908	0.000	61.908	75.993	76.183	77.761	79.318	33.235	551.900
Less PY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (<i>\$ in Millions</i>)	69.252	37.929	40.321	61.908	0.000	61.908	75.993	76.183	77.761	79.318	33.235	551.900
Plus CY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority (<i>\$ in Millions</i>)	69.252	37.929	40.321	61.908	0.000	61.908	75.993	76.183	77.761	79.318	33.235	551.900
<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 Dollars</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost (<i>\$ in Dollars</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Description: This budget provides funding for the in service LPD 17 class program support equipment. Previous funding for LPD 17 class support equipment (FY12 and earlier) was provided under line item OPN 0981, Items Less Than \$5 Million. Funding is required to upgrade mission critical electronics and Hull Mechanical & Engineering (HM&E) systems including the Engineering Control Systems (ECS), Ship Control Systems (SCS), Degaussing Systems, Shipboard Wide-Area Network (SWAN), commercial software products for ECS, SCS, Command, Control, Communications, Computers, Intelligence, Surveillance and Reconnaissance (C4ISR) and Administrative Communications. [P40A / CJ010 - Schoolhouse TTE]: CJ010 - SCHOOLHOUSE TTE Funding for Schoolhouse Technical Training Equipment (TTE) is for the infrastructure and equipment to set up the schoolhouses for multiple systems such as ECS and SCS 60Hz and Ship Service Diesel Generators (SSDG). The schoolhouses will provide critical training to sailors in operation and maintenance of those systems. [P40A / CJ020 - Shore Based Spares]: CJ020 SHORE BASED SPARES Shore-Based Spares funding is required for procurement of Shore-Based Spares in support of the LPD 17 class deployed assets. Shore-Based Spares are critical long lead time items that will be staged shoreside in case of catastrophic failure. [P40A / CJ080 Conjunctive HM&E AIT]: CJ080 CONJUNCTIVE HM&E ALTERATIONS Conjunctive HM&E Alterations includes design integration, equipment procurement, recurring equipment engineering, equipment integration, and Integrated Logistics Services (ILS). [P40AMOD / CJ030 - HW/SW Obsolescence]: CJ030 LPD 17 Hardware/Software HW/SW Obsolescence effort addresses critical hardware obsolescence and technology refreshment issues and supporting class upgrades focused on increased capability and reliability. Funding will support procurement of hardware and software changes to the systems listed: - Command Information Display System (CIDS) 23TV, Replace projectors with Light Emitting Diode(LED) Projectors - Engineering Control Systems (ECS) - Windows XP upgrade - Ship Control Systems (SCS) - Windows XP upgrade/SCS Tech Refresh, Digital Rudder Angle Display Information System (DRADIS) - Magnetic Signature Control System (MSCS) - Windows XP upgrade, Digital Control Assembly (DCA) Redesign. - HM&E Network - HM&E Network Upgrades - Wire-free Portable Communication System (WPCS) - Uninterrupted Power Supply (UPS) Upgrade, Low Power Amplifier Upgrade, Main Site Upgrade.- 27TV - 27TV System Upgrade												

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Exhibit P-40, Budget Line Item Justification: FY 2018 Navy		Date: May 2017
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 01: Ships Support Equipment / BSA 9: Other Shipboard Equipment		P-1 Line Item Number / Title: 0946 / LPD Class Support Equipment
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		
- Advanced Fire and Smoke Sensor System (AFSS) - AFSS System Upgrade. - Integrated Voice Communication System (IVCS) - IVCS system upgrades (local cutout switches, AFT lookout comm mod, obsolete terminal replacement, FWD/AFT Keyswitched Integrated Terminal Equipment (KITE)), Software version 7.2.2 - 1MC Announcing System - Digital Microphone Control Station - Navigational Data Distribution System (NDDS) [P40AMOD / CJ040 HM&E Electrical Modifications]: CJ040 HM&E ELECTRICAL MODIFICATIONSHM&E Modernization funding is provided to correct mission, safety and reliability issues on electrical systems and ultimately resolve maintenance intensive system concerns. HM&E Electrical Modifications include: SWAN UPS- Space Based UPS Reduction [P40AMOD / CJ050 - HM&E Survivability Modifications]: CJ050 HM&E SURVIVABILITY MODIFICATIONS HM&E Modernization funding is provided to correct mission, safety and reliability issues on HM&E systems (impacting ship survivability) and ultimately resolve maintenance intensive system concerns. HM&E Survivability Modifications include: Damage Control Action Management System (DCAMS) 1.1 upgrade, Smoke Ejection System (SES) Redesign, Night Vision Device (NVD) Well Deck Upgrades, Composite Ventilation Louvers and Screens. [P40AMOD / CJ060 - HM&E Mechanical/Auxiliary Modifications]: CJ060 HM&E MECHANICAL/AUXILIARY MODIFICATIONSHME Modernization funding is provided to correct mission, safety and reliability issues on mechanical and auxiliary systems and ultimately resolve maintenance intensive system concerns. HM&E Mechanical/ Auxiliary Modifications include: MIDE Bulkhead Shaft Seal, Helo Hangar Door Control Modifications, Vacuum Collection, Holding & Transfer (VCHT) Ejector Pump PLC Upgrade, 2nd Pass Reverse Osmosis (RO) Unit Upgrade, RO Unit Potable Water Electrolytic Disinfectant Generator (EDG) Recirculation Capability, Aviation Maintenance Bridge Crane Replacement, Knuckleboom Crane Improvements, Geislinger Coupling Improvements, Scullery Improvements and Gaylord System Improvements. [P3A - 5 / CJ070 SWAN-CANES Integration]: CJ070 SWAN-CANES Integration The results of the Shipboard Wide Area Network (SWAN) / Consolidated Afloat Networks and Enterprise Services (CANES) study directed the replacement of the C4I capability of the LPD 17 Class SWAN with CANES and the conversion of the non-C4I SWAN into a new HM&E Network (mini SWAN). SWAN funding is required to field the new HM&E Network in support of the CANES installation. In addition, funding is required to sustain the legacy SWAN, while the LPD 17 Class ships await the CANES/HM&E Network back fit installation. SWAN serves as the backbone of the LPD 17 class and funding is necessary to address obsolescence, reliability issues, performance concerns, emergent Fleet requirements including enabling Cryptologic Log On (CLO), eradicating Windows XP, replacing aging obsolete network hardware (e.g., servers and core switches), and maintaining the Information Assurance posture of the Common Operating Environment (COE). This funding is vital to ensure the LPD 17 Class ships can combat the evolving cyber threat.		

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Exhibit P-40, Budget Line Item Justification: FY 2018 Navy			Date: May 2017		
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 01: Ships Support Equipment / BSA 9: Other Shipboard Equipment			P-1 Line Item Number / Title: 0946 / LPD Class Support Equipment		
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 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 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-40a	LPD Class Support Equipment				- / 9.900	- / -	- / -	- / 19.171	- / -	- / 19.171
P-40a	CJ030 - HW/SW Obsolescence				- / 15.564	- / 4.846	- / 5.387	- / 7.048	- / 0.000	- / 7.048
P-40a	CJ040 HM&E Electrical Modifications				- / 0.000	- / 0.000	- / 4.474	- / 6.775	- / 0.000	- / 6.775
P-40a	CJ050 - HM&E Survivability Modifications				- / 0.856	- / 0.092	- / 0.000	- / 0.600	- / 0.000	- / 0.600
P-40a	CJ060 - HM&E Mechanical/Auxiliary Modifications				- / 28.442	- / 19.445	- / 10.211	- / 4.856	- / 0.000	- / 4.856
P-40a	CJ031 HW/SW Obsolescence Announcing System Replacement				- / 0.000	- / 0.000	- / 0.734	- / 2.600	- / 0.000	- / 2.600
P-40a	CJ032 HW/SW Obsolescence Wireless Portable Communications Main Site Upgrades				- / 0.000	- / 0.000	- / 0.738	- / 1.800	- / 0.000	- / 1.800
P-40a	CJ033 HW/SW Obsolescence Magnetic Signature Control System (MSCS) Upgrades				- / 0.000	- / 0.000	- / 0.000	- / 0.650	- / 0.000	- / 0.650
P-40a	CJ061 Titanium Valve Replacement				- / 0.000	- / 0.000	- / 1.941	- / 4.510	- / 0.000	- / 4.510
P-40a	CJ062 HM&E Mechanical/Auxiliary Mods Knuckleboom Crane Improvements				- / 0.000	- / 0.000	- / 0.300	- / 1.300	- / 0.000	- / 1.300
P-3a	5 / CJ070 SWAN-CANES Integration (TBD)				- / 14.490	- / 13.546	- / 16.536	- / 12.598	- / 0.000	- / 12.598
P-40	Total Gross/Weapon System Cost				- / 69.252	- / 37.929	- / 40.321	- / 61.908	- / 0.000	- / 61.908

*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. Title represents the P-40a Title when only the P-40a Summary/Total is shown.
 Note: Totals in this Exhibit P-40 set may not be exact or sum exactly due to rounding.

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Exhibit P-40a, Budget Item Justification For Aggregated Items: FY 2018 Navy																Date: May 2017				
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9						P-1 Line Item Number / Title: 0946 / LPD Class Support Equipment										Aggregated Items Title: LPD Class Support Equipment				
Item Number / Title [DODIC]	ID CD	MDAP/MAIS Code	Prior Years			FY 2016			FY 2017			FY 2018 Base			FY 2018 OCO			FY 2018 Total		
			Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)
1) CJ010 - Schoolhouse TTE																				
1.1) Schoolhouse TTE	A		-	-	1.200	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: 1) CJ010 - Schoolhouse TTE			-	-	1.200	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2) CJ020 - Shore Based Spares																				
2.1) Shore Based Spares	A		-	-	8.700	-	-	-	-	-	-	-	-	5.253	-	-	-	-	-	5.253
Subtotal: 2) CJ020 - Shore Based Spares			-	-	8.700	-	-	-	-	-	-	-	-	5.253	-	-	-	-	-	5.253
3) CJ080 Conjunctive HM&E AIT																				
3.1) Conjunctive HM&E Alterations ⁽¹⁾	A		-	-	-	-	-	-	-	-	-	-	-	13.918	-	-	-	-	-	13.918
Subtotal: 3) CJ080 Conjunctive HM&E AIT			-	-	0.000	-	-	-	-	-	-	-	-	13.918	-	-	-	-	-	13.918
Total			-	-	9.900	-	-	-	-	-	-	-	-	19.171	-	-	-	-	-	19.171

Note: Subtotals or Totals in this Exhibit P-40a may not be exact or sum exactly, due to rounding.

Footnotes:

⁽¹⁾ CJ080- CONJUNCTIVE HM&E ALTERATIONS (FY18) Advanced Planning Long Lead Time Material in support of FY19 planned availabilities for LPD 20, LPD 23, and LPD 24. (FY19) Advanced Planning Long Lead Time Material in support of FY20 planned availabilities for LPD 17, LPD 18, LPD 25, and LPD 26. (FY21) Ship hull shock trial certifications and Combat Systems Ships Qualification Trials (CSSQT) in support of (4) FY21 availabilities to include LPD 19, LPD 20, LPD 22, and LPD 27. (FY22) Ship hull shock trial certifications and CSSQTs in support of (2) FY22 availabilities to include LPD 21, and LPD 23.

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Exhibit P-40a, Budget Item Justification For Aggregated Items: FY 2018 Navy															Date: May 2017					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9						P-1 Line Item Number / Title: 0946 / LPD Class Support Equipment									Aggregated Items Title: CJ030 - HW/SW Obsolescence					
Item Number / Title [DODIC]	ID CD	MDAP/MAIS Code	Prior Years			FY 2016			FY 2017			FY 2018 Base			FY 2018 OCO			FY 2018 Total		
			Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)
B Kits/Recurring																				
HW/SW Obsolescence -- Procurement ⁽²⁾	A		206,759.26	54	11.165	259,444.44	9	2.335	150,400.00	10	1.504	233,062.50	16	3.729	-	-	-	233,062.50	16	3.729
HW/SW Obsolescence -- Installation	A		-	-	4.399	-	-	2.511	-	-	3.883	-	-	3.259	-	-	-	-	-	3.259
Subtotal: B Kits/Recurring			-	-	15.564	-	-	4.846	-	-	5.387	-	-	6.988	-	-	-	-	-	6.988
Support Cost																				
Non-Recurring Engineering	A		-	-	-	-	-	-	-	-	-	-	-	0.060	-	-	-	-	-	0.060
Subtotal: Support Cost			-	-	0.000	-	-	-	-	-	-	-	-	0.060	-	-	-	-	-	0.060
Total			-	-	15.564	-	-	4.846	-	-	5.387	-	-	7.048	-	-	0.000	-	-	7.048
Note: Subtotals or Totals in this Exhibit P-40a may not be exact or sum exactly, due to rounding.																				
Remarks: Models of Systems Affected: HW/SW Obsolescence																				
HW/SW Obsolescence (CJ030) includes funding for procurement and installation of equipment to correct critical obsolescence issues on LPD17 Class mission systems. Resolves operational and obsolescence issues. Replaces current split controllers, resolves rack cooling, modifies loud speaker cable plant, and provides commonality and system architecture and hardware. Shipsets of equipment vary in quantities and types of components each fiscal year and within a fiscal year. Each ship requires a different number of alterations to be installed, and these alteration packages vary in scope and cost based on individual ship configurations. A quantity of "1" represents a single "kit" intended for installation in one ship, in a single Chief of Naval Operations (CNO) Availability. Ships may be receiving more than 1 kit in a single availability based upon the fielding plan for the systems being modernized. In FY18, there are (2) total kits being procured for installation during (2) FY19 CNO Availabilities on LPD 20 (1 kit) and LPD 23 (1 kit). In FY19, there are (4) total kits being procured for installation during (4) FY20 CNO Availabilities on LPD 17 (1 kit), LPD 18 (1 kit), LPD 25 (1 kit), and LPD 26 (1 kit). In FY20, there are no procurements being made to support FY21 CNO availabilities. In FY21, there is (1) total kit being procured for installation during (1) FY22 CNO Availability on LPD 21 (1 kit). In FY22, there is (1) total kit being procured for installation during (1) FY23 CNO Availability on LPD 24 (1 kit). HW/SW Obsolescence effort addresses hardware obsolescence/technology refreshment issues, and class upgrades focused on increased capabilities, force protection, and safety. Funding will support procurement of hardware and software changes to the systems listed: - Command Information Display System (CIDS) 23TV - Replace projectors with LED Projectors - Engineering Control Systems (ECS) - Windows XP upgrade - Ship Control Systems (SCS) - Windows XP upgrade/SCS Tech Refresh, Digital Rudder Angle Display Information System (DRADIS) - Magnetic Signature Control System (MSCS) - Windows XP upgrade - Wire-free Portable Communication System (WPCS) - Uninterruptible Power Supply (UPS) Upgrade, Low Power Amplifier Upgrade - 27TV - 27TV System Upgrade - Advanced Fire and Smoke Sensor System (AFSS) - AFSS System Upgrade - Integrated Voice Communication System (IVCS)- IVCS system upgrades (local cutout switches, AFT lookout comm mod, obsolete terminal replacement, FWD/AFT KITE), Software version 7.2.2. - 1MC Announcing System - Digital Microphone Control Station1MC improvements - Navigational Data Distribution System (NDDS) NRE Includes the following efforts: FY18: Technology refresh for Announcing System 1MC will upgrade system firmware and obsolete components in the AN/SIA-134 Announcing System Racks. FY21: Conduct engineering studies in support of LPD 17 Class Midlife Planning to include Weight, Moment, and Stability, Corrosion, Space and Equipment Configuration, Internal Communication Upgrades, etc. FY22: Conduct engineering studies in support of LPD 17 Class Midlife Planning to include Weight, Moment, and Stability, Corrosion, Space and Equipment Configuration, and Internal Communication Upgrades. Non Recurring Engineering and Advanced Planning Long Lead Time Material in support of planned Midlife installations.																				
Footnotes:																				

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Exhibit P-40a, Budget Item Justification For Aggregated Items: FY 2018 Navy		Date: May 2017
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	P-1 Line Item Number / Title: 0946 / LPD Class Support Equipment	Aggregated Items Title: CJ030 - HW/SW Obsolescence
(2) HW/SW Obsolescence (CJ030) includes funding for procurement and installation of equipment to correct critical obsolescence issues on LPD17 Class mission systems. Shipsets of equipment vary in quantities and types of components each fiscal year and within a fiscal year. Each ship requires a different number of alterations to be installed, and these alteration packages vary in scope and cost based on individual ship configurations. A quantity of "1" represents a single "kit" intended for installation in one ship, in a single Chief of Naval Operations (CNO) Availability. Ships may be receiving more than 1 kit in a single availability based upon the fielding plan for the systems being modernized. FY 16 Procurements were contracted to support the LPD 18 Dry-Docking Select Restricted Availability beginning in Jan 2017. In FY17, there are (10) total kits being procured for installation during (2) FY18 CNO Availabilities on LPD 19 (4 kits), LPD 22 (6 kits). In FY18, there are (16) total kits being procured for installation during (4) FY19 CNO Availabilities on LPD 20 (5 kits), LPD 21 (2 kits) LPD 23 (4 kits), and LPD 24 (5 kits). In FY19, there are (25) total kits being procured for installation during (4) FY20 Availabilities on LPD 17 (4 kits), LPD 18 (4 kits), LPD 25 (9 kits), and LPD 26 (8 kits). In FY20, there are (9) total kits being procured for installation during (3) FY21 CNO Availabilities on LPD 19 (4 kits), LPD 22 (4 kits), and LPD 27 (1 kit). In FY21, there are (9) total kits being procured for installation during (3) FY22 CNO Availabilities on LPD 21 (4 kits), LPD 23 (3 kits), and LPD 28 (2 kits). In FY22, there are (7) total kits being procured for installation during (6) FY23 CNO Availabilities on LPD 17 (1 kit), LPD 18 (1 kit), LPD 20 (1 kit), LPD 24 (1 kit), LPD 25 (2 kits), and LPD 26 (1 kit).		

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Exhibit P-40a, Budget Item Justification For Aggregated Items: FY 2018 Navy														Date: May 2017						
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9						P-1 Line Item Number / Title: 0946 / LPD Class Support Equipment						Aggregated Items Title: CJ040 HM&E Electrical Modifications								
Item Number / Title [DODIC]	ID CD	MDAP/MAIS Code	Prior Years			FY 2016			FY 2017			FY 2018 Base			FY 2018 OCO			FY 2018 Total		
			Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)
B Kits/Recurring																				
HM&E Electrical Upgrades -- Procurement ⁽³⁾	A		-	-	-	-	-	-	1,798K	2	3.596	1,798K	2	3.596	-	-	-	1,798K	2	3.596
HM&E Electrical Upgrades -- Installation	A		-	-	-	-	-	-	-	-	0.075	-	-	3.179	-	-	-	-	-	3.179
Subtotal: B Kits/Recurring			-	-	0.000	-	-	-	-	-	3.671	-	-	6.775	-	-	-	-	-	6.775
Support Cost																				
Non-Recurring Engineering	A		-	-	-	-	-	-	-	-	0.803	-	-	-	-	-	-	-	-	-
Subtotal: Support Cost			-	-	0.000	-	-	-	-	-	0.803	-	-	-	-	-	-	-	-	-
Total			-	-	0.000	-	-	0.000	-	-	4.474	-	-	6.775	-	-	0.000	-	-	6.775
Note: Subtotals or Totals in this Exhibit P-40a may not be exact or sum exactly, due to rounding.																				
Remarks: Models of Systems Affected: HM&E Electrical Modifications HM&E Modernization funding is provided to correct mission, safety and reliability issues on electrical systems and ultimately resolve maintenance intensive system concerns. HM&E Electrical Modifications include: SWAN UPS - Space Based Uninterruptable Power Supply (UPS) Reduction NRE Includes the following efforts: FY21: Conduct engineering studies in support of LPD 17 Class Midlife Planning to include support of USMC equities in upgraded Lithium Ion battery stowage and upgraded power and energy storage requirements for combat systems. FY22: Conduct engineering studies in support of LPD 17 Class Midlife Planning to include support of USMC equities in upgraded Lithium Ion battery stowage and upgraded power and energy storage requirements for combat systems.																				
Footnotes: ⁽³⁾ HM&E Electrical Modification (CJ040) includes funding for procurement and installation of equipment to upgrade shipboard electrical systems to a more sustainable, reliable configuration on LPD17 Class ships. Shipsets of equipment vary in quantities and types of components each fiscal year and within a fiscal year. A quantity of "1" represents a single "kit" intended for installation in one ship, in a single CNO Availability. Ships may be receiving more than 1 kit in a single availability based upon the fielding plan for the systems being modernized. In FY17, there are (2) total kits being procured for installation during (2) FY18 CNO Availabilities on LPD19 (1 kit) and LPD 22 (1 kit). In FY18, there are (2) total kits being procured for installation during (2) FY19 CNO Availabilities on LPD 21 (1 kit), LPD 24 (1 kit). In FY19, there are (3) total kits being procured for installation during (3) FY20 CNO Availabilities on LPD 17 (1 kit), LPD 18 (1 kit), and LPD 25 (1 kit). In FY20, there is (1) total kit being procured for installation during (1) FY21 CNO Availability on LPD 20 (1 kit). In FY21, there is (1) total kit being procured for installation during (1) FY22 CNO Availability on LPD 23 (1 kit). In FY22, there is (1) total kit being procured for installation during (1) FY23 CNO Availability on LPD 26 (1 kit). Funding supports safety and capability improvements in the design of the Space Based UPS. This results in a more robust system configuration, requiring additional cable runs, load center tie-in, battery placements, and industrial work efforts.																				

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Exhibit P-40a, Budget Item Justification For Aggregated Items: FY 2018 Navy															Date: May 2017				
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9								P-1 Line Item Number / Title: 0946 / LPD Class Support Equipment							Aggregated Items Title: CJ050 - HM&E Survivability Modifications				

Item Number / Title [DODIC]	ID CD	MDAP/ MAIS Code	Prior Years			FY 2016			FY 2017			FY 2018 Base			FY 2018 OCO			FY 2018 Total		
			Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)
B Kits/Recurring																				
HM&E Survivability Modifications -- Procurement ⁽⁴⁾	A		274,666.67	3	0.824	-	-	-	-	-	-	225,000.00	2	0.450	-	-	-	225,000.00	2	0.450
HM&E Survivability Modifications -- Installation	A		-	-	0.032	-	-	0.092	-	-	-	-	-	0.150	-	-	-	-	-	0.150
Subtotal: B Kits/Recurring			-	-	0.856	-	-	0.092	-	-	-	-	-	0.600	-	-	-	-	-	0.600
Total			-	-	0.856	-	-	0.092	-	-	0.000	-	-	0.600	-	-	0.000	-	-	0.600

Note: Subtotals or Totals in this Exhibit P-40a may not be exact or sum exactly, due to rounding.

Remarks:

Models of Systems Affected: HM&E Survivability Modifications

HM&E Modernization funding is provided to correct mission, safety and reliability issues on HM&E systems (impacting ship survivability) and ultimately resolve maintenance intensive system concerns. HM&E Survivability Modifications include:

Smoke Ejection System (SES) Redesign

Composite Ventilation Louvers and Screens.

NRE includes the following efforts:

FY21: Conduct Non-recurring engineering in support of the Magazine Sprinkling System detection redesign, and Engineering Plant Control System (EPCS).

FY22: Conduct Non-recurring engineering in support of the Magazine Sprinkling System detection redesign, and Engineering Plant Control System (EPCS).

Footnotes:

⁽⁴⁾ HM&E Survivability Modifications (CJ050) includes funding for procurement and installation of equipment to support upgrades of shipboard survivability systems to a more sustainable, reliable configuration on LPD17 Class ships. Shipsets of equipment vary in quantities and types of components each fiscal year and within a fiscal year. Each ship requires a different number of alterations to be installed, and these alteration packages vary in scope and cost based on individual ship configurations. A quantity of "1" represents a single "kit" intended for installation in one ship, in a single CNO Availability. Ships may be receiving more than 1 kit in a single availability based upon the fielding plan for the systems being modernized. In FY18, there are (2) total kits being procured for installation during (2) FY19 CNO Availabilities on LPD 23 (1 kit) and LPD 24 (1 kit). In FY19, there are (5) total kits being procured for installation during (3) FY20 CNO Availabilities on LPD 17 (2 kits), LPD 18 (2 kits), and LPD 25 (1 kit). In FY20, there are (7) total kits being procured for installation during (4) FY21 CNO Availabilities on LPD 19 (2 kits), LPD 20 (2 kits), LPD 22 (2 kits), and LPD 27 (1 kit). In FY21, there is (1) total kit being procured for installation during (1) FY22 CNO Availability on LPD 21 (1 kit).

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Exhibit P-40a, Budget Item Justification For Aggregated Items: FY 2018 Navy																Date: May 2017					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9								P-1 Line Item Number / Title: 0946 / LPD Class Support Equipment								Aggregated Items Title: CJ060 - HM&E Mechanical/Auxiliary Modifications					
Item Number / Title [DODIC]	ID CD	MDAP/MAIS Code	Prior Years			FY 2016			FY 2017			FY 2018 Base			FY 2018 OCO			FY 2018 Total			
			Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	
B Kits/Recurring																					
CJ060 HM&E Mechanical/Auxiliary Modifications -- Procurement ⁽⁵⁾	A		1,048K	22	23.063	920,615.38	13	11.968	223,875.00	8	1.791	149,555.56	9	1.346	-	-	-	149,555.56	9	1.346	
CJ060 HM&E Mechanical/Auxiliary Modifications -- Installation	A		-	-	5.379	-	-	7.477	-	-	6.520	-	-	3.456	-	-	-	-	-	3.456	
Subtotal: B Kits/Recurring			-	-	28.442	-	-	19.445	-	-	8.311	-	-	4.802	-	-	-	-	-	4.802	
Support Cost																					
Non-Recurring Engineering	A		-	-	-	-	-	-	-	-	1.900	-	-	0.054	-	-	-	-	-	0.054	
Subtotal: Support Cost			-	-	0.000	-	-	-	-	-	1.900	-	-	0.054	-	-	-	-	-	0.054	
Total			-	-	28.442	-	-	19.445	-	-	10.211	-	-	4.856	-	-	0.000	-	-	4.856	
Note: Subtotals or Totals in this Exhibit P-40a may not be exact or sum exactly, due to rounding.																					
Remarks:																					
Models of Systems Affected: HM&E Mechanical/Auxiliary Modifications																					
HM&E Mechanical/Auxiliary Modifications(CJ060) includes funding for procurement and installation of equipment to support upgrades of shipboard mechanical/auxiliary systems to a more sustainable, reliable configuration on LPD17 Class ships. Shipsets of equipment vary in quantities and types of components each fiscal year and within a fiscal year. Each ship requires a different number of alterations to be installed, and these alteration packages vary in scope and cost based on individual ship configurations. A quantity of "1" represents a single "kit" intended for installation in one ship, in a single CNO Availability. Ships may be receiving more than 1 kit in a single availability based upon the fielding plan for the systems being modernized.																					
NRE includes the following efforts:																					
FY17: Conduct Non-recurring engineering in support of Geislinger Coupling upgrades.																					
FY18: Conduct Non-recurring engineering in support of Scullery redesign.																					
FY19: N/A																					
FY20: Conduct Non-recurring engineering in support of Helo Hangar Door Control Modifications.																					
FY21: Conduct engineering studies in support of LPD 17 Class Midlife Planning to include Crane improvement/replacement, corrosion, weight and moment, USMC priorities, and reefer system upgrades.																					
FY22: Conduct engineering studies in support of LPD 17 Class Midlife Planning to include Crane improvement/replacement, corrosion, weight and moment, USMC priorities, and reefer system upgrades.																					
Footnotes:																					
⁽⁵⁾ HM&E Mechanical/Auxiliary Modifications (CJ061) Titanium Valve Replacement Phase includes funding for procurement and installation of equipment to support upgrades of shipboard mechanical/auxiliary systems to a more sustainable, reliable configuration on LPD17 Class ships. Shipsets of equipment vary in quantities and types of components each fiscal year and within a fiscal year. Each ship requires a different number of alterations to be installed, and these alteration packages vary in scope and cost based on individual ship configurations. A quantity of "1" represents a single "kit" intended for installation in one ship, in a single CNO Availability. Ships may be receiving more than 1 kit in a single availability being modernized. In FY17, there are (8) total kits being procured for installation during (2) FY18 CNO Availabilities on LPD 19 (4 kits) and LPD 22 (4 kits). In FY18, there are (9) total kits being procured for installation during (4) FY19 CNO Availabilities on LPD 20 (3 kits), LPD 21 (1 kit), LPD 23 (3 kits), and LPD 24 (2 kits). In FY19, there are (17) total kits being procured for installation during (4) FY20 CNO Availabilities on LPD 17 (6 kits), LPD 18 (6 kits), LPD 25 (4 kits), and LPD 26 (1 kit). In FY20, there are (14) total kits being procured for installation during (4) FY21 CNO Availabilities on LPD 19 (5 kits), LPD 20 (2 kits), LPD 22 (4 kits), and LPD 27 (3 kits). In FY21, there are (6) total kits being procured for installation during (2) FY22 CNO Availabilities on LPD 21 (5 kits) and LPD 23 (1 kit). In FY22, there are (4) total kits being procured for installation during (3) FY23 CNO Availabilities on LPD 20 (1 kit), LPD 24 (1 kit), and LPD 26 (2 kits).																					

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Exhibit P-40a, Budget Item Justification For Aggregated Items: FY 2018 Navy														Date: May 2017						
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9						P-1 Line Item Number / Title: 0946 / LPD Class Support Equipment						Aggregated Items Title: CJ031 HW/SW Obsolescence Announcing System Replacement								
Item Number / Title [DODIC]	ID CD	MDAP/MAIS Code	Prior Years			FY 2016			FY 2017			FY 2018 Base			FY 2018 OCO			FY 2018 Total		
			Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)
B Kits/Recurring																				
Announcing System Replacement -- Procurement ⁽⁶⁾	A		-	-	-	-	-	-	-	-	-	1,200K	2	2.400	-	-	-	1,200K	2	2.400
Announcing System Replacement -- Installation	A		-	-	-	-	-	-	-	-	-	-	-	0.200	-	-	-	-	-	0.200
Subtotal: B Kits/Recurring			-	-	0.000	-	-	-	-	-	-	-	-	2.600	-	-	-	-	-	2.600
Support Cost																				
Non-Recurring Engineering	A		-	-	-	-	-	-	-	-	0.734	-	-	-	-	-	-	-	-	-
Subtotal: Support Cost			-	-	0.000	-	-	-	-	-	0.734	-	-	-	-	-	-	-	-	-
Total			-	-	0.000	-	-	0.000	-	-	0.734	-	-	2.600	-	-	0.000	-	-	2.600
Note: Subtotals or Totals in this Exhibit P-40a may not be exact or sum exactly, due to rounding.																				
Remarks: ANNOUNCING SYSTEM REPLACEMENT Hardware/Software: HW/SW Obsolescence effort addresses critical hardware obsolescence and technology refreshment issues and supporting class upgrades focused on increased capability and reliability. Funding will support procurement of an upgraded replacement announcing system. NRE includes the following efforts: FY17: Conduct non-recurring engineering and support studies in support of the next generation announcing system to resolve operational and obsolescence issues to include inadequate rack cooling, environmentally qualified components and achieve system architecture and hardware commonality.																				
Footnotes: ⁽⁶⁾ Announcing System Replacement HW/SW Obsolescence includes funding for procurement and installation of equipment to correct critical obsolescence issues on LPD17 Class mission systems. Resolves operational and obsolescence issues. Replaces current split controllers, resolves rack cooling, modifies loud speaker cable plant, and provides commonality and system architecture and hardware. Shipsets of equipment vary in quantities and types of components each fiscal year and within a fiscal year. Each ship requires a different number of alterations to be installed, and these alteration packages vary in scope and cost based on individual ship configurations. A quantity of "1" represents a single "kit" intended for installation in one ship, in a single Chief of Naval Operations (CNO) Availability. Ships may be receiving more than 1 kit in a single availability based upon the fielding plan for the systems being modernized. In FY18, there are (2) total kits being procured for installation during (2) FY19 CNO Availabilities on LPD 20 (1 kit) and LPD 23 (1 kit). In FY19, there are (4) total kits being procured for installation during (4) FY20 CNO Availabilities on LPD 17 (1 kit), LPD 18 (1 kit), LPD 25 (1 kit), and LPD 26 (1 kit). In FY20, there are no procurements being made to support FY21 CNO availabilities. In FY21, there is (1) total kit being procured for installation during (1) FY22 CNO Availability on LPD 21 (1 kit). In FY22, there is (1) total kit being procured for installation during (1) FY23 CNO Availability on LPD 24 (1 kit).																				

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Exhibit P-40a, Budget Item Justification For Aggregated Items: FY 2018 Navy																Date: May 2017			
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9								P-1 Line Item Number / Title: 0946 / LPD Class Support Equipment								Aggregated Items Title: CJ032 HW/SW Obsolescence Wireless Portable Communications Main Site Upgrades			

Item Number / Title [DODIC]	ID CD	MDAP/MAIS Code	Prior Years			FY 2016			FY 2017			FY 2018 Base			FY 2018 OCO			FY 2018 Total		
			Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)
B Kits/Recurring																				
WPCS Main Site Upgrades -- Procurement ⁽⁷⁾	A		-	-	-	-	-	-	-	-	-	800,000.00	2	1.600	-	-	-	800,000.00	2	1.600
WPCS Main Site Upgrades -- Installation	A		-	-	-	-	-	-	-	-	-	-	-	0.200	-	-	-	-	-	0.200
Subtotal: B Kits/Recurring			-	-	0.000	-	-	-	-	-	-	-	-	1.800	-	-	-	-	-	1.800
Support Cost																				
Non-Recurring Engineering	A		-	-	-	-	-	-	-	-	0.738	-	-	-	-	-	-	-	-	-
Subtotal: Support Cost			-	-	0.000	-	-	-	-	-	0.738	-	-	-	-	-	-	-	-	-
Total			-	-	0.000	-	-	0.000	-	-	0.738	-	-	1.800	-	-	0.000	-	-	1.800

Note: Subtotals or Totals in this Exhibit P-40a may not be exact or sum exactly, due to rounding.

Remarks:

WIRELESS PORTABLE COMMUNICATIONS SYSTEM (WPCS) Hardware/Software (CJ030): HW/SW Obsolescence effort addresses critical hardware obsolescence and technology refreshment issues and supporting class upgrades focused on increased capability and reliability. Funding will support procurement of hardware and software changes to the WPCS Main Site.

NRE includes the following efforts:

FY17: Wireless Portable Communications System (WPCS) non-recurring engineering in support of hardware obsolescence, software upgrade to Microsoft Windows 10, and upgrades to the e-stop and fall protection of the main site.

Footnotes:

⁽⁷⁾ HW/SW Obsolescence WPCS Main Site Upgrades includes funding for procurement and installation of equipment to correct critical obsolescence issues on LPD17 Class mission systems. Shipsets of equipment vary in quantities and types of components each fiscal year and within a fiscal year. Each ship requires a different number of alterations to be installed, and these alteration packages vary in scope and cost based on individual ship configurations. A quantity of "1" represents a single "kit" intended for installation in one ship, in a single Chief of Naval Operations (CNO) Availability. Ships may be receiving more than 1 kit in a single availability based upon the fielding plan for the systems being modernized. In FY18, there are (2) total kits being procured for installation during (2) FY19 CNO Availabilities on LPD 20 (1 kit) and LPD 23 (1 kit). In FY19, there are (3) total kits being procured for installation during (3) FY20 CNO Availabilities on LPD 18 (1 kit), LPD 25 (1 kit), and LPD 26 (1 kit). In FY20, there are (2) total kits being procured for installation during (2) FY21 CNO Availabilities on LPD 19 (1 kit) and LPD 22 (1 kit). In FY21, there is (1) total kit being procured for installation during (1) FY22 CNO Availability on LPD 21 (1 kit). In FY22, there are (2) total kits being procured for installation during (2) FY23 CNO Availabilities on LPD 17 (1 kit) and LPD 24 (1 kit).

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Exhibit P-40a, Budget Item Justification For Aggregated Items: FY 2018 Navy										Date: May 2017	
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9					P-1 Line Item Number / Title: 0946 / LPD Class Support Equipment					Aggregated Items Title: CJ033 HW/SW Obsocescence Magnetic Signature Control System (MSCS) Upgrades	

Item Number / Title [DODIC]	ID CD	MDAP/MAIS Code	Prior Years			FY 2016			FY 2017			FY 2018 Base			FY 2018 OCO			FY 2018 Total		
			Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)
B Kits/Recurring																				
Magnetic Signature Control Systems -- Procurement ⁽⁸⁾	A		-	-	-	-	-	-	-	-	-	650,000.00	1	0.650	-	-	-	650,000.00	1	0.650
Magnetic Signature Control Systems -- Installation	A		-	-	-	-	-	0.000	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: B Kits/Recurring			-	-	0.000	-	-	-	-	-	-	-	-	0.650	-	-	-	-	-	0.650
Total			-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.650	-	-	0.000	-	-	0.650

Note: Subtotals or Totals in this Exhibit P-40a may not be exact or sum exactly, due to rounding.

Remarks:

MAGNETIC SIGNATURE CONTROL SYSTEM DIGITAL CONTROL ASSEMBLY (DCA) Hardware/Software: HW/SW Obsolescence effort addresses critical hardware obsolescence and technology refreshment issues and supporting class upgrades focused on increased capability and reliability. Funding will support procurement of a new DCA and upgrade of the Operating System.

Footnotes:

⁽⁸⁾ HW/SW Obsolescence MSCS DCA Software Win10 includes funding for procurement and installation of equipment to correct critical obsolescence issues on LPD17 Class mission systems. Shipsets of equipment vary in quantities and types of components each fiscal year and within a fiscal year. Each ship requires a different number of alterations to be installed, and these alteration packages vary in scope and cost based on individual ship configurations. A quantity of "1" represents a single "kit" intended for installation in one ship, in a single Chief of Naval Operations (CNO) Availability. Ships may be receiving more than 1 kit in a single availability based upon the fielding plan for the systems being modernized. In FY18, there is (1) total kit being procured for installation during (1) FY19 CNO Availability on LPD 20 (1 kit). In FY19, there are (1) total kit being procured for installation during (1) FY20 CNO Availability on LPD 26. In FY20, there are no procurements being made to support FY21 CNO availabilities. In FY21, there are (2) total kits being procured for installation during (2) FY22 CNO Availabilities on LPD 21 (1 kit) and LPD23 (1 kit). In FY22, there are (4) total kits being procured for installation during (4) FY23 CNO Availabilities on LPD 17 (1 kit), LPD 18 (1 kit), LPD 24 (1 kit), and LPD 25 (1 kit).

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Exhibit P-40a, Budget Item Justification For Aggregated Items: FY 2018 Navy															Date: May 2017					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9							P-1 Line Item Number / Title: 0946 / LPD Class Support Equipment							Aggregated Items Title: CJ061 Titanium Valve Replacement						
Item Number / Title [DODIC]	ID CD	MDAP/MAIS Code	Prior Years			FY 2016			FY 2017			FY 2018 Base			FY 2018 OCO			FY 2018 Total		
			Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)
B Kits/Recurring -- Titanium Valve Replacement Phase 1																				
Titanium Valve Replacement Phase 1 -- Procurement ⁽⁹⁾	A		-	-	-	-	-	-	1,790K	1	1.790	-	-	-	-	-	-	-	-	-
Titanium Valve Replacement Phase 1 -- Installation	A		-	-	-	-	-	-	-	-	0.151	-	-	0.628	-	-	-	-	-	0.628
Subtotal: B Kits/Recurring -- Titanium Valve Replacement Phase 1			-	-	0.000	-	-	-	-	-	1.941	-	-	0.628	-	-	-	-	-	0.628
B Kits/Recurring -- Titanium Valve Replacement Phase 2																				
Titanium Valve Replacement Phase 2 -- Procurement ⁽¹⁰⁾	A		-	-	-	-	-	-	-	-	-	1,790K	2	3.580	-	-	-	1,790K	2	3.580
Titanium Valve Replacement Phase 2 -- Installation	A		-	-	-	-	-	-	-	-	-	-	-	0.302	-	-	-	-	-	0.302
Subtotal: B Kits/Recurring -- Titanium Valve Replacement Phase 2			-	-	0.000	-	-	-	-	-	-	-	-	3.882	-	-	-	-	-	3.882
Total			-	-	0.000	-	-	0.000	-	-	1.941	-	-	4.510	-	-	0.000	-	-	4.510
Note: Subtotals or Totals in this Exhibit P-40a may not be exact or sum exactly, due to rounding.																				
Remarks: TITANIUM VALVE REPLACEMENT (CJ061)Titanium Valve Replacement Phase I: Modernization funding is provided to correct mission, safety and reliability issues on mechanical and auxiliary systems and ultimately resolve maintenance intensive system concerns. Funding will support Phase I of the Titanium valve replacement. TITANIUM VALVE REPLACEMENT Modernization, Titanium Valve Replacement Phase II funding is provided to correct mission, safety and reliability issues on mechanical and auxiliary systems and ultimately resolve maintenance intensive system concerns. Funding will support Phase II of the Titanium valve replacement. TITANIUM VALVE REPLACEMENT Modernization Titanium Valve Replacement Phase III funding is provided to correct mission, safety and reliability issues on mechanical and auxiliary systems and ultimately resolve maintenance intensive system concerns. Funding will support Phase III of the Titanium valve replacement.																				
Footnotes: ⁽⁹⁾ CJ061 HM&E MECHANICAL/AUXILIARY MODIFICATIONSHME Modernization Titanium Valve Replacement Phase I funding is provided to correct mission, safety and reliability issues on mechanical and auxiliary systems and ultimately resolve maintenance intensive system concerns. Shipsets of equipment vary in quantities and types of components each fiscal year and within a fiscal year. Each ship requires a different number of alterations to be installed, and these alteration packages vary in scope and cost based on individual ship configurations. A quantity of "1" represents a single "kit" intended for installation in one ship, in a single Chief of Naval Operations (CNO) Availability. Ships may be receiving more than 1 kit in a single availability based upon the fielding plan for the systems being modernized. In FY17, there is (1) total kit being procured for installation during (1) FY18 CNO Availability on LPD 19 (1 kit). In FY18 and FY19, there are no procurements being made to support FY19 and FY20 CNO availabilities. In FY20, there is (1) total kit being procured for installation during (1) FY21 CNO Availability on LPD 22 (1 kit). ⁽¹⁰⁾ HM&E MECHANICAL/AUXILIARY MODIFICATIONSHME Modernization, Titanium Valve Replacement Phase II funding is provided to correct mission, safety and reliability issues on mechanical and auxiliary systems and ultimately resolve maintenance intensive system concerns. Shipsets of equipment vary in quantities and types of components each fiscal year and within a fiscal year. Each ship requires a different number of alterations to be installed, and these alteration packages vary in scope and cost based on individual ship configurations. A quantity of "1" represents a single "kit" intended for installation in one ship, in a single Chief of Naval Operations (CNO) Availability. Ships may be receiving more than 1 kit in a single availability based upon the fielding plan for the systems being modernized. In FY18, there are (2) total kit being procured for installation during (2) FY19 CNO Availability on LPD 20 (1 kit) and LPD 21 (1 kit). In FY19, there are (2) total kits being procured for installation during (2) FY20 CNO Availabilities on LPD 17 (1 kit) and LPD 18 (1 kit). In FY20, there are (2) total kits being procured for installation during (2) FY21 CNO Availabilities on LPD 19 (1 kit) and LPD 22 (1 kit).																				

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Exhibit P-40a, Budget Item Justification For Aggregated Items: FY 2018 Navy														Date: May 2017						
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9							P-1 Line Item Number / Title: 0946 / LPD Class Support Equipment							Aggregated Items Title: CJ062 HM&E Mechanical/Auxiliary Mods Knuckleboom Crane Improvements						
Item Number / Title [DODIC]	ID CD	MDAP/MAIS Code	Prior Years			FY 2016			FY 2017			FY 2018 Base			FY 2018 OCO			FY 2018 Total		
			Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)
B Kits/Recurring																				
Knuckleboom Crane Improvement -- Procurement ⁽¹¹⁾	A		-	-	-	-	-	-	-	-	-	500,000.00	2	1.000	-	-	-	500,000.00	2	1.000
Knuckleboom Crane Improvement -- Installation	A		-	-	-	-	-	-	-	-	-	-	-	0.300	-	-	-	-	-	0.300
Subtotal: B Kits/Recurring			-	-	0.000	-	-	-	-	-	-	-	-	1.300	-	-	-	-	-	1.300
Support Cost																				
Non-Recurring Engineering	A		-	-	-	-	-	-	-	-	0.300	-	-	-	-	-	-	-	-	-
Subtotal: Support Cost			-	-	0.000	-	-	-	-	-	0.300	-	-	-	-	-	-	-	-	-
Total			-	-	0.000	-	-	0.000	-	-	0.300	-	-	1.300	-	-	0.000	-	-	1.300
Note: Subtotals or Totals in this Exhibit P-40a may not be exact or sum exactly, due to rounding.																				
Remarks: KNUCKLEBOOM CRANE IMPROVEMENTS Modernization funding is provided to correct mission, safety and reliability issues on mechanical and auxiliary systems and ultimately resolve maintenance intensive system concerns. Funding will support boat and cargo crane safety upgrades. NRE include the following efforts: FY17: Non-recurring engineering in support of Knuckleboom Crane safety improvements to include interlock switches, e-stops, secure anchor points, crane cab ventilation, and access point for emergency egress.																				
Footnotes: ⁽¹¹⁾ HM&E MECHANICAL/AUXILIARY MODIFICATIONSHME Modernization Knuckleboom Crane Improvement funding is provided to correct mission, safety and reliability issues on mechanical and auxiliary systems and ultimately resolve maintenance intensive system concerns. Shipsets of equipment vary in quantities and types of components each fiscal year and within a fiscal year. Each ship requires a different number of alterations to be installed, and these alteration packages vary in scope and cost based on individual ship configurations. A quantity of "1" represents a single "kit" intended for installation in one ship, in a single Chief of Naval Operations (CNO) Availability. Ships may be receiving more than 1 kit in a single availability based upon the fielding plan for the systems being modernized. In FY18, there are (2) total kits being procured for installation during (2) FY19 CNO Availabilities on LPD 20 (1 kit) and LPD 23 (1 kit). In FY19, there are (2) total kits being procured for installation during (2) FY20 CNO Availabilities on LPD 18 (1 kit), LPD 25 (1 kit). In FY20, there are (3) total kits being procured for installation during (3) FY21 CNO Availabilities on LPD 19 (1 kit) and LPD 22 (1 kit) and LPD 27 (1 kit). In FY21, there is (1) total kit being procured for installation during (1) FY22 CNO Availability on LPD 21 (1 kit). In FY22, there are (3) total kits being procured for installation during (3) FY23 CNO Availabilities on LPD 17 (1 kit) and LPD 24 (1 kit), and LPD 26 (1 kit).																				

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Exhibit P-3a, Individual Modification: FY 2018 Navy					Date: May 2017	
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9			P-1 Line Item Number / Title: 0946 / LPD Class Support Equipment		Modification Number / Title: 5 / CJ070 SWAN-CANES Integration	
ID Code (A=Service Ready, B=Not Service Ready) :			MDAP/MAIS Code:			
Resource Summary	Prior Years	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
Procurement Quantity <i>(Units in Each)</i>	-	-	-	-	-	-
Gross/Weapon System Cost <i>(\$ in Millions)</i>	14.490	13.546	16.536	12.598	0.000	12.598
Less PY Advance Procurement <i>(\$ in Millions)</i>	-	-	-	-	-	-
Net Procurement (P-1) <i>(\$ in Millions)</i>	14.490	13.546	16.536	12.598	0.000	12.598
Plus CY Advance Procurement <i>(\$ in Millions)</i>	-	-	-	-	-	-
Total Obligation Authority <i>(\$ in Millions)</i>	14.490	13.546	16.536	12.598	0.000	12.598
<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>	-	-	-	-	-	-
Gross/Weapon System Unit Cost <i>(\$ in Dollars)</i>	-	-	-	-	-	-
Description: [SWAN-CANES Integration] The results of the Shipboard Wide Area Network (SWAN) / Consolidated Afloat Networks and Enterprise Services (CANES) study directed the replacement of the C4I capability of the LPD 17 Class SWAN with CANES and the conversion of the non-C4I SWAN into a new HM&E Network (mini SWAN). SWAN funding is required to field the new HM&E Network in support of the CANES installation. In addition, funding is required to sustain the legacy SWAN, while the LPD 17 Class ships await the CANES/HM&E Network back fit installation. SWAN serves as the backbone of the LPD 17 class and funding is necessary to address obsolescence, reliability issues, performance concerns, emergent Fleet requirements including enabling Cryptologic Log On (CLO), eradicating Windows XP, replacing aging obsolete network hardware (e.g., servers and core switches), and maintaining the Information Assurance posture of the Common Operating Environment (COE). This funding is vital to ensure the LPD 17 Class ships can combat the evolving cyber threat.						

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Exhibit P-3a, Individual Modification: FY 2018 Navy						Date: May 2017	
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9			P-1 Line Item Number / Title: 0946 / LPD Class Support Equipment			Modification Number / Title: 5 / CJ070 SWAN-CANES Integration	
ID Code (A=Service Ready, B=Not Service Ready) :					MDAP/MAIS Code:		
Models of Systems Affected: LPD 17 Class SWAN-CANES Integration			Modification Type: TBD			Related RDT&E PEs:	
Financial Plan	Prior Years	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	
	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)	
Procurement							
<i>Modification Item 1 of 1:</i> CJ070 SWAN-CANES Integration							
B Kits							
Recurring							
1.1.1) SWAN-CANES Integration - NonOrganic ⁽¹²⁾	43 / 5.069	16 / 5.996	29 / 10.182	4 / 7.868	- / -	4 / 7.868	
<i>Subtotal: Recurring</i>	- / 5.069	- / 5.996	- / 10.182	- / 7.868	- / -	- / 7.868	
Non-Recurring							
1.2.1) SWAN-CANES Integration - Organic ⁽¹³⁾	- / 4.435	- / 1.200	- / 1.250	- / 1.203	- / -	- / 1.203	
<i>Subtotal: Non-Recurring</i>	- / 4.435	- / 1.200	- / 1.250	- / 1.203	- / -	- / 1.203	
<i>Subtotal: CJ070 SWAN-CANES Integration</i>	43 / 9.504	16 / 7.196	29 / 11.432	4 / 9.071	- / -	4 / 9.071	
<i>Subtotal: Procurement, All Modification Items</i>	- / 9.504	- / 7.196	- / 11.432	- / 9.071	- / -	- / 9.071	
Installation							
<i>Modification Item 1 of 1:</i> CJ070 SWAN-CANES Integration							
	- / 4.986	- / 6.350	- / 5.104	- / 3.527	- / 0.000	- / 3.527	
<i>Subtotal: Installation</i>	- / 4.986	- / 6.350	- / 5.104	- / 3.527	- / -	- / 3.527	
Total							
Total Cost (Procurement + Support + Installation)	14.490	13.546	16.536	12.598	0.000	12.598	

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Exhibit P-3a, Individual Modification: FY 2018 Navy							Date: May 2017						
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9				P-1 Line Item Number / Title: 0946 / LPD Class Support Equipment				Modification Number / Title: 5 / CJ070 SWAN-CANES Integration					
ID Code (A=Service Ready, B=Not Service Ready) :							MDAP/MAIS Code:						
Modification Item 1 of 1: CJ070 SWAN-CANES Integration													
Manufacturer Information													
Manufacturer Name: Raytheon							Manufacturer Location: San Diego, CA						
Administrative Leadtime (in Months): 2							Production Leadtime (in Months): 7						
Dates		FY 2016				FY 2017				FY 2018			
Contract Dates		Dec 2015				Dec 2016				Dec 2017			
Delivery Dates		Jul 2016				Jul 2017				Jul 2018			
Installation Information													
Method of Implementation: AIT:: Installation Name: SWAN-CANES Integration													
Installation Cost		Prior Years		FY 2016		FY 2017		FY 2018 Base		FY 2018 OCO		FY 2018 Total	
		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)	
Prior Years		23 / 4.986		20 / 6.350		- / -		- / -		- / -		- / -	
FY 2016		- / -		- / -		16 / 5.104		- / -		- / -		- / -	
FY 2017		- / -		- / -		- / -		29 / 3.527		0 / 0.000		29 / 3.527	
FY 2018		- / -		- / -		- / -		- / -		- / -		- / -	
Total		23 / 4.986		20 / 6.350		16 / 5.104		29 / 3.527		0 / 0.000		29 / 3.527	
Installation Schedule													
	PYS	FY 2016				FY 2017				FY 2018			
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
In	23	7	7	-	6	2	2	-	12	9	-	12	8
Out	19	4	-	-	7	7	6	-	-	5	2	9	12
Footnotes:													
(12) This mod has sharp fluctuations in procurement and installation unit cost due to the variations in equipment quantities and types of components that make up a shipset. Each ship requires a different number of alterations to be installed, and these alteration packages vary in scope and cost based on individual ship configurations. Due to Type Commander (TYCOM) Integrated Class Maintenance Plan(ICMP) scheduling adjustments, CNO availabilities for LPD 17 Class have increased from once every 2 years to once every 3 years. This has caused CANES and HM&E Network schedules to slip and SWAN sustainment modification quantities to increase.													
(13) FY17 Availabilities: LPD 17 - HM&E Conversion Mesh; SWAN Removal Mesh. LPD 18 - HM&E Conversion Mesh; SWAN Removal Mesh. LPD 20 - SWAN COMPOSE 4.0.0; Network Router Upgrade; Network Storage Device Upgrade; SIPRNET CLO COMPOSE 4.0; NIPRNET CLO COMPOSE 4.0. LPD 25 - SWAN Mesh CORE Switch; SWAN COMPOSE 4.0.0; Network Router Upgrade; Network Storage Device Upgrade; SWAN Transport Upgrades; SIPRNET CLO COMPOSE 4.0; NIPRNET CLO COMPOSE 4.0. FY18 Availabilities: LPD 19 - SWAN Server COMPOSE 4.0; SWAN COMPOSE 4.0.1; Network Storage Device Upgrade; SIPRNET CLO COMPOSE 4.0; NIPRNET CLO COMPOSE 4.0; SWAN Workstation PC(Inc 2); SWAN Virtualization Mgt LAN; Windows 10 SHB Requirement; Enclave Boundary Defense Capability. LPD 22 - SWAN Mesh CORE Switch; SWAN Server COMPOSE 4.0; SWAN COMPOSE 4.0.1; Network Router Upgrade; Network Storage Device Upgrade; SWAN Transport Upgrades; SIPRNET CLO COMPOSE 4.0; NIPRNET CLO COMPOSE 4.0; SWAN Workstation PC(Inc 2); SWAN Virtualization Mgt LAN; Windows 10 SHB Requirement; Enclave Boundary Defense Capability. LPD 21													

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LI 0946 - LPD Class Support Equipment
Navy

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Exhibit P-40, Budget Line Item Justification: FY 2018 Navy **Date:** May 2017

Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 01: Ships Support Equipment / BSA 9: Other Shipboard Equipment	P-1 Line Item Number / Title: 0947 / DDG 1000 Class Support Equipment

ID Code (A=Service Ready, B=Not Service Ready): A	Program Elements for Code B Items: 0204202N	Other Related Program Elements: N/A

Line Item MDAP/MAIS Code: 197

Resource Summary	Prior Years	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	To Complete	Total
Procurement Quantity (<i>Units in Each</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost (<i>\$ in Millions</i>)	0.000	0.000	33.404	0.000	0.000	0.000	51.338	2.371	2.424	2.466	-	92.003
Less PY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (<i>\$ in Millions</i>)	0.000	0.000	33.404	0.000	0.000	0.000	51.338	2.371	2.424	2.466	-	92.003
Plus CY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority (<i>\$ in Millions</i>)	0.000	0.000	33.404	0.000	0.000	0.000	51.338	2.371	2.424	2.466	-	92.003

(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)

Initial Spares (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Flyaway Unit Cost (<i>\$ in Dollars</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost (<i>\$ in Dollars</i>)	-	-	-	-	-	-	-	-	-	-	-	-

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.

Program provides for DDG 1000 combat system hardware/equipment suite technology refresh to support obsolescence management and address reliability, maintainability & availability (RM&A) issues following fielding. Combat System hardware will be approaching 10 years of age at time of delivery for DDG 1000 and 1001. Active management of Commercial Off The Shelf (COTS) obsolescence via hardware/equipment technology refresh will be required to ensure DDG 1000 class ships reach their design service life. Additionally, program will sustain and upgrade in-service DDG 1000 ships in order to achieve their Expected Service Life (ESL). Upgrades will be mission capable in countering current and projected threats, improve operational capabilities, and comply with requirements.

[P40A / DDG 1000 Data Center]: Funding provides for the procurement and installation of critical technology refresh of the technical baseline for the first DDG 1000 data center (2 per ship) to enable the DDG 1000 combat system to operate with two (2) fully populated data centers (computer rooms). Technology refresh includes identification and qualification of applicable obsolete DDG 1000 data center parts, technical drawing updates (Lowest Replaceable Unit (LRU) & cabinet level), and Integrated Logistics Support (ILS) updates (LRU & cabinet level). Two (2) fully populated data centers on DDG 1000 enable shipboard integrated training, support Overall Combat System Operability Test (OCSOT) implementation, support Integrated Ship Plan (ISP) validation, and provide system redundancy in the event of operational casualty. Without a supportable ISP, the ship will be unable to validate the operation and safety of the ship's systems. DDG 1000 data centers house the Total Ship Computing Environment (TSCE); a single, secure network that includes all shipboard computing applications, from Command, Control, Communications, Computers (C4), and intelligence equipment to Combat Management Systems (CMSs) to machinery control and embedded training, support, and damage control systems.

[P40A / DDG 1001 Data Center]: Funding provides for the procurement and installation of critical technology refresh of the technical baseline for the first DDG 1001 data center (2 per ship) to enable the DDG 1000 combat system to operate with two (2) fully populated data centers (computer rooms). Technology refresh includes identification and qualification of applicable obsolete DDG 1000 data center parts, technical drawing updates (Lowest Replaceable Unit (LRU) & cabinet level), and Integrated Logistics Support (ILS) updates (LRU & cabinet level). Two (2) fully populated data centers on DDG 1000 enable shipboard integrated training, support Overall Combat System Operability Test (OCSOT) implementation, support Integrated Ship Plan (ISP) validation, and provide system redundancy in the event of operational casualty. Without a supportable ISP, the ship will be unable to validate the operation and safety of the ship's systems. DDG 1000 data centers house the Total Ship Computing Environment (TSCE); a single,

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Exhibit P-40, Budget Line Item Justification: FY 2018 Navy		Date: May 2017
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 01: Ships Support Equipment / BSA 9: Other Shipboard Equipment		P-1 Line Item Number / Title: 0947 / DDG 1000 Class Support Equipment
ID Code (A=Service Ready, B=Not Service Ready): A	Program Elements for Code B Items: 0204202N	Other Related Program Elements: N/A
Line Item MDAP/MAIS Code: 197		
secure network that includes all shipboard computing applications, from Command, Control, Communications, Computers (C4), and intelligence equipment to Combat Management Systems (CMSs) to machinery control and embedded training, support, and damage control systems.		
[P40A / DDG 1000 Class Product Improvement]: Funding will support ship alteration (Shipalt) prioritization and planning through shipyard installations during availabilities. Other modernization efforts include but are not limited to logistics and technical documentation, engineering services and Alteration Installation Team (AITs) within the Fleet Modernization Program (FMP). FY2017 funding will procure DDG 1000 Total Ship Computing Environment (TSCE) network switches which are critical items required to support DDG 1000 Data Center technology refresh. These TSCE network switches support Integrated Ship Plan (ISP) validation, address obsolescence, and require configuration engineering prior to installation. Without a supportable ISP, the ship will be unable to validate the operation and safety of the ship's systems.		
Justification: FY2017 funding provides for the procurement and installation of critical technology refresh of the technical baseline for the first DDG 1000 data center (2 per ship) to enable the DDG 1000 combat system to operate with two (2) fully populated data centers (computer rooms). Existing DDG 1000 data center hardware will be approaching 10 years of age at time of delivery. Technology refresh includes non-recurring engineering required to identify and qualify applicable obsolete DDG 1000 data center parts, prepare drawing updates (Lowest Replaceable Unit (LRU) & cabinet level), and prepare Integrated Logistics Support (ILS) updates (LRU & cabinet level).		

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Exhibit P-40, Budget Line Item Justification: FY 2018 Navy										Date: May 2017		
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 01: Ships Support Equipment / BSA 9: Other Shipboard Equipment							P-1 Line Item Number / Title: 0950 / Strategic Platform Support Equip					
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 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	To Complete	Total
Procurement Quantity (<i>Units in Each</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost (<i>\$ in Millions</i>)	89.169	18.563	15.836	15.812	0.000	15.812	14.409	9.890	10.099	10.300	Continuing	Continuing
Less PY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (<i>\$ in Millions</i>)	89.169	18.563	15.836	15.812	0.000	15.812	14.409	9.890	10.099	10.300	Continuing	Continuing
Plus CY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority (<i>\$ in Millions</i>)	89.169	18.563	15.836	15.812	0.000	15.812	14.409	9.890	10.099	10.300	Continuing	Continuing
<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 Dollars</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost (<i>\$ in Dollars</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Description: Funding in this P-1 line provides for the procurement of tactical Hull, Mechanical and Electrical (HM&E) equipment that will be installed aboard ships and in the facilities at the TRIDENT Refit Facility (TRIREFFAC), Navy Intermediate Maintenance Facility (NAVIMFAC) and TRIDENT Training Facility (TRITRAFAC). The TRIDENT Refit Facility and Navy Intermediate Maintenance Facility (NAVIMFAC) are dedicated shore support facilities providing a full range of industrial support. The TRITRAFAC provides the crews for the OHIO Class (SSBN/SSGN) Submarines with realistic training experience in operating and maintaining shipboard equipment. [P40A / HH009 EQUIPMENT HM&E & SWS/SS ALTERATION]: This provides for the replacement of obsolete equipment on board of OHIO Class Submarines and at dedicated Shore Support Facilities (TLCSF, TRITRAFAC (B), NAVIMFAC (B), TRITRAFAC (KB), TRIREFFAC (KB), Major Shore Spares (MSS)). These alterations are necessary in order to replace obsolete/outdated equipment with new equipment to maintain or increase mission capabilities, replace or modify components/systems which have proven to be unreliable, correct design and safety problems and reduce fleet maintenance burdens. Funds provide for multiple efforts to ensure that the OHIO Class Ship Control Subsystem, both hardware and software components, support the extended life of the OHIO Class submarine platforms. In FY99 and again in FY06 a NUWC KEYPORT study identified a number of obsolete electronic components in the Ship Control Station (27 out of 107) that are no longer available. The FY06 study recommended that the Ship Control ISEA develop and execute a program that would address the near term obsolescence issues and ensure the continued availability of the subsystem in the out years. Alterations and actions are done at the lowest practicable and authorized level (taking into consideration urgency, priority, capability, capacity and cost). Alterations to OHIO Class Submarines are scheduled for accomplishment at the TRIREFFAC, Kings Bay, NAVIMFAC, Bangor, and at Naval Shipyards during Depot Availabilities. This requires equipment procurement and installation, technical planning, training, and associated resources. This line provides for material procurement necessary to install the required alterations to OHIO Class Submarines. Additionally, this line provides for the utilization of specially trained and dedicated installation teams to ensure accelerated and correct installation of complex and high priority alterations within specific time frames. Provided are comprehensive program management and execution, including planning, direction, control, installation, integration, and coordination of specifically selected safety related, mission enhancement or technical HM&E alterations. Starting in FY12, SSBN Strategic Weapon Support Systems (SWSS) OER Upgrades are planned for Ventilation Alarm Monitoring Panel (VAMP) and the Missile Heating and Cooling Proportional Controllers. Both upgrades are required to support Strategic Systems Programs' Strategic Weapon Systems (SWS) Integration program (Mod6/Mod7) which replaces the current Launcher, Fire Control and Weapons Support electronics. Starting in FY16, two SSBN/GN OER transducer upgrade programs are planned, one for Hovering Transducers and the second for MDD/ MHC Differential Pressure Transducers. Both transducer types are estimated to be out of spares by 2018 and will require form/fit/function replacement. The Hovering System on both SSBNs and SSGNs is experiencing obsolescence issues due to aging technology and terminated vendor component production as of 2000. The Missile Drying and Dehumidification (MDD) system and Missile Heating and Cooling (MHC) system on both SSBNs and SSGNs provides a stable temperature and humidity environment for the missile tubes, and has similar obsolescence issues, with terminated vendor component production as of 2009.												

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Exhibit P-40, Budget Line Item Justification: FY 2018 Navy		Date: May 2017
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 01: Ships Support Equipment / BSA 9: Other Shipboard Equipment		P-1 Line Item Number / Title: 0950 / Strategic Platform Support Equip
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		
[P40A / HH012 EQUIPMENT HM&E TRIDENT ENGINEERING AVAILABILITY]: TRIDENT Engineered Availability (EA) material support funding is required to provide replacement and contingency material to support the critical path schedule during the SSBN 726 Class Submarine Engineered Availabilities (EAs) commencing in FY93 and continuing through the operational life of the submarine. Funding is also required to formulate or procure complex tools and fixtures required to reduce EA scheduled durations. This program also provides funding for installation of Depot level alterations packages, Quality Assurance (QA) oversight and certification by Supervisor Of Shipbuilding, Groton (SOS Groton) of OPN SHIPALTS performed by Electric Boat Corporation (EB), Liaison Action Requests and Selected Record Drawings (LAR/SRD) mark ups for Shipalt related work, NUWC Newport test support and deck plate coordination of Alteration Installation Team (AIT) work during both Engineered Refueling Overhauls (ERO) and Extended Refit Periods (ERPs)/ modernization periods. [P40A / HH0GN SSGN MODIFICATIONS]: Provides for procurement of SSGN unique system components that will be installed during planned modernization periods. Also provides funding to perform integrated testing of these unique systems to ensure satisfactory operation with other HM&E and Combat Systems. Beginning in FY11, funds are provided for procurement of Submarine Special Operations Forces (SOF) unique system components that will be installed during planned modernization periods. [P40A / SOF HH0GN]: Additionally beginning in FY11, funds are provided for installation of Submarine Special Operations Forces (SOF) unique system components.		

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Exhibit P-40, Budget Line Item Justification: FY 2018 Navy										Date: May 2017		
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 01: Ships Support Equipment / BSA 9: Other Shipboard Equipment							P-1 Line Item Number / Title: 0955 / Deep Subm Sys Proj (DSSP) Equip					
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 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	To Complete	Total
Procurement Quantity (<i>Units in Each</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost (<i>\$ in Millions</i>)	34.181	8.851	0.806	4.178	0.000	4.178	3.833	3.104	3.166	3.228	Continuing	Continuing
Less PY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (<i>\$ in Millions</i>)	34.181	8.851	0.806	4.178	0.000	4.178	3.833	3.104	3.166	3.228	Continuing	Continuing
Plus CY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority (<i>\$ in Millions</i>)	34.181	8.851	0.806	4.178	0.000	4.178	3.833	3.104	3.166	3.228	Continuing	Continuing
<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 Dollars</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost (<i>\$ in Dollars</i>)	-	-	-	-	-	-	-	-	-	-	-	-

Description:
FY2018 increase due to FY2017 funding being rephased for prior years under execution. FY2017 funds provide the bare minimum for sustainment of existing fleet capabilities. FY2018 funding is required to complete initial outfitting of Transfer Under Pressure (TUP) spares and planned upgrades to Remote Operated Vehicle (ROV) and Submarine Rescue Diving and Recompression System (SRDRS).

The Submarine Escape and Rescue Program, formerly Deep Submergence Systems Program (DSSP), is responsible for the procurement, life cycle support, and improvement and modernization of assigned platforms and programs. The Submarine Escape and Rescue Program provides for the procurement of equipment to support the establishment and maintenance of fleet capability for a number of programs which perform submarine search and rescue, inspection, and object location and retrieval from the ocean environment. Submarine Escape and Rescue procurements replace obsolete, non-supportable equipment and subsystems through phased improvement and modernization projects. These projects may include special ship alterations, field change kits, and design corrections.

SOURCES: The sources for these acquisitions are limited. There are few private companies actively engaged in deep ocean engineering and even fewer with the specialized experience, knowledge, and facilities to meet the exacting requirement of the Submarine Escape and Rescue Program. Accordingly, sole source contracts are sometimes required; however, where possible, contracting via open competition is utilized.

REFERENCES:
Acquisition Plans 584-87 Revision 7 approved August 2000. Acquisition plan for Submarine Escape and Rescue is reviewed twice annually by the Submarine Escape and Rescue Review Group (SERRG).

[P40A / HJ030 - RESCUE SUPPORT EQUIPMENT]: INTERVENTION SYSTEMS (ATMOSPHERIC DIVING SYSTEM (ADS)/ROV/ SRDRS/SUBMARINE RESCUE CHAMBER (SRC) Intervention assets (ADS/ ROV) are required to support the SRDRS and SRC world-wide rescue capability mission. Intervention assets are used to clear disabled submarines seating surfaces, attach the SRC downhaul cable, attach salvage fittings, deliver emergency life support stores, and assess disabled submarines. The ADS is a modified COTS one-man, one atmosphere diving system. An initiative is in process to transition from the ADS manned system to an unmanned ROV to reduce operational risk; full transition is pending availability of funding for second ROV. SRC provides shallow water rescue capability. SRDRS is the deep water rescue vehicle and will be delivered in increments. The Submarine Rescue System-Rescue Capable System (SRS-RCS) completed OPEVAL in FY08 and is currently the deep water rescue ready vehicle for the U.S. Navy. The final component of SRDRS is TUP or Submarine Rescue System-Submarine Decompression System (SRS-SDS). Full Operational Capability (FOC) has been delayed due to efforts associated with Pressurized Rescue Module (PRM) restoration to service; Initial Operating Capability (IOC) planned for March 2018.

SURVIVABILITY This equipment will provide a more efficient CO2 removal capability giving the fleet an increase in survival time from 3 days to 7 days for a disabled submarine and adds state of the art atmospheric monitoring equipment aboard each submarine.

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Exhibit P-40, Budget Line Item Justification: FY 2018 Navy		Date: May 2017
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 01: Ships Support Equipment / BSA 9: Other Shipboard Equipment		P-1 Line Item Number / Title: 0955 / Deep Subm Sys Proj (DSSP) Equip
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		
Justification: FY18 funding is required to complete initial outfitting of Transfer Under Pressure (TUP) spares and planned upgrades to Remote Operated Vehicle (ROV) and Submarine Rescue Diving and Recompression System (SRDRS).		

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Exhibit P-40, Budget Line Item Justification: FY 2018 Navy **Date:** May 2017

Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 01: Ships Support Equipment / BSA 9: Other Shipboard Equipment	P-1 Line Item Number / Title: 0960 / CG Modernization

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 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	To Complete	Total
Procurement Quantity (<i>Units in Each</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost (<i>\$ in Millions</i>)	2,470.018	99.500	0.000	306.050	0.000	306.050	210.520	186.260	84.760	55.110	279.890	3,692.108
Less PY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (<i>\$ in Millions</i>)	2,470.018	99.500	0.000	306.050	0.000	306.050	210.520	186.260	84.760	55.110	279.890	3,692.108
Plus CY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority (<i>\$ in Millions</i>)	2,470.018	99.500	0.000	306.050	0.000	306.050	210.520	186.260	84.760	55.110	279.890	3,692.108
<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>)	-	-	3.588	0.680	-	0.680	1.428	-	2.452	2.167	Continuing	Continuing
Flyaway Unit Cost (<i>\$ in Thousands</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost (<i>\$ in Thousands</i>)	-	-	-	-	-	-	-	-	-	-	-	-

Description:

Modernized Ticonderoga Class cruisers are multi-mission, large surface combatants which will operate as the Air Defense Commander platform for Carrier Strike Groups, as units of Surface Action Groups, in support of Marine Amphibious Task Forces, or independently in multi-threat environments that include air, surface and subsurface threats. These ships respond to Low Intensity Conflict, Coastal and Littoral Offshore Warfare, and joint mission scenarios as well as open ocean conflict, providing and augmenting power projection and forward presence. These ships conduct Air, Surface and Undersea Dominance, Land Attack, and Force Protection missions. The Ticonderoga Class is currently executing the CG Modernization (Mod) Program which upgrades combat systems; command, control, communications, computers, and intelligence (C4I) systems; and hull, mechanical, and electrical (HM&E) systems to achieve desired service life and pace the multi-mission threats. The CG Mod program provides the following combat systems upgrades: AEGIS Weapon System with the most current computer program and equipment suite; SPQ-9B air search radar; 5-inch, 62-caliber digital guns, integrated MK 34 Gun Weapons System with most current computer program and equipment suite; SQQ-89A(V)15 SONAR suite with multi-function towed array; integrated Mk 41 Vertical Launch System with most current computer program and equipment suite. C4I upgrades include: CANES, Navy Multiband Terminal, ADNS, NAVSSI, DMR, SSEE, and BFTN along with required peripherals. HM&E upgrades include All Electric to eliminate the auxiliary steam system, Integrated Ship Controls, structural changes to enable embarkation of the MH-60R helicopter, and aluminum superstructure alterations.

Current FY18 budget procures one shipset of these systems for USS HUE CITY(CG 66) as well as supports continues installations, engineering support services, and programmatic support for USS COWPENS (CG 63), USS GETTYSBURG (CG 64), USS CHOSIN (CG 65), USS VICKSBURG (CG 69), USS CAPE ST GEORGE (CG 71), and USS ANZIO (CG 68). Starting in FY15, the Ships Modernization Operations and Sustainment Fund (SMOSF) was used to support modernization requirements for USS COWPENS (CG 63), USS GETTYSBURG (CG 64), USS CHOSIN (CG 65), and USS VICKSBURG (CG 69). Congress rescinded SMOSF in the FY17 Defense Appropriations Act, therefore the Navy submitted a budget proposal to fully fund the CG Mod program as part of the President's Budget for FY18.

[P40A / CC002 - SARTIS]: Procures Shipboard Advanced Radar Target Identification System (SARTIS) including equipment procurement, recurring equipment engineering, equipment integration, and ILS.

[P40A / SARTIS EQUIPMENT]: FY15 combat systems procurement for CG 63 USS Cowpens, CG 64 USS Gettysburg, CG 65 USS Chosin and CG 69 USS Vicksburg.

[P40A / CC005 - SGS/CDLMS]: Procures Ship Gridlock System (SGS) and the Common Data Link Management System (CDLMS) for Baseline 2 ships including equipment procurement, recurring equipment engineering, equipment integration, and ILS.

[P40A / CC012 - VIRGINIA SITES]: Procures Commercial Off The Shelf (COTS) equipment to support C/S capabilities including equipment procurement, recurring equipment engineering, equipment integration, and ILS for various Virginia Sites test facilities. Virginia Sites perform a variety of functions including life-cycle support of the AWS and AEGIS combat training for officer and enlisted watch standers.

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Exhibit P-40, Budget Line Item Justification: FY 2018 Navy			Date: May 2017
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 01: Ships Support Equipment / BSA 9: Other Shipboard Equipment		P-1 Line Item Number / Title: 0960 / CG Modernization	
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			
[P40A / CC013 - INSTALLATION / DSA / AIT]: Provides Planning Yard Design Services Allocation (DSA) (design, advance planning, and kitted material), MSR installations and AIT installation support. [P40A / INSTALLATION / DSA / AIT]: FY15 SMOSF for First Year DSA and ADVANCE PLANNING LLTM on the CG 63 Cowpens, CG 64 Gettysburg, CG 65 Chosin, and CG 69 Vicksburg. FY16 SMOSF for DSA and ADVANCE PLANNING LLTM on the CG 63 Cowpens, CG 64 Gettysburg, CG 65 Chosin, and CG 69 Vicksburg along with SSRA execution on the CG 63 Cowpens and CG 64 Gettysburg. [P40A / CC014 - CONJUNCTIVE COMBAT SYSTEM ALTERATIONS]: Conjunctive Combat System Alterations includes design integration, equipment procurement, recurring equipment engineering, equipment integration, and ILS. [P40A / CONJUNCTIVE COMBAT SYSTEM ALTERATION EQUIPMENT]: FY16 microwave tube procurements for CG 63 USS Cowpens and CG 64 USS Gettysburg are included as part of the conjunctives (CC014). [P40A / CC017 - MULTI-MISSION BMD CAPABILITIES]: Procures Multi-Mission Ballistic Missile Defense (BMD) Capability including equipment procurement, recurring equipment engineering, equipment integration, and ILS. [P40A / CC018 - MULTI-MISSION SSA/CWI MICROWAVE TUBES]: Procures Multi-Mission Solid State Amplifier (SSA)/Continuous Wave Illuminator (CWI) Microwave Tubes including equipment procurement, recurring equipment engineering, equipment integration, and ILS. [P40AMOD / CC003 - COOPERATIVE ENGAGEMENT CAPABILITIES (CEC)]: Procures Cooperative Engagement Capability (CEC) for all ships including equipment procurement, recurring equipment engineering, equipment integration, and ILS. [P40AMOD / CC008 - VERTICAL LAUNCH SYSTEM (VLS)]: Procures Vertical Launch System (VLS) upgrade for all ships including equipment procurement, recurring equipment engineering, equipment integration, and ILS. [P40AMOD / CC015 - MULTI-MISSION SIGPRO]: Procures Multi-Mission Signal Processor (MMSP) including equipment procurement, recurring equipment engineering, equipment integration, and ILS. [P40AMOD / CC016 - SPY-1B VARIANCE TRANSMITTER UPGRADES]: Procures SPY-1B Variance Transmitter Upgrades including equipment procurement, recurring equipment engineering, equipment integration, and ILS. [P3A / CC001 - SPQ-9B UPGRADE]: Procures SPQ-9B for all CG Modernization ships including equipment procurement, recurring equipment engineering, equipment integration, and Integrated Logistics. [P3A - 3 / CC004 - AN/SQQ-89 A(V) 15 PROCUREMENT]: Procures AN/SQQ-89 A(V) 15 for Baseline 3 and 4 ships including equipment procurement, recurring equipment engineering, equipment integration, and ILS. [P3A - 4 / CC007 - AEGIS WEAPONS SYSTEM (AWS) UPGRADE PROCUREMENT]: Procures AEGIS Weapons System (AWS) upgrade for all ships including equipment procurement, recurring equipment engineering, equipment integration, and ILS. [P3A - 6 / CC010 - MK34 UPGRADE]: Procures MK34 Gun Weapon System (GWS) upgrade for all ships including equipment procurement, recurring equipment engineering, equipment integration, and ILS. [P3A - 7 / CC011 - INTEGRATED SHIP CONTROLS (ISC)]: Procures Smartship Integrated Ship Controls (ISC) for all ships requiring upgrade including equipment procurement, recurring equipment engineering, equipment integration, and ILS.			

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Exhibit P-40, Budget Line Item Justification: FY 2018 Navy								Date: May 2017		
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 01: Ships Support Equipment / BSA 9: Other Shipboard Equipment						P-1 Line Item Number / Title: 0960 / CG Modernization				
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 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 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-40a	CG Modernization				- / 684.547	- / 84.300	- / -	- / 169.080	- / -	- / 169.080
P-40a	CC003 - COOPERATIVE ENGAGEMENT CAPABILITIES (CEC)				- / 121.279	- / 0.000	- / 0.000	- / 7.717	- / 0.000	- / 7.717
P-40a	CC008 - VERTICAL LAUNCH SYSTEM (VLS)				- / 235.039	- / 0.000	- / 0.000	- / 6.147	- / 0.000	- / 6.147
P-40a	CC015 - MULTI-MISSION SIGPRO				- / 66.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000
P-40a	CC016 - SPY-1B VARIANCE TRANSMITTER UPGRADES				- / 30.780	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000
P-3a	1 / CC001 - SPQ-9B UPGRADE (TBD)				- / 139.849	- / 15.200	- / 0.000	- / 10.586	- / 0.000	- / 10.586
P-3a	3 / CC004 - AN/SQQ-89 A(V) 15 PROCUREMENT (TBD)				- / 228.922	- / 0.000	- / 0.000	- / 32.728	- / 0.000	- / 32.728
P-3a	4 / CC007 - AEGIS WEAPONS SYSTEM (AWS) UPGRADE PROCUREMENT (TBD)				- / 702.112	- / 0.000	- / 0.000	- / 50.047	- / 0.000	- / 50.047
P-3a	6 / CC010 - MK34 UPGRADE (TBD)				- / 169.737	- / 0.000	- / 0.000	- / 12.301	- / 0.000	- / 12.301
P-3a	7 / CC011 - INTEGRATED SHIP CONTROLS (ISC) (TBD)				- / 91.753	- / 0.000	- / 0.000	- / 17.444	- / 0.000	- / 17.444
P-40	Total Gross/Weapon System Cost				- / 2,470.018	- / 99.500	- / 0.000	- / 306.050	- / 0.000	- / 306.050

*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. Title represents the P-40a Title when only the P-40a Summary/Total is shown.

Note: Totals in this Exhibit P-40 set may not be exact or sum exactly due to rounding.

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Exhibit P-40a, Budget Item Justification For Aggregated Items: FY 2018 Navy															Date: May 2017					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9						P-1 Line Item Number / Title: 0960 / CG Modernization						Aggregated Items Title: CG Modernization ⁽¹⁾								
Item Number / Title [DODIC]	ID CD	MDAP/MAIS Code	Prior Years			FY 2016			FY 2017			FY 2018 Base			FY 2018 OCO			FY 2018 Total		
			Unit Cost (\$ K)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$ K)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$ K)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$ K)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$ K)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$ K)	Qty (Each)	Total Cost (\$ M)
1) CC002 - SARTIS																				
1.1) SARTIS EQUIPMENT	A		227.091	11	2.498	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: 1) CC002 - SARTIS			-	-	2.498	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2) CC005 - SGS/CDLMS																				
2.1) SGS/CDLMS EQUIPMENT	A		820.143	7	5.741	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2.2) SGS/CDLMS ENGINEERING SERVICES	A		-	-	0.700	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: 2) CC005 - SGS/CDLMS			-	-	6.441	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3) CC012 - VIRGINIA SITES																				
3.1) VIRGINIA SITES	A		-	-	82.028	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: 3) CC012 - VIRGINIA SITES			-	-	82.028	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4) CC013 - INSTALLATION / DSA / AIT																				
4.1) INSTALLATION / DSA / AIT	A		-	-	294.562	-	-	39.500	-	-	-	-	-	128.780	-	-	-	-	-	128.780
Subtotal: 4) CC013 - INSTALLATION / DSA / AIT			-	-	294.562	-	-	39.500	-	-	-	-	-	128.780	-	-	-	-	-	128.780
5) CC014 - CONJUNCTIVE COMBAT SYSTEM ALTERATIONS																				
5.1) CONJUNCTIVE COMBAT SYSTEM ALTERATION EQUIPMENT ⁽²⁾	A		72,734.500	4	290.938	-	-	44.800	-	-	-	-	-	40.300	-	-	-	-	-	40.300
Subtotal: 5) CC014 - CONJUNCTIVE COMBAT SYSTEM ALTERATIONS			-	-	290.938	-	-	44.800	-	-	-	-	-	40.300	-	-	-	-	-	40.300
6) CC017 - MULTI-MISSION BMD CAPABILITIES																				
6.1) MULTI-MISSION BMD CAPABILITIES EQUIPMENT	A		1,553.333	3	4.660	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: 6) CC017 - MULTI-MISSION BMD CAPABILITIES			-	-	4.660	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7) CC018 - MULTI-MISSION SSA/CWI MICROWAVE TUBES																				
7.1) MULTI-MISSION SSA/CWI MICROWAVE TUBE EQUIPMENT	A		1,140.000	3	3.420	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: 7) CC018 - MULTI-MISSION SSA/CWI MICROWAVE TUBES			-	-	3.420	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total			-	-	684.547	-	-	84.300	-	-	-	-	-	169.080	-	-	-	-	-	169.080
Note: Subtotals or Totals in this Exhibit P-40a may not be exact or sum exactly, due to rounding.																				

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Exhibit P-40a, Budget Item Justification For Aggregated Items: FY 2018 Navy		Date: May 2017
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	P-1 Line Item Number / Title: 0960 / CG Modernization	Aggregated Items Title: CG Modernization ⁽¹⁾
Footnotes: ⁽¹⁾ (a) The Consolidated Appropriations Act, 2015, H.R. 8110 re-appropriated and extended the Ship Modernization, Operations and Sustainment fund (SMOSF) to provide for costs associated with the continued operations and modernization of eleven cruisers. Received \$375,500,000 FY15 SMOSF funds for the CG 63 Cowpens, CG 64 Gettysburg, CG 65 Chosin, and CG 69 Vicksburg. Received \$99,500,000 FY16 SMOSF for the CG 63 Cowpens, CG 64 Gettysburg, CG 65 Chosin, and CG 69 Vicksburg. (b) FY15 and FY16 combat systems procurement for CG 63 Cowpens, CG 64 Gettysburg, CG 65 Chosin, and CG 69 Vicksburg. (c) FY15 SMOSF for First Year DSA and Advance Planning LLTM on the CG 63 Cowpens, CG 64 Gettysburg, CG 65 Chosin, and CG 69 Vicksburg. FY16 SMOSF for DSA and Advance Planning LLTM on the CG 63 Cowpens, CG 64 Gettysburg, CG 65 Chosin, and CG 69 Vicksburg along with SSRA execution on the CG 63 Cowpens and CG 64 Gettysburg. (d) Funding for FY18 - FY22 is shifting from PB17 submit to 2-4-6 CG Modernization. ⁽²⁾ Note: Quantities for installation are removed because installation costs vary based on type of availability - EDSRA and SSRA - and includes DSA, AMT, and CSSQT costs.		

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Exhibit P-40a, Budget Item Justification For Aggregated Items: FY 2018 Navy															Date: May 2017				
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9								P-1 Line Item Number / Title: 0960 / CG Modernization							Aggregated Items Title: CC003 - COOPERATIVE ENGAGEMENT CAPABILITIES (CEC)				

Item Number / Title [DODIC]	ID CD	MDAP/ MAIS Code	Prior Years			FY 2016			FY 2017			FY 2018 Base			FY 2018 OCO			FY 2018 Total		
			Unit Cost (\$ K)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$ K)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$ K)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$ K)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$ K)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$ K)	Qty (Each)	Total Cost (\$ M)
B Kits/Recurring																				
CC003 - CEC EQUIPMENT -- Procurement ⁽³⁾	A		6,465.571	14	90.518	-	-	-	-	-	-	4,180.000	1	4.180	-	-	-	4,180.000	1	4.180
CC003 - CEC EQUIPMENT -- Installation	A		-	-	22.432	-	-	-	-	-	-	-	-	3.067	-	-	-	-	-	3.067
CC003 - CEC ENGINEERING SERVICES -- Procurement	A		-	-	8.329	-	-	-	-	-	-	-	-	0.470	-	-	-	-	-	0.470
CC003 - CEC ENGINEERING SERVICES -- Installation	A		-	-	-	-	-	0.000	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: B Kits/Recurring			-	-	121.279	-	-	-	-	-	-	-	-	7.717	-	-	-	-	-	7.717
Total			-	-	121.279	-	-	0.000	-	-	0.000	-	-	7.717	-	-	0.000	-	-	7.717

Note: Subtotals or Totals in this Exhibit P-40a may not be exact or sum exactly, due to rounding.

Remarks:

Procure and install Cooperative Engagement Capability (CEC). Supports DSA and Planning for installation.

Footnotes:

⁽³⁾ FY15 combat systems procurements for the CG 63 Cowpens, CG 64 Gettysburg, CG 65 Chosin, and CG 69 Vicksburg. Initial DSA costs were funded by SMOSF and funded the SSRA in FY16 for CG 63 USS Cowpens and CG 64 USS Gettysburg. Funding for FY18 - FY22 is shifting from PB17 submit to 2-4-6 CG Modernization. Installation was executed incrementally: a portion of the work was accomplished in prior SSRAs and completed during the EDSRA. In/Outs are reflecting the EDSRA since that is when the ship is being reactivated following the EDSRA.

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Exhibit P-40a, Budget Item Justification For Aggregated Items: FY 2018 Navy															Date: May 2017					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9							P-1 Line Item Number / Title: 0960 / CG Modernization								Aggregated Items Title: CC008 - VERTICAL LAUNCH SYSTEM (VLS)					
Item Number / Title [DODIC]	ID CD	MDAP/MAIS Code	Prior Years			FY 2016			FY 2017			FY 2018 Base			FY 2018 OCO			FY 2018 Total		
			Unit Cost (\$ K)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$ K)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$ K)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$ K)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$ K)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$ K)	Qty (Each)	Total Cost (\$ M)
B Kits/Recurring																				
CC008 - VLS EQUIPMENT -- Procurement ⁽⁴⁾	A		15,173.286	14	212.426	-	-	-	-	-	-	4,520.000	1	4.520	-	-	-	4,520.000	1	4.520
CC008 - VLS EQUIPMENT -- Installation	A		-	-	15.284	-	-	-	-	-	-	-	-	1.117	-	-	-	-	-	1.117
CC008 - VLS ENGINEERING SERVICES	A		-	-	7.329	-	-	-	-	-	-	-	-	0.510	-	-	-	-	-	0.510
Subtotal: B Kits/Recurring			-	-	235.039	-	-	-	-	-	-	-	-	6.147	-	-	-	-	-	6.147
Total			-	-	235.039	-	-	0.000	-	-	0.000	-	-	6.147	-	-	0.000	-	-	6.147
Note: Subtotals or Totals in this Exhibit P-40a may not be exact or sum exactly, due to rounding.																				
Remarks: Provides VLS upgrades one module forward and one module aft to support evolved sea sparrow missile system capability. Supports DSA and Planning for installation.																				
Footnotes: ⁽⁴⁾ FY15 combat systems procurements for the CG 63 Cowpens, CG 64 Gettysburg, CG 65 Chosin, and CG 69 Vicksburg. Initial DSA costs were funded by SMOSF and funded the SSRA in FY16 for CG 63 USS Cowpens and CG 64 USS Gettysburg. Funding for FY18 - FY22 is shifting funds from PB17 submit to 2-4-6 CG Modernization. Installation was executed incrementally: a portion of the work was accomplished in prior SSRAs and completed during the EDSRA. In/Outs are reflecting the EDSRA since that is when the ship is being reactivated following the EDSRA.																				

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Exhibit P-40a, Budget Item Justification For Aggregated Items: FY 2018 Navy															Date: May 2017					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9						P-1 Line Item Number / Title: 0960 / CG Modernization						Aggregated Items Title: CC015 - MULTI-MISSION SIGPRO								
Item Number / Title [DODIC]	ID CD	MDAP/ MAIS Code	Prior Years			FY 2016			FY 2017			FY 2018 Base			FY 2018 OCO			FY 2018 Total		
			Unit Cost (\$ K)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$ K)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$ K)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$ K)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$ K)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$ K)	Qty (Each)	Total Cost (\$ M)
B Kits/Recurring																				
CC015 - MULTI-MISSION SIGPRO EQUIPMENT	A		-	-	66.000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: B Kits/Recurring			-	-	66.000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total			-	-	66.000	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000

Note: Subtotals or Totals in this Exhibit P-40a may not be exact or sum exactly, due to rounding.

Remarks:
Replaces existing AN/SPY-1B/B(V) MIL-STANDARD Signal Processor with the COTS Multi-Mission SIGPRO set.

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Exhibit P-40a, Budget Item Justification For Aggregated Items: FY 2018 Navy															Date: May 2017					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9							P-1 Line Item Number / Title: 0960 / CG Modernization								Aggregated Items Title: CC016 - SPY-1B VARIANCE TRANSMITTER UPGRADES					
Item Number / Title [DODIC]	ID CD	MDAP/MAIS Code	Prior Years			FY 2016			FY 2017			FY 2018 Base			FY 2018 OCO			FY 2018 Total		
			Unit Cost (\$ K)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$ K)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$ K)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$ K)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$ K)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$ K)	Qty (Each)	Total Cost (\$ M)
B Kits/Recurring																				
CC016 - SPY-1B VARIANCE TRANSMITTER EQUIPMENT	A		-	-	30.780	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: B Kits/Recurring			-	-	30.780	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total			-	-	30.780	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000

Note: Subtotals or Totals in this Exhibit P-40a may not be exact or sum exactly, due to rounding.

Remarks:

Provides upgrades to the existing Radio Frequency Monitor (RFM), existing Driver/Pre-Driver (DPD) and modifies existing Deckhouse Wave Guide.

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Exhibit P-3a, Individual Modification: FY 2018 Navy					Date: May 2017	
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9			P-1 Line Item Number / Title: 0960 / CG Modernization		Modification Number / Title: 1 / CC001 - SPQ-9B UPGRADE	
ID Code (A=Service Ready, B=Not Service Ready) :				MDAP/MAIS Code:		
Resource Summary	Prior Years	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
Procurement Quantity <i>(Units in Each)</i>	-	-	-	-	-	-
Gross/Weapon System Cost <i>(\$ in Millions)</i>	139.849	15.200	0.000	10.586	0.000	10.586
Less PY Advance Procurement <i>(\$ in Millions)</i>	-	-	-	-	-	-
Net Procurement (P-1) <i>(\$ in Millions)</i>	139.849	15.200	0.000	10.586	0.000	10.586
Plus CY Advance Procurement <i>(\$ in Millions)</i>	-	-	-	-	-	-
Total Obligation Authority <i>(\$ in Millions)</i>	139.849	15.200	0.000	10.586	0.000	10.586
<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>	-	-	-	-	-	-
Gross/Weapon System Unit Cost <i>(\$ in Thousands)</i>	-	-	-	-	-	-
Description: Replaces the existing AN/SPQ-9A heavyweight (HW) Radar Set with the AN/SPQ-9B lightweight (LW) Radar Set. Supports associated DSA and Planning for installation.						

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Exhibit P-3a, Individual Modification: FY 2018 Navy					Date: May 2017	
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9			P-1 Line Item Number / Title: 0960 / CG Modernization		Modification Number / Title: 1 / CC001 - SPQ-9B UPGRADE	
ID Code (A=Service Ready, B=Not Service Ready) :				MDAP/MAIS Code:		
Models of Systems Affected: [No Model Specified]		Modification Type: TBD			Related RDT&E PEs:	
Financial Plan	Prior Years	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
	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)
Procurement						
Modification Item 1 of 1: CC001 - SPQ-9B UPGRADE						
B Kits						
Recurring						
1.1.1) CC001 - SPQ-9B EQUIPMENT - NonOrganic ⁽⁵⁾	12 / 108.569	2 / 13.540	- / -	1 / 7.140	- / -	1 / 7.140
1.1.2) CC001 - SPQ-9B ENGINEERING SERVICES - Organic	- / 9.243	- / 1.660	- / -	- / 0.800	- / -	- / 0.800
<i>Subtotal: Recurring</i>	- / 117.812	- / 15.200	- / -	- / 7.940	- / -	- / 7.940
<i>Subtotal: CC001 - SPQ-9B UPGRADE</i>	12 / 117.812	2 / 15.200	- / -	1 / 7.940	- / -	1 / 7.940
<i>Subtotal: Procurement, All Modification Items</i>	- / 117.812	- / 15.200	- / -	- / 7.940	- / -	- / 7.940
Installation						
Modification Item 1 of 1: CC001 - SPQ-9B UPGRADE	- / 22.037	- / 0.000	- / 0.000	- / 2.646	- / 0.000	- / 2.646
<i>Subtotal: Installation</i>	- / 22.037	- / -	- / -	- / 2.646	- / -	- / 2.646
Total						
Total Cost (Procurement + Support + Installation)	139.849	15.200	0.000	10.586	0.000	10.586

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Exhibit P-3a, Individual Modification: FY 2018 Navy							Date: May 2017						
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9				P-1 Line Item Number / Title: 0960 / CG Modernization				Modification Number / Title: 1 / CC001 - SPQ-9B UPGRADE					
ID Code (A=Service Ready, B=Not Service Ready) :							MDAP/MAIS Code:						
Modification Item 1 of 1: CC001 - SPQ-9B UPGRADE													
Manufacturer Information													
Manufacturer Name: NORTHROP GRUMMAN							Manufacturer Location: MELVILLE, NY						
Administrative Leadtime (in Months): 6							Production Leadtime (in Months): 18						
Dates		FY 2016				FY 2017				FY 2018			
Contract Dates										Jul 2018			
Delivery Dates										Jan 2020			
Installation Information													
Method of Implementation: [none specified]:: Installation Name: CC001 - SPQ-9B EQUIPMENT													
Installation Cost		Prior Years		FY 2016		FY 2017		FY 2018 Base		FY 2018 OCO		FY 2018 Total	
		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)	
Prior Years		10 / 22.037		- / -		- / -		2 / 2.304		0 / 0.000		2 / 2.304	
FY 2016		- / -		- / -		- / -		0 / 0.342		0 / 0.000		0 / 0.342	
FY 2017		- / -		- / -		- / -		- / -		- / -		- / -	
FY 2018		- / -		- / -		- / -		- / -		- / -		- / -	
Total		10 / 22.037		- / -		- / -		2 / 2.646		0 / 0.000		2 / 2.646	
Installation Schedule													
	PYS	FY 2016				FY 2017				FY 2018			
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
In	10	-	-	-	-	-	-	-	-	-	2	-	-
Out	10	-	-	-	-	-	-	-	-	-	-	-	-
Footnotes:													
⁽⁵⁾ FY15 combat systems procurements for the CG 63 Cowpens, CG 64 Gettysburg. FY16 procurements for CG 65 USS Chosin and CG 69 USS Vicksburg were funded by SMOSF. Initial DSA costs were funded by SMOSF and funded the SSRA in FY16 for CG 63 USS Cowpens and CG 64 USS Gettysburg. Funding for FY18 - FY22 is shifting from PB17 submit to 2-4-6 CG Modernization. Installation was executed incrementally: a portion of the work was accomplished in prior SSRAs and completed during the EDSRA. In/Outs are reflecting the EDSRA since that is when the ship is being reactivated following the EDSRA.													

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Exhibit P-3a, Individual Modification: FY 2018 Navy					Date: May 2017	
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9		P-1 Line Item Number / Title: 0960 / CG Modernization			Modification Number / Title: 3 / CC004 - AN/SQQ-89 A(V) 15 PROCUREMENT	
ID Code (A=Service Ready, B=Not Service Ready) :				MDAP/MAIS Code:		
Resource Summary	Prior Years	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
Procurement Quantity <i>(Units in Each)</i>	-	-	-	-	-	-
Gross/Weapon System Cost <i>(\$ in Millions)</i>	228.922	0.000	0.000	32.728	0.000	32.728
Less PY Advance Procurement <i>(\$ in Millions)</i>	-	-	-	-	-	-
Net Procurement (P-1) <i>(\$ in Millions)</i>	228.922	0.000	0.000	32.728	0.000	32.728
Plus CY Advance Procurement <i>(\$ in Millions)</i>	-	-	-	-	-	-
Total Obligation Authority <i>(\$ in Millions)</i>	228.922	0.000	0.000	32.728	0.000	32.728
<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>	-	-	-	-	-	-
Gross/Weapon System Unit Cost <i>(\$ in Thousands)</i>	-	-	-	-	-	-
Description: Procure and Install AN/SQQ-89 A(V) 15 for CG Modernization. Supports DSA and Planning for installation.						

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Exhibit P-3a, Individual Modification: FY 2018 Navy					Date: May 2017	
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9		P-1 Line Item Number / Title: 0960 / CG Modernization			Modification Number / Title: 3 / CC004 - AN/SQQ-89 A(V) 15 PROCUREMENT	
ID Code (A=Service Ready, B=Not Service Ready) :				MDAP/MAIS Code:		
Models of Systems Affected: [No Model Specified]		Modification Type: TBD			Related RDT&E PEs:	
Financial Plan	Prior Years	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
	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)
Procurement						
Modification Item 1 of 1: CC004 - AN/SQQ-89 A(V) 15 PROCUREMENT						
B Kits						
Recurring						
1.1.1) CC004 - AN/SQQ-89 A(V) 15 EQUIPMENT - NonOrganic ⁽⁶⁾	14 / 170.111	- / -	- / -	1 / 21.140	- / -	1 / 21.140
1.1.2) CC004 - AN/SQQ-89 A(V) 15 ENGINEERING SERVICES - NonOrganic	- / 41.290	- / -	- / -	- / 2.380	- / -	- / 2.380
<i>Subtotal: Recurring</i>	- / 211.401	- / -	- / -	- / 23.520	- / -	- / 23.520
<i>Subtotal: CC004 - AN/SQQ-89 A(V) 15 PROCUREMENT</i>	14 / 211.401	- / -	- / -	1 / 23.520	- / -	1 / 23.520
<i>Subtotal: Procurement, All Modification Items</i>	- / 211.401	- / -	- / -	- / 23.520	- / -	- / 23.520
Installation						
Modification Item 1 of 1: CC004 - AN/SQQ-89 A(V) 15 PROCUREMENT						
<i>Subtotal: Installation</i>	- / 17.521	- / 0.000	- / 0.000	- / 9.208	- / 0.000	- / 9.208
Total						
Total Cost (Procurement + Support + Installation)	228.922	0.000	0.000	32.728	0.000	32.728

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Exhibit P-3a, Individual Modification: FY 2018 Navy						Date: May 2017							
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9				P-1 Line Item Number / Title: 0960 / CG Modernization				Modification Number / Title: 3 / CC004 - AN/SQQ-89 A(V) 15 PROCUREMENT					
ID Code (A=Service Ready, B=Not Service Ready) :								MDAP/MAIS Code:					
Modification Item 1 of 1: CC004 - AN/SQQ-89 A(V) 15 PROCUREMENT													
Manufacturer Information													
Manufacturer Name: LOCKHEED MARTIN						Manufacturer Location: SYRACUSE, NY							
Administrative Leadtime <i>(in Months)</i> : 6						Production Leadtime <i>(in Months)</i> : 18							
Dates		FY 2016				FY 2017				FY 2018			
Contract Dates										Jul 2018			
Delivery Dates										Jan 2020			
Installation Information													
Method of Implementation: [none specified]:: Installation Name: CC004 - AN/SQQ-89 A(V) 15 EQUIPMENT													
Installation Cost		Prior Years		FY 2016		FY 2017		FY 2018 Base		FY 2018 OCO		FY 2018 Total	
		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>		Qty <i>(Each)</i> / Total Cost <i>(\$ M)</i>		Qty <i>(Each)</i> / Total Cost <i>(\$ M)</i>	
Prior Years		10 / 17.521		- / -		- / -		2 / 9.208		0 / 0.000		2 / 9.208	
FY 2016		- / -		- / -		- / -		- / -		- / -		- / -	
FY 2017		- / -		- / -		- / -		- / -		- / -		- / -	
FY 2018		- / -		- / -		- / -		- / -		- / -		- / -	
Total		10 / 17.521		- / -		- / -		2 / 9.208		0 / 0.000		2 / 9.208	
Installation Schedule													
	PYS	FY 2016				FY 2017				FY 2018			
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
In	10	-	-	-	-	-	-	-	-	-	2	-	-
Out	10	-	-	-	-	-	-	-	-	-	-	-	-
Footnotes: (6) FY15 combat systems procurements for the CG 63 Cowpens, CG 64 Gettysburg, CG 65 Chosin, and CG 69 Vicksburg. Initial DSA costs were funded by SMOSF and funded the SSRA in FY16 for CG 63 USS Cowpens and CG 64 USS Gettysburg. Funding for FY18 - FY22 is shifting from PB17 submit to 2-4-6 CG Modernization. Installation was executed incrementally: a portion of the work was accomplished in prior SSRAs and completed during the EDSRA. In/Outs are reflecting the EDSRA since that is when the ship is being reactivated following the EDSRA.													

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Exhibit P-3a, Individual Modification: FY 2018 Navy					Date: May 2017	
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9		P-1 Line Item Number / Title: 0960 / CG Modernization			Modification Number / Title: 4 / CC007 - AEGIS WEAPONS SYSTEM (AWS) UPGRADE PROCUREMENT	
ID Code (A=Service Ready, B=Not Service Ready) :				MDAP/MAIS Code:		
Resource Summary	Prior Years	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
Procurement Quantity <i>(Units in Each)</i>	-	-	-	-	-	-
Gross/Weapon System Cost <i>(\$ in Millions)</i>	702.112	0.000	0.000	50.047	0.000	50.047
Less PY Advance Procurement <i>(\$ in Millions)</i>	-	-	-	-	-	-
Net Procurement (P-1) <i>(\$ in Millions)</i>	702.112	0.000	0.000	50.047	0.000	50.047
Plus CY Advance Procurement <i>(\$ in Millions)</i>	-	-	-	-	-	-
Total Obligation Authority <i>(\$ in Millions)</i>	702.112	0.000	0.000	50.047	0.000	50.047
<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>	-	-	-	-	-	-
Gross/Weapon System Unit Cost <i>(\$ in Thousands)</i>	-	-	-	-	-	-
Description: Provides improved computing and display capabilities, faster processing, and greater track capacity. Supports DSA and Planning for installation.						

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Exhibit P-3a, Individual Modification: FY 2018 Navy					Date: May 2017	
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9		P-1 Line Item Number / Title: 0960 / CG Modernization			Modification Number / Title: 4 / CC007 - AEGIS WEAPONS SYSTEM (AWS) UPGRADE PROCUREMENT	
ID Code (A=Service Ready, B=Not Service Ready) :				MDAP/MAIS Code:		
Models of Systems Affected: [No Model Specified]		Modification Type: TBD			Related RDT&E PEs:	
Financial Plan	Prior Years	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
	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)
Procurement						
Modification Item 1 of 1: CC007 - AEGIS WEAPONS SYSTEM (AWS) UPGRADE PROCUREMENT						
B Kits						
Recurring						
1.1.1) CC007 - AWS EQUIPMENT - NonOrganic ⁽⁷⁾	14 / 463.718	- / -	- / -	1 / 24.220	- / -	1 / 24.220
1.1.2) CC007 - AWS ENGINEERING SERVICES - NonOrganic	- / 37.549	- / -	- / -	- / 2.720	- / -	- / 2.720
<i>Subtotal: Recurring</i>	- / 501.267	- / -	- / -	- / 26.940	- / -	- / 26.940
<i>Subtotal: CC007 - AEGIS WEAPONS SYSTEM (AWS) UPGRADE PROCUREMENT</i>	14 / 501.267	- / -	- / -	1 / 26.940	- / -	1 / 26.940
<i>Subtotal: Procurement, All Modification Items</i>	- / 501.267	- / -	- / -	- / 26.940	- / -	- / 26.940
Installation						
Modification Item 1 of 1: CC007 - AEGIS WEAPONS SYSTEM (AWS) UPGRADE PROCUREMENT	- / 200.845	- / 0.000	- / 0.000	- / 23.107	- / 0.000	- / 23.107
<i>Subtotal: Installation</i>	- / 200.845	- / -	- / -	- / 23.107	- / -	- / 23.107
Total						
Total Cost (Procurement + Support + Installation)	702.112	0.000	0.000	50.047	0.000	50.047

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Exhibit P-3a, Individual Modification: FY 2018 Navy						Date: May 2017							
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9				P-1 Line Item Number / Title: 0960 / CG Modernization				Modification Number / Title: 4 / CC007 - AEGIS WEAPONS SYSTEM (AWS) UPGRADE PROCUREMENT					
ID Code (A=Service Ready, B=Not Service Ready) :						MDAP/MAIS Code:							
Modification Item 1 of 1: CC007 - AEGIS WEAPONS SYSTEM (AWS) UPGRADE PROCUREMENT													
Manufacturer Information													
Manufacturer Name: LOCKHEED MARTIN						Manufacturer Location: SYRACUSE, NY							
Administrative Leadtime <i>(in Months)</i> : 6						Production Leadtime <i>(in Months)</i> : 20							
Dates		FY 2016				FY 2017				FY 2018			
Contract Dates										May 2018			
Delivery Dates										Jan 2020			
Installation Information													
Method of Implementation: [none specified]:: Installation Name: CC007 - AWS EQUIPMENT													
Installation Cost		Prior Years		FY 2016		FY 2017		FY 2018 Base		FY 2018 OCO		FY 2018 Total	
		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>		Qty <i>(Each)</i> / Total Cost <i>(\$ M)</i>		Qty <i>(Each)</i> / Total Cost <i>(\$ M)</i>	
Prior Years		10 / 200.845		- / -		- / -		2 / 23.107		0 / 0.000		2 / 23.107	
FY 2016		- / -		- / -		- / -		- / -		- / -		- / -	
FY 2017		- / -		- / -		- / -		- / -		- / -		- / -	
FY 2018		- / -		- / -		- / -		- / -		- / -		- / -	
Total		10 / 200.845		- / -		- / -		2 / 23.107		0 / 0.000		2 / 23.107	
Installation Schedule													
	PYS	FY 2016				FY 2017				FY 2018			
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
In	10	-	-	-	-	-	-	-	-	-	2	-	-
Out	10	-	-	-	-	-	-	-	-	-	-	-	-
Footnotes: (7) FY15 combat systems procurements for the CG 63 Cowpens, CG 64 Gettysburg, CG 65 Chosin, and CG 69 Vicksburg. Initial DSA costs were funded by SMOSF and funded the SSRA in FY16 for CG 63 USS Cowpens and CG 64 USS Gettysburg. Funding for FY18 - FY22 is shifting funds from PB17 submit to 2-4-6 CG Modernization. Installation was executed incrementally: a portion of the work was accomplished in prior SSRAs and completed during the EDSRA. In/Outs are reflecting the EDSRA since that is when the ship is being reactivated following the EDSRA.													

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Exhibit P-3a, Individual Modification: FY 2018 Navy					Date: May 2017	
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9			P-1 Line Item Number / Title: 0960 / CG Modernization		Modification Number / Title: 6 / CC010 - MK34 UPGRADE	
ID Code (A=Service Ready, B=Not Service Ready) :				MDAP/MAIS Code:		
Resource Summary	Prior Years	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
Procurement Quantity <i>(Units in Each)</i>	-	-	-	-	-	-
Gross/Weapon System Cost <i>(\$ in Millions)</i>	169.737	0.000	0.000	12.301	0.000	12.301
Less PY Advance Procurement <i>(\$ in Millions)</i>	-	-	-	-	-	-
Net Procurement (P-1) <i>(\$ in Millions)</i>	169.737	0.000	0.000	12.301	0.000	12.301
Plus CY Advance Procurement <i>(\$ in Millions)</i>	-	-	-	-	-	-
Total Obligation Authority <i>(\$ in Millions)</i>	169.737	0.000	0.000	12.301	0.000	12.301
<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>	-	-	-	-	-	-
Gross/Weapon System Unit Cost <i>(\$ in Thousands)</i>	-	-	-	-	-	-
Description: Procures the MK34 Mod 4 Gun Weapon System (GWS) to replace the existing MK86 Gun Fire Control System. Supports DSA and Planning for installation.						

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Exhibit P-3a, Individual Modification: FY 2018 Navy					Date: May 2017	
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9			P-1 Line Item Number / Title: 0960 / CG Modernization		Modification Number / Title: 6 / CC010 - MK34 UPGRADE	
ID Code (A=Service Ready, B=Not Service Ready) :				MDAP/MAIS Code:		
Models of Systems Affected: [No Model Specified]		Modification Type: TBD			Related RDT&E PEs:	
Financial Plan	Prior Years	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
	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)
Procurement						
Modification Item 1 of 1: CC010 - MK34 UPGRADE						
B Kits						
Recurring						
1.1.1) CC010 - MK34 EQUIPMENT - NonOrganic ⁽⁸⁾	14 / 110.591	- / -	- / -	1 / 5.560	- / -	1 / 5.560
1.1.2) CC010 - MK34 ENGINEERING SERVICES - NonOrganic	- / 21.601	- / -	- / -	- / 0.630	- / -	- / 0.630
Subtotal: Recurring	- / 132.192	- / -	- / -	- / 6.190	- / -	- / 6.190
Subtotal: CC010 - MK34 UPGRADE	14 / 132.192	- / -	- / -	1 / 6.190	- / -	1 / 6.190
Subtotal: Procurement, All Modification Items	- / 132.192	- / -	- / -	- / 6.190	- / -	- / 6.190
Installation						
Modification Item 1 of 1: CC010 - MK34 UPGRADE	- / 37.545	- / 0.000	- / 0.000	- / 6.111	- / 0.000	- / 6.111
Subtotal: Installation	- / 37.545	- / -	- / -	- / 6.111	- / -	- / 6.111
Total						
Total Cost (Procurement + Support + Installation)	169.737	0.000	0.000	12.301	0.000	12.301

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Exhibit P-3a, Individual Modification: FY 2018 Navy							Date: May 2017						
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9				P-1 Line Item Number / Title: 0960 / CG Modernization				Modification Number / Title: 6 / CC010 - MK34 UPGRADE					
ID Code (A=Service Ready, B=Not Service Ready) :							MDAP/MAIS Code:						
Modification Item 1 of 1: CC010 - MK34 UPGRADE													
Manufacturer Information													
Manufacturer Name: Various						Manufacturer Location: Various							
Administrative Leadtime <i>(in Months)</i> : 6						Production Leadtime <i>(in Months)</i> : 18							
Dates		FY 2016			FY 2017			FY 2018					
Contract Dates								Jul 2018					
Delivery Dates								Jan 2020					
Installation Information													
Method of Implementation: [none specified]:: Installation Name: CC010 - MK34 EQUIPMENT													
Installation Cost		Prior Years		FY 2016		FY 2017		FY 2018 Base		FY 2018 OCO		FY 2018 Total	
		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>		Qty <i>(Each)</i> / Total Cost <i>(\$ M)</i>		Qty <i>(Each)</i> / Total Cost <i>(\$ M)</i>	
Prior Years		10 / 37.545		- / -		- / -		2 / 6.111		0 / 0.000		2 / 6.111	
FY 2016		- / -		- / -		- / -		- / -		- / -		- / -	
FY 2017		- / -		- / -		- / -		- / -		- / -		- / -	
FY 2018		- / -		- / -		- / -		- / -		- / -		- / -	
Total		10 / 37.545		- / -		- / -		2 / 6.111		0 / 0.000		2 / 6.111	
Installation Schedule													
	PYS	FY 2016				FY 2017				FY 2018			
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
In	10	-	-	-	-	-	-	-	-	-	2	-	-
Out	10	-	-	-	-	-	-	-	-	-	-	-	-
Footnotes: (8) FY15 combat systems procurements for the CG 63 Cowpens, CG 64 Gettysburg, CG 65 Chosin, and CG 69 Vicksburg. Initial DSA costs were funded by SMOSF and funded the SSRA in FY16 for CG 63 USS Cowpens and CG 64 USS Gettysburg. Funding for FY18 - FY22 is shifting funds from PB17 submit to 2-4-6 CG Modernization. Installation was executed incrementally: a portion of the work was accomplished in prior SSRAs and completed during the EDSRA. In/Outs are reflecting the EDSRA since that is when the ship is being reactivated following the EDSRA.													

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Exhibit P-3a, Individual Modification: FY 2018 Navy					Date: May 2017	
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9		P-1 Line Item Number / Title: 0960 / CG Modernization			Modification Number / Title: 7 / CC011 - INTEGRATED SHIP CONTROLS (ISC)	
ID Code (A=Service Ready, B=Not Service Ready) :				MDAP/MAIS Code:		
Resource Summary	Prior Years	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
Procurement Quantity <i>(Units in Each)</i>	-	-	-	-	-	-
Gross/Weapon System Cost <i>(\$ in Millions)</i>	91.753	0.000	0.000	17.444	0.000	17.444
Less PY Advance Procurement <i>(\$ in Millions)</i>	-	-	-	-	-	-
Net Procurement (P-1) <i>(\$ in Millions)</i>	91.753	0.000	0.000	17.444	0.000	17.444
Plus CY Advance Procurement <i>(\$ in Millions)</i>	-	-	-	-	-	-
Total Obligation Authority <i>(\$ in Millions)</i>	91.753	0.000	0.000	17.444	0.000	17.444
<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>	-	-	-	-	-	-
Gross/Weapon System Unit Cost <i>(\$ in Thousands)</i>	-	-	-	-	-	-
Description: Procure and Install Smartship Integrated Ship Control (ISC) for CG Modernization.						

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Exhibit P-3a, Individual Modification: FY 2018 Navy					Date: May 2017	
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9		P-1 Line Item Number / Title: 0960 / CG Modernization			Modification Number / Title: 7 / CC011 - INTEGRATED SHIP CONTROLS (ISC)	
ID Code (A=Service Ready, B=Not Service Ready) :				MDAP/MAIS Code:		
Models of Systems Affected: [No Model Specified]		Modification Type: TBD			Related RDT&E PEs:	
Financial Plan	Prior Years	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
	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)
Procurement						
Modification Item 1 of 1: CC011 - INTEGRATED SHIP CONTROLS (ISC)						
B Kits						
Recurring						
1.1.1) CC011 - ISC EQUIPMENT - NonOrganic ⁽⁹⁾	8 / 51.705	- / -	- / -	1 / 6.840	- / -	1 / 6.840
1.1.2) CC011 - ISC ENGINEERING SERVICES - NonOrganic	- / 2.771	- / -	- / -	- / -	- / -	- / -
Subtotal: Recurring	- / 54.476	- / -	- / -	- / 6.840	- / -	- / 6.840
Subtotal: CC011 - INTEGRATED SHIP CONTROLS (ISC)	8 / 54.476	- / -	- / -	1 / 6.840	- / -	1 / 6.840
Subtotal: Procurement, All Modification Items	- / 54.476	- / -	- / -	- / 6.840	- / -	- / 6.840
Installation						
Modification Item 1 of 1: CC011 - INTEGRATED SHIP CONTROLS (ISC)	- / 37.277	- / 0.000	- / 0.000	- / 10.604	- / 0.000	- / 10.604
Subtotal: Installation	- / 37.277	- / -	- / -	- / 10.604	- / -	- / 10.604
Total						
Total Cost (Procurement + Support + Installation)	91.753	0.000	0.000	17.444	0.000	17.444

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Exhibit P-3a, Individual Modification: FY 2018 Navy						Date: May 2017							
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9				P-1 Line Item Number / Title: 0960 / CG Modernization				Modification Number / Title: 7 / CC011 - INTEGRATED SHIP CONTROLS (ISC)					
ID Code (A=Service Ready, B=Not Service Ready) :						MDAP/MAIS Code:							
Modification Item 1 of 1: CC011 - INTEGRATED SHIP CONTROLS (ISC)													
Manufacturer Information													
Manufacturer Name: HENSCHEL						Manufacturer Location: NEWBURY PORT, MA							
Administrative Leadtime <i>(in Months)</i> : 6						Production Leadtime <i>(in Months)</i> : 6							
Dates		FY 2016			FY 2017			FY 2018					
Contract Dates								Jan 2019					
Delivery Dates								Jan 2020					
Installation Information													
Method of Implementation: [none specified]:: Installation Name: CC011 - ISC EQUIPMENT													
Installation Cost		Prior Years		FY 2016		FY 2017		FY 2018 Base		FY 2018 OCO		FY 2018 Total	
		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>		Qty <i>(Each)</i> / Total Cost <i>(\$ M)</i>		Qty <i>(Each)</i> / Total Cost <i>(\$ M)</i>	
Prior Years		6 / 37.277		- / -		- / -		1 / 10.604		0 / 0.000		1 / 10.604	
FY 2016		- / -		- / -		- / -		- / -		- / -		- / -	
FY 2017		- / -		- / -		- / -		- / -		- / -		- / -	
FY 2018		- / -		- / -		- / -		- / -		- / -		- / -	
Total		6 / 37.277		- / -		- / -		1 / 10.604		0 / 0.000		1 / 10.604	
Installation Schedule													
	PYS	FY 2016				FY 2017				FY 2018			
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
In	6	-	-	-	-	-	-	-	-	-	1	-	-
Out	6	-	-	-	-	-	-	-	-	-	-	-	-
Footnotes:													
⁽⁹⁾ FY15 ISC procurements for the CG63 USS Cowpens and CG69 USS Vicksburg. Initial DSA costs were funded by SMOSF and funded the SSRA in FY16 for CG63 USS Cowpens. Funding for FY18 - FY22 is shifting funds from PB17 submit to 2-4-6 CG Modernization. Installation was executed incrementally: a portion of the work was accomplished in prior SSRAs and completed during the EDSRA. In/Outs are reflecting the EDSRA since that is when the ship is being reactivated following the EDSRA.													

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Exhibit P-40, Budget Line Item Justification: FY 2018 Navy										Date: May 2017		
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 01: Ships Support Equipment / BSA 9: Other Shipboard Equipment							P-1 Line Item Number / Title: 0970 / LCAC					
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 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	To Complete	Total
Procurement Quantity (<i>Units in Each</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost (<i>\$ in Millions</i>)	100.304	15.125	3.090	5.507	0.000	5.507	24.190	5.795	20.881	21.301	-	196.193
Less PY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (<i>\$ in Millions</i>)	100.304	15.125	3.090	5.507	0.000	5.507	24.190	5.795	20.881	21.301	-	196.193
Plus CY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority (<i>\$ in Millions</i>)	100.304	15.125	3.090	5.507	0.000	5.507	24.190	5.795	20.881	21.301	-	196.193
<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 Dollars</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost (<i>\$ in Dollars</i>)	-	-	-	-	-	-	-	-	-	-	-	-

Description:

The LCAC (Landing Craft Air Cushion) mission is to transport weapons systems, equipment, cargo, and personnel of the assault elements for the Marine Air/Ground Task Force from ship-to-shore and across the beach. The LCAC rides on a cushion of air contained in a flexible skirt and is propelled by two aft-mounted, reversible, variable pitch propellers. It is capable of speeds in excess of 40 knots. The LCAC sustainment funding is programmed for equipment procurement using OPN to replace selected engines, personnel transport modules and other equipment that the fleet urgently requires to maintain acceptable levels of readiness.

LC001 - LCAC SYSTEM UPGRADES
The LCAC System Upgrade Program provides for selected modernization through procurement and installation of components required to maintain acceptable levels of fleet operational readiness. Equipment removal and installation will take place at the two Assault Craft Units (ACUs), each of which are currently responsible for half of the craft inventory.

LC002 - ENGINES
The ETF-40B engines are enhanced versions of the current TF-40B engines and are being provided with the rest of the SLEP craft. Recent catastrophic engine failures have highlighted the need for spare engines to reduce operational downtime. Engine procurements are also for Pack Up Kits (PUKs) that accompany fleet deployment of LCACs aboard amphibious ships. Additional ETF 40B Engines will be needed for this purpose since they are being newly introduced as part of SLEP.

LC007 - LIGHTWEIGHT ARMOR
The portable lightweight armor system replaces the existing armor system. The portable system can be transported via a Container Express (CONEX) box and provides the Assault Craft Unit with the ability to provide ballistic/fragmentation protection to manned spaces on the craft as well as to selected machinery components.

LC008 - COLD WEATHER KITS
LCACs are required to operate in ambient temperatures as low as 10F. Snow and ice accumulation leads to actuation of a safety system that bypasses the main engine inlet air filtration system and allows engines to draw in unfiltered air. Cold weather kits prevent snow and ice accumulation in the main engines during cold weather operations.

LC009 - PERSONNEL TRANSPORT MODULE
The Personnel Transport Module (PTM) increases the capability of the Landing Craft Air Cushion (LCAC) to transport personnel and protect occupants from the elements inherent in an amphibious environment.

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Exhibit P-40, Budget Line Item Justification: FY 2018 Navy		Date: May 2017
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 01: Ships Support Equipment / BSA 9: Other Shipboard Equipment		P-1 Line Item Number / Title: 0970 / LCAC
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		
LC010 - SSC FULL MISSION TRAINERS (FMT) Ship to Shore Connector (SSC) Full Mission Trainer (FMT) is a programmable simulator and is a fundamental element of SSC operator training. New SSC FMTs are required because LCAC FMTs will not support SSC crew training based on significant Command Module/C4N System differences.		

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Exhibit P-40, Budget Line Item Justification: FY 2018 Navy										Date: May 2017		
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 01: Ships Support Equipment / BSA 9: Other Shipboard Equipment							P-1 Line Item Number / Title: 0977 / Underwater EOD Programs					
ID Code (A=Service Ready, B=Not Service Ready): A				Program Elements for Code B Items: N/A				Other Related Program Elements: 0603654N				
Line Item MDAP/MAIS Code: N/A												
Resource Summary	Prior Years	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	To Complete	Total
Procurement Quantity (<i>Units in Each</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost (<i>\$ in Millions</i>)	171.728	51.652	24.350	55.922	12.348	68.270	80.660	40.539	41.396	42.308	-	520.903
Less PY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (<i>\$ in Millions</i>)	171.728	51.652	24.350	55.922	12.348	68.270	80.660	40.539	41.396	42.308	-	520.903
Plus CY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority (<i>\$ in Millions</i>)	171.728	51.652	24.350	55.922	12.348	68.270	80.660	40.539	41.396	42.308	-	520.903
<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>)	-	6.075	1.786	5.355	-	5.355	2.469	3.753	3.298	2.205	Continuing	Continuing
Flyaway Unit Cost (<i>\$ in Dollars</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost (<i>\$ in Dollars</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Description: Underwater Explosive Ordnance Disposal (EOD) program supplies EOD and Maritime Expeditionary forces with the necessary allowance outfitting, and diving and diving-related equipment aligned to fulfill assigned missions that includes Expeditionary Mine Countermeasures (ExMCM), other Maritime Expeditionary missions, and Marine Mammal Systems (MMS) operations. Most equipment must have inherently low acoustic and magnetic signatures to support maritime operations in the vicinity of influence fired ordnance. This funding supports outfitting the Navy's only comprehensive expeditionary mine countermeasures (ExMCM) capability in the fleet that can conduct full spectrum detect-to-engage expeditionary MCM missions. Specifically, the Underwater Explosive Ordnance Disposal (EOD) program supports EOD Groups, Units, and Detachments worldwide. The establishment of ExMCM Forces under the direction of Commander, US Fleet Forces Command has resulted in an increased inventory requirement for Underwater EOD systems and equipment, with a resultant requirement for re-aligned procurement and fielding priorities. The nature of the missions assigned to EOD and MCM forces under OPNAVINST 3501.97H, Required Operational Capabilities & Projected Operational Environments (ROC/POE), require an aggregated set of systems and equipment to perform the wide range of mine countermeasures, underwater detection, location, investigation, force protection, and neutralization tasks that comprise the mission set. The requirements for the procurement of each of these system suites are articulated in OPNAV approved requirements documents in accordance with DoD Directive 5000.2, SECNAVINST 5000.2E, and the JCIDS process as defined by CJSCINST 3170.01. Naval Special Warfare (NSW) - FY 2018 initiates a service-common systems program for Naval Special Warfare's (NSW) Unmanned Undersea Vehicles (UUVs). Naval Special Warfare currently employs UUVs as an intelligence collection platform, building situational awareness of the Undersea Domain, and prior to conducting clandestine operations in support of the highest strategic objectives. UUVs are critical to NSW's undersea component, mission planning for anti-access and area denial (A2AD) environments, and the current fight against violent extremist organizations. The use of open architecture, untethered platforms not only buys down risk to mission and force, but also provides the operational commander a diversified menu of employment options.												

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Exhibit P-40, Budget Line Item Justification: FY 2018 Navy								Date: May 2017		
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 01: Ships Support Equipment / BSA 9: Other Shipboard Equipment						P-1 Line Item Number / Title: 0977 / Underwater EOD Programs				
ID Code (A=Service Ready, B=Not Service Ready): A			Program Elements for Code B Items: N/A			Other Related Program Elements: 0603654N				
Line Item MDAP/MAIS Code: N/A										
Exhibits Schedule					Prior Years	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 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	1 / Underwater EOD Programs	P-5a			- / 171.728	- / 51.652	- / 24.350	- / 44.526	- / 3.382	- / 47.908
P-5	2 / Expeditionary Mine Countermeasures (ExMCM)	P-5a			- / 0.000	- / 0.000	- / 0.000	- / 11.396	- / 4.016	- / 15.412
P-5	3 / Naval Special Warfare Forces	P-5a			- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 4.950	- / 4.950
P-40	Total Gross/Weapon System Cost				- / 171.728	- / 51.652	- / 24.350	- / 55.922	- / 12.348	- / 68.270
*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.										
Justification: FY 2018 funding is required to procure Underwater EOD program systems and equipment to outfit Expeditionary MCM Companies, EOD and Mobile Salvage units with hardware required to accomplish their OPNAV approved Required Operational Capability and Projected Operational Environments. This equipment will allow warfighters to detect, locate, investigate, neutralize and render safe unexploded ordnance including improvised explosive devices. The ExMCM capabilities being delivered under this program directly support the surge MCM capacity and capability outlined in the FY17 US Navy Mine Countermeasure report submitted to Congress under provisions of the FY16 National Defense Authorization Act (NDAA) that will provide a more agile and cost effective warfighting capability through a modular and adaptive MCM force approach. Additionally, FY2018 funding is required to procure product improvements needed for systems designed and first produced over 40 years ago, as well as the production engineering and integrated logistics support needed for all Expeditionary MCM Companies, EOD Units, and Expeditionary Salvage units. These systems provide the only expeditionary mine interdiction capability in the US Navy. If these forces are not properly outfitted lives may be lost, access to sea lanes of communication could be severed, and risk to transiting forces will be elevated. Specifically, upgrade kits to MK 18 Family of Systems will be procured to provide increased MCM capability; MK 19 upgrade kits will be procured to provide EOD Response ROV capability for mine/unexploded ordnance (UXO) target prosecution; improved diver sensor tools will be procured to provide enhanced target detection and localization capabilities; and auxiliary equipment procured that is required to fully outfit systems to perform their intended missions. OCO: \$3.4M of FY 2018 Overseas Contingency Operations (OCO) will procure for two Mk 18 Mod 2 systems, critical equipment needed to outfit deploying NECC forces in support of ongoing USN operations in CENTCOM. Four MK 18 vehicles have been continuously deployed in theater for the last four years to support a critical capability in the Counter Mine mission. These operational prototype systems were developed, procured, and fielded in response to urgent operational needs. To date, they have over 5000 operating hours and due to the extremely high OPTEMPO, these prototypes vehicles have experienced extensive wear and tear. As a result, these systems now require complete restoration and equipment replacement to return them to full operational status. \$4.9M of FY 2018 OCO funding for Naval Special Warfare (NSW) will support the replacement of the Mk 18 Mod 1 unmanned undersea vehicle variant that US Navy SEALs currently employ as an intelligence collection platform prior to conducting clandestine operations in support of Operation Inherent Resolve and other missions. These systems are critical to NSW's undersea component, mission planning for anti-access and area denial (A2AD) environments, and the current fight against violent extremist organizations. \$4.0M of FY 2018 European Reassurance Initiative (ERI) OCO funding will procure ExMCM equipment to provide significant improvements to Expeditionary MCM capability in the US SIXTH FLEET AoR. This budget supports projects under the President's European Reassurance Initiative (ERI) to reassure allies of the U.S. commitment to their security and territorial integrity as members of the NATO Alliance, provide near-term flexibility and responsiveness to the evolving concerns of our allies and partners in Europe, especially Central and Eastern Europe, and help increase the capability and readiness of U.S. allies and partners.										

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Exhibit P-5, Cost Analysis: FY 2018 Navy													Date: May 2017								
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9							P-1 Line Item Number / Title: 0977 / Underwater EOD Programs							Item Number / Title [DODIC]: 1 / Underwater EOD Programs							
ID Code (A=Service Ready, B=Not Service Ready) :										MDAP/MAIS Code:											
Resource Summary				Prior Years			FY 2016			FY 2017			FY 2018 Base			FY 2018 OCO			FY 2018 Total		
Procurement Quantity <i>(Units in Each)</i>				-			-			-			-			-			-		
Gross/Weapon System Cost <i>(\$ in Millions)</i>				171.728			51.652			24.350			44.526			3.382			47.908		
Less PY Advance Procurement <i>(\$ in Millions)</i>				-			-			-			-			-			-		
Net Procurement (P-1) <i>(\$ in Millions)</i>				171.728			51.652			24.350			44.526			3.382			47.908		
Plus CY Advance Procurement <i>(\$ in Millions)</i>				-			-			-			-			-			-		
Total Obligation Authority <i>(\$ in Millions)</i>				171.728			51.652			24.350			44.526			3.382			47.908		
(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 Dollars)</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 2016			FY 2017			FY 2018 Base			FY 2018 OCO			FY 2018 Total					
	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)			
Hardware - UQ019-MINE WARFARE VULENERABILITY IDENTIFICATION PROGRAM (MIW-VIP) Cost																					
Recurring Cost																					
1.1.1) MIW-VIP ⁽¹⁾	-	-	1.874	-	-	0.000	-	-	0.304	-	-	0.309	-	-	0.000	-	-	0.309			
Subtotal: Recurring Cost	-	-	1.874	-	-	0.000	-	-	0.304	-	-	0.309	-	-	0.000	-	-	0.309			
Subtotal: Hardware - UQ019-MINE WARFARE VULENERABILITY IDENTIFICATION PROGRAM (MIW-VIP) Cost	-	-	1.874	-	-	0.000	-	-	0.304	-	-	0.309	-	-	0.000	-	-	0.309			
Hardware - UQ034 - U/W EOD & MCM SYSTEM/EQUIPMENT Cost																					
Recurring Cost																					
2.1.1) MK 18 MOD 1 UUV ⁽¹⁾	385,000.00	3	1.155	396,666.67	3	1.190	408,400.00	5	2.042	-	-	0.000	-	-	0.000	-	-	0.000			
2.1.2) MK 18 MOD 1 UCM UUV INCREMENTAL (CIP) Retrofit Kit ^{(1) (2)}	1,060K	5	5.300	1,060K	5	5.300	1,060K	2	2.120	1,060K	6	6.360	-	-	0.000	1,060K	6	6.360			
2.1.3) MK 18 MOD 2 UUV ^{(1) (3)}	965,866.67	15	14.488	990,000.00	2	1.980	990,000.00	2	1.980	990,000.00	8	7.920	-	-	0.000	990,000.00	8	7.920			
2.1.4) MK 18 MOD 2 RETROFIT KITS ^{(1) (4)}	1,841K	5	9.205	1,812K	12	21.739	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000			
2.1.5) MK 18 MOD 2 RETROFIT KITS (SSAM) ^{(1) (5)}	1,318K	4	5.270	-	-	0.000	600,000.00	4	2.400	-	-	0.000	-	-	0.000	-	-	0.000			

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Exhibit P-5, Cost Analysis: FY 2018 Navy											Date: May 2017							
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9						P-1 Line Item Number / Title: 0977 / Underwater EOD Programs						Item Number / Title [DODIC]: 1 / Underwater EOD Programs						
ID Code (A=Service Ready, B=Not Service Ready) :									MDAP/MAIS Code:									
Note: Subtotals or Totals in this Exhibit P-5 may not be exact or sum exactly due to rounding.																		
Cost Elements	Prior Years			FY 2016			FY 2017			FY 2018 Base			FY 2018 OCO			FY 2018 Total		
	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)
2.1.6) MK18 MOD 2 RETROFIT KITS (ATLAS) ^(†) ⁽⁶⁾	-	-	0.000	-	-	0.000	-	-	0.000	400,000.00	15	6.000	-	-	0.000	400,000.00	15	6.000
2.1.7) MK18 MOD 2 RETROFIT KITS (INC J) ^(†) ⁽⁷⁾	-	-	0.000	-	-	0.000	-	-	0.000	73,750.00	24	1.770	-	-	0.000	73,750.00	24	1.770
2.1.9) MK 18 MOD2 Overhaul ⁽⁸⁾	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000	-	-	3.382	-	-	3.382
2.1.10) AUXILLIARY EQUIPMENT (MK 18) ^(†) ⁽⁹⁾	369,000.00	29	10.701	386,000.00	4	1.544	381,333.33	3	1.144	388,000.00	12	4.656	-	-	0.000	388,000.00	12	4.656
2.1.11) MK 19 FAMILY OF SYSTEMS ROV UPGRADES ^(†) ⁽¹⁰⁾	149,500.00	6	0.897	150,230.77	13	1.953	177,000.00	12	2.124	175,000.00	14	2.450	-	-	0.000	175,000.00	14	2.450
2.1.13) UW DIVER INTEGRATION SENSORS ^(†) ⁽¹¹⁾	152,478.99	119	18.145	-	-	0.000	236,000.00	5	1.180	220,000.00	5	1.100	-	-	0.000	220,000.00	5	1.100
2.1.14) ADVANCED FIRING SYSTEM ^(†) ⁽¹²⁾	27,857.14	140	3.900	20,000.00	50	1.000	11,000.00	50	0.550	-	-	0.000	-	-	0.000	-	-	0.000
2.1.15) INFLUENCE SIGNATURE REDUCTION ⁽¹³⁾	-	-	0.000	-	-	0.000	-	-	0.000	-	-	1.586	-	-	0.000	-	-	1.586
Subtotal: Recurring Cost	-	-	69.061	-	-	34.706	-	-	13.540	-	-	31.842	-	-	3.382	-	-	35.224
Subtotal: Hardware - UQ034 - U/W EOD & MCM SYSTEM/EQUIPMENT Cost	-	-	69.061	-	-	34.706	-	-	13.540	-	-	31.842	-	-	3.382	-	-	35.224
Hardware - UQ035 - OUTFIT EOD/UMCM TOOLS & EQUIPMENT Cost																		
Recurring Cost																		
3.1.1) UW INTEGRATED SYSTEM INTERFACE ⁽¹⁴⁾	-	-	1.245	-	-	0.226	-	-	0.250	-	-	0.345	-	-	0.000	-	-	0.345
Subtotal: Recurring Cost	-	-	1.245	-	-	0.226	-	-	0.250	-	-	0.345	-	-	0.000	-	-	0.345
Subtotal: Hardware - UQ035 - OUTFIT EOD/UMCM TOOLS & EQUIPMENT Cost	-	-	1.245	-	-	0.226	-	-	0.250	-	-	0.345	-	-	0.000	-	-	0.345
Hardware - UQ036 - DIVER SAFETY LIFE SUPPORT EQUIPMENT Cost																		
Recurring Cost																		

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Exhibit P-5, Cost Analysis: FY 2018 Navy												Date: May 2017						
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9						P-1 Line Item Number / Title: 0977 / Underwater EOD Programs						Item Number / Title [DODIC]: 1 / Underwater EOD Programs						
ID Code (A=Service Ready, B=Not Service Ready) :										MDAP/MAIS Code:								
Note: Subtotals or Totals in this Exhibit P-5 may not be exact or sum exactly due to rounding.																		
Cost Elements	Prior Years			FY 2016			FY 2017			FY 2018 Base			FY 2018 OCO			FY 2018 Total		
	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)
4.1.1) DIVER SAFETY LIFE SUPPORT EQUIPMENT ⁽¹⁵⁾	-	-	3.200	-	-	0.338	-	-	0.411	-	-	0.475	-	-	0.000	-	-	0.475
Subtotal: Recurring Cost	-	-	3.200	-	-	0.338	-	-	0.411	-	-	0.475	-	-	0.000	-	-	0.475
Subtotal: Hardware - UQ036 - DIVER SAFETY LIFE SUPPORT EQUIPMENT Cost	-	-	3.200	-	-	0.338	-	-	0.411	-	-	0.475	-	-	0.000	-	-	0.475
Hardware - UQ037 - MARINE MAMMAL SYSTEM/EQUIPMENT Cost																		
Recurring Cost																		
5.1.1) MMS UCMC ⁽¹⁶⁾	-	-	16.461	-	-	5.971	-	-	0.832	-	-	1.878	-	-	0.000	-	-	1.878
5.1.2) MMS ALLOWANCE ⁽¹⁷⁾	-	-	1.609	-	-	0.280	-	-	0.300	-	-	0.235	-	-	0.000	-	-	0.235
5.1.3) MEDICAL OUTFITTING ⁽¹⁸⁾	-	-	2.634	-	-	0.426	-	-	0.442	-	-	0.400	-	-	0.000	-	-	0.400
5.1.4) UW LOW MAGNETIC TEST EQUIPM UPGRADE	-	-	0.742	-	-	0.120	-	-	0.120	-	-	0.157	-	-	0.000	-	-	0.157
5.1.5) MMS LITTORAL PORT & HARBOR DEFENSE OPERATIONS ⁽¹⁹⁾	-	-	5.327	-	-	1.506	-	-	0.217	-	-	0.274	-	-	0.000	-	-	0.274
Subtotal: Recurring Cost	-	-	26.773	-	-	8.303	-	-	1.911	-	-	2.944	-	-	0.000	-	-	2.944
Subtotal: Hardware - UQ037 - MARINE MAMMAL SYSTEM/EQUIPMENT Cost	-	-	26.773	-	-	8.303	-	-	1.911	-	-	2.944	-	-	0.000	-	-	2.944
Support - UQ830 - PRODUCTION ENGINEERING Cost																		
6.1) PRODUCTION ENGINEERING ⁽²⁰⁾	-	-	12.113	-	-	4.108	-	-	4.253	-	-	4.552	-	-	0.000	-	-	4.552
Subtotal: Support - UQ830 - PRODUCTION ENGINEERING Cost	-	-	12.113	-	-	4.108	-	-	4.253	-	-	4.552	-	-	0.000	-	-	4.552
Support - UQ850 - PRODUCT IMPROVEMENT Cost																		
7.1) PRODUCT IMPROVEMENT ⁽²¹⁾	-	-	9.041	-	-	3.674	-	-	3.331	-	-	3.634	-	-	0.000	-	-	3.634
Subtotal: Support - UQ850 - PRODUCT IMPROVEMENT Cost	-	-	9.041	-	-	3.674	-	-	3.331	-	-	3.634	-	-	0.000	-	-	3.634
Support - UQTNG - INITIAL TRAINING Cost																		

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Exhibit P-5, Cost Analysis: FY 2018 Navy													Date: May 2017					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9						P-1 Line Item Number / Title: 0977 / Underwater EOD Programs							Item Number / Title [DODIC]: 1 / Underwater EOD Programs					
ID Code (A=Service Ready, B=Not Service Ready) :										MDAP/MAIS Code:								
Note: Subtotals or Totals in this Exhibit P-5 may not be exact or sum exactly due to rounding.																		
Cost Elements	Prior Years			FY 2016			FY 2017			FY 2018 Base			FY 2018 OCO			FY 2018 Total		
	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)
8.1) INITIAL TRAINING (22)	-	-	1.150	-	-	0.297	-	-	0.350	-	-	0.425	-	-	0.000	-	-	0.425
Subtotal: Support - UQTNG - INITIAL TRAINING Cost	-	-	1.150	-	-	0.297	-	-	0.350	-	-	0.425	-	-	0.000	-	-	0.425
Support - PRIOR YEARS CUMULATIVE FUNDING Cost																		
9.1) PRIOR YEARS CUMULATIVE FUNDING	-	-	47.271	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000
Subtotal: Support - PRIOR YEARS CUMULATIVE FUNDING Cost	-	-	47.271	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000
Gross/Weapon System Cost	-	-	171.728	-	-	51.652	-	-	24.350	-	-	44.526	-	-	3.382	-	-	47.908

(†) indicates the presence of a P-5a

Footnotes:

(1) CE 1.1.1 MIW-VIP: FY2018 efforts will focus on ranging RHIBS and unmanned systems to determine specific signature characteristics that will aid in development of tactics and procedures to ensure survivability of these systems in various operation conditions. MIW-VIP measures magnetic and acoustic signatures using existing ranges and portable ranges (Forward Area Combined Degaussing and Acoustic Range (FACDAR)). Measurements are taken in both home port areas and deployment areas to assess susceptibility to various threat mines. Efforts across the FYDP include ranging RHIBS, newly acquired equipment (related OPNAV approved Table of Allowance items) and unmanned systems (i.e. MK 18 Mod's 1 & 2).

(2) CE 2.1.2 MK 18 MOD 1 UCMU UUV INCREMENTAL (CIP) Retrofit Kit: Unit cost of individual retrofit kits may vary based on the number and type of technologies included and systems being upgraded and are identified as incremental Block Upgrades (e.g., current increment Block C retrofit kit is an upgrade in capability for the Mk 18 Mod 1 UUV system). These retrofit kits address more than one upgrade and address different functional area, i.e. enhanced navigation, system autonomy, improved post mission analysis, etc. Accordingly the number of retrofit kits may exceed number of systems/vehicles fielded

(3) CE 2.1.3 MK 18 MOD 2 UUV: Provides for procurement of UUV MK 18 Mod 2 vehicles, which will be employed in operational missions in Shallow Water (SW) and Very Shallow Water (VSW) environments including rotational deployments to the Fifth Fleet and Seventh Fleet areas of responsibility.

(4) CE 2.1.4 MK 18 Mod 2 Retrofit Kits (SSAM, ATLAS, Increment 1 and Increment 2): As of FY 17 this cost element has been further refined and defined by cost elements 2.1.12, 2.1.13, 2.1.14, and 2.1.16.

(5) CE 2.1.5 MK 18 MOD 2 RETROFIT KITS SYNTHETIC APERTURE SONAR (SSAM)- previously UCMU UUV INCREMENTAL (CIP) RETROFIT (BLKB): Provides for procurement of UUV MK 18 Mod 2 retrofit kits, which will be employed in operational missions in Shallow Water (SW) and Very Shallow Water (VSW) environments including rotational deployments to the Fifth Fleet and Seventh Fleet area of responsibility. These retrofit kits add advanced capability to the MK 18 Mod 2 system. Unit costs of the advanced sensor retrofit kits can vary based on the number and type of sensor upgrades.

(6) CE 2.1.6 MK 18 Mod 2 Retrofit Kits (ATLAS forward look sonar) - Previously UCMU UUV INCREMENTAL (CIP) RETROFIT (BLKD): Provides for procurement of UUV MK 18 Mod 2 retrofit kits, which will be employed in operational missions in Shallow Water (SW) and Very Shallow Water (VSW) environments including rotational deployments to the Fifth Fleet and Seventh Fleet area of responsibility. These retrofit kits add advanced capability to the MK 18 Mod 2 system. Unit costs of the advanced sensor retrofit kits can vary based on the number and type of sensor upgrades.

(7) CE 2.1.7 MK 18 MOD 2 RETROFIT KITS INCREMENT 1(Autonomy and Automated Target Recognition): Previously UCMU INCREMENT (CIP) (BLKC) - Provides for procurement of UUV MK 18 Mod 2 retrofit kits, which will be employed in operational missions in Shallow Water (SW) and Very Shallow Water (VSW) environments including rotational deployments to the Fifth Fleet and Seventh Fleet area of responsibility. These retrofit kits add advanced capability to the MK 18 Mod 2 system. Unit costs of the advanced sensor retrofit kits can vary based on the number and type of sensor upgrades.

(8) CE 2.1.15 MK 18 MOD2 Overhaul: OCO funding will procure critical Mk 18 Mod 2 equipment needed to outfit deploying NECC forces in support of ongoing USN operations in CENTCOM.

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Exhibit P-5, Cost Analysis: FY 2018 Navy		Date: May 2017
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	P-1 Line Item Number / Title: 0977 / Underwater EOD Programs	Item Number / Title [DODIC]: 1 / Underwater EOD Programs
ID Code (A=Service Ready, B=Not Service Ready) :		MDAP/MAIS Code:
⁽⁹⁾ CE 2.1.9 AUXILLIARY EQUIPMENT (MK 18 Family of Systems): Provides for procurement of OPNAV approved fleet outfitting of equipment other than UUVs that is required for the MK 18 and MK 19 systems to accomplish their missions. This includes equipment required for deployment, pre-mission planning and post mission analysis of the data collected by the UUVs. In addition, new procurement auxiliary kits will need to be procured to support enhancements to legacy fleet systems through engineering changes, system upgrades and obsolescence of legacy auxiliary kits. ⁽¹⁰⁾ CE 2.1.10 MK 19 FoS ROV Upgrades: Previously HULS Retrofit Kits - MK 19 FoS upgrades leverage advancements in robotic manipulators, target recognition software, user interface, and explosive recognition and neutralization that have been achieved in land robots and which can now be integrated into undersea remotely operated vehicles. These upgrades to previously fielded EOD response ROVs will enable more rapid reacquisition, identification and neutralization of mine like targets found by the MK 18 or other MCM search assets. ⁽¹¹⁾ CE 2.1.12 UW DIVER INTEGRATION SENSORS: Provides for the procurement of a family of systems based on Modified-Off-The Shelf (MOTS), mature technologies and upgrades to Diver Integrated Sensors. Unit cost of individual retrofit kits may vary based on number and type of technology included in the kit. FY 2018 funding addresses the obsolescence of the existing fleet inventory of the MK 15 Underwater Imaging System first fielded in 2004. This is the only sensor the EOD, Ex MCM and MDSU divers have to detect, locate and localize objects of interests including sea mines and underwater IEDs. ⁽¹²⁾ CE 2.1.13 ADVANCED FIRING SYSTEMS (AFS): FY 2018 will support the fielding of enhanced safety software for the fleet inventory of MK 58 Acoustic Firing Devices. This enhancement will specifically address the requirement for a diver safe-separation distance when placing the MK 58 AFD against an underwater explosive threat. The MK12 AFS is the only approved command detonation firing train the EOD and Ex MCM diver has in their toolbox. Outfitting of the latest product improvement will be completed with FY 18 resources. ⁽¹³⁾ CE 2.1.14 INFLUENCE SIGNATURE REDUCTION: Funding procures measurement and calibration equipment necessary to execute influence signature characterization and reduction projects. ⁽¹⁴⁾ CE 3.1.1. UNDERWATER (UW) INTEGRATED SYSTEM INTERFACE): FY2018 resources support the continued outfitting of the upgrade of COIN (Common Operator Interface, Navy, a graphical user interface) to interoperate with the MK 18 Family of Systems and the advanced sensors. COIN upgrades resourced in FY2017 will ensure interoperability with legacy MCM assets and that the fielding of the advanced sensors will meet interoperability performance requirements. ⁽¹⁵⁾ CE 4.1.1 DIVER SAFETY LIFE SUPPORT EQUIPMENT: Provides for the procurement of a family of systems based on MOTS and mature technologies to provide safer tools and life support systems for EOD UMCM and MDSU operations. Based on family of systems concept, unit cost of individual systems and sub-systems will vary based on number and type of technology included. ⁽¹⁶⁾ CE 5.1.1 MMS UMCM: Funding procures equipment needed to outfit MK 7 MMS detachments in support of Maritime Homeland Defense and contingency response MCM missions. MK 7 MMS remains the only operational buried mine hunting capability in the US Navy. ⁽¹⁷⁾ CE 5.1.2 MMS ALLOWANCE: FY2018 funding supports outfitting of tools/equipment for all Fleet MMS in accordance with CNO approved allowance list. MK 7 MMS provides the USN's only buried mine hunting capability. Additionally, FY2018 funding will procure Medical Outfitting equipment required to meet statutory requirements. ⁽¹⁸⁾ CE 5.1.3 MEDICAL OUTFITTING: Provides funding to procure necessary medical equipment for Navy MMS in accordance with SECNAVINST 3900.41 ⁽¹⁹⁾ CE 5.1.5 MMS LITTORAL PORT & HARBOR DEFENSE OPERATIONS: Funding procures equipment necessary for Fleet MMS to conduct port and harbor defense operations in support of USNORTHCOM Homeland Defense Contingency Response missions. ⁽²⁰⁾ CE 6.1 Production Engineering: FY2018 funding supports the increased production of MK 18 and MK 19 Family of Systems requiring additional production support to include production contract award, first article tests, and factory acceptance tests. ⁽²¹⁾ CE 7.1 Product Improvement: Provides for engineering services to improve fielded MMS Systems/EOD Diver-based and unmanned systems to improve Human Systems Integration (HSI)/Logistics domains insert technology refresh and/or decrease costs. FY 2018 resources in the PIP line will support increases in fleet inventories and the additional Engineering Change Proposals received based on lessons learned from extended fleet employment in the US fifth Fleet and the resultant expansion of mission applications. ⁽²²⁾ CE 8.1 INITIAL TRAINING: FY 2018 funding provides resources needed due to the increase in training requirements due to expanded employment of fleet systems (i.e. mainly MK 18 and MK 19 Family of Systems) and increased inventory objectives. This training is required based on execution of acquisition programs, ECPs and product improvements.		

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Exhibit P-5a, Procurement History and Planning: FY 2018 Navy								Date: May 2017				
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9				P-1 Line Item Number / Title: 0977 / Underwater EOD Programs				Item Number / Title [DODIC]: 1 / Underwater EOD Programs				
Cost Elements	O C O	FY	Contractor and Location	Method/Type or Funding Vehicle	Location of PCO	Award Date	Date of First Delivery	Qty (Each)	Unit Cost (\$)	Specs Avail Now?	Date Revision Available	RFP Issue Date
2.1.1) MK 18 MOD 1 UUV		2016	VARIOUS / VARIOUS	C / FFP	NSWCIH, MD	Oct 2015	Oct 2016	3	396,666.67	Y		
2.1.2) MK 18 MOD 1 UCMC UUV INCREMENTAL (CIP) Retrofit Kit		2016	VARIOUS / VARIOUS	C / FFP	NSWCIHD, MD	Mar 2016	Mar 2017	5	1,060K	Y		
2.1.3) MK 18 MOD 2 UUV		2016	VARIOUS / VARIOUS	C / FFP	NSWCIH, MDNSWCIH, MD	Mar 2016	Mar 2017	2	990,000.00	Y		
2.1.3) MK 18 MOD 2 UUV		2017	VARIOUS / VARIOUS	C / TBD	NSWCIH, MDNSWCIH, MD	Apr 2017	Apr 2018	2	990,000.00	Y		
2.1.3) MK 18 MOD 2 UUV		2018	VARIOUS / VARIOUS	C / TBD	NSWCIH, MD	Jan 2018	Jan 2019	8	990,000.00	Y		
2.1.4) MK 18 MOD 2 RETROFIT KITS		2016	VARIOUS / VARIOUS	C / FFP	NSWCIHD, MD	Nov 2015	Aug 2016	12	1,812K	Y		
2.1.5) MK 18 MOD 2 RETROFIT KITS (SSAM)		2017	VARIOUS / VARIOUS	C / FFP	Various	Mar 2017	Mar 2018	4	600,000.00	Y		
2.1.6) MK18 MOD 2 RETROFIT KITS (ATLAS)		2018	VARIOUS / VARIOUS	C / FFP	Various	Apr 2018	Apr 2019	15	400,000.00	Y		
2.1.7) MK18 MOD 2 RETROFIT KITS (INC I)		2018	VARIOUS / VARIOUS	C / FFP	Various	Apr 2018	Apr 2019	24	73,750.00	Y		
2.1.10) AUXILLIARY EQUIPMENT (MK 18)		2016	VARIOUS / VARIOUS	C / FFP	NSWCIH, MD	Apr 2016	Apr 2017	4	386,000.00	Y		
2.1.11) MK 19 FAMILY OF SYSTEMS ROV UPGRADES		2016	VARIOUS / Various	C / FFP	NSWCIHD, MD	Mar 2016	Mar 2017	13	150,230.77	Y		
2.1.11) MK 19 FAMILY OF SYSTEMS ROV UPGRADES		2017	VARIOUS / Various	C / FFP	NSWCIHD, MD	Mar 2017	Mar 2018	12	177,000.00	Y		
2.1.11) MK 19 FAMILY OF SYSTEMS ROV UPGRADES		2018	VARIOUS / Various	C / FFP	NSWCIHD, MD	Mar 2018	Mar 2019	14	175,000.00	Y		
2.1.13) UW DIVER INTEGRATION SENSORS		2014	UARC-University of Texas at Austin / Austin, TX	C / FFP	NSWCIHD, MD	May 2014	May 2015	27	132,888.89	Y		
2.1.13) UW DIVER INTEGRATION SENSORS		2017	UARC-University of Texas at Austin / Austin, TX	C / FFP	NAVSEA, HQ	May 2017	May 2018	5	236,000.00	Y		
2.1.13) UW DIVER INTEGRATION SENSORS		2018	UARC-University of Texas at Austin / Austin, TX	C / FFP	NAVSEA, HQ	May 2018	May 2019	5	220,000.00	Y		
2.1.14) ADVANCED FIRING SYSTEM		2016	UARC-University of Texas at Austin / Austin, TX	C / TBD	NAVSEA, HQ	May 2016	May 2017	50	20,000.00	Y		

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Exhibit P-5, Cost Analysis: FY 2018 Navy												Date: May 2017						
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9						P-1 Line Item Number / Title: 0977 / Underwater EOD Programs						Item Number / Title [DODIC]: 2 / Expeditionary Mine Countermeasures (ExMCM)						
ID Code (A=Service Ready, B=Not Service Ready) :										MDAP/MAIS Code:								
Resource Summary				Prior Years		FY 2016		FY 2017		FY 2018 Base		FY 2018 OCO		FY 2018 Total				
Procurement Quantity <i>(Units in Each)</i>				-		-		-		-		-		-				
Gross/Weapon System Cost <i>(\$ in Millions)</i>				0.000		0.000		0.000		11.396		4.016		15.412				
Less PY Advance Procurement <i>(\$ in Millions)</i>				-		-		-		-		-		-				
Net Procurement (P-1) <i>(\$ in Millions)</i>				0.000		0.000		0.000		11.396		4.016		15.412				
Plus CY Advance Procurement <i>(\$ in Millions)</i>				-		-		-		-		-		-				
Total Obligation Authority <i>(\$ in Millions)</i>				0.000		0.000		0.000		11.396		4.016		15.412				
(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 Dollars)</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 2016			FY 2017			FY 2018 Base			FY 2018 OCO			FY 2018 Total		
	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)
Hardware - UQ038 Expeditionary Mine Countermeasures (ExMCM) Cost																		
Recurring Cost																		
1.1.1) Expeditionary MCM (EXMCM) MK 18 MOD 2 UUUV ^(†) ⁽²³⁾	-	-	0.000	-	-	0.000	-	-	0.000	1,050K	6	6.300	-	-	0.000	1,050K	6	6.300
1.1.2) ExMCM MK 18 MOD 2 Support Kit ^(†) ⁽²⁴⁾	-	-	0.000	-	-	0.000	-	-	0.000	287,000.00	6	1.722	-	-	0.000	287,000.00	6	1.722
1.1.3) ExMCM MK 18 MOD 2 Maint Kit ^(†) ⁽²⁵⁾	-	-	0.000	-	-	0.000	-	-	0.000	241,500.00	6	1.449	-	-	0.000	241,500.00	6	1.449
1.1.8) ExMCM Mission Support Equipment (MSE) ^(†) ⁽²⁶⁾	-	-	0.000	-	-	0.000	-	-	0.000	385,000.00	5	1.925	-	-	0.000	385,000.00	5	1.925
1.1.9) ExMCM Procurement C6F OCO ⁽²⁷⁾	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000	-	-	4.016	-	-	4.016
Subtotal: Recurring Cost	-	-	0.000	-	-	0.000	-	-	0.000	-	-	11.396	-	-	4.016	-	-	15.412
Subtotal: Hardware - UQ038 Expeditionary Mine Countermeasures (ExMCM) Cost	-	-	0.000	-	-	0.000	-	-	0.000	-	-	11.396	-	-	4.016	-	-	15.412
Gross/Weapon System Cost	-	-	0.000	-	-	0.000	-	-	0.000	-	-	11.396	-	-	4.016	-	-	15.412

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Exhibit P-5, Cost Analysis: FY 2018 Navy		Date: May 2017
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	P-1 Line Item Number / Title: 0977 / Underwater EOD Programs	Item Number / Title [DODIC]: 2 / Expeditionary Mine Countermeasures (ExMCM)
ID Code (A=Service Ready, B=Not Service Ready) :		MDAP/MAIS Code:
Remarks: [Hardware/Recurring] CE 1.1) Ex MCM Outfitting: This funding resources the procurement of Expeditionary UUV-based systems and support equipment on the OPNAV approved Table of Allowance. Procurement of this equipment will allow the UUV-based systems to be deployed globally and employed from a wide variety of shipboard platforms at sea as well as small craft. ExMCM cost elements include MK 18 MOD 1 and Mod 2 UUVs which provides for procurement of UUV MK 18 vehicles, which will be employed in operational missions in Shallow Water (SW) and Very Shallow Water (VSW) environments including rotational deployments to the Fifth Fleet, Sixth Fleet, and Seventh Fleet areas of responsibility .Additional ExMCM procurement cost elements include Open Water Transport Systems (OWTS), Shipboard Charging Containers (SCC), Auxiliary Equipment sets, Mission support Equipment, Maintenance Kits, and Fleet Support Kits. The various kits comprise the ancillary and support equipment necessary to outfit an ExMCM Company with a complete set of Mk 18 UUV related equipment and are procured from a variety of OEMs and sources. (t) indicates the presence of a P-5a		
Footnotes: (23) CE 1.1.1 Expeditionary MCM (EXMCM) MK 18 MOD 2UUV: This funding resources the procurement of Expeditionary UUV-based systems and support equipment on the OPNAV approved Table of Allowance. Procurement of this equipment will allow the UUV-based systems to be deployed globally and employed from a wide variety of shipboard platforms at sea as well as small craft. (24) CE 1.1.2 ExMCM MK 18 MOD 2 Support Kit:Funding to procure the support kits (GETACs, PMA stations, etc) that comprise a portion of the Mk 18 Mod 2 system outfitting. (25) CE 1.1.3 ExMCM MK 18 MOD 2 Maint Kit: Funding to procure the maintenance kits (special tool kits, fly away maintenance modules, etc)that comprise a portion of the Mk 18 Mod 2 system outfitting (26) CE 1.1.8 ExMCM Mission Support Equipment (MSE): Funding to procure the mission support equipment (MILVANs, ESAMs, etc) that comprise a portion of the Mk 18 Mod 2 system outfitting (27) CE 1.1.9 ExMCM Procurement C6F OCO: OCO funding will procure critical ExMCM equipment needed to outfit deploying CTF 68 forces in support of ongoing USN operations in USSIXTHFLT AoR		

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Exhibit P-5a, Procurement History and Planning: FY 2018 Navy									Date: May 2017			
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9			P-1 Line Item Number / Title: 0977 / Underwater EOD Programs						Item Number / Title [DODIC]: 2 / Expeditionary Mine Countermeasures (ExMCM)			
Cost Elements	O C O	FY	Contractor and Location	Method/Type or Funding Vehicle	Location of PCO	Award Date	Date of First Delivery	Qty (Each)	Unit Cost (\$)	Specs Avail Now?	Date Revision Available	RFP Issue Date
1.1.1) Expeditionary MCM (EXMCM) MK 18 MOD 2 UUV		2018	Various / Various	C / FFP	NSWCIH, MD	Jan 2018	Jan 2019	6	1,050K	Y		
1.1.2) ExMCM MK 18 MOD 2 Support Kit		2018	VARIOIUS / VARIOUS	C / FFP	NSWCIH, MD	Jan 2018	Jan 2019	6	287,000.00	Y		
1.1.3) ExMCM MK 18 MOD 2 Maint Kit		2018	VARIOIUS / VARIOUS	C / FFP	NSWCIH, MD	Jan 2018	Jan 2019	6	241,500.00	Y		
1.1.8) ExMCM Mission Support Equipment (MSE)		2018	VARIOIUS / VARIOUS	C / TBD	NSWCIH, MD	Jan 2018	Jan 2019	5	385,000.00	Y		

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Exhibit P-5, Cost Analysis: FY 2018 Navy											Date: May 2017								
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9						P-1 Line Item Number / Title: 0977 / Underwater EOD Programs						Item Number / Title [DODIC]: 3 / Naval Special Warfare Forces							
ID Code (A=Service Ready, B=Not Service Ready) :										MDAP/MAIS Code:									
Resource Summary				Prior Years		FY 2016		FY 2017		FY 2018 Base		FY 2018 OCO		FY 2018 Total					
Procurement Quantity <i>(Units in Each)</i>				-		-		-		-		-		-					
Gross/Weapon System Cost <i>(\$ in Millions)</i>				0.000		0.000		0.000		0.000		4.950		4.950					
Less PY Advance Procurement <i>(\$ in Millions)</i>				-		-		-		-		-		-					
Net Procurement (P-1) <i>(\$ in Millions)</i>				0.000		0.000		0.000		0.000		4.950		4.950					
Plus CY Advance Procurement <i>(\$ in Millions)</i>				-		-		-		-		-		-					
Total Obligation Authority <i>(\$ in Millions)</i>				0.000		0.000		0.000		0.000		4.950		4.950					
(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 Dollars)</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 2016			FY 2017			FY 2018 Base			FY 2018 OCO			FY 2018 Total		
		Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)
Hardware - UQ039 NSW Common Equipment Cost																			
Recurring Cost																			
1.1.1) NSW MK18 MOD 1 ^(†) (28)		-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000	435,666.00	6	2.614	435,666.00	6	2.614
1.1.2) NSW MK18 MOD1 Auxiliary Kit ^(†) (29)		-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000	207,000.00	6	1.242	207,000.00	6	1.242
1.1.3) NSW MK18 MOD1 Support Kit ^(†) (30)		-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000	182,400.00	6	1.094	182,400.00	6	1.094
Subtotal: Recurring Cost		-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000	-	-	4.950	-	-	4.950
Subtotal: Hardware - UQ039 NSW Common Equipment Cost		-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000	-	-	4.950	-	-	4.950
Gross/Weapon System Cost		-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000	-	-	4.950	-	-	4.950
Remarks: [Hardware/Recurring] MK 18 UUV outfitting in support of Naval Special Operation Forces.																			
(†) indicates the presence of a P-5a																			
Footnotes:																			

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Exhibit P-5, Cost Analysis: FY 2018 Navy		Date: May 2017
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	P-1 Line Item Number / Title: 0977 / Underwater EOD Programs	Item Number / Title [DODIC]: 3 / Naval Special Warfare Forces
ID Code (A=Service Ready, B=Not Service Ready) :		MDAP/MAIS Code:
⁽²⁸⁾ CE:1.1.1 MK18 MOD1 UUV: FY18 OCO funding provides for the replacement procurement of (6) MK18 MOD1 UUV in support of contingency Naval Special Warfare missions. The MK18 UUV systems have been identified as a Navy service-common systems and beginning in FY18 are funded using Department of the Navy resources. Previous MK18 UUV systems were procured by Special Operations Command (SOCOM) funding. ⁽²⁹⁾ CE:1.1.2 AUXILIARY EQUIPMENT (MK 18 MOD 1) FY18 OCO funding provided to Naval Special Warfare for procurement of equipment other than UUVs that is required for the MK18 to accomplish NSW missions. This includes equipment required for deployment, pre-mission planning and post mission analysis of the data collected by the UUVs. ⁽³⁰⁾ CE:1.1.3 MK18 MOD 1 Support Kits: FY18 OCO funding is provided to Naval Special Warfare for procurement of equipment other than UUVs that is required for the MK 18 MOD 1 systems to accomplish NSW missions. This includes On Board Repair Parts (OBRP)and other support equipment as required.		

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Exhibit P-5a, Procurement History and Planning: FY 2018 Navy								Date: May 2017				
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9			P-1 Line Item Number / Title: 0977 / Underwater EOD Programs					Item Number / Title [DODIC]: 3 / Naval Special Warfare Forces				
Cost Elements	O C O	FY	Contractor and Location	Method/Type or Funding Vehicle	Location of PCO	Award Date	Date of First Delivery	Qty <i>(Each)</i>	Unit Cost <i>(\$)</i>	Specs Avail Now?	Date Revision Available	RFP Issue Date
1.1.1) NSW MK18 MOD 1	✓	2018	VARIOIUS / VARIOUS	C / TBD	NAVSEA, HQ	Jan 2018	Jan 2019	6	435,666.00	Y		
1.1.2) NSW MK18 MOD1 Auxiliary Kit	✓	2018	VARIOIUS / VARIOUS	C / TBD	NAVSEA, HQ	Jan 2018	Jan 2019	6	207,000.00	Y		
1.1.3) NSW MK18 MOD1 Support Kit	✓	2018	VARIOIUS / VARIOUS	C / TBD	NAVSEA, HQ	Jan 2018	Jan 2019	6	182,400.00	Y		

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Exhibit P-40, Budget Line Item Justification: FY 2018 Navy										Date: May 2017		
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 01: Ships Support Equipment / BSA 9: Other Shipboard Equipment							P-1 Line Item Number / Title: 0981 / Items less than \$5 Million					
ID Code (A=Service Ready, B=Not Service Ready): B				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 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	To Complete	Total
Procurement Quantity (<i>Units in Each</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost (<i>\$ in Millions</i>)	498.018	89.349	88.719	96.909	0.000	96.909	99.202	66.639	64.383	58.815	23.967	1,086.001
Less PY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (<i>\$ in Millions</i>)	498.018	89.349	88.719	96.909	0.000	96.909	99.202	66.639	64.383	58.815	23.967	1,086.001
Plus CY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority (<i>\$ in Millions</i>)	498.018	89.349	88.719	96.909	0.000	96.909	99.202	66.639	64.383	58.815	23.967	1,086.001
<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>)	-	0.183	-	-	-	-	-	-	-	-	-	0.183
Flyaway Unit Cost (<i>\$ in Dollars</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost (<i>\$ in Dollars</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Description: This budget provides for "S" cognizance (Shipboard, Hull, Mechanical & Electrical (HM&E) equipment for surface ships and aircraft carriers) which are not in any specific category. This equipment accomplishes program alterations for installation during CNO and Fleet availabilities, fills Fleet requisitions from casualties and attrition, provide tech refresh upgrades, and replaces obsolete equipment. Primary objectives are to maintain or improve readiness, safety, reliability, reduce workload, lower maintenance costs, improve sailor quality of life, and/or sustain ship classes through their notional life or beyond. The budget purchases install various equipment including machinery pumps, generators, ships propellers and shafts, air compressors, davits, A/C Plants, and steam propulsion items. It also procures allowance items as required by the Coordinated Shipboard Allowance List (COSAL). Major programs are the CVN Class Machinery Plant Upgrades, MACHALTs, Carrier Auto Voltage Regulator (AVR), Solid State Lighting, Patrol Coastal Modernization, and Expeditionary Mobile Base (ESB). [P40A / LT060 - MACHALTs]: The Machinery Alteration (MACHALT) Program supports identification, procurement, and installation of Hull, Mechanical and Electrical (HM&E) equipment and system improvements on in-service ships. The components are required to support units in the Fleet during the Continuous Maintenance Availability (CMAV) and other windows of opportunity. Due to Fleet usage requirements, and alignment of availability periods in a given year, adjustments are made to quantities and items throughout the FYDP. Program execution improves system readiness and reduces life cycle cost. MACHALTs are installed via the Navy Modernization Process (NMP) in the following priority order: (1) Mandatory Safety, (2) Statutory, (3) Safety, and (4) Troubled Systems/Obsolescence Alts. [P40A / LT110 - Propellers and Shafts]: LT110- VARIOUS PROPELLERS AND SHAFTS This funding procures spare waterborne shafting (propeller shafts and stern tube shafts) and controllable pitch propeller (CPP) system end items such as propeller blades, hubs and oil distribution (OD) boxes used on DDG 51 class ships. These spares are required to meet DDG 51 class Fleet demand due to scheduled replacement caused by lifecycle wear and unscheduled replacements caused by CASREPs. The component has long repair turn-around times (1-2 years) and thus cannot be repaired and reused during the same availability. The technical requirements and drydocking constraints drives the program to establish a rotatable pool to support replacements. The growing size of the DDG 51 class is driving the requirement to increase the number of spares to support a rotatable pool and ensure readiness. A malfunctioning propeller or shaft may result in excessive vibration, which could lead to damage of ship structures and equipment (bearings, main reduction gears, and bulkhead seal), increase of ship cavitation/noise, loss of speed or loss of motion. LT110 Item 3, Procurement cost for FY17 cost elements 3.1-3.3 reflect vendor cost increases based on prior year procurements. [P40A / LT120 - Carrier Propulsion Plant Inspection]: Funds will be utilized to procure the latest technology inspection system tooling, i.e., laser-optic, ultrasonic, fiber-optic, electro-optic and computed radiography inspection systems.												

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Exhibit P-40, Budget Line Item Justification: FY 2018 Navy			Date: May 2017
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 01: Ships Support Equipment / BSA 9: Other Shipboard Equipment		P-1 Line Item Number / Title: 0981 / Items less than \$5 Million	
ID Code (A=Service Ready, B=Not Service Ready): B	Program Elements for Code B Items: N/A		Other Related Program Elements: N/A
Line Item MDAP/MAIS Code: N/A			
[P40A / LT130 - Steam Propulsion Items]: LT130 - STEAM PROPULSION ITEMS This provides for several initiatives oriented to upgrading boiler efficiency and safety with downstream maintenance effectiveness. In particular, the items procured include: Upgraded Stack Gas Analyzer (SGA) , Optimization Trim Loop Material including fuel oil meters, stack gas temperature sensors, electronic automatic boiler controls interface software/schema to improve steam plant efficiency, Upgraded electronic automatic boiler control (E-ABC) system process controllers/smart transmitters, Upgraded Boiler Water/Feedwater (BW/FW) Chemistry Analysis/Carbohydrazide Implementation Equipment., Upgraded SSTG Protective Devices (Overspeed Trips), and Upgrades to Boiler Igniter System (BIS) (Fuel Valve and Insert/Retract Air Actuators). The Steam Propulsion Improvement Program provides safe and reliable power for ship movement through the water, and, in addition, provides power to ships combat and habitability systems, whether electrical or steam dependent. At any given time, due to propulsion plant casualties, ship propulsion systems may be operating at reduced capability, adversely affecting the ship's mission(s). The Steam Propulsion improvement program encompasses steam and diesel propulsion surface ships in the Fleet, and provides for material upgrades to propulsion systems resulting in increased readiness, safety and reliability. Items can be installed during a scheduled or unscheduled availability by a shipyard, tender/ Intermediate Maintenance Activity or Alteration Installation Team (AIT). [P40A / LT830 - Carrier Production Engineering]: The review and approval of any production contract technical documentation, or the separate development of this documentation, to include: Technical Manuals, Planned Maintenance System (PMS), Level III Production Drawings, Provisioning Technical Documentation (PTD), Program Support Data (PSD), and Allowance Parts List (APL); engineering support for final design reviews. [P40A / LT325 - Propulsion Shafting]: Establishes a holistic shafting program that provides program management and life cycle support for Carrier propulsion shafting. Purchases the two intermediate shaft segments to complete the CVN rotatable pool of shafting. Purchases the couplings required to make the shaft segments ready for install. Several CVNs had docking periods extended because the time required to overhaul existing shafts did not meet project milestones. To rectify the issue, the Department stood up a partial pool of "ready for issue" CVN shafts using existing carcasses and refurbished removals from decommissioned ships. Using existing funds to overhaul existing carcasses, a pool of over 12 segments was built. Funding required for 2 additional segments that are required to meet Shipyard requirements. No carcasses exist to meet this need; therefore these two shaft segments will be purchased new along with ancillary material (couplings) required for installation. [P40A / LT326 - Training Test Equipment]: Through the Technical Training Audit Program (TTAP) it has been found that the vast majority of lifecycle Hull, Mechanical and Electrical (HM&E) courses of instruction do not teach to current Fleet configurations, have obsolete or non-existent training equipment and do not utilize current training technology where appropriate. Funding required to replace outmoded and obsolete Training Test Equipment in established Navy schools, as identified in approved or draft Navy Training System Plans (NTSPs). [P40A / LT328 - Mobile Cleaning Recovery and Recycle System (MCRRS)]: The Mobile Cleaning, Recovery & Recycling System (MCRRS) is a shipboard heavy duty, self-powered and propelled cleaning vehicle which utilizes pressurized water jet technology, water reclaiming and recycling systems onboard the unit to clean and restore non-skid surfaces on Navy aircraft capable ships. MCRRS will replace the existing obsolete Tennant flight deck scrubber, significantly reduce manpower allocation and materials required to conduct the manual cleaning process utilizing soap and water, and be fielded on all LHA and LHD platforms. Funding will procure units, spares, training, and engineering services support. [P40A / Prior Year Funding]: Prior years funding for all cost elements no longer funded. [P40AMOD / LT306 - Automated Voltage Regulator (AVR)]: LT306 - AUTOMATED VOLTAGE REGULATOR The CVN Automatic Voltage Regulator (AVR) is a microprocessor based voltage regulator system for the NIMITZ Class, programmed to replace the legacy analog voltage regulator, which, although operational, lacks the improved reliability and lower maintenance costs of the AVR. It controls the output voltage of a turbine generator (TG), which converts steam into the electricity used for aircraft and combat operations, and reactor cooling. [P40AMOD / LT307 - Carrier Canned Lube Oil Pump]: The Canned Lube Oil Pump (CLOP) with a two-speed motor will replace both the Standby Lube Oil Pump (SLOP) and Emergency Lube Oil Pump (ELOP) on all CVN-68 Class ships. The ships have repeatedly overhauled SLOPs to replace turbine and reduction gear parts as well as replacing leaking mechanical seals at excessive costs. The ELOPs are also regularly overhauled to replace leaking mechanical seals. In addition, the installed ELOP does not meet all operational requirements for a Lube Oil System. The motor and pump are an integral piece on the CLOP which alleviates any alignment issues and a mechanical seal is no longer required.			

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Exhibit P-40, Budget Line Item Justification: FY 2018 Navy		Date: May 2017
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 01: Ships Support Equipment / BSA 9: Other Shipboard Equipment		P-1 Line Item Number / Title: 0981 / Items less than \$5 Million
ID Code (A=Service Ready, B=Not Service Ready): B	Program Elements for Code B Items: N/A	Other Related Program Elements: N/A
Line Item MDAP/MAIS Code: N/A		
[P40AMOD / LT308 - LHD/LHA Davits]: LT308 - LHD/LHA Davit Funding provides for the procurement of Rigid Inflatable Boat (RIB) Davits for LHA and LHD Class Ships. These allow ships to utilize Navy Standard 11M RIBs which replace antiquated Landing Craft Personnel (LCPL) boats which are no longer supported and present a maintenance burden, reduction in operational availability and jeopardize ships' ability to perform Anti-Terrorism Force Protection (ATFP) missions. [P40AMOD / LT309 - Solid-State Lighting (SSL)]: LT309- SOLID-STATE LIGHTING (SSL) FIXTURES Solid State Lighting refers to a type of lighting that uses semiconductor Light-Emitting Diodes (LEDs), Organic Light-Emitting Diodes (OLEDs), or Polymer Light-Emitting Diodes (PLEDs) as sources of illumination rather than electrical filaments, plasma (used in arc lamps such as fluorescent lamps) or gas. Funds provide for replacement of fluorescent and incandescent lighting fixtures installed on Amphibious Class ships with a Solid-State Lighting (SSL) fixtures. [P40AMOD / LT314 - Carrier Oil Water Separator]: A new Oil Water Separator (OWS) system will be installed on the CVN 68 Class to meet the new environmental discharge law of 15 parts per million (ppm) worldwide. System will include OWS, Oil content monitor and bilge and stripping system. The current OWSs installed on CVN 68 Class experience a high degree of costly maintenance and reliability issues and they do not meet the 15 ppm requirement. [P40AMOD / LT316 - Patrol Coastal ECDIS]: LT316 - PATROL COASTAL MODERNIZATION The PC Sustainment Program provides necessary modifications and upgrades to keep PC 1 class ships in-service and supportable through their expected service lives (until 2025). Upgrades include Navigation upgrades, Electronic Chart Display and Information System-Navy (ECDIS-N) upgrades, and Forward Looking Infrared (FLIR) upgrades. FY16 increase due to the Navigator of the Navy direction, that all ships must be paperless by the end of FY16. [P40AMOD / FMP Ship Units - LSD Davit]: LT322 - LSD Davit Provide Davit capabilities to meet the new OPNAV LSD boat requirement for two 11M Rigid Hull Inflatable Boats (RHIBs). Previous requirement was one 7M RHIB and one 11M RHIB. New Davit provides RHIB Launching Capability that meets Mandatory Safety of Life At Sea (SOLAS), Force Protection and Mission Requirements (Amphibious Assault; Anti-Piracy; Visit, Board, Search, and Seizure (VBSS)). [P40AMOD / LT327 - Modular Refrigeration System.]: Modular Refrigeration System (MRS) replaces the existing legacy ship's stores refrigeration system (SSRS) onboard CVN68 class carriers. The legacy system is energy inefficient, space inefficient, and maintenance intensive, requiring highly skilled personnel to operate and maintain acceptable box temperatures. Most hardware associated with the legacy systems is specialized mil-spec and is either becoming unsupportable due to obsolescence, or is grossly expensive to maintain. Each MRS is comprised of a Modular Refrigeration Unit (MRU), an operating/ diagnostic control panel, and small chilled water cooled flat-plate condenser. There are 15 MRUs required per hull. MRS's are self-contained hatchable MRUs with a dedicated control panel that eliminate 90% of current maintenance requirements and require minimal operator support/training. [P3A / LT160 - Machinery Plant Upgrades]: LT160 - MACHINERY PLANT UPGRADES (INTEGRATED COMMUNICATIONS AND ADVANCED NETWORK (ICAN) ICAN provides core infrastructure (node rooms, air blown fiber optic cable plant, network services) for integrating voice, video and data systems. This capability is easily upgradeable for rapid and cost effective expansion to support new technologies, such as IT-21, and is compatible with the Navy's integrated Information Networks MOA. [P3A - 10 / LT318 - Carriers Passive Countermeasures System (PCMS)]: classified effort [P3A - 12 / LT321 ESB SOF Backfit]: Funds provided for ESB 3 and 4 Special Operation Forces (SOF) components. Efforts include ship changes necessary to add radio infrastructure and increase bandwidth capacity, make ESB compatible with night vision devices, and to add additional aircraft operating spots. Other efforts include ship changes and services for additional Twenty-foot Equivalent Unit (TEU) capacity, increased medical services (shock/triage/forward resuscitative surgery system), and increased capacity for storage/fueling capability of MOGAS.		

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Exhibit P-40, Budget Line Item Justification: FY 2018 Navy				Date: May 2017	
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 01: Ships Support Equipment / BSA 9: Other Shipboard Equipment				P-1 Line Item Number / Title: 0981 / Items less than \$5 Million	
ID Code (A=Service Ready, B=Not Service Ready): B		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 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 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-40a	Items Less than \$5M Programs				- / 145.489	- / 14.416	- / 16.465	- / 11.365	- / -	- / 11.365
P-40a	LT306 - Automated Voltage Regulator (AVR)				- / 57.054	- / 0.000	- / 2.600	- / 3.700	- / 0.000	- / 3.700
P-40a	LT307 - Carrier Canned Lube Oil Pump				- / 24.145	- / 0.000	- / 0.000	- / 2.950	- / 0.000	- / 2.950
P-40a	LT308 - LHD/LHA Davits				- / 16.757	- / 2.615	- / 3.455	- / 6.359	- / 0.000	- / 6.359
P-40a	LT309 - Solid-State Lighting (SSL)				- / 19.143	- / 2.888	- / 1.912	- / 0.678	- / 0.000	- / 0.678
P-40a	LT314 - Carrier Oil Water Separator				- / 1.749	- / 6.223	- / 1.600	- / 5.000	- / 0.000	- / 5.000
P-40a	LT316 - Patrol Coastal ECDIS				- / 6.357	- / 3.831	- / 0.395	- / 0.000	- / 0.000	- / 0.000
P-40a	LT316 - Patrol Coastal Navigation Upgrade				- / 6.554	- / 5.586	- / 0.640	- / 0.000	- / 0.000	- / 0.000
P-40a	LT316 - Patrol Coastal FLIR				- / 2.330	- / 1.770	- / 2.528	- / 0.000	- / 0.000	- / 0.000
P-40a	LT322 - LSD Boat Davit				- / 2.355	- / 5.058	- / 9.069	- / 9.376	- / 0.000	- / 9.376
P-40a	LT327 - Modular Refrigeration System.				- / 0.000	- / 0.000	- / 3.400	- / 2.567	- / 0.000	- / 2.567
P-3a	1 / LT160 - Machinery Plant Upgrades (TBD)				- / 180.969	- / 10.305	- / 23.743	- / 20.294	- / 0.000	- / 20.294
P-3a	10 / LT318 - Carriers Passive Countermeasures System (PCMS) (TBD)				- / 35.116	- / 17.110	- / 20.200	- / 19.213	- / 0.000	- / 19.213
P-3a	12 / LT321 ESB SOF Backfit (TBD)				- / 0.000	- / 19.547	- / 2.712	- / 15.407	- / 0.000	- / 15.407
P-40	Total Gross/Weapon System Cost				- / 498.018	- / 89.349	- / 88.719	- / 96.909	- / 0.000	- / 96.909

*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. Title represents the P-40a Title when only the P-40a Summary/Total is shown.

Note: Totals in this Exhibit P-40 set may not be exact or sum exactly due to rounding.

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Exhibit P-40a, Budget Item Justification For Aggregated Items: FY 2018 Navy															Date: May 2017					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9								P-1 Line Item Number / Title: 0981 / Items less than \$5 Million							Aggregated Items Title: Items Less than \$5M Programs					
Item Number / Title [DODIC]	ID CD	MDAP/ MAIS Code	Prior Years			FY 2016			FY 2017			FY 2018 Base			FY 2018 OCO			FY 2018 Total		
			Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)
1) LT060 - MACHALTs																				
1.1) MACHALTs (Amphibs)	A		-	-	16.346	-	-	0.560	-	-	0.293	-	-	0.323	-	-	-	-	-	0.323
1.2) MACHALTs (Surface Ships)	A		-	-	63.975	-	-	8.359	-	-	5.520	-	-	5.416	-	-	-	-	-	5.416
Subtotal: 1) LT060 - MACHALTs			-	-	80.321	-	-	8.919	-	-	5.813	-	-	5.739	-	-	-	-	-	5.739
2) LT110 - Propellers and Shafts ⁽¹⁾																				
2.1) Blade Set Port/ STBD, DDG 51 CL	B		503,000.00	1	0.503	630,000.00	1	0.630	930,500.00	2	1.861	-	-	-	-	-	-	-	-	-
2.2) Hub Port DDG51 CL	A		849,000.00	4	3.396	875,000.00	1	0.875	1,016K	1	1.016	-	-	-	-	-	-	-	-	-
2.3) Hub STBD DDG51 CL	A		894,500.00	8	7.156	875,000.00	1	0.875	1,016K	1	1.016	-	-	-	-	-	-	-	-	-
2.4) Prop Shaft DDG51 CL	A		1,562K	7	10.931	1,437K	1	1.437	-	-	-	1,898K	1	1.898	-	-	-	1,898K	1	1.898
2.5) Stern Tube DDG51 CL	A		1,107K	11	12.174	1,181K	1	1.181	-	-	-	-	-	-	-	-	-	-	-	-
2.6) Oil Distribution (OD) Box, STBD DDG 51 CL CPP	A		230,416.67	12	2.765	-	-	-	-	-	-	279,000.00	1	0.279	-	-	-	279,000.00	1	0.279
2.7) Oil Distribution (OD) Box, Port DDG 51 CL CPP	A		214,600.00	5	1.073	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: 2) LT110 - Propellers and Shafts			-	-	37.998	-	-	4.998	-	-	3.893	-	-	2.177	-	-	-	-	-	2.177
3) LT120 - Carrier Propulsion Plant Inspection																				
3.1) Propulsion Plant Inspection	A		-	-	1.373	-	-	0.170	-	-	0.170	-	-	0.170	-	-	-	-	-	0.170
Subtotal: 3) LT120 - Carrier Propulsion Plant Inspection			-	-	1.373	-	-	0.170	-	-	0.170	-	-	0.170	-	-	-	-	-	0.170
4) LT130 - Steam Propulsion Items																				
4.1) Steam Propulsion Items	A		-	-	2.308	-	-	0.289	-	-	0.249	-	-	0.224	-	-	-	-	-	0.224
Subtotal: 4) LT130 - Steam Propulsion Items			-	-	2.308	-	-	0.289	-	-	0.249	-	-	0.224	-	-	-	-	-	0.224
5) LT830 - Carrier Production Engineering																				
5.1) Production Engineering	A		-	-	0.318	-	-	0.040	-	-	0.040	-	-	0.040	-	-	-	-	-	0.040
Subtotal: 5) LT830 - Carrier Production Engineering			-	-	0.318	-	-	0.040	-	-	0.040	-	-	0.040	-	-	-	-	-	0.040
7) LT325 - Propulsion Shafting																				
7.1) Propulsion Shafting	A		-	-	-	-	-	-	-	-	2.500	-	-	-	-	-	-	-	-	-

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Exhibit P-40a, Budget Item Justification For Aggregated Items: FY 2018 Navy															Date: May 2017					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9							P-1 Line Item Number / Title: 0981 / Items less than \$5 Million							Aggregated Items Title: Items Less than \$5M Programs						
Item Number / Title [DODIC]	ID CD	MDAP/MAIS Code	Prior Years			FY 2016			FY 2017			FY 2018 Base			FY 2018 OCO			FY 2018 Total		
			Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)
Subtotal: 7) LT325 - Propulsion Shafting			-	-	0.000	-	-	-	-	-	2.500	-	-	-	-	-	-	-	-	-
8) LT326 - Training Test Equipment ⁽²⁾																				
8.1) Training Test Equipment	A		-	-	-	-	-	-	-	-	3.800	-	-	-	-	-	-	-	-	-
Subtotal: 8) LT326 - Training Test Equipment			-	-	0.000	-	-	-	-	-	3.800	-	-	-	-	-	-	-	-	-
9) LT328 - Mobile Cleaning Recovery and Recycle System (MCRRS)																				
9.1) MCRRS Production	A		750,000.00	1	0.750	-	-	-	-	-	-	663,000.00	4	2.652	-	-	-	663,000.00	4	2.652
9.2) MCRRS Upgrades	A		615,000.00	2	1.230	-	-	-	-	-	-	138,000.00	2	0.276	-	-	-	138,000.00	2	0.276
9.3) MCRRS Engineering Support	A		-	-	1.560	-	-	-	-	-	-	-	-	0.087	-	-	-	-	-	0.087
Subtotal: 9) LT328 - Mobile Cleaning Recovery and Recycle System (MCRRS)			-	-	3.540	-	-	-	-	-	-	-	-	3.015	-	-	-	-	-	3.015
10) Prior Year Funding																				
10.1) LT040 - AEC	A		-	-	3.031	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10.2) PC HVAC Upgrade	A		1,550K	8	12.400	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10.3) Moonpool Launch & Recovery Sys	A		4,200K	1	4.200	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: 10) Prior Year Funding			-	-	19.631	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total			-	-	145.489	-	-	14.416	-	-	16.465	-	-	11.365	-	-	-	-	-	11.365

Note: Subtotals or Totals in this Exhibit P-40a may not be exact or sum exactly, due to rounding.

Footnotes:

⁽¹⁾ LT110 Item 2, Procurement cost for FY17 cost elements 3.1-3.3 reflect vendor cost increases based on prior year procurements.

⁽²⁾ LT326 - Funding required to replace outmoded and obsolete Training Test Equipment in established Navy schools, as identified in approved or draft Navy Training System Plans (NTSPs).

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Exhibit P-40a, Budget Item Justification For Aggregated Items: FY 2018 Navy															Date: May 2017				
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9								P-1 Line Item Number / Title: 0981 / Items less than \$5 Million							Aggregated Items Title: LT306 - Automated Voltage Regulator (AVR)				

Item Number / Title [DODIC]	ID CD	MDAP/MAIS Code	Prior Years			FY 2016			FY 2017			FY 2018 Base			FY 2018 OCO			FY 2018 Total		
			Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)
B Kits/Recurring																				
AVR -- Procurement (3)	A		483,467.74	62	29.975	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AVR -- Installation	A		-	-	25.532	-	-	-	-	-	2.600	-	-	3.700	-	-	-	-	-	3.700
Field Engineering Services -- Procurement	A		-	-	1.547	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Field Engineering Services -- Installation	A		-	-	-	-	-	0.000	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: B Kits/Recurring			-	-	57.054	-	-	-	-	-	2.600	-	-	3.700	-	-	-	-	-	3.700
Total			-	-	57.054	-	-	0.000	-	-	2.600	-	-	3.700	-	-	0.000	-	-	3.700

Note: Subtotals or Totals in this Exhibit P-40a may not be exact or sum exactly, due to rounding.

Remarks:

Models of Systems Affected: Auto Voltage Regulator

The CVN Automatic Voltage Regulator (AVR) is a microprocessor based voltage regulator system for the NIMITZ Class, programmed to replace the legacy analog voltage regulator, which, although operational, lacks the improved reliability and lower maintenance costs of the AVR. It controls the output voltage of a turbine generator (TG), which converts steam into the electricity used for aircraft and combat operations, and reactor cooling.

Footnotes:

⁽³⁾ Note: AVRs procured = 62. AVRs to be installed = 61. The difference between the 62 procured vs 61 installed is due to one AVR purchased being used at the manufacturer's plant as a unit to test new circuit cards before issuing to the fleet. Installation cost per shipset of AVRs ~ \$3.6M. Total cost for the FY17 shipset installs is \$3.6M. Planning and long lead material purchase (to support 1st qtr FY17 avail start) obligated \$1.0M in prior year funds; and has \$2.6M for the actual install cost in FY17.

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Exhibit P-40a, Budget Item Justification For Aggregated Items: FY 2018 Navy															Date: May 2017					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9							P-1 Line Item Number / Title: 0981 / Items less than \$5 Million							Aggregated Items Title: LT307 - Carrier Canned Lube Oil Pump						
Item Number / Title [DODIC]	ID CD	MDAP/MAIS Code	Prior Years			FY 2016			FY 2017			FY 2018 Base			FY 2018 OCO			FY 2018 Total		
			Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)
B Kits/Recurring																				
Canned Lube Oil Pump -- Procurement (4)	A		312,500.00	16	5.000	-	-	-	-	-	-	275,000.00	8	2.200	-	-	-	275,000.00	8	2.200
Canned Lube Oil Pump -- Installation	A		-	-	19.145	-	-	-	-	-	-	-	-	0.750	-	-	-	-	-	0.750
Subtotal: B Kits/Recurring			-	-	24.145	-	-	-	-	-	-	-	-	2.950	-	-	-	-	-	2.950
Total			-	-	24.145	-	-	0.000	-	-	0.000	-	-	2.950	-	-	0.000	-	-	2.950
Note: Subtotals or Totals in this Exhibit P-40a may not be exact or sum exactly, due to rounding.																				
Remarks: Models of Systems Affected: Carrier Canned Lube Oil Pump																				
The Canned Lube Oil Pump (CLOP) with a two-speed motor will replace both the Standby Lube Oil Pump (SLOP) and Emergency Lube Oil Pump (ELOP) on all CVN-68 Class ships. The ships have repeatedly overhauled SLOPs to replace turbine and reduction gear parts as well as replacing leaking mechanical seals at excessive costs. The ELOPs are also regularly overhauled to replace leaking mechanical seals. In addition, the installed ELOP does not meet all operational requirements for Lube Oil System. The motor and pump are an integral piece on the CLOP which alleviates any alignment issues and a mechanical seal is no longer required.																				
Footnotes: (4) Note: Installation costs for Lube Oil Service Pump effort has been updated to reflect actual costs from the performing activity. Installation funds are also required in the year prior to install for DSA (hull planning yard ship checks, installation drawing development), Advanced Planning, and Integrated Logistics Support (ILS)																				

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Exhibit P-40a, Budget Item Justification For Aggregated Items: FY 2018 Navy															Date: May 2017					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9						P-1 Line Item Number / Title: 0981 / Items less than \$5 Million						Aggregated Items Title: LT308 - LHD/LHA Davits								
Item Number / Title [DODIC]	ID CD	MDAP/MAIS Code	Prior Years			FY 2016			FY 2017			FY 2018 Base			FY 2018 OCO			FY 2018 Total		
			Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)
B Kits/Recurring																				
Boat (RIB) Davits -- Procurement	A		858,333.33	9	7.725	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Boat (RIB) Davits -- Installation	A		-	-	9.032	-	-	2.615	-	-	3.455	-	-	6.359	-	-	-	-	-	6.359
Subtotal: B Kits/Recurring			-	-	16.757	-	-	2.615	-	-	3.455	-	-	6.359	-	-	-	-	-	6.359
Total			-	-	16.757	-	-	2.615	-	-	3.455	-	-	6.359	-	-	0.000	-	-	6.359

Note: Subtotals or Totals in this Exhibit P-40a may not be exact or sum exactly, due to rounding.

Remarks:

Models of Systems Affected: Boat (RIB) Davits

This shipalt installs Boat (RIB) Davits replacing Land Craft Personnel (LCPL) Davits on the LHA/LHD Class Ships.

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Exhibit P-40a, Budget Item Justification For Aggregated Items: FY 2018 Navy															Date: May 2017					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9						P-1 Line Item Number / Title: 0981 / Items less than \$5 Million									Aggregated Items Title: LT309 - Solid-State Lighting (SSL)					
Item Number / Title [DODIC]	ID CD	MDAP/MAIS Code	Prior Years			FY 2016			FY 2017			FY 2018 Base			FY 2018 OCO			FY 2018 Total		
			Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)
B Kits/Recurring																				
Solid State Lighting -- Procurement	A		428,782.61	23	9.862	354,750.00	4	1.419	530,000.00	2	1.060	-	-	-	-	-	-	-	-	-
Solid State Lighting -- Installation	A		-	-	9.281	-	-	1.469	-	-	0.102	-	-	0.678	-	-	-	-	-	0.678
Subtotal: B Kits/Recurring			-	-	19.143	-	-	2.888	-	-	1.162	-	-	0.678	-	-	-	-	-	0.678
Support Cost																				
Engineering Services	A		-	-	-	-	-	-	-	-	0.750	-	-	-	-	-	-	-	-	-
Subtotal: Support Cost			-	-	0.000	-	-	-	-	-	0.750	-	-	-	-	-	-	-	-	-
Total			-	-	19.143	-	-	2.888	-	-	1.912	-	-	0.678	-	-	0.000	-	-	0.678
Note: Subtotals or Totals in this Exhibit P-40a may not be exact or sum exactly, due to rounding.																				
Remarks: Models of Systems Affected: Solid State Lighting Procure/Install solid state lighting fixtures to replace fluorescent and incandescent lighting fixtures installed on Amphibious Class ships.																				

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Exhibit P-40a, Budget Item Justification For Aggregated Items: FY 2018 Navy															Date: May 2017					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9						P-1 Line Item Number / Title: 0981 / Items less than \$5 Million						Aggregated Items Title: LT314 - Carrier Oil Water Separator								
Item Number / Title [DODIC]	ID CD	MDAP/MAIS Code	Prior Years			FY 2016			FY 2017			FY 2018 Base			FY 2018 OCO			FY 2018 Total		
			Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)
B Kits/Recurring																				
Oil Water Separator -- Procurement ⁽⁵⁾	A		580,000.00	2	1.160	-	-	-	600,000.00	2	1.200	600,000.00	2	1.200	-	-	-	600,000.00	2	1.200
Oil Water Separator -- Installation	A		-	-	0.589	-	-	6.223	-	-	0.400	-	-	3.800	-	-	-	-	-	3.800
Subtotal: B Kits/Recurring			-	-	1.749	-	-	6.223	-	-	1.600	-	-	5.000	-	-	-	-	-	5.000
Total			-	-	1.749	-	-	6.223	-	-	1.600	-	-	5.000	-	-	0.000	-	-	5.000

Note: Subtotals or Totals in this Exhibit P-40a may not be exact or sum exactly, due to rounding.

Remarks:

Models of Systems Affected: Carrier Oil Water Separator

A new Oil Water Separator (OWS) system will be installed on the CVN 68 Class to meet the new environmental discharge law of 15 parts per million (ppm) worldwide. System will include OWS, Oil content monitor and bilge and stripping system. The current OWSs installed on CVN 68 Class experience a high degree of costly maintenance and reliability issues and they do not meet the 15 ppm requirement.

Footnotes:

⁽⁵⁾ Procurements/installs planned to level load the AIT based on latest Carrier Availability schedule. Installation funds are also required in the year prior to install for DSA (hull planning yard ship checks, installation drawing development), Advanced Planning, and Integrated Logistics Support (ILS).

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Exhibit P-40a, Budget Item Justification For Aggregated Items: FY 2018 Navy															Date: May 2017					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9							P-1 Line Item Number / Title: 0981 / Items less than \$5 Million							Aggregated Items Title: LT316 - Patrol Coastal ECDIS						
Item Number / Title [DODIC]	ID CD	MDAP/MAIS Code	Prior Years			FY 2016			FY 2017			FY 2018 Base			FY 2018 OCO			FY 2018 Total		
			Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)
B Kits/Recurring																				
ECDIS-N -- Procurement ⁽⁶⁾	A		373,727.27	11	4.111	300,000.00	2	0.600	-	-	-	-	-	-	-	-	-	-	-	-
ECDIS-N -- Installation	A		-	-	2.246	-	-	3.231	-	-	0.395	-	-	-	-	-	-	-	-	-
Subtotal: B Kits/Recurring			-	-	6.357	-	-	3.831	-	-	0.395	-	-	-	-	-	-	-	-	-
Total			-	-	6.357	-	-	3.831	-	-	0.395	-	-	0.000	-	-	0.000	-	-	0.000

Note: Subtotals or Totals in this Exhibit P-40a may not be exact or sum exactly, due to rounding.

Remarks:

Models of Systems Affected: PC ECDIS

Funding provided for Electronic Chart Display Information System-Navy (ECDIS-N) for the Patrol Coastal Ships. This modification installs hardware and software for an approved ECDIS-N for digital nautical charts aboard the PC-1 Class ships per CNO direction to transition from paper to electronic charts by the end of FY16.

Footnotes:

⁽⁶⁾ The Navigator of the Navy directed all ships to be paperless by the end of FY16. To comply, PCs must receive the navigation and ECDIS-N installations.

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Exhibit P-40a, Budget Item Justification For Aggregated Items: FY 2018 Navy																Date: May 2017				
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9								P-1 Line Item Number / Title: 0981 / Items less than \$5 Million								Aggregated Items Title: LT316 - Patrol Coastal Navigation Upgrade				
Item Number / Title [DODIC]	ID CD	MDAP/MAIS Code	Prior Years			FY 2016			FY 2017			FY 2018 Base			FY 2018 OCO			FY 2018 Total		
			Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)
B Kits/Recurring																				
Navigation Upgrade -- Procurement ⁽⁷⁾	A		327,250.00	12	3.927	400,000.00	1	0.400	-	-	-	-	-	-	-	-	-	-	-	-
Navigation Upgrade -- Installation	A		-	-	2.627	-	-	5.186	-	-	0.640	-	-	-	-	-	-	-	-	-
Subtotal: B Kits/Recurring			-	-	6.554	-	-	5.586	-	-	0.640	-	-	-	-	-	-	-	-	-
Total			-	-	6.554	-	-	5.586	-	-	0.640	-	-	0.000	-	-	0.000	-	-	0.000
Note: Subtotals or Totals in this Exhibit P-40a may not be exact or sum exactly, due to rounding. Remarks: Models of Systems Affected: PC Navigation Upgrade Funding provided for Navigation Upgrades for the Patrol Coastal Ships. The navigation sensor suite modernization provides essential technology improvements using the mobility mission support equipment, satellite-based position keeping, electronic heading, and automatic helm control. Footnotes: ⁽⁷⁾ The Navigator of the Navy directed all ships to be paperless by the end of FY16. To comply, PCs must receive the navigation and ECDIS-N installations.																				

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Exhibit P-40a, Budget Item Justification For Aggregated Items: FY 2018 Navy															Date: May 2017				
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9								P-1 Line Item Number / Title: 0981 / Items less than \$5 Million							Aggregated Items Title: LT316 - Patrol Coastal FLIR				

Item Number / Title [DODIC]	ID CD	MDAP/MAIS Code	Prior Years			FY 2016			FY 2017			FY 2018 Base			FY 2018 OCO			FY 2018 Total		
			Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)
B Kits/Recurring																				
FLIR -- Procurement (8)	A		444,750.00	4	1.779	354,000.00	5	1.770	353,000.00	3	1.059	-	-	-	-	-	-	-	-	-
FLIR -- Installation	A		-	-	0.551	-	-	-	-	-	1.469	-	-	-	-	-	-	-	-	-
Subtotal: B Kits/Recurring			-	-	2.330	-	-	1.770	-	-	2.528	-	-	-	-	-	-	-	-	-
Total			-	-	2.330	-	-	1.770	-	-	2.528	-	-	0.000	-	-	0.000	-	-	0.000

Note: Subtotals or Totals in this Exhibit P-40a may not be exact or sum exactly, due to rounding.

Remarks:

Models of Systems Affected: PC FLIR

Funding provided for the Forward Looking Infrared (FLIR) mod on Patrol Coastal Ship. FLIR Mod replaces an obsolete system and installs an Electro-Optic system that provides situational awareness with visual imagery along with detailed ship system and target information.

Footnotes:

⁽⁸⁾ FLIR installs take 2 weeks to complete. FY17 scheduled installations will be completed consecutively by alteration installation teams (AIT).

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Exhibit P-40a, Budget Item Justification For Aggregated Items: FY 2018 Navy															Date: May 2017					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9							P-1 Line Item Number / Title: 0981 / Items less than \$5 Million							Aggregated Items Title: LT322 - LSD Boat Davit						
Item Number / Title [DODIC]	ID CD	MDAP/MAIS Code	Prior Years			FY 2016			FY 2017			FY 2018 Base			FY 2018 OCO			FY 2018 Total		
			Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)
B Kits/Recurring																				
FMP Ship Units - LSD Davit -- Procurement (9)	A		1,191K	1	1.191	1,125K	2	2.250	1,164K	3	3.493	1,190K	2	2.381	-	-	-	1,190K	2	2.381
FMP Ship Units - LSD Davit -- Installation	A		-	-	1.164	-	-	1.770	-	-	4.880	-	-	6.995	-	-	-	-	-	6.995
Subtotal: B Kits/Recurring			-	-	2.355	-	-	4.020	-	-	8.373	-	-	9.376	-	-	-	-	-	9.376
Support Cost																				
Engineering/Contract/ Testing (Nonrecurring) (10)	A		-	-	-	-	-	1.038	-	-	0.696	-	-	-	-	-	-	-	-	-
Subtotal: Support Cost			-	-	0.000	-	-	1.038	-	-	0.696	-	-	-	-	-	-	-	-	-
Total			-	-	2.355	-	-	5.058	-	-	9.069	-	-	9.376	-	-	0.000	-	-	9.376

Note: Subtotals or Totals in this Exhibit P-40a may not be exact or sum exactly, due to rounding.

Remarks:

This SHIPALT replaces the Welin Lambie LUM 12A or Lakeshore Gravity Boat Davit currently installed on LSD 41/49 Class ships, with a new Slewing Arm Davit (SLAD) from Oldenburg Group Inc. The existing systems will be removed and the OGI SLAD will be installed in the same general location of the current systems. The new system is a SLAD design with single point pick up of the boats versus the two point pick up used by the existing systems.

Footnotes:

⁽⁹⁾ Two years prior to install, DSA is required to fund new Milestones for Fixed Price Shipyard Install Contracts and to support Ship Check, Installation Drawing/Work Specification development required for the Request For Proposal (RFP). Installation costs vary depending on current port rates.

⁽¹⁰⁾ Costs in FY16/17; include Shock, Vibration & EMI Testing; Fleet Life Cycle Training simulator and curriculum development; and Procurement Contract costs for Re-Compete/Sole Source Extension (Original Contract Awarded Sep 2011).

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Exhibit P-40a, Budget Item Justification For Aggregated Items: FY 2018 Navy															Date: May 2017				
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9								P-1 Line Item Number / Title: 0981 / Items less than \$5 Million							Aggregated Items Title: LT327 - Modular Refrigeration System.				

Item Number / Title [DODIC]	ID CD	MDAP/MAIS Code	Prior Years			FY 2016			FY 2017			FY 2018 Base			FY 2018 OCO			FY 2018 Total		
			Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)
B Kits/Recurring																				
Modular Reefer System -- Procurement ⁽¹¹⁾	A		-	-	-	-	-	-	226,666.67	15	3.400	-	-	-	-	-	-	-	-	-
Modular Reefer System -- Installation	A		-	-	-	-	-	-	-	-	-	-	-	2.567	-	-	-	-	-	2.567
Subtotal: B Kits/Recurring			-	-	0.000	-	-	-	-	-	3.400	-	-	2.567	-	-	-	-	-	2.567
Total			-	-	0.000	-	-	0.000	-	-	3.400	-	-	2.567	-	-	0.000	-	-	2.567

Note: Subtotals or Totals in this Exhibit P-40a may not be exact or sum exactly, due to rounding.

Remarks:

Modular Refrigeration System (MRS) replaces the existing legacy ship's stores refrigeration system (SSRS) onboard CVN68 class carriers. The legacy system is energy inefficient, space inefficient, and maintenance intensive, requiring highly skilled personnel to operate and maintain acceptable box temperatures. Most hardware associated with the legacy systems is specialized mil-spec and is either becoming unsupportable due to obsolescence, or is grossly expensive to maintain. Each Modular Refrigeration System (MRS) is comprised of a Modular Refrigeration Unit (MRU), an operating/diagnostic control panel, and small chilled water cooled flat-plate condenser. There are 15 MRUs required per hull. Modular Refrigeration Systems (MRS's) are self-contained hatchable modular refrigeration units (MRU) with a dedicated control panel that eliminate 90% of current maintenance requirements and require minimal operator support/training.

Footnotes:

⁽¹¹⁾ FY17 funding is for the procurement of an entire Shipset of Modular Refrigeration Systems. Installation requirement in FY18 decreased based on revised ISEA installation estimate. Current system performance on CVN68 CL ships has made replacement of the existing legacy system critical. Installation funds are also required in the year prior to install for DSA (hull planning yard ship checks, installation drawing development), Advanced Planning, and Integrated Logistics Support (ILS)

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Exhibit P-3a, Individual Modification: FY 2018 Navy					Date: May 2017	
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9		P-1 Line Item Number / Title: 0981 / Items less than \$5 Million			Modification Number / Title: 1 / LT160 - Machinery Plant Upgrades	
ID Code (A=Service Ready, B=Not Service Ready) :				MDAP/MAIS Code:		
Resource Summary	Prior Years	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
Procurement Quantity <i>(Units in Each)</i>	-	-	-	-	-	-
Gross/Weapon System Cost <i>(\$ in Millions)</i>	180.969	10.305	23.743	20.294	0.000	20.294
Less PY Advance Procurement <i>(\$ in Millions)</i>	-	-	-	-	-	-
Net Procurement (P-1) <i>(\$ in Millions)</i>	180.969	10.305	23.743	20.294	0.000	20.294
Plus CY Advance Procurement <i>(\$ in Millions)</i>	-	-	-	-	-	-
Total Obligation Authority <i>(\$ in Millions)</i>	180.969	10.305	23.743	20.294	0.000	20.294
<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>	-	-	-	-	-	-
Gross/Weapon System Unit Cost <i>(\$ in Dollars)</i>	-	-	-	-	-	-
Description: ICAN provides core infrastructure (node rooms, air blown fiber optic cable plant, network services) for integrating voice, video and data systems. This capability is easily upgradable for rapid and cost effective expansion to support new technologies, such as IT-21, and is compatible with the Navy integrated Information Networks MOA.						

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Exhibit P-3a, Individual Modification: FY 2018 Navy					Date: May 2017	
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9			P-1 Line Item Number / Title: 0981 / Items less than \$5 Million		Modification Number / Title: 1 / LT160 - Machinery Plant Upgrades	
ID Code (A=Service Ready, B=Not Service Ready) :				MDAP/MAIS Code:		
Models of Systems Affected: Machinery Plant Upgrades		Modification Type: TBD			Related RDT&E PEs:	
Financial Plan	Prior Years	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
	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)
Procurement						
<i>Modification Item 1 of 1:</i> LT160 - Machinery Plant Upgrades						
B Kits						
Recurring						
1.1.1) Machinery Plant Upgrades - NonOrganic ⁽¹²⁾	27 / 68.386	3 / 6.000	4 / 5.765	3 / 6.704	- / -	3 / 6.704
<i>Subtotal: Recurring</i>	- / 68.386	- / 6.000	- / 5.765	- / 6.704	- / -	- / 6.704
<i>Subtotal: LT160 - Machinery Plant Upgrades</i>	27 / 68.386	3 / 6.000	4 / 5.765	3 / 6.704	- / -	3 / 6.704
<i>Subtotal: Procurement, All Modification Items</i>	- / 68.386	- / 6.000	- / 5.765	- / 6.704	- / -	- / 6.704
Installation						
<i>Modification Item 1 of 1:</i> LT160 - Machinery Plant Upgrades	- / 112.583	- / 4.305	- / 17.978	- / 13.590	- / 0.000	- / 13.590
<i>Subtotal: Installation</i>	- / 112.583	- / 4.305	- / 17.978	- / 13.590	- / -	- / 13.590
Total						
Total Cost (Procurement + Support + Installation)	180.969	10.305	23.743	20.294	0.000	20.294

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Exhibit P-3a, Individual Modification: FY 2018 Navy							Date: May 2017						
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9				P-1 Line Item Number / Title: 0981 / Items less than \$5 Million				Modification Number / Title: 1 / LT160 - Machinery Plant Upgrades					
ID Code (A=Service Ready, B=Not Service Ready) :							MDAP/MAIS Code:						
Modification Item 1 of 1: LT160 - Machinery Plant Upgrades													
Manufacturer Information													
Manufacturer Name: various						Manufacturer Location: various							
Administrative Leadtime (in Months): 2						Production Leadtime (in Months): 5							
Dates		FY 2016			FY 2017			FY 2018					
Contract Dates		Nov 2015			Nov 2016			Nov 2017					
Delivery Dates		Apr 2016			Apr 2017			Apr 2018					
Installation Information													
Method of Implementation: ALT:: Installation Name: Machinery Plant Upgrades													
Installation Cost		Prior Years		FY 2016		FY 2017		FY 2018 Base		FY 2018 OCO		FY 2018 Total	
		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)	
Prior Years		25 / 111.733		2 / 2.454		- / -		- / -		- / -		- / -	
FY 2016		0 / 0.850		1 / 1.346		2 / 8.013		- / -		- / -		- / -	
FY 2017		- / -		0 / 0.505		1 / 5.712		3 / 8.600		0 / 0.000		3 / 8.600	
FY 2018		- / -		- / -		0 / 4.253		1 / 3.032		0 / 0.000		1 / 3.032	
Total		25 / 112.583		3 / 4.305		3 / 17.978		4 / 13.590		0 / 0.000		4 / 13.590	
Installation Schedule													
	PYS	FY 2016				FY 2017				FY 2018			
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
In	25	-	2	-	1	-	2	-	1	-	3	1	-
Out	24	-	1	-	-	3	-	2	-	-	1	1	-
Footnotes:													
(12) Installation funds are also required in the year prior to install for DSA (hull planning yard ship checks, installation drawing development), Advanced Planning, and Integrated Logistics Support (ILS). The Machinery Plant Upgrade project within the CVN Fleet Modernization Program (FMP) encompasses CVN Machinery Control Systems, Ship Control (Navigation/Steering), Integrated Voice Control Networks, Announcing Systems and Shipboard Air Traffic Control Communication Systems. The machinery plant upgrade modernization alterations currently consist of greater than 40 different Ship Change Documents (SCD) with a cost value of approximately \$42M for all the alterations combined. Individual SCDs can range in cost from \$5K (for software only changes) to ~ \$14M for major system upgrade procurements. The range of SCD installs can cost as low as \$100k and as high as \$4 million for individual SCDs. During each CNO availability, we schedule and complete a subset of these 40+ alterations. Each hull is different receiving varying subsets of the 40+ SCDs depending on individual ship configurations. These alts are scheduled for installation over 3-4 availabilities (which may be 9-12 years) with many installations occurring in later years of the FYDP. Additionally, the machinery plant upgrade program is technology driven and many alterations are still being finalized in the Navy modernization Program (i.e. Ship Change Document (SCD) development) process for installation in later years. New SCDs continue to be developed to proactively address obsolescence issues associated with ever changing technology. The current budget for the out years is based on initial SCD development estimates.													

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Exhibit P-3a, Individual Modification: FY 2018 Navy					Date: May 2017	
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9		P-1 Line Item Number / Title: 0981 / Items less than \$5 Million			Modification Number / Title: 10 / LT318 - Carriers Passive Countermeasures System (PCMS)	
ID Code (A=Service Ready, B=Not Service Ready) :				MDAP/MAIS Code:		
Resource Summary	Prior Years	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
Procurement Quantity <i>(Units in Each)</i>	-	-	-	-	-	-
Gross/Weapon System Cost <i>(\$ in Millions)</i>	35.116	17.110	20.200	19.213	0.000	19.213
Less PY Advance Procurement <i>(\$ in Millions)</i>	-	-	-	-	-	-
Net Procurement (P-1) <i>(\$ in Millions)</i>	35.116	17.110	20.200	19.213	0.000	19.213
Plus CY Advance Procurement <i>(\$ in Millions)</i>	-	-	-	-	-	-
Total Obligation Authority <i>(\$ in Millions)</i>	35.116	17.110	20.200	19.213	0.000	19.213
<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>	-	-	-	-	-	-
Gross/Weapon System Unit Cost <i>(\$ in Dollars)</i>	-	-	-	-	-	-
Description: Classified effort. PCMS funding is solely for installation. Procurement of material is done separately via a different sponsor and program office. Material is provided as GFE at the start of the availability.						

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Exhibit P-3a, Individual Modification: FY 2018 Navy					Date: May 2017	
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9			P-1 Line Item Number / Title: 0981 / Items less than \$5 Million		Modification Number / Title: 10 / LT318 - Carriers Passive Countermeasures System (PCMS)	
ID Code (A=Service Ready, B=Not Service Ready) :				MDAP/MAIS Code:		
Models of Systems Affected: Carrier PCMS		Modification Type: TBD			Related RDT&E PEs:	
Financial Plan	Prior Years	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
	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)
Procurement						
<i>Modification Item 1 of 1:</i> LT318 - Carriers Passive Countermeasures System (PCMS)						
B Kits						
Recurring						
1.1.1) PCMS - Organic						
- / 35.116 - / 17.110 - / 20.200 - / 19.213 - / - - / 19.213						
<i>Subtotal: Recurring</i>						
- / 35.116 - / 17.110 - / 20.200 - / 19.213 - / - - / 19.213						
<i>Subtotal: LT318 - Carriers Passive Countermeasures System (PCMS)</i>						
- / 35.116 - / 17.110 - / 20.200 - / 19.213 - / - - / 19.213						
<i>Subtotal: Procurement, All Modification Items</i>						
- / 35.116 - / 17.110 - / 20.200 - / 19.213 - / - - / 19.213						
Installation						
<i>Subtotal: Installation</i>						
- / - - / - - / - - / - - / - - / -						
Total						
Total Cost (Procurement + Support + Installation)						
35.116 17.110 20.200 19.213 0.000 19.213						

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Exhibit P-3a, Individual Modification: FY 2018 Navy		Date: May 2017	
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9		P-1 Line Item Number / Title: 0981 / Items less than \$5 Million	
		Modification Number / Title: 10 / LT318 - Carriers Passive Countermeasures System (PCMS)	
ID Code (A=Service Ready, B=Not Service Ready) :		MDAP/MAIS Code:	
Modification Item 1 of 1: LT318 - Carriers Passive Countermeasures System (PCMS)			
Manufacturer Information			
Manufacturer Name: New MFG - Name		Manufacturer Location: New MFG - Loc	
Administrative Leadtime (<i>in Months</i>): 0		Production Leadtime (<i>in Months</i>): 0	
Dates	FY 2016	FY 2017	FY 2018
Contract Dates			
Delivery Dates			

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Exhibit P-3a, Individual Modification: FY 2018 Navy					Date: May 2017	
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9			P-1 Line Item Number / Title: 0981 / Items less than \$5 Million		Modification Number / Title: 12 / LT321 ESB SOF Backfit	
ID Code (A=Service Ready, B=Not Service Ready) :				MDAP/MAIS Code:		
Resource Summary	Prior Years	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
Procurement Quantity <i>(Units in Each)</i>	-	-	-	-	-	-
Gross/Weapon System Cost <i>(\$ in Millions)</i>	0.000	19.547	2.712	15.407	0.000	15.407
Less PY Advance Procurement <i>(\$ in Millions)</i>	-	-	-	-	-	-
Net Procurement (P-1) <i>(\$ in Millions)</i>	0.000	19.547	2.712	15.407	0.000	15.407
Plus CY Advance Procurement <i>(\$ in Millions)</i>	-	-	-	-	-	-
Total Obligation Authority <i>(\$ in Millions)</i>	0.000	19.547	2.712	15.407	0.000	15.407
<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>	-	-	-	-	-	-
Gross/Weapon System Unit Cost <i>(\$ in Dollars)</i>	-	-	-	-	-	-
Description: Funds provided for ESB 3 and 4 Special Operation Forces (SOF) components. Efforts include ship changes necessary to add radio infrastructure and increase bandwidth capacity, make ESB compatible with night vision devices, and to add additional aircraft operating spots. Other efforts include ship changes and services for additional Twenty-foot Equivalent Unit (TEU) capacity, increased medical services (shock/ triage/forward resuscitative surgery system), and increased capacity for storage/fueling capability of MOGAS.						

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Exhibit P-3a, Individual Modification: FY 2018 Navy					Date: May 2017	
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9		P-1 Line Item Number / Title: 0981 / Items less than \$5 Million			Modification Number / Title: 12 / LT321 ESB SOF Backfit	
ID Code (A=Service Ready, B=Not Service Ready) :				MDAP/MAIS Code:		
Models of Systems Affected: [No Model Specified]		Modification Type: TBD			Related RDT&E PEs:	
Financial Plan	Prior Years	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
	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)
Procurement						
Modification Item 1 of 1: LT321 ESB SOF Backfit						
B Kits						
Recurring						
1.1.1) LT321 ESB SOF . - NonOrganic ⁽¹³⁾	- / -	1 / 12.347	1 / 2.712	1 / 11.642	- / -	1 / 11.642
Subtotal: Recurring	- / 0.000	- / 12.347	- / 2.712	- / 11.642	- / -	- / 11.642
Subtotal: LT321 ESB SOF Backfit	- / -	1 / 12.347	1 / 2.712	1 / 11.642	- / -	1 / 11.642
Subtotal: Procurement, All Modification Items	- / 0.000	- / 12.347	- / 2.712	- / 11.642	- / -	- / 11.642
Installation						
Modification Item 1 of 1: LT321 ESB SOF Backfit	- / 0.000	- / 7.200	- / 0.000	- / 3.765	- / 0.000	- / 3.765
Subtotal: Installation	- / 0.000	- / 7.200	- / -	- / 3.765	- / -	- / 3.765
Total						
Total Cost (Procurement + Support + Installation)	0.000	19.547	2.712	15.407	0.000	15.407

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Exhibit P-3a, Individual Modification: FY 2018 Navy							Date: May 2017						
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9					P-1 Line Item Number / Title: 0981 / Items less than \$5 Million				Modification Number / Title: 12 / LT321 ESB SOF Backfit				
ID Code (A=Service Ready, B=Not Service Ready) :							MDAP/MAIS Code:						
Modification Item 1 of 1: LT321 ESB SOF Backfit													
Manufacturer Information													
Manufacturer Name: Various						Manufacturer Location: TBD							
Administrative Leadtime <i>(in Months)</i> : 0						Production Leadtime <i>(in Months)</i> : 0							
Dates		FY 2016			FY 2017			FY 2018					
Contract Dates													
Delivery Dates													
Installation Information													
Method of Implementation: [none specified]:: Installation Name: LT321 ESB SOF .													
Installation Cost		Prior Years		FY 2016		FY 2017		FY 2018 Base		FY 2018 OCO		FY 2018 Total	
		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>		Qty <i>(Each)</i> / Total Cost <i>(\$ M)</i>		Qty <i>(Each)</i> / Total Cost <i>(\$ M)</i>	
Prior Years		- / -		- / -		- / -		- / -		- / -		- / -	
FY 2016		- / -		1 / 7.200		- / -		- / -		- / -		- / -	
FY 2017		- / -		- / -		- / -		1 / 3.765		0 / 0.000		1 / 3.765	
FY 2018		- / -		- / -		- / -		- / -		- / -		- / -	
Total		- / -		1 / 7.200		- / -		1 / 3.765		0 / 0.000		1 / 3.765	
Installation Schedule													
	PYS	FY 2016				FY 2017				FY 2018			
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
In	-	-	-	-	1	-	-	-	-	-	-	1	-
Out	-	-	-	-	-	1	-	-	-	-	-	-	1
Footnotes: (13) LT321- FY17 funding was for the procurement of Long Lead Material for the ESB 4 SOF components. The funding increase is to procure the remaining ESB 4 SOF components followed by subsequent installation efforts beginning in FY18 and ending in FY19.													

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Exhibit P-40, Budget Line Item Justification: FY 2018 Navy										Date: May 2017		
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 01: Ships Support Equipment / BSA 9: Other Shipboard Equipment							P-1 Line Item Number / Title: 0989 / Chemical Warfare Detectors					
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 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	To Complete	Total
Procurement Quantity (<i>Units in Each</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost (<i>\$ in Millions</i>)	20.216	3.027	2.873	3.036	0.000	3.036	3.087	3.158	3.225	3.289	56.072	97.983
Less PY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (<i>\$ in Millions</i>)	20.216	3.027	2.873	3.036	0.000	3.036	3.087	3.158	3.225	3.289	56.072	97.983
Plus CY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority (<i>\$ in Millions</i>)	20.216	3.027	2.873	3.036	0.000	3.036	3.087	3.158	3.225	3.289	56.072	97.983
<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 Dollars</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost (<i>\$ in Dollars</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Description: CHEMICAL & BIOLOGICAL DEFENSE PROGRAM (INSTALLATION REQUIREMENTS): Public Law 103-160, Section 1703 created a Joint Service Chemical and Biological Defense Program (CBDP) to address ever growing threats from the aggressive proliferation of chemical and biological weapons. Joint CBDP funds the development and procurement of Chemical and Biological Defense (CBD) Equipment to enhance the warfighter's ability to survive and complete their mission in a chemical biological contaminated environment. The Navy is responsible for the associated installation/integration and sustainment funds only. The Navy's requirement for Joint Biological Point Detection System (JBPDS), Improved Point Detection System/Lifecycle Replacement (IPDS/LR), Joint Biological Agent Identification and Diagnostic System (JBAIDS), Next Generation Chemical Detection (NGDS) System, and Enhanced Maritime Biological Detection (EMBD) system has been validated by CNO in associated Joint Operational Requirements Documents. Installation of Equipment Funding is for installation of equipment including Fleet Modernization Program installations, installation of training equipment and installation of equipment in other shore facilities. Procurement of equipment is funded by the Joint Service CBDP. Detector installation costs can vary significantly, even within ship class, depending on installation location (East coast, West coast, OCONUS, etc.), if installation accomplished pier side or in a ship yard (i.e. availability type during which installation actually occurs), ship as built and as found conditions, and installation growth work (i.e. unplanned/unexpected work) driven by as found conditions. [P3A / CW001 CHEMICAL WARFARE PROGRAM IPDS/LR]: - FY16 installations include four (4) MCM Class ship at \$193.4K each, one (1) LSD 41 Class ship at \$203.4K, three (3)CG-47 Class ships at \$205K each, two (2) DDG-51 Class ships at \$189.4K each, and one (1) LCC-19 Class ship at \$205.9K. Total installation costs for IPDS-LR in FY16 is \$2,177K for eleven (11) ships. FY16 DSA cost is \$672K. - FY17 installations include three (3) MCM Class ship at \$180.3K each, three (3) LHD-1 Class ship at \$196.5K each, one (1) LPD-17 Class ship at \$158.4K, two (2) LSD-49 Class ships at \$185.4K each, one (1) CG-47 Class ships at \$205K each, one (1) DDG-51 Class ship at \$190K, and one (1) CVN-68 Class ship at \$182K. Total installation costs for IPDS-LR in FY17 is \$2,237K for twelve (12) ships. FY17 DSA cost is \$552K.												

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Exhibit P-40, Budget Line Item Justification: FY 2018 Navy		Date: May 2017
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 01: Ships Support Equipment / BSA 9: Other Shipboard Equipment		P-1 Line Item Number / Title: 0989 / Chemical Warfare Detectors
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		
- FY18 installations include two (2) LCS Class ships at \$219.4K each, two (2) LSD-41 Class ships at \$206.5K each, three (3) CG-47 Class ships at \$215.8K each, and four (4) DDG-51 Class ships at \$187.7K each. Total installation cost for IPDS-LR in FY18 is \$2,250K for eleven (11) ships. FY18 DSA cost is \$406K. - FY19 installations include three (3) LSD-49 Class ships at \$200.5K each and two (2) CG-47 Class ships at \$194.9K each. FY19 DSA cost is \$312.7K. - FY20 installations include two (2) CG-47 Class ships at \$203.4K and one (1) LSD-49 Class ship at \$198.2K. [P3A / IPDS/LR]: The IPDS/LR (formerly SEACADS/IPDS) will improve the existing shipboard point detection system for detecting and identifying chemical nerve and blister agent contamination presence. Inventory objective for shipboard installations is 123. [P3A - 2 / CW001 CHEMICAL WARFARE PROGRAM JBAIDS]: JBAIDS plan - - FY16 installations include one (1) LHA-6 Class ship at \$89.1K and one (1)CVN-68 Class ship at \$89.1K. Total installation costs for JBAIDS in FY16 is \$178.2K for two (2) ships. [P3A - 2 / JBAIDS]: The JBAIDS will provide U.S. operating forces with a biological organism identification and diagnostic device that will identify and quantify biological organisms of operational concern and other pathogens of clinical significance for confirmatory and prognostic purposes. Inventory objective for shipboard JBAIDS installations is 23 and Refrigeration installations is 17. [P3A - 3 / CW001 CHEMICAL WARFARE PROGRAM JBAIDS REFRIGERATION UPGRADE]: JBAIDS Hardware Upgrade plan - - FY17 installation includes one (1) CVN-68 Class ship at \$84.3K. [P3A - 6 / NEXT GENERATION CHEMICAL DETECTOR (NGCD)]: The Next Generation Chemical Detector (NGCD) is a technology replacement for the IPDS and IPDS-LR systems. The program consists of four variants for multiple applications; the Navy will be installing variant 1 for fixed chemical agent detection capability. The inventory objective for shipboard installations is 185. [P3A - 7 / ENHANCED MARITIME BIOLOGICAL DETECTION (EMBD)]: The Enhanced Maritime Biological Detection (EMBD) system is a lifecycle replacement kit for existing JBPDS installations. Intended as a retrofit kit which will be installed using the Joint Service CBDP budget, there are seven (7) ships that will not receive the JBPDS system prior to EMBD entering the fleet, and will thus require full EMBD kits (EMBD retrofit kit + shell) with installation funded through this budget. LCS-2 and LCS-4 had JBPDS partially installed during new ship construction by the shipyard and will require installation of the EMBD retrofit kit and re-installation of the system properly to make the systems functional. The inventory objective for shipboard installations is 9.		

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Exhibit P-40, Budget Line Item Justification: FY 2018 Navy **Date:** May 2017

Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 01: Ships Support Equipment / BSA 9: Other Shipboard Equipment	P-1 Line Item Number / Title: 0990 / Submarine Life Support System

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 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	To Complete	Total
Procurement Quantity (<i>Units in Each</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost (<i>\$ in Millions</i>)	94.634	7.399	6.043	10.364	0.000	10.364	12.130	12.293	2.251	2.298	21.800	169.212
Less PY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (<i>\$ in Millions</i>)	94.634	7.399	6.043	10.364	0.000	10.364	12.130	12.293	2.251	2.298	21.800	169.212
Plus CY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority (<i>\$ in Millions</i>)	94.634	7.399	6.043	10.364	0.000	10.364	12.130	12.293	2.251	2.298	21.800	169.212

(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)

Initial Spares (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Flyaway Unit Cost (<i>\$ in Dollars</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost (<i>\$ in Dollars</i>)	-	-	-	-	-	-	-	-	-	-	-	-

Description:

[P40A / SUBMARINE LIFE SUPPORT SYSTEM]: 5D830 - PRODUCTION ENGINEERING The review and approval of any production contract technical documentation, or the separate development of this documentation to include, technical manuals, Preventive Maintenance Schedule, Level III production drawings, Provisioning Technical Documentation, Program Support Data and Allowance Parts Lists; Engineering & support for final design reviews. This work can be accomplished by NSWC PHILA as the in-service engineering agent, other Naval activities or contractors as appropriate.

[P3A / CAMS IIA]: 5D009 - CENTRAL ATMOSPHERE MONITORING SYSTEM (CAMS) IIA

A replacement atmosphere analyzer to replace the current CAMS I units on 688 Class submarines due to obsolescence.

[P3A - 2 / LOW PRESSURE ELECTROLYZER]: 5D010 - THE LOW PRESSURE ELECTROLYZER (LPE) The LPE will replace the Electrolytic Oxygen Generators (EOG) currently being used on SSBN/SSGN Class submarines. The LPE has replaced the Oxygen Generating Plant (OGP) on SSN 21 Class submarines. The LPE produces oxygen at low pressure eliminating the need for high pressure oxygen storage. There will be two LPEs on each SSBN/SSGN Class submarine and one LPE on each SSN 21 Class submarine. LPEs originally planned for the SSN 688 Class submarines have been reallocated to be installed on SSBN submarines. LPE on SSBN is critical for the class to support its strategic deterrence mission.

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Exhibit P-40, Budget Line Item Justification: FY 2018 Navy								Date: May 2017				
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 01: Ships Support Equipment / BSA 10: Reactor Plant Equipment						P-1 Line Item Number / Title: 1010 / Reactor Power Units						
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 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	To Complete	Total
Procurement Quantity (<i>Units in Each</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost (<i>\$ in Millions</i>)	1,449.897	0.000	0.000	324.925	0.000	324.925	0.000	0.000	0.000	0.000	Continuing	Continuing
Less PY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (<i>\$ in Millions</i>)	1,449.897	0.000	0.000	324.925	0.000	324.925	0.000	0.000	0.000	0.000	Continuing	Continuing
Plus CY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority (<i>\$ in Millions</i>)	1,449.897	0.000	0.000	324.925	0.000	324.925	0.000	0.000	0.000	0.000	Continuing	Continuing
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)												
Initial Spares (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Flyaway Unit Cost (<i>\$ in Dollars</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost (<i>\$ in Dollars</i>)	-	-	-	-	-	-	-	-	-	-	-	-

Description:

The details of this program are classified CONFIDENTIAL and are submitted to Congress annually in the classified budget justification books.

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Exhibit P-40, Budget Line Item Justification: FY 2018 Navy								Date: May 2017		
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 01: Ships Support Equipment / BSA 10: Reactor Plant Equipment						P-1 Line Item Number / Title: 1010 / Reactor Power Units				
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 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 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-40a	Reactor Power Units				- / 1,449.897	- / -	- / -	- / 324.925	- / -	- / 324.925
P-40	Total Gross/Weapon System Cost				- / 1,449.897	- / 0.000	- / 0.000	- / 324.925	- / 0.000	- / 324.925
*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. Title represents the P-40a Title when only the P-40a Summary/Total is shown.										
Note: Totals in this Exhibit P-40 set may not be exact or sum exactly due to rounding.										

Justification:

The details of this program are classified CONFIDENTIAL and are submitted to Congress annually in the classified budget justification books.

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Exhibit P-40a, Budget Item Justification For Aggregated Items: FY 2018 Navy															Date: May 2017					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 10							P-1 Line Item Number / Title: 1010 / Reactor Power Units							Aggregated Items Title: Reactor Power Units						
Item Number / Title [DODIC]	ID CD	MDAP/ MAIS Code	Prior Years			FY 2016			FY 2017			FY 2018 Base			FY 2018 OCO			FY 2018 Total		
			Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)
1) Reactor Power Units																				
1) Reactor Power Units	A		-	-	1,449.897	-	-	-	-	-	-	-	-	324.925	-	-	-	-	-	324.925
Subtotal: 1) Reactor Power Units			-	-	1,449.897	-	-	-	-	-	-	-	-	324.925	-	-	-	-	-	324.925
Total			-	-	1,449.897	-	-	-	-	-	-	-	-	324.925	-	-	-	-	-	324.925

Note: Subtotals or Totals in this Exhibit P-40a may not be exact or sum exactly, due to rounding.

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Exhibit P-40, Budget Line Item Justification: FY 2018 Navy										Date: May 2017		
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 01: Ships Support Equipment / BSA 10: Reactor Plant Equipment							P-1 Line Item Number / Title: 1020 / Reactor Components					
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 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	To Complete	Total
Procurement Quantity (<i>Units in Each</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost (<i>\$ in Millions</i>)	1,338.713	296.095	342.158	534.468	0.000	534.468	516.103	487.716	410.149	427.745	Continuing	Continuing
Less PY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (<i>\$ in Millions</i>)	1,338.713	296.095	342.158	534.468	0.000	534.468	516.103	487.716	410.149	427.745	Continuing	Continuing
Plus CY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority (<i>\$ in Millions</i>)	1,338.713	296.095	342.158	534.468	0.000	534.468	516.103	487.716	410.149	427.745	Continuing	Continuing
<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 Dollars</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost (<i>\$ in Dollars</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Description: The details of this program are classified CONFIDENTIAL and are submitted to Congress annually in the classified budget justification books.												

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Exhibit P-40, Budget Line Item Justification: FY 2018 Navy	Date: May 2017

Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 01: Ships Support Equipment / BSA 10: Reactor Plant Equipment	P-1 Line Item Number / Title: 1020 / Reactor Components

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 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 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-40a	Reactor Components				- / 1,338.713	- / 296.095	- / 342.158	- / 534.468	- / -	- / 534.468
P-40	Total Gross/Weapon System Cost				- / 1,338.713	- / 296.095	- / 342.158	- / 534.468	- / 0.000	- / 534.468

*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. Title represents the P-40a Title when only the P-40a Summary/Total is shown.

Note: Totals in this Exhibit P-40 set may not be exact or sum exactly due to rounding.

Justification:

The details of this program are classified CONFIDENTIAL and are submitted to Congress annually in the classified budget justification books. Beginning in FY 18 and later, items previously requested under OPN LI 1480 (Nuclear Alterations) are now requested under this line item.

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Exhibit P-40a, Budget Item Justification For Aggregated Items: FY 2018 Navy															Date: May 2017					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 10							P-1 Line Item Number / Title: 1020 / Reactor Components							Aggregated Items Title: Reactor Components						
Item Number / Title [DODIC]	ID CD	MDAP/MAIS Code	Prior Years			FY 2016			FY 2017			FY 2018 Base			FY 2018 OCO			FY 2018 Total		
			Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)
1) Reactor Components																				
1.1) Reactor Components	A		-	-	1,338.713	-	-	296.095	-	-	342.158	-	-	534.468	-	-	-	-	-	534.468
Subtotal: 1) Reactor Components			-	-	1,338.713	-	-	296.095	-	-	342.158	-	-	534.468	-	-	-	-	-	534.468
Total			-	-	1,338.713	-	-	296.095	-	-	342.158	-	-	534.468	-	-	-	-	-	534.468

Note: Subtotals or Totals in this Exhibit P-40a may not be exact or sum exactly, due to rounding.

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Exhibit P-40, Budget Line Item Justification: FY 2018 Navy										Date: May 2017		
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 01: Ships Support Equipment / BSA 11: Ocean Engineering							P-1 Line Item Number / Title: 1130 / Diving and Salvage Equipment					
ID Code (A=Service Ready, B=Not Service Ready): A				Program Elements for Code B Items: N/A				Other Related Program Elements: 0204561N, 0204454N, 0204423N				
Line Item MDAP/MAIS Code: N/A												
Resource Summary	Prior Years	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	To Complete	Total
Procurement Quantity (<i>Units in Each</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost (<i>\$ in Millions</i>)	41.919	15.982	8.973	10.619	0.000	10.619	10.797	12.438	11.266	11.352	-	123.346
Less PY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (<i>\$ in Millions</i>)	41.919	15.982	8.973	10.619	0.000	10.619	10.797	12.438	11.266	11.352	-	123.346
Plus CY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority (<i>\$ in Millions</i>)	41.919	15.982	8.973	10.619	0.000	10.619	10.797	12.438	11.266	11.352	-	123.346
<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 Dollars</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost (<i>\$ in Dollars</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Description: DIVING AND SALVAGE EQUIPMENT: DIVING: This funding is for procurement of modern equipment to replace the Navy's aging diving systems. The demand for divers' services for salvage, ship husbandry underwater construction, EOD and special warfare is rapidly increasing. The requested funding buys diving hardware which increases the efficiency and safety of the working diver. Program objectives are to: (1) provide increased safety for diver decompression and better recompression chamber patient monitoring capability, (2) increase underwater ship maintenance capabilities, (3) improve quick response capability, and (4) standardize the configuration of diving systems in the Fleet. SALVAGE: This funding is for procurement of critical salvage and underwater ship repair items. These specialized tools and equipment are used by divers to make emergent and scheduled repairs to ships and submarines and to execute worldwide salvage operations. [P40A / DIVING (N97)]: The DIVING EQUIPMENTS to be procured are: [P40A / HY176 - HP AIR COMPRESSORS]: This item replaces high pressure air compressors in existing divers' life support systems which have reached the end of their service life. Required I/O is 300. [P40A / HY177 - AIR PURIFICATION UNITS]: The Portable Air Purification Unit is used when charging diver's life support system breathing air flasks. The Portable Air Monitor Unit can monitor the diver's breathing air in accordance with the requirements of the U.S. Navy Dive Manual and can be inserted inline of the DLSS to monitor the purity of the diver's breathing air in accordance with the requirements of the U.S. Navy Dive Manual. Required I/O is 50 units. [P40A / HY179 - NAVY EXPERIMENTAL DIVING UNIT]: NEDU's mission is to support the Fleet diver through test and evaluation of diving equipment and procedures as well as hyperbaric systems for NAVSEA, Navy, and DoD activities. Funding is to procure equipment for test, facilities atmospheric control, life support, and physiological systems. These systems not only ensure the safety and lives of NEDU sailors performing experimental dives, but ultimately support the combat readiness and mission success of the Fleet sailors who use the equipment tested at NEDU. Funding is included to support the periodic upgrade of Ocean Simulation Facility (OSF) components. The OSF is the world's largest man-rated hyperbaric chamber affording space for 12 divers in 5 hyperbaric dry chambers, man-rated for dives to 2,250 feet of												

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Exhibit P-40, Budget Line Item Justification: FY 2018 Navy		Date: May 2017
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 01: Ships Support Equipment / BSA 11: Ocean Engineering		P-1 Line Item Number / Title: 1130 / Diving and Salvage Equipment
ID Code (A=Service Ready, B=Not Service Ready): A	Program Elements for Code B Items: N/A	Other Related Program Elements: 0204561N, 0204454N, 0204423N
Line Item MDAP/MAIS Code: N/A		
sea water (1000 psi) with a 50' x 15', 55,000-gallon wet-pot capacity, temperatures from 28 to 104 degrees Fahrenheit, an associated 1.3 million-cubic foot (37 km3) bottle field and uses a fully computerized data instrumentation and collection system. Unit prices vary depending on the specific equipment mix planned for upgrade in any single year.		
[P40A / HY192 - THERMAL DIVING SUITS]: The Thermal Diving Suits are active diver thermal protection for operations in extreme cold or warm water. Thermal protection is required to maintain a diver temperature within a safe thermal range. I/O is 24.		
[P40A / HY193 - SURFACE SUPPLIED DIVING HELMET]: Kirby Morgan KM-37 NS Underwater Breathing Apparatus. This is a diving helmet with a fiberglass shell and second stage regulator that works in conjunction with a surface supply control console assembly (CCA) and an umbilical. Required I/O is 250.		
[P40A / HY194 - CONTAMINATED WATER DIVING EQUIPMENT]: Surface supplied diving equipment (helmets, drysuits, umbilicals, surface exhaust consoles, etc.) specifically designed for protecting the diver during in water contaminated water diving operations. Diving equipment is composed of helmets, specialized drysuits, surface return umbilicals, and surface exhaust consoles. Required I/O is 2.		
[P40A / HY199 - NAVY DIVE COMPUTER]: The Navy Dive Computer is a diver worn decompression computer which provides primarily Self Contained Underwater Breathing Apparatus (SCUBA) divers with real time calculation of decompression limits/obligations. I/O is 1400.		
[P40A / HY210 - COMPACT DIVER LIFE SUPPORT SYSTEM AIR SUPPLY]: This is a portable Air Supply that has designated primary and secondary air cylinders with a simple, unregulated control panel. The air supply will provide 3000-5000 psi diver-breathing air to diving life support systems including but not limited to the SNDL, TRCS, FADS III, and LWDS. This is for use in surface supplied diving and hyperbaric treatment operations. Required Inventory Objective I/O is 50.		
[P40A / HY212 - PORTABLE DIVE SYSTEM CONTROL CONSOLE ASSEMBLY (CCA)]: This is a surface supplied diving system control console assembly that will regulate and supply diving breathing gas from the surface to 3 divers. The system is not anticipated to have a volume tank as it will operate on separate high pressure breathing gas sources only. Required Inventory Objective I/O is 100.		
[P40A / HY213 - HP COMPOSITE FLASK REPLACEMENT]: The flasks used in the CAOS, ASRA, OSRA, HOSRA, CASRA, and COSRA all require replacement after 15 years. NAVSEA 00C has will provide the cylinders to fleet diving commands. Required Inventory Objective I/O is 2500.		
[P40A / HY214 - CONTAMINATED WATER DIVING SURFACE DECONTAMINATION EQUIPMENT]: Contaminated Water Diving Decontamination Equipment is specifically designed for protecting the diver and topside operators during contaminated water diving operations. Decontamination equipment is composed of tender personal protective devices (PPE), diver PPE ((gloves, boots, chafing gear, drysuits, neck dams), decontamination/disinfectant solutions, sprayers, showers and tents, collection basins and pools, disposable cleaning materials (brushes, sponges, towels, etc), and emergency gas supplies. Required Inventory Objective I/O is 2.		
[P40A / HY222 - 300 FSW NAVY DEEP DOUBLE LOCK RECOMPRESSION CHAMBER]: The 300 FSW Navy Deep Double Lock Recompression Chamber is a conventional chamber designed to be built using standard commercial specifications and standards; however it operates at a significantly higher pressure than the SNDL (HY132). The NDDL provides a full range of recompression treatment for one patient and one attendant down to a depth of 300 FSW. This chamber is containerized to allow the chamber to be transported and installed for long term operations. This chamber will be used to support fly away mixed gas operations utilizing the FMGS as well as deep MK-16 UBA operations where possible. Required Inventory Objective I/O is 0.		
[P40A / HY224 - SCUBA REGULATORS]: This is 1st and 2nd stage Self Contained Underwater Breathing Apparatus (SCUBA) regulator fitted with an additional octopus 2nd stage and a console with both a cylinder pressure gauge and diver's depth gauge included. I/O is 5,000.		
[P40A / HY225 - PRESSURE TEST CHAMBERS]: The pressure test chambers (PTC) have been developed to replace legacy PTC's that have reached the end of their service life. The PTC is a small pressurized chamber and gas supply that allows for comparative calibration of diver depth gauges down to 300 FSW. I/O is 60.		

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Exhibit P-40, Budget Line Item Justification: FY 2018 Navy		Date: May 2017
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 01: Ships Support Equipment / BSA 11: Ocean Engineering		P-1 Line Item Number / Title: 1130 / Diving and Salvage Equipment
ID Code (A=Service Ready, B=Not Service Ready): A	Program Elements for Code B Items: N/A	Other Related Program Elements: 0204561N, 0204454N, 0204423N
Line Item MDAP/MAIS Code: N/A		
[P40A / HY226 - FLEX CHAMBER]: The flexible recompression chamber system is composed of a double-lock flexible chamber, control console, gas supply and interconnecting hoses. The flex chamber is designed as an extreme lightweight system used to treat diver's injuries, including Arterial Gas Embolism and Decompression Sickness. I/O is 36. [P40A / HY233 - SURFACE SUPPLY AUGMENTED SCUBA SYSTEM]: The Surface Supply Augmented SCUBA System consists of the Interspiro DIVIATOR Dive Panel (DP) Surface Supply System and the Interspiro DIVIATOR Self Contained Underwater Breathing Apparatus (SCUBA) System. This is a lightweight, highly portable system which makes is ideal for rapid deployment to remote locations. The apparatus combines the capability of surface supplied diving with the portability of SCUBA. Required Inventory Objective I/O is 50. [P40A / HY234 - DIVER AUGMENTED VISUAL DISPLAY (DAVD)]: The Diver Augmented Visual Display (DAVD) is a system that incorporates 3D sonar mapping, high speed - high frequency helmet mounted sonar, diver tracking, and a head's up display into an existing USN underwater breathing apparatus (UBA). The system allows a diver in low/no visibility waters to locate targets of interest, transit to the location and see their work environment in real-time. In addition, the system allows a top-side diving supervisor to monitor the divers work progress. Each system includes equipment for one diver. Required Inventory Objective I/O is 173 [P40A / NSW SERVICE-COMMON EQUIPMENT (N95)]: The NSW SERVICE-COMMON EQUIPMENTS to be procured are: [P40A / HY235 - NSW SERVICE COMMON SCUBA/SONAR KIT]: This kit includes standard SCUBA gear for one diver including: regulator, buoyancy compensator, mask, fins, gloves, boots, suits. In addition, it also includes handheld SONAR systems, lights and other diver visualization gear. I/O is 200 [P40A / HY236 - NSW SERVICE COMMON STANDARD DOUBLE LOCK RECOMPRESSION CHAMBER]: The NSW Service Common Standard Navy Double Lock Recompression Chamber System (SNDLRCS) is a conventional chamber designed and built using standard commercial specifications and standards. The SNDLRCS provides for surface decompression, training, and for the full range of recompression treatment for two patients and two attendants. These chambers are containerized to allow for transport and installation at a destination for long term operations. The SNDLRCS will replace aging legacy recompression chambers that are difficult to maintain and will be retired due to fatigue and material flaws. Required I/O is 4 [P40A / SALVAGE (N9I & N97)]: The SALVAGE EQUIPMENTS to be procured are: [P40A / HY016 - DECK SYSTEMS]: The deck systems are composed of multiple portable hydraulic systems and components that are designed to handle synthetic line or wire rope to aid in moving or positioning of barges, ships, or other floating elements on the water or items resting on the ocean floor. Deck Systems consist of portable hydraulic driven capstans, portable hydraulic driven winches with horizontal capstans, hydraulic power units, control systems, hydraulic hoses and all ancillary equipment. Required I/O is 34. [P40A / HY050 - SYNTHETIC LINES]: This line is used for lifting, mooring, towing, rigging, and in conjunction with the remotely operated vehicles at the salvage site. Required I/O is 123. [P40A / HY062 - ROV SONAR SYSTEMS]: These sonars are used on the SWISS, DEEP DRONE, ORION, HYDROS, and CURV-21 remotely operated vehicles to locate items lost on the sea floor, aircraft debris fields, sunken hull sections, and submerged obstacles. Total I/O is 8 (6 operational plus 2 spares). [P40A / HY116 - PORTABLE SUBMERSIBLE PUMPS]: The submersible salvage pump system is designed move large volumes of fluid at a high discharge pressure resulting is a high lift capacity. The submersible pumps vary in discharge size of 2" to over 24" to meet designated response requirements. Systems are modular packaged for rapid deployment and transportation. Pump assemblies are designed to be used through limited access openings or to be positioned in confined spaces. Submersible salvage pump systems consist of submersible hydraulic pumps (2" to 24"), hydraulic power units, hydraulic hoses, and all ancillary equipment. Required I/O is 94. [P40A / HY131 - ROV HANDLING SYSTEM]: These systems are used to launch and recover remotely operated vehicles and to tend the deployed cable, compensate for ship motion, monitor cable tension, and store cable. Required I/O is 10 (5 operational and 5 spares).		

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Exhibit P-40, Budget Line Item Justification: FY 2018 Navy		Date: May 2017
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 01: Ships Support Equipment / BSA 11: Ocean Engineering		P-1 Line Item Number / Title: 1130 / Diving and Salvage Equipment
ID Code (A=Service Ready, B=Not Service Ready): A	Program Elements for Code B Items: N/A	Other Related Program Elements: 0204561N, 0204454N, 0204423N
Line Item MDAP/MAIS Code: N/A		
[P40A / HY142 - SALVAGE AIR COMPRESSOR]: The salvage air compressor systems are designed to generate high pressure air to be used by salvage response personnel to accomplish numerous possible salvage actions requiring pneumatic capability, including dewatering of flooded spaces to restore lost buoyancy, inflation of salvage lift bags and pontoons, operation of pneumatic tools and equipment that are employed in the salvage or recovery operation. Salvage Air Compressor Systems consist of multiple capacity diesel powered air compressor units including 125 CFM, 600 CFM, and 5000 psi models, air hoses for the rated air pressure and flow capacity, air manifolds, and all ancillary equipment. Required I/O is 36. [P40A / HY145 - COFFERDAM SYSTEM]: This system will contain a variety of cofferdams necessary to accomplish underwater repair tasks to hull plating, shafts, stern tubes and sea chests on several ship classes. The cofferdams are engineered structural habitats which provide a safe underwater dry environment for divers to work and require very little maintenance. Required I/O is 50. [P40A / HY146 - PROPELLER REPAIR KIT]: These kits will contain the tools necessary to repair minor propeller damage underwater. By accomplishing these repairs in-place, propeller removal and replacement can be avoided thereby saving maintenance funds and returning ships to service faster. Required I/O is 20. [P40A / HY147 - ROV TELEMETRY SYSTEM]: The ROV Telemetry System is the communication link between the surface controller and the vehicle. Required I/O is 6 (3 operational plus 3 spares). [P40A / HY153 - TENSIMETERS]: Tensimeters are used to measure the tension exerted on a beach gear ground leg or heavy lift system. One system consists of two load sensing units with associated rigging and read-out meters. Required I/O is 66. [P40A / HY156 - SALVAGE VANS]: Salvage Vans are modified ISO 8ft x 8ft x 20ft shipping containers that are equipped with industrial shop equipment, hand tools, powered hand tools, lifting and hoisting devices, and other misc required material to fulfill the various missions of salvage and recovery. Each van is outfitted with humidity control devices for prolonging equipment life during storage. Required I/O is 10. [P40A / HY164 - FLYAWAY FADOSS SYSTEM]: This system consists of lightweight motion compensators, winches, rigging jewelry, and lines for lifting heavy objects off the sea floor. All of the components are designed to be flown to the salvage site and loaded aboard ships of opportunity. Required I/O is 4. [P40A / HY166 - ROV TOOL PACKAGE]: This tool package is utilized by remotely operated vehicles to accomplish work on objects on the sea floor and in the water column. I/O is 8. [P40A / HY169 - UWSH POWER TOOLS]: These tools will replace the hydraulic tool previously issued to Fleet divers with improved technology. This technology improvement will provide tools which are more environmentally compatible, offer greater power, lighter weight and reduced maintenance. I/O is 20. [P40A / HY184 - SALVAGE SUPPORT SYSTEMS]: Salvage support systems are used to support Fleet Salvage Operations and include complex systems and equipment required for Command & Control, communications, supply, repair, rigging, and personnel support. Each system includes the storage and shipping containers necessary to forward deploy the systems and equipment to a salvage site. Humidity control devices are used for prolonging equipment life during storage. Required I/O is 10. [P40A / HY186 - SMART TOW SYSTEMS]: These systems consists of load cells, accelerometers, fire and flooding alarms, telemetry links and ancillary equipment to provide ship handlers with information critical to safe conduct of open ocean tows. I/O is 6. [P40A / HY190 - VIDEO/CAMERA EQUIPMENT]: Underwater video/camera equipment used by divers to perform detailed inspections and provide objective quality evidence (OQE) of ship hulls and appendages condition before, during and after repair. Equipment is used extensively throughout the Fleet. This equipment will replace aging systems currently in use throughout the Fleet. I/O is 30. [P40A / HY195 - UNDERWATER RIGGING SUPPORT SYSTEM]: General and special purpose rigging and rigging support equipment designed for use in underwater ship repair applications. These systems support operation across all ship and submarine classes. I/O is 20.		

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Exhibit P-40, Budget Line Item Justification: FY 2018 Navy		Date: May 2017
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 01: Ships Support Equipment / BSA 11: Ocean Engineering		P-1 Line Item Number / Title: 1130 / Diving and Salvage Equipment
ID Code (A=Service Ready, B=Not Service Ready): A	Program Elements for Code B Items: N/A	Other Related Program Elements: 0204561N, 0204454N, 0204423N
Line Item MDAP/MAIS Code: N/A		
[P40A / HY196 - UWSH SUBMARINE SUPPORT SYSTEM]: Special purpose underwater tools and equipment used by divers to perform routine and emergent repairs on all classes of submarines. I/O is 24.		
[P40A / HY197 - UWSH PIERSIDE SUPPORT VANS]: Portable milvans and shippable containers outfitted with general and special purpose tools to support various underwater ship husbandry operations. I/O is 12.		
[P40A / HY198 - UWSH SURFACE SHIP SUPPORT SYSTEMS]: Special purpose underwater tools and equipment used by divers to perform routine and emergent repairs to all Classes of surface ships. I/O is 32.		
[P40A / HY201 - JETTING PUMPS]: System is designed to provide a high velocity water stream to move mud, sand, or silt. The system consists of a medium pressure, high flow rate pump that supplies water to specially designed diver operated jetting nozzles via high pressure hoses. The system is used mainly for jetting, but also can be used for firefighting and limited dewatering. Unit Issue increase in FY18 due to Tier IV engines reengineered to meet EPA standards. I/O is 22.		
[P40A / HY202 - 300/400 AMP PORTABLE ELECTRIC WELDER]: System consists of a portable electric powered welder, welding cables, a stinger and ground clamp, welding safety equipment, and a spare parts kit. The system is used for arc welding and oxygen-arc cutting. Required Inventory Objective I/O is 22.		
[P40A / HY203 - HYDRAULIC U/W TOOL KIT]: Tool kit consists of various hydraulic actuated tools operated by a diver to perform various tasks underwater. The kit also contains hydraulic hoses, various fittings, and accessories. Required Inventory Objective I/O is 25.		
[P40A / HY204 - 400 AMP WELDER - DIESEL]: System consists of a skid-mounted, portable, diesel powered welding generator, welding cables, a stinger and ground clamp, welding safety equipment, and a spare parts kit. The system is used for arc welding and oxygen-arc cutting. Required Inventory Objective I/O is 25.		
[P40A / HY205 - LIGHTING KIT SYSTEM]: System consists of extendable masts, 500-watt halogen floodlights, drop lights, extension cords, spare bulbs, and other miscellaneous items to support general lighting for salvage and oil pollution operations. The Lighting Kit System can use any 100-volt, single phase power source found at the salvage or pollution site. Required Inventory Objective I/O is 25.		
[P40A / HY206 - KERRIE CABLE UNDERWATER CUTTING SYSTEM]: Underwater cutting systems are used by salvage response personnel to cut through metal and other material either underwater or in air using an exothermic material. The underwater cutting systems include the exothermic material including Brocco Rod or Kerri Cable, pressurize oxygen gas hoses and regulators, cutting support fixtures, and all ancillary equipment. Required I/O is 36.		
[P40A / HY215 - LIGHTWEIGHT MOORING SYSTEM]: This is a lightweight and highly portable system for establishing a mooring in shallow to deep water. The system shall include a mooring leg consisting of anchors, chain, synthetic line and associated jewelry and fittings. Total I/O is 8.		
[P40A / HY216 - SALVAGE/BDR MATERIAL KIT]: This system is for emergency response to ship casualties and provides the necessary material to construct custom patches and cofferdams. The kit also includes tools to install the custom built items in place over the damaged hull sections. I/O is 12.		
[P40A / HY217 - SALVAGE LIFT BAGS (22K lbs)]: This system provides a buoyant force using compressed air to lift or support items in the water column. These Lift Bags are sized to provide a force of approximately 22,000 lbs. The I/O is 22.		
[P40A / HY218 - SALVAGE LIFT BAGS (35 TONS)]: This system provides a buoyant force using compressed air to lift or support items in the water column. These Lift Bags are sized to provide a force of approximately 35 tons. The I/O is 16.		
[P40A / HY219 - PORTABLE SALVAGE CRANE]: A portable crane system for use on a vessel of opportunity to provide a lifting force during salvage operations. I/O is 8.		

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Exhibit P-40, Budget Line Item Justification: FY 2018 Navy		Date: May 2017
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 01: Ships Support Equipment / BSA 11: Ocean Engineering		P-1 Line Item Number / Title: 1130 / Diving and Salvage Equipment
ID Code (A=Service Ready, B=Not Service Ready): A	Program Elements for Code B Items: N/A	Other Related Program Elements: 0204561N, 0204454N, 0204423N
Line Item MDAP/MAIS Code: N/A		
[P40A / HY220 - AUV SEARCH SYSTEM]: The AUV Search System will survey the ocean floor using a suite of sensors to locate and identify targets of interest. The sensors include Side Scan Sonar, multibeam, sub bottom profile, and still photo. The complete system includes a vehicle, sensor suite, A-frame handling system, and operations/shipping container. I/O is 1. [P40A / HY221 - ADVANCED POWER GENERATOR]: This system generates electrical power using solar and wind energy and stores it in super efficient Lithium Ion Batteries. The system is capable of supplying electrical power to operate a Command Van, Salvage Shop Van and a Salvage BDR Rigging Van for up to 5 days with no traditional petroleum fueled electrical power generator support. I/O is 8. [P40A / HY223 - 3D SONAR]: This system generates a 3D Image of the area or object being surveyed and is viewable in real time. The record of data is viewable off line for mission planning, allows for the measurement of distances and dimensions, and can be used during mission execution for operational control and situational awareness in zero visibility situations. I/O is 2. [P40A / HY227 - COMPLEX AND/OR LARGE UWSH REPAIR COFFERDAM SUPPORT SYSTEMS]: Special purpose underwater tools, equipment, cofferdams and habitat with a higher complexity and or size used by divers to perform routine and emergent repairs on all classes of surface ship and submarines. I/O is 15. [P40A / HY228 - CLYDE WINCH UPGRADE MODIFICATIONS]: Portable Clyde deck winch consists of a dual drum assembly and a horizontal capstan mounted on the side of the deck winch. The deck winch is hydraulically driven by a self contained diesel engine and each drum/ capstan can pull up to 8 tons. The drive mechanism and braking system is upgraded to a hydraulic control and operation. Required I/O is 25. [P40A / HY229 - AC SOLAR CELL DEPLOYMENT KIT]: This system provides all the necessary equipment to power the energy efficient Salvage Command Center with solar energy. Contained within the systems are the solar panels, mounting brackets/frames/hardware, safety rails, installation tools, and all handling equipment. Required I/O is 8. [P40A / HY230 - NEXGEN HYDRAULIC POWER UNIT, MOD 6B]: This Hydraulic Power Unit is designed to provide the hydraulic fluids to operate US Navy Salvage equipment including the Beach Gear system. The hydraulic power unit is silenced for significant personnel safety and meets the latest environmental standards for clean air. Required I/O is 60. [P40A / HY231 - REMOTE SITE LOGISTIC SUPPORT HANDLING SYSTEM]: This system allows for offloading and loading of containerized Salvage equipment at remote locations that do not have logistic handling equipment. System is capable of offloading/loading US Cargo aircraft and surface transportation trucks in remote locations without the aid of forklift. Systems also contains the ability for local movement of equipment over unimproved surfaces. Required I/O is 8.		

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Exhibit P-40, Budget Line Item Justification: FY 2018 Navy										Date: May 2017		
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 01: Ships Support Equipment / BSA 12: Small Boats							P-1 Line Item Number / Title: 1210 / Standard Boats					
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 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	To Complete	Total
Procurement Quantity (<i>Units in Each</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost (<i>\$ in Millions</i>)	506.880	29.982	55.370	46.094	18.000	64.094	49.035	44.615	44.854	45.508	Continuing	Continuing
Less PY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (<i>\$ in Millions</i>)	506.880	29.982	55.370	46.094	18.000	64.094	49.035	44.615	44.854	45.508	Continuing	Continuing
Plus CY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority (<i>\$ in Millions</i>)	506.880	29.982	55.370	46.094	18.000	64.094	49.035	44.615	44.854	45.508	Continuing	Continuing
<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 Dollars</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost (<i>\$ in Dollars</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Description: Naval Sea Systems Command (NAVSEA) -- Boats are procured to fill allowances established by CNO and NAVSEA and to replace boats now in service which are beyond economical repair at shore activities and aboard ships. Total inventory objectives change based on Fleet requirements. H0001 BASE OPERATING FORCES Force Protection Boat (Small) - Light gasoline twin outboard engine powered (up to 150 HP each) aluminum boats from 7 to 8.2 meters (24 to 27 ft) in length used primarily for fleet force protection, maritime interdiction, law enforcement operations, at Naval activities and adjacent ports and waterways duties. Can operate in areas where the environment (sea states/climatology) does not present a significant challenge. Service life is 7 years. CNIC Force Protection Boat (Small) - Gasoline twin outboard engine aluminum boats approximately 8.5 meters (27 ft) in length with a narrow beam to aid in transport. Used primarily for fleet security, force protection/anti-terrorism, maritime interdiction and law enforcement operations at Naval activities and adjacent ports and waterways. The boats are provided with shouldering capabilities and foundations suitable for weapons. The boats operate primarily at Naval activities in sheltered harbors and waterways. Service life is 7 years. CNIC Force Protection Boat (Medium) - Gasoline outboard engine powered aluminum boats approximately 10 meters (33 ft) in length used primarily for fleet force protection, maritime interdiction, law enforcement operations at Naval activities and adjacent ports and waterways duties. Needed for operations in areas where the environment (sea states/climatology) is significant enough to necessitate the larger boat and resultant larger engines to meet the performance/operational requirements. Service life is 7 years. CNIC Force Protection Boat (Large) - Gasoline twin outboard engine powered aluminum boats approximately 11 meters (36 ft.) in length with a wide beam used primarily for fleet force protection, maritime interdiction, law enforcement operations, at Naval activities and adjacent ports and waterways duties. Needed in areas where the environment (sea states/climatology) necessitates a larger boat for dependability. Service life is 7 years. CNIC Workboat (Medium) - Diesel inboard-engine powered steel boats up to approximately 11 meters (36 ft) in length used primarily for multi-purpose workboat applications at Naval activities and adjacent ports and waterways duties, such as towing and pusher boat capabilities, line handling, harbor cleaning, and security barrier tending. Habitability, maneuverability and bollard pull power are commensurate												

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Exhibit P-40, Budget Line Item Justification: FY 2018 Navy		Date: May 2017
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 01: Ships Support Equipment / BSA 12: Small Boats		P-1 Line Item Number / Title: 1210 / Standard Boats
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		
with operational requirements associated with barrier and moderately sized vessel assist (i.e., barges, boats, etc.). The Workboat (Medium) is capable of performing operations in areas where the operating environment (sea states/climatology) is not significant enough to necessitate the larger boat, but includes the capabilities necessary to meet operational requirements. Service life is 20 years.		
CNIC Workboat (Large) - Diesel inboard-engine powered steel boats over approximately 11 meters (36 ft) in length used primarily for multi-purpose workboat applications at Naval activities and adjacent ports and waterways. Duties include towing and pusher tugboat capabilities, diver support, ship's husbandry, cargo carrier, personnel ferry, harbor cleaning, firefighting and security barrier tending. Habitability, maneuverability and bollard pull power are commensurate with operational requirements associated with large sized vessel assist (i.e., ships, derricks, etc.). The Workboat (Large) is needed for operations in areas where the operating environment (including sea states/climatology) is significant enough to necessitate the larger boat and include the capabilities necessary to meet operational requirements. Service life is 25 years.		
CNIC Utility Boat Small - Gasoline outboard engine powered aluminum boats approximately 8 meters (26 feet) in length. Used for a variety of missions including search and rescue, craft maintenance, diver support, and transfer of personnel and light cargo. Service life is 10 years.		
H0002 AMPHIBIOUS ASSAULT SHIPS		
11M (36ft) Rigid Inflatable Boat (RIB) - Carried as a ship's boat or assigned to a shore activity to perform a variety of operations including personnel and light cargo transfer, anchorage administration Anti-Terrorism/Force Protection (AT/FP) operations and swimmer defense, visit/boarding/search and maritime interdiction, Amphibious Assault Vehicle (AAV) safety boat and Advanced Amphibious Assault Vehicle (AAAV) assist boat. Service life is 12 years.		
H0003 EXPLOSIVE ORDNANCE DISPOSAL FORCES		
Explosive Ordnance Disposal (EOD) Support Craft (RIB) - Used for area search, MK 5 and MK 16 Underwater Breathing Apparatus (UBA)/Diving Training, Mammal Operations, Ordnance/mine recovery, parachute insertion support and Command and Control. Service life is 10 years.		
11M (36ft) EOD RIB - The 11m RIBs are required to support the emergent establishment of an enduring MK 18 unmanned underwater vehicle family of systems capability for near term operational missions in the shallow water and very shallow water environments in the Fifth Fleet area of responsibility. Operational missions include Intelligence Preparation of the Operational Environment/Mine Countermeasure Missions. Service life is 7-10 years.		
H0004 NAVAL SPECIAL WARFARE		
NSW Short Range Support Craft - Used in support of combat swimmer-diver training evolutions and the Special Warfare Combatant Craft (SWCC) Basic Crewman Training curriculum. Service life is 10 years.		
NSW Long Range Support Craft - SEAL combat swimmer/SEAL Delivery Vehicle (SDV)/surface swimmer safety craft for offshore/open ocean training support. Provides transportation to/from training areas, dive supervisor/event officer-in-charge/corpsman safety support platform and injured diver/swimmer egress platform for Naval Special Warfare. Service life is 10 years.		
NSW RIB (formerly Enhanced Visit Board Search and Seizure) - Provide operational commander a capability to conduct VBSS and Maritime Interception Operations (MIO) from an Afloat Staging Base in conjunction with an overwatch craft and other friendly forces. Service life is 7 years.		
H0005 RIVERINE ACTIVITIES		
Patrol Boat (X) - The craft will support maritime security operation missions and tasks such as Harbor Approach Defense; High Value Unit Transit Escort Operations; Visit, Board, Search, and Seizure (VBSS) Operations and Overwatch; Critical Infrastructure Protection; Amphibious Operations Support; Riverine Operations; Mine Warfare Support; Embarked Forces Support (e.g., SOF, EOD, USCG LEDET); and,		

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Exhibit P-40, Budget Line Item Justification: FY 2018 Navy		Date: May 2017
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 01: Ships Support Equipment / BSA 12: Small Boats		P-1 Line Item Number / Title: 1210 / Standard Boats
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		
Humanitarian Assistance/Disaster Relief (HA/DR) Support. Twin diesel engine powered boat with a nominal length of 40ft used to patrol green water littoral zones such as coastal water approaches, bays, major rivers, ports, and harbors. Service life is 15 to 20 years.		
Riverine Multi-Mission Craft - Provides the Navy with, but not limited to, High Value Unit Escort, Maritime Infrastructure Protection; Coastal Riverine Security; Visit Board Search and Seizure (VBSS), VBSS Overwatch and/or Mine Warfare Support. Service life is 8 years.		
MK VI Patrol Boat - Naval Expeditionary Combat Command (NECC) Riverine Forces require a tactically sized, highly reliable, combatant craft capable of operating from land or maritime platforms. The mission of the MK VI is to provide the operational commander a capability to persistently patrol shallow littoral areas beyond sheltered harbors and bays, and into less sheltered open water out to the Departure Sea Area (DSA) for the purpose of force protection of friendly and coalition forces and critical infrastructure. Mission profiles may include: patrol of Maritime Pre-positioning Force (MPF) and Joint Logistics Over the Shore (JLOTS) anchorage and marshaling areas, offshore economic infrastructure Gulf Oil Platforms (GOPLATs), High-Value Asset (HVA) shipping escort, over watch of Maritime Interdiction Operations (MIO) / Vessel Board, Search and Seizure (VBSS) operations, Theater Security Cooperation (TSC), and Security Force Assistance (SFA). Service life is 7-10 years.		
H0006 SUPPORT FORCES		
7M (24ft) Rigid Inflatable Boat (RIB) - Diesel powered, primarily used as ship's lifeboats, search and rescue boats, liberty boats, and for general transportation on auxiliaries, combatants, carriers, amphibious, and shore activities. Also used for Anti-Terrorism/Force Protection (AT/FP) and Maritime Interdiction Operation/Vessel Boarding Search and Seizure (MIO/VBSS) operations. Service life is 12 years.		
H0007 FLEET LOGISTICS SUPPORT		
7M (24ft) Rigid Inflatable Boat (RIB) - Diesel powered, primarily used as ship's lifeboats, search and rescue boats, liberty boats, and for general transportation on auxiliaries, combatants, carriers, amphibious, and shore activities. Also used for Anti-Terrorism/Force Protection (AT/FP) and Maritime Interdiction Operation/Vessel Boarding Search and Seizure (MIO/VBSS) operations. Service life is 12 years.		
H0008 NAVAL COASTAL WARFARE		
Patrol Boat (small) - Light gasoline twin outboard engine powered (up to 150 HP each) aluminum boats from 7 to 8.2 meters (24 to 27 ft) in length used primarily for fleet force protection, maritime interdiction, law enforcement operations, at Naval activities and adjacent ports and waterways duties. Can operate in areas where the environment (sea states/climatology) does not present a significant challenge. Service life is 7 years.		
Patrol Boat (Large) - Twin diesel engine powered aluminum boats over 9 meters (30 ft) in length used primarily for fleet force protection, maritime interdiction, law enforcement operations, at Naval activities and adjacent ports and waterways duties. Needed in areas where the environment (sea states/climatology) necessitates a larger boat for dependability. Too heavy to meet the performance/operational requirements with outboard engines. Service life is 7 years.		
H0009 WARFARE INTEGRATION		
Dive Boat Replacement - Operations involving diving or the need to deploy support equipment at or near the water. Examples include dive operations focusing on underwater ships husbandry of Fleet assets, training, underwater survey and RDT&E, as well as, general ports and waterways operations, routine harbor maintenance and cleanup duties, and to assist in patrol, rescue, firefighting and picket operations. Aluminum hull from 50 to 60 ft, walkthrough cabin, seating for coxswain & navigator, bench seating for four passengers, bitts forward & aft, engine guard rail, dive door (stbd.), certified hoisting fittings & hoisting sling. Cabin light, sliding windows, wiper assembly, heater, Very High Frequency (VHF) radio w/hailer, spotlight, electric bilge pump, battery charger, spare parts, aluminum trailer w/pintle hitch. Service life: 15-20 years.		
H0010 POLLUTION CONTROL EQUIPMENT		

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Exhibit P-40, Budget Line Item Justification: FY 2018 Navy		Date: May 2017
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 01: Ships Support Equipment / BSA 12: Small Boats		P-1 Line Item Number / Title: 1210 / Standard Boats
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		
Oil boom Platform - 30' Boom Platform (BP) Boat used for Oil Spill Response operations, working in conjunction with 25ft UBs and Rapid Response Skimmers (RRS). Typical mission requires UB and BP to sprint to the oil spill location ahead of the RRS. After spill assessment, 24" response boom (aboard BP) is tied off to UB, which is used to payout/deploy boom to surround spill while the RRS recovers the oil. BP crew delivers and unravels the boom during oil skimming operations. Typical mission duration is 3-8 hours. Service life is 10 years. Utility Boats - 25' Utility Boats (UB) used for Oil Spill Response operations, working in conjunction with Boom Platforms (BPs) and Rapid Response Skimmers (RRS). Typical mission requires UB and BP to sprint to the oil spill location ahead of the RRS. After spill assessment, 24" response boom (aboard BP) is tied off to UB, which is used to payout/deploy boom to surround spill while the RRS recovers the oil. UB crew tends boom during oil skimming operations, accessing boom over low gunwales or via dive door on UB. Typical mission duration is 3-8 hours. Service life is 10 years. Rapid Response Skimmers - Rapid Response Skimmers (RRS) used for Oil Spill Response operations, working in conjunction with Boom Platforms (BPs) and Utility Boats (UBs). Typical mission requires UB and BP to sprint to the oil spill location ahead of the RRS. After spill assessment, 24" response boom (aboard BP) is tied off to UB, which is used to payout/deploy boom to surround spill while the RRS recovers the oil. The RRS "skims" the oil off of the top of the water and holds it in an onboard storage container for proper disposal and processing. Typical mission duration is 3-24 hours. Service life is 10 years. H0830 PRODUCTION ENGINEERING Production Engineering funds are used for engineering and technical support of boat and combatant craft acquisition and the development of integrated logistics support documentation to include technical data packages, provisioning, technical manuals, preventative maintenance documents and naval training systems plans. Technical support shall include acceptance trials, test and evaluation, inspections of production facilities, methods and quality assurance procedures and processes during and after construction. Additionally, official Navy boat inventory management, pre-delivery and post-delivery inspections and preparing documentation regarding boat and combatant craft procurement contract closeout and may be accomplished. Boats will not be safe or suitable to perform Navy boat and combatant craft missions if acquisition engineering technical support and integrated logistics support are not funded and completed. Boats will not be properly accounted for in accordance with OPNAV 4780.6E if boat inventory management is not provided. H0CA5 DIVE BOATS Operations involving diving or the need to deploy support equipment at or near the water. Examples include dive operations focusing on underwater ships husbandry of Fleet assets, training, underwater survey and RDT&E, as well as, general ports and waterways operations, routine harbor maintenance and cleanup duties, and to assist in patrol, rescue, firefighting and picket operations. Aluminum hull from 50 to 60 ft, walkthrough cabin, seating for coxswain & navigator, bench seating for four passengers, bitts forward & aft, engine guard rail, dive door (stbd), certified hoisting fittings & hoisting sling. Cabin light, sliding windows, wiper assembly, heater, VHF radio w/hailer, spotlight, electric bilge pump, battery charger, spare parts, aluminum trailer w/pintle hitch. Service life: 15-20 years. H0CA6 RANGE SUPPORT CRAFT Workboat type vessel to serve US Navy Weapons Systems Training and Validation, assisting fleet operations conducting acoustical, thermal and cross-section measurements and testing. Hulls to be steel or aluminum with aluminum superstructure and corrosion resistant systems, components and hardware to operate in industrial conditions with minimal maintenance. Sea kindliness underway and while loitering for extended periods are among the primary operational requirements. A large open workspace on the after deck with a retrieval ramp providing access to the water and appropriate weapons handling machinery. Weapons systems equipment to be handled includes missiles, torpedoes, surface and air launched Remotely Operated Vehicles (ROVs) and targets. Minimal freeboard height aft is necessary for crew safety while accessing and operating the weapons retrieval mechanism without compromising stability. Habitability requirements include berthing, galley, mess, lounge, head(s), generator set(s), HVAC system and defrosters. The boat must be able to accommodate extreme loading conditions (i.e., from a full weapons load topside to light load). The boat must be as stable and as wide as possible to provide the inherent stability characteristics necessary to perform the operations and necessary to provide ergonomics for the crew and passengers. Requirements include communications, navigation and other electronics systems necessary to support the sophisticated training, validation and recording of specialized measurements to support a wide variety of operations. A Commercial Off The Shelf (COTS) boat built to recognize commercial standards can accomplish specific operational requirements for the mission. Service Life is 25 years. H0CAB FORCE PROTECTION BOAT (SMALL)		

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Exhibit P-40, Budget Line Item Justification: FY 2018 Navy		Date: May 2017
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 01: Ships Support Equipment / BSA 12: Small Boats		P-1 Line Item Number / Title: 1210 / Standard Boats
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		
Light gasoline twin outboard engine powered (up to 150 HP each) aluminum boats from 7 to 8.2 meters (24 to 27 ft) in length used primarily for fleet force protection, maritime interdiction, law enforcement operations, at Naval activities and adjacent ports and waterways duties. Can operate in areas where the environment (sea states/climatology) does not present a significant challenge. Service life is 7 years. H0G86 OCO SUPPLEMENTAL Current existing systems require replacements for boats due to excessive wear and tear. The boats are being maintained; however, they are not designed for the operational tempo (OPTEMPO) and harsh operating conditions in which they will be employed. The Force Protection Coastal (FPC) boats will provide capability called for in Visit, Board, Search and Seizure (VBSS) overwatch Urgent Operational Needs Statement (UONS) that cannot be met with existing boats. The Riverine Patrol boats, 7m EOD RIBS, and Force Protection Large are for boats already in theater. Coastal Riverine Force (CRF) Patrol Boat (X) - The craft will support maritime security operation missions and tasks such as Harbor Approach Defense; High Value Unit Transit Escort Operations; Visit, Board, Search, and Seizure (VBSS) Operations and Overwatch; Critical Infrastructure Protection; Amphibious Operations Support; Riverine Operations; Mine Warfare Support; Embarked Forces Support (e.g., SOF, EOD, USCG LEDET); and, Humanitarian Assistance/Disaster Relief (HA/DR) Support. Twin diesel engine powered boat with a nominal length of 40ft used to patrol green water littoral zones such as coastal water approaches, bays, major rivers, ports, and harbors. Service life is 15 to 20 years. Six (6) CRF PB units are being requested for \$18.000M. This begins the reset of thirty (30) over age and deteriorating patrol boats continuously deployed to CENTCOM in support of OFS-T. The craft are needed to maintain operational capability and readiness to support force protection and ISR missions in CENTCOM for OFS-T. SSPBV Blocking Vessels Blocking Vessels - 250' Off Shore Vessels (OSVs) also referred to as Blocking Vessels (BVs) operating at each Strategic Weapons Facility (Bangor, Washington and Kings Bay, Georgia). The Blocking Vessels are a key security component in the transit of SSBNs to and from the dive point. Service Life is 25 years.		

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Exhibit P-40, Budget Line Item Justification: FY 2018 Navy								Date: May 2017		
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 01: Ships Support Equipment / BSA 12: Small Boats						P-1 Line Item Number / Title: 1210 / Standard Boats				
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 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 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-40a	Standard Boats				- / 506.880	- / 29.982	- / 55.370	- / 46.094	- / 18.000	- / 64.094
P-40	Total Gross/Weapon System Cost				- / 506.880	- / 29.982	- / 55.370	- / 46.094	- / 18.000	- / 64.094
*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. Title represents the P-40a Title when only the P-40a Summary/Total is shown.										
Note: Totals in this Exhibit P-40 set may not be exact or sum exactly due to rounding.										

Justification:
 OCO:
 Coastal Riverine Force (CRF) Patrol Boat (X) - The craft will support maritime security operation missions and tasks such as Harbor Approach Defense; High Value Unit Transit Escort Operations; Visit, Board, Search, and Seizure (VBSS) Operations and Overwatch; Critical Infrastructure Protection; Amphibious Operations Support; Riverine Operations; Mine Warfare Support; Embarked Forces Support (e.g., SOF, EOD, USCG LEDET); and, Humanitarian Assistance/Disaster Relief (HA/DR) Support. Twin diesel engine powered boat with a nominal length of 40ft used to patrol green water littoral zones such as coastal water approaches, bays, major rivers, ports, and harbors. Service life is 15 to 20 years. Six (6) CRF PB units are being requested for \$18.000M. This begins the reset of thirty (30) over age and deteriorating patrol boats continuously deployed to CENTCOM in support of OFS-T. The craft are needed to maintain operational capability and readiness to support force protection and ISR missions in CENTCOM for OFS-T.

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Exhibit P-40a, Budget Item Justification For Aggregated Items: FY 2018 Navy															Date: May 2017					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 12							P-1 Line Item Number / Title: 1210 / Standard Boats								Aggregated Items Title: Standard Boats					
Item Number / Title [DODIC]	ID CD	MDAP/MAIS Code	Prior Years			FY 2016			FY 2017			FY 2018 Base			FY 2018 OCO			FY 2018 Total		
			Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)
1) H0001 - Base Operating Forces																				
1.1) Force Protection Small	A		3,387K	3	10.161	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.2) CNIC Force Protection Small	A		377,888.89	9	3.401	401,000.00	2	0.802	-	-	-	-	-	-	-	-	-	-	-	-
1.3) CNIC Force Protection Medium	A		538,381.82	55	29.611	459,000.00	13	5.967	467,200.00	19	8.877	475,625.00	8	3.805	-	-	-	475,625.00	8	3.805
1.4) CNIC Force Protection Large	A		11,379K	3	34.136	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.5) CNIC Workboat Medium	A		1,125K	9	10.127	905,000.00	7	6.335	921,333.33	5	4.607	938,000.00	3	2.814	-	-	-	938,000.00	3	2.814
1.6) CNIC Workboat Large	A		1,529K	3	4.587	-	-	-	1,651K	5	8.257	1,681K	3	5.043	-	-	-	1,681K	3	5.043
Subtotal: 1) H0001 - Base Operating Forces			-	-	92.023	-	-	13.104	-	-	21.741	-	-	11.662	-	-	-	-	-	11.662
2) H0002 - Amphibious Assault Ships																				
2.1) 11M (36FT) Rigid Inflatable Boat (RIB)	A		956,277.78	18	17.213	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: 2) H0002 - Amphibious Assault Ships			-	-	17.213	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3) H0003 - Explosive Ordnance Forces																				
3.1) EOD Support Craft (RIB)	A		453,200.00	25	11.330	266,000.00	9	2.394	270,800.00	5	1.354	275,666.67	5	1.378	-	-	-	275,666.67	5	1.378
3.2) 11M EOD RIB	A		1,800K	2	3.600	-	-	-	735,000.00	12	8.820	748,166.67	10	7.482	-	-	-	748,166.67	10	7.482
Subtotal: 3) H0003 - Explosive Ordnance Forces			-	-	14.930	-	-	2.394	-	-	10.174	-	-	8.860	-	-	-	-	-	8.860
4) H0004 - Naval Special Warfare																				
4.1) NSW Long Range Support Craft	A		368,038.46	26	9.569	329,000.00	4	1.316	335,000.00	2	0.670	341,000.00	4	1.364	-	-	-	341,000.00	4	1.364
4.2) NSW Short Range Support Craft	A		869,625.00	8	6.957	327,000.00	2	0.654	333,000.00	4	1.332	338,875.00	5	1.694	-	-	-	338,875.00	5	1.694
4.3) NSW RIB	A		986,200.00	5	4.931	1,014K	2	2.028	1,032K	3	3.097	1,051K	2	2.102	-	-	-	1,051K	2	2.102
Subtotal: 4) H0004 - Naval Special Warfare			-	-	21.457	-	-	3.998	-	-	5.099	-	-	5.160	-	-	-	-	-	5.160
5) H0005 - Riverine Activities																				
5.1) Patrol Boat (X)	A		-	-	-	-	-	-	2,745K	3	8.235	2,794K	3	8.382	-	-	-	2,794K	3	8.382
5.2) Patrol Boat (X) spares/design rights	A		-	-	-	-	-	-	-	-	-	-	-	1.100	-	-	-	-	-	1.100
5.3) Riverine Multi-Mission Craft	A		4,085K	11	44.936	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5.4) MK VI Patrol Boat	A		8,217K	3	24.651	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: 5) H0005 - Riverine Activities			-	-	69.587	-	-	-	-	-	8.235	-	-	9.482	-	-	-	-	-	9.482

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Exhibit P-40a, Budget Item Justification For Aggregated Items: FY 2018 Navy																Date: May 2017					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 12									P-1 Line Item Number / Title: 1210 / Standard Boats							Aggregated Items Title: Standard Boats					
Item Number / Title [DODIC]	ID CD	MDAP/MAIS Code	Prior Years			FY 2016			FY 2017			FY 2018 Base			FY 2018 OCO			FY 2018 Total			
			Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	
6) H0006 - Support Forces																					
6.1) 7M (24FT) Rigid Inflatable Boat (RIB)		A		320,657.89	76	24.370	195,000.00	16	3.120	198,500.00	14	2.779	204,000.00	14	2.856	-	-	-	204,000.00	14	2.856
Subtotal: 6) H0006 - Support Forces			-	-	24.370	-	-	3.120	-	-	2.779	-	-	2.856	-	-	-	-	-	2.856	
7) H0007 - Fleet Logistics Support																					
7.1) 7M (24FT) Rigid Inflatable Boat (RIB)		A		396,083.33	12	4.753	195,000.00	3	0.585	198,666.67	3	0.596	204,000.00	3	0.612	-	-	-	204,000.00	3	0.612
Subtotal: 7) H0007 - Fleet Logistics Support			-	-	4.753	-	-	0.585	-	-	0.596	-	-	0.612	-	-	-	-	-	0.612	
8) H0008 - Naval Coastal Warfare																					
8.1) Reserve Patrol Boat Small		A		-	-	0.681	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
8.2) Reserve Patrol Boat Large		A		1,227K	3	3.680	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Subtotal: 8) H0008 - Naval Coastal Warfare			-	-	4.361	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
9) H0009 - Warfare Integration																					
9.1) Dive Boat Replacement		A		1,840K	3	5.519	1,927K	2	3.854	1,962K	2	3.923	1,997K	2	3.994	-	-	-	1,997K	2	3.994
Subtotal: 9) H0009 - Warfare Integration			-	-	5.519	-	-	3.854	-	-	3.923	-	-	3.994	-	-	-	-	-	3.994	
10) H0010 - Pollution Control Equipment																					
10.1) Oilboom Platform		A		183,000.00	2	0.366	187,000.00	1	0.187	190,500.00	2	0.381	193,000.00	3	0.579	-	-	-	193,000.00	3	0.579
10.2) Utility Boats		A		130,000.00	5	0.650	132,000.00	5	0.660	134,500.00	4	0.538	140,000.00	6	0.840	-	-	-	140,000.00	6	0.840
10.3) Rapid Response Skimmer		A		383,857.14	14	5.374	394,000.00	3	1.182	401,000.00	3	1.203	408,333.33	3	1.225	-	-	-	408,333.33	3	1.225
10.4) OSR OB Engine		A		-	-	-	10,000.00	2	0.020	10,000.00	2	0.020	10,000.00	3	0.030	-	-	-	10,000.00	3	0.030
Subtotal: 10) H0010 - Pollution Control Equipment			-	-	6.390	-	-	2.049	-	-	2.142	-	-	2.674	-	-	-	-	-	2.674	
11) H0830 - Production Engineering																					
11.1) Production Engineering		A		-	-	7.696	-	-	0.482	-	-	0.296	-	-	0.402	-	-	-	-	-	0.402
11.2) Production Engineering (Naval Coastal Warfare)		A		-	-	0.391	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Subtotal: 11) H0830 - Production Engineering			-	-	8.087	-	-	0.482	-	-	0.296	-	-	0.402	-	-	-	-	-	-	0.402
12) H0900 - Consulting Services																					
12.1) Consulting Services		A		-	-	5.796	-	-	0.396	-	-	0.385	-	-	0.392	-	-	-	-	-	0.392

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Exhibit P-40a, Budget Item Justification For Aggregated Items: FY 2018 Navy																Date: May 2017				
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 12								P-1 Line Item Number / Title: 1210 / Standard Boats								Aggregated Items Title: Standard Boats				
Item Number / Title [DODIC]	ID CD	MDAP/MAIS Code	Prior Years			FY 2016			FY 2017			FY 2018 Base			FY 2018 OCO			FY 2018 Total		
			Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)
12.2) Consulting Services (Naval Coastal Warfare)	A		-	-	0.289	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: 12) H0900 - Consulting Services			-	-	6.085	-	-	0.396	-	-	0.385	-	-	0.392	-	-	-	-	-	0.392
13) H0CA5 - Dive Boats																				
13.1) Dive Boats	A		2,259K	3	6.777	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: 13) H0CA5 - Dive Boats			-	-	6.777	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
14) H0CA6 - Range Supprt Craft																				
14.1) Range Support Craft	A		18,362K	2	36.723	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: 14) H0CA6 - Range Supprt Craft			-	-	36.723	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
15) H0CAB - Force Protection Boat (Small)																				
15.1) Force Protection Boat (Small)	A		-	-	2.000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
15.2) Small Escort Vessels (33')	A		-	-	9.979	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: 15) H0CAB - Force Protection Boat (Small)			-	-	11.979	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
16) H0G86 - OCO																				
16.1) OCO - Patrol Boat (Large) (Reserve)	A		651,000.00	2	1.302	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
16.2) OCO - RIBS	A		500,000.00	2	1.000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
16.3) OCO - 7M EOD RIBs (Reserve)	A		234,000.00	6	1.404	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
16.4) OCO - Force Protection - Coastal (Reserve)	A		4,000K	5	20.000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
16.5) Coastal Riverine Force (CRF) - Patrol Boat (X) ⁽¹⁾	A		-	-	-	-	-	-	-	-	-	-	-	0.000	3,000K	6	18.000	3,000K	6	18.000
Subtotal: 16) H0G86 - OCO			-	-	23.706	-	-	-	-	-	-	-	-	0.000	-	-	18.000	-	-	18.000
17) SSPBV																				
17.1) Blocking Vessels	A		38,230K	4	152.920	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: 17) SSPBV			-	-	152.920	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total			-	-	506.880	-	-	29.982	-	-	55.370	-	-	46.094	-	-	18.000	-	-	64.094
Note: Subtotals or Totals in this Exhibit P-40a may not be exact or sum exactly, due to rounding.																				
Footnotes:																				

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Exhibit P-40a, Budget Item Justification For Aggregated Items: FY 2018 Navy		Date: May 2017
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 12	P-1 Line Item Number / Title: 1210 / Standard Boats	Aggregated Items Title: Standard Boats

(1) The 6 OCO craft contain production support within unit cost (\$1.2M).

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Exhibit P-40, Budget Line Item Justification: FY 2018 Navy **Date:** May 2017

Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 01: Ships Support Equipment / BSA 13: Training Equipment	P-1 Line Item Number / Title: 1320 / Other Ships Training Equipment

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 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	To Complete	Total
Procurement Quantity (<i>Units in Each</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost (<i>\$ in Millions</i>)	177.148	62.358	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
Less PY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (<i>\$ in Millions</i>)	177.148	62.358	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
Plus CY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority (<i>\$ in Millions</i>)	177.148	62.358	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
<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>)	-	-	-	-	-	-	0.109	0.166	0.141	0.125	Continuing	Continuing
Flyaway Unit Cost (<i>\$ in Dollars</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost (<i>\$ in Dollars</i>)	-	-	-	-	-	-	-	-	-	-	-	-

Description:

The equipment procured under the Other Ships Training Equipment line supports Hull, Mechanical, and Electrical (HM&E) and Combat Systems training requirements. Funding for Surface Ship Training Devices were consolidated under LI 5664 starting in FY17.

[P40A / (H5265) SURFACE SUSTAINING TTE]: Funds procure Hull Mechanical & Electrical (HM&E) and Combat System technical training equipment (TTE) identified by the Naval Education & Training Command (NETC) for the training activities. Provides equipment to augment existing TTE due to increased student throughput; replaces equipment beyond economical repair and procures new equipment.

[P40A / (H5374) LCS SEAFRAME SIMULATORS]: Funds procure LCS Simulators for the respective LCS homeports and the Surface Warfare Officer School (SWOS), in Newport, RI. Simulators are needed to meet the Train to Qualify Key Performance Parameter (KPP) requirement of the Capabilities Development Document. Funding procures hardware and software associated with building the trainers and installing this hardware and software at the LCS Training Facilities in each homeport and at SWOS. Trainers are required for both of the ship variants, with initial procurements for the San Diego homeport and SWOS, followed by procurements for the Mayport and Norfolk homeports within the FYDP. Throughput of LCS crews requires multiple simulators in a homeport.

LCS Part Task Trainers - Devices that permit selected aspects of a task (Bridge, Combat Systems, Mission Bay Components) to be practiced independently of other elements of the task, and independently of the Intergrated Tactical Trainers (ITTs) to most efficiently address Train to Qualify (T2Q) and Train to Certify (T2C) objectives while managing student throughput.

LCS Virtual Ship Training System - Comprehensive network infrastructure and computing environment, including Virtual Reality Labs (VRLs), within the LCS Training Facilities to support delivery and management of all components of LCS Training.

LCS Mission Bay Trainers - Enable the qualification, training, and team certification of the individuals and teams working in the Mission Bay, to include preparation and launching/recovering of mission module off-hull remote vehicles, and operating of the cranes, doors, and other associated equipment in the Mission Bay. The Mission Bay Trainer includes full-scale replicas of the Mission Bay. FY16 funding supports outfitting the LCS Training Facility in Mayport, FL. (The first ship assigned to Mayport, LCS 9, arrives in FY16.)

LCS Integrated Tactical Trainers - These are full scale simulations of Tactical Software that enable integrated team training of Bridge, Combat Systems, Engineering, and Mission Package systems/watchstations. Follow-on Integrated Team Trainer procurement (FY16 and follow) will include crew served weapon simulators (discussed below). FY16 funds the procurement of one FREEDOM variant Integrated Team Trainer for Mayport and a second INDEPENDENCE variant Integrated Team Trainer for San Diego (for a total of two (2) Integrated Team Trainers procured in FY16).

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Exhibit P-40, Budget Line Item Justification: FY 2018 Navy		Date: May 2017
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 01: Ships Support Equipment / BSA 13: Training Equipment		P-1 Line Item Number / Title: 1320 / Other Ships Training Equipment
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		
Surface Warfare Officer School (SWOS) Bridge Trainer - This trainer supports Officer pipeline training at SWOS, Newport in support of Division Officer, Department Head, and PXO/PCO pipeline training for Officer of the Deck Training. This trainer permits selected aspects of Bridge tasks (including Engineering Control tasks) to be practiced independently of Combat Systems Operations to support individual or individual bridge team training, vice the integrated training in the more complex Integrated Team Trainer. This training facilitates more efficient accomplishment of Train to Certify and Train to Qualify objectives. Crew Served Weapons Simulators - Funds procure tactical training crew served weapons stations. Stand-alone units will be procured for follow-on integration with the Integrated Team Trainers in San Diego and Mayport. [P40A / (H5276) SUBSURFACE SUSTAINING TTE]: Funds procure Subsurface HM&E Fleet and Team Trainer Technical Training Equipment (TTE), Training Enhancement Changes (TECs), support equipment, and various upgrades to simulators / stimulators, such as the Submarine Bridge Trainer (SBT), Submarine Ship Control Operator Trainer (SCOT), and Next Generation Firefighter Trainer (FFT) identified by the Submarine Learning Center (SLC) and approved by Chief of Naval Operations (CNO), for use at the submarine training activities. This TTE/Training Unique Equipment (TUE), sustains a better quality of training and replaces equipment beyond economical repair or procures new equipment. Funds also procure Submarine High Risk Trainer procurement for Pressurized Submarine Escape Trainers and Damage Control Wet Trainers. Fleet Interactive Display Equipment (FIDE) trainers are provided for nuclear power plant training. FIDEs support multiple ship classes and FIDE configurations at 9 different geographic sites, each requiring different levels of installation work; thus the cost for the program varies widely from year to year depending on the combination of these factors. Virginia (VA) Class trainers are procured for the 2nd and 3rd home ports and for configuration updates to existing trainers.		
Justification: Funding for surface ship training devices is consolidated under LI 5664 starting in FY17. Funding for submarine training devices is consolidated under LI 5661 starting in FY17. LCS Simulators are required for the respective LCS homeports and the Surface Warfare Officer School (SWOS), in Newport, RI. Simulators are needed to meet the Train to Qualify Key Performance Parameter (KPP) requirement of the Capabilities Development Document. Required procurements of hardware and software associated with building the trainers and installing this hardware and software at the LCS Training Facilities in each homeport and at SWOS. Trainers are required for both of the ship variants, with initial procurements for the San Diego homeport and SWOS, followed by procurements for the Mayport and Norfolk homeports within the FYDP. Throughput of LCS crews requires multiple simulators in a homeport.		

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Exhibit P-40, Budget Line Item Justification: FY 2018 Navy										Date: May 2017		
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 01: Ships Support Equipment / BSA 14: Production Facilities Equipment							P-1 Line Item Number / Title: 1445 / Operating Forces IPE					
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 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	To Complete	Total
Procurement Quantity (<i>Units in Each</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost (<i>\$ in Millions</i>)	518.338	61.718	75.421	191.541	0.000	191.541	107.624	116.182	133.547	106.754	Continuing	Continuing
Less PY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (<i>\$ in Millions</i>)	518.338	61.718	75.421	191.541	0.000	191.541	107.624	116.182	133.547	106.754	Continuing	Continuing
Plus CY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority (<i>\$ in Millions</i>)	518.338	61.718	75.421	191.541	0.000	191.541	107.624	116.182	133.547	106.754	Continuing	Continuing
<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 Dollars</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost (<i>\$ in Dollars</i>)	-	-	-	-	-	-	-	-	-	-	-	-

Description:
FY 2018 funding request reflects a reduction of \$1.984 million to account for the availability of prior year funds.

The Operating Forces IPE Budget has been restructured to identify and break out individual component costs previously consolidated within Item Numbers in previous Budget submits.

The Operating Forces IPE budget provides funding for capitalized personal property procurements for the Naval Shipyards and Fleet I-level maintenance activities. These procurements provide new and efficiency-enabling equipment required to support submarine, CVN, and surface ship maintenance, eliminating reliance on significantly aged and obsolete equipment. Average age of existing equipment infrastructure is 21 years, over twice the average age of comparable private industry equipment. Improved maintenance capabilities at the activities supported by the Capital Investment Program and Ship Maintenance Investment Program are integral to the Nuclear Enterprise. Modernizing equipment infrastructure improves maintenance activity productivity, eliminates workaround and mitigation costs to the Fleet, contributes to decreasing CVN, surface ship, and submarine availability cost and schedule, and improves operational availability.

This budget also funds procurement and technical refresh upgrades of all Integrated Condition Assessment System (ICAS) hardware and software aboard Surface Fleet hulls and the Navy Maritime Maintenance Enterprise Solution (NMMES). NMMES is a strategic investment that has standardized NAVSEA and Fleet ship maintenance functions ashore, controlling and managing all aspects of ship maintenance at the Naval Shipyards, Regional Maintenance Centers (RMCs), and Ship Repair Facilities.

[P40A / KN100: INDUSTRIAL PLANT EQUIPMENT (IPE) REPLACEMENT/AFLOAT SUPPORT]: These funds are used to procure industrial plant equipment for afloat (surface combatant) activities which provide maintenance capabilities for Sailors to maintain Ship's mission essential, operational readiness while deployed. The upgraded IPE increases deployed maintenance capability and enhances strike group's ability to remain on station through Casualty Report (CASREP) avoidance. The program provides new industrial plant equipment to replace equipment beyond economical repair and to upgrade capabilities for ship maintenance and repair.

[P40A / KN200: NAVY MARITIME MAINTENANCE ENTERPRISE SOLUTION SUSTAINMENT]: This funding supports the Navy Maritime Maintenance Enterprise Solution (NMMES) Initiative, a strategic investment that has standardized NAVSEA and Fleet ship maintenance functions ashore, controlling and managing all aspects of ship maintenance at the Naval Shipyards, Regional Maintenance Centers (RMCs), and Ship Repair Facilities. NMMES manages finance, supply, personnel, time & attendance, repair work processes & planning, scheduling and execution, shop work flow, configuration management, environmental health & safety, quality assurance, up-line management reporting and other functions. NMMES standardizes and institutionalizes the Navy's ship maintenance business practice processes. These

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Exhibit P-40, Budget Line Item Justification: FY 2018 Navy		Date: May 2017
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 01: Ships Support Equipment / BSA 14: Production Facilities Equipment		P-1 Line Item Number / Title: 1445 / Operating Forces IPE
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		
processes are fully embedded in the NMMES IT systems to gain efficiencies in the maintenance process. NMMES systems provide the functionality and processes to continually address the maintenance needs of the Fleet, and have a critical role in the efficient brokering, planning, material ordering, financial performance, and execution of shore maintenance. This sustainment funding will support procurement of commercial-off-the-shelf (COTS) hardware and software in support of NMMES IT systems, including the Electronic Technical Work Document (ETWD) initiative. [P40A / NAVY MARITIME MAINTENANCE ENTERPRISE SOLUTION SUSTAINMENT]: FY18 NMMES funding above FY17 level is required for hardware supporting the Maritime Systems Environment (MSE 1.1) alternate production site that will also be the disaster recovery failover site located at Marine Corps Kansas City Enterprise IT Center (EITC). This will enable the maintenance activities to continue working & utilizing the IT toolset when the primary site is undergoing maintenance or a shutdown is required as there was during hurricane Matthew. Funds will also support Product Data Management (PDM) software (SW) to integrate FORD Class Carrier Program and OHIO Replacement Program (ORP) configuration and technical information during maintenance periods. [P40A / eTWD NEDC Hardware]: The electronic Technical Work Document (eTWD) system hardware (HW) requirements are for servers required to support and sustain the eTWD environments at Navy Enterprise Data Center (NEDC) Charleston, SC, in support of data center consolidation initiative. [P40A / MSE 1.1 Alt. Production Site]: The Maritime Systems Environment (MSE 1.1) alternate production site will act as the emergency production site if Navy Enterprise Data Center (NEDC) Charleston has catastrophic event. The alternate production site environment will be located at Marine Corps Kansas City Enterprise IT Center (EITC), and will provide minimal impact to ship maintenance business systems if shutdown to NEDC Charleston occurs. Kansas City EITC also serves as the disaster recovery failover site. This will enable the maintenance activities to continue working & utilizing the IT toolset when the primary site is undergoing maintenance or a shutdown is required as there was during hurricane Matthew. This procures the information technology hardware to build the alternate production site for the Naval Shipyards and Regional Maintenance Centers. [P40A / Product Data Management SW]: Product Data Management (PDM) software (SW) is a commercial-off-the-shelf (COTS) software to integrate FORD Class Carrier Program and OHIO Replacement Program (ORP) configuration and technical information during maintenance periods. [P40A / Mobility Solutions]: Provides for the development of applications and software tools to support mobility initiatives at the Naval Shipyards, Regional Maintenance Centers and Ship Repair Facility (SRF) Japan. This capability leverages off the wireless network and electronic Technical Work Document (eTWD) projects and brings needed efficiencies to ship maintenance workers. [P40A / RFIDs]: This project implements Radio Frequency Identification (RFID) capability at the Naval Shipyards, Regional Maintenance Centers, and Ship Repair Facility (SRF) Japan for both waterfront and back-shop application. RFID will provide real-time tracking of parts and materials, creating a more efficient and productive workflow. [P40A / KN300: SHIPYARD CAPITAL INVESTMENT PROGRAM (CIP)]: This line item provides funding for the Shipyard Capital Investment Program in support of the consolidated Naval Shipyard and Intermediate Maintenance Facilities (IMF) at the four mission funded Naval Shipyards. Funds will be used for the procurement and execution of Class 3 & 4 plant and personal property projects to maintain, modernize and improve the infrastructure and industrial base at the mission funded Naval Shipyard/IMF activities. Funding will allow for the acquisition of equipment and OP,N related Automated Data Processing (ADP) Hardware/Software necessary to perform the mission of repairing, conversion, and modernization of fleet ships and submarines in the most economical, efficient, environmentally sound and safe manner possible. NOTE that the budget year equipment requirements provided in this exhibit are based on current Shipyard priorities to best improve submarine and aircraft carrier availability execution within currently projected budget. Projected costs are best government estimates based on market research and are subject to change. Changes to program funding, realized costs, and/or realization of emergent Shipyard equipment requirements after budget submittal could impact the requirements identified in this exhibit. [P40A / SHIPYARD CAPITAL INVESTMENT PROGRAM (CIP)]: Average age of existing naval shipyard capital equipment infrastructure is 21 years, over twice the average age of comparable private industry equipment. Continued reliance on this significantly aged equipment infrastructure increases submarine and CVN availability costs and places schedules at risk. This results in passing workaround costs to the Fleet and ultimately impacting Operational Availability (Ao) when equipment downtime impacts critical path maintenance requirements.		

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Line Item MDAP/MAIS Code: N/A			
Improved maintenance capabilities at the Naval Shipyards are integral to the Nuclear Enterprise. Procurement of new and efficiency-enabling equipment to repair CVNs and submarines contributes to decreasing availability costs and schedules, ultimately returning mission days to the Fleet and moving the needle on Shipyard throughput. FY18 Capital Investment Program funding above FY17 level is required for capital equipment needed at the Naval Shipyards to support new mission requirements, including VIRGINIA Class introduction at NNSY and concurrent VIRGINIA Class availabilities at PNSY and PHNSY, as well as recapitalization of significantly aged Industrial Plant Equipment (IPE), weight handling equipment, and nuclear support equipment infrastructure. These additional requirements include: PHNS&IMF VIRGINIA CLASS PROPULSOR HANDLING SYSTEM - This system provides stacking stands, platforms, Heavy Lift Transporters (HLTs) and the necessary Lifting and Handling system to remove, stow, and reinstall the VIRGINIA Class Propulsor and shaft assembly during depot availabilities. Without this procurement, PHNS&IMF will be unable to support assigned VIRGINIA Class depot maintenance. This is the only approved system design for executing these precise and demanding Propulsor and shaft maintenance actions. NNSY VIRGINIA CLASS BOW DOME HANDLING SYSTEM - The bow handling system is attached to the VIRGINIA Class bow dome and is used to remove, store, and reinstall the dome during depot availabilities IAW current depot maintenance plan. VIRGINIA Class bow domes are made of GRP so the ring must remain installed the entire time the bow dome is removed to ensure it retains the required circularity. The bow handling system procurement is critical to NNSYs mission to support assigned VIRGINIA Class depot maintenance, which was accelerated with the Norfolk homeporting of USS JOHN WARNER. PNSY and PSNSY REACTOR ACCESS ENCLOSURES (RAEs) (2 TOTAL): These RAEs are required to support increasing submarine inactivation schedule tempo. Existing RAEs being replaced by these procurements are well beyond expected service life, require extensive repairs between uses, and add 6 weeks to availability critical path schedule each use for setup and teardown that won't be required with the new RAE design. These RAEs are critically needed at PSNSY and PNSY in order to support the LOS ANGELES Class inactivation availability schedules. PSNSY (BREMERTON SITE) 25 TON PORTAL CRANE PROCUREMENTS (2 TOTAL) - This project procures two new high hook speed, moderate capacity (25-ton) portal cranes for PSNS&IMF, Bremerton (Shipyard site). This procurement directly supports an increase in workload for the Shipyard that requires additional portal cranes to meet project demands. This crane is designed to fill a critical capability gap for pier and dry dock support, with appropriate capacity, hook height and reach for carrier support, general lower capacity pier and drydock support, for the In-activation, Recycling and Disposal program. Continued reliance on existing crane population will continue exposure to increasing costs to customer due to lack of support causing delays to the projects, increasing costs to maintain, support, and operate rental/lease cranes, and increasing costs and lower efficiency using higher capacity portal cranes to lift lighter, repetitive loads. PHNSY SEAWATER ACID FLUSH SYSTEM - This project procures a submarine Seawater Acid Flush System used for chemically cleaning copper-nickel alloy seawater cooling systems and components. Without this portable acid flush system, PHNSY will continue to perform mechanical cleanings of fouled seawater cooling systems, continuing to place availability schedules at risk when fouling conditions are found as well as eliminating an unobtrusive, rapid defouling option when emergent seawater system fouling conditions occur, typically in warm water conditions. This acid flush system is the only method available to complete any emergent SW system cleanings on operational submarines. The only other method of system cleaning is during a depot availability, requiring affected components, tubing, and piping to be entirely removed, hydro-blasted, inspected, and reinstalled. NNSY and PSNSY 60 TON DOCK CRANES SERVICE LIFE EXTENSIONS (3 TOTAL) - Integral to waterfront operations. Dock cranes perform 8,000 lifts per submarine availability supporting critical path maintenance operations. These \$2M - \$3M service life extensions are being performed instead of \$30M (each) new crane procurements. Existing portal cranes are beyond reasonable service life, which decreases reliability, increases cost, and undermines mission execution. Dockside cranes must provide safe, reliable, and efficient weight handling of Fleet system components (e.g. nuclear, weapons, platforms, sensitive material and high cost parts). Replacing obsolete parts, such as obsolete electronic drive control components, is becoming cost prohibitive. New diesel generators are more efficient and have reduced emissions that meet current EPA requirements. Engine overhauls are more costly than the replacement cost of new more appropriately sized engines. Installation of a drum brake on the 15-ton whip hoist will bring that hoist into compliance with current design requirements. PSNSY VERTICLE RECIPROCATING CONVEYOR - This project replaces the existing 23 year old four-ton capacity Vertical Reciprocating Conveyor (VRC) installed in Dry Dock 04 at PSNSY. The new VRC will be designed to be submersible and therefore can remain in dock while flooding operations occur, significantly lowering VRC operating costs. The shipyard currently must execute workarounds due to			

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increasing, significant downtime of the existing VRC, increasing costs due to use of a constrained Portal Crane population to move relatively light loads to support dry dock operations and increasing exposure to potentially unsafe work conditions. This is particularly germane given the anticipated increased in workload at this dry dock. [P40A / NETWORK STORAGE & BACKUP]: This procurement supports the technical refresh of existing storage servers on the legacy network at NNSY. [P40A / CVN 68/78 CAMEL SYSTEM]: Camel system required to berth aircraft carriers at NNSY. Existing system is well beyond expected service life and will not support current tidal and storm surge requirements. [P40A / VIRGINIA CLASS PROPULSOR HANDLING SYSTEM]: This system provides stacking stands, platforms, Heavy Lift Transporters (HLTs) and the necessary Lifting and Handling system to remove, stow, and reinstall the VIRGINIA Class Propulsor and shaft assembly during depot availabilities. Without this procurement, PNSY will be unable to support assigned VIRGINIA Class depot maintenance. This is the only approved system design for executing these precise and demanding Propulsor and shaft maintenance actions. [P40A / VIRGINIA CLASS BOW DOME RING HANDLING SYSTEM]: This project procures a bow dome handling system for PNSY. The bow handling system is attached to the VIRGINIA Class bow dome and is used to remove, store, and reinstall the dome during depot availabilities IAW current depot maintenance plan. VIRGINIA Class bow domes are made of GRP so the ring must remain installed the entire time the bow dome is removed to ensure it retains the required circularity. Without the bow handling system procurement, PNSY will be unable to perform mandatory, critical path VIRGINIA Class depot maintenance requirements. [P40A / VIRGINIA CLASS PROPULSOR ENCLOSURE]: Required to support concurrent VIRGINIA Class dry dock availabilities at PNSY. This project provides a set of three partially enclosed towers and connecting roof that will be used individually or in combination to support Special Hull Treatment (SHT) tile repair, hull inspection, sonar dome repair, hull penetration repair, submarine access, equipment mounting and collectively to support VIRGINIA Class propulsor/shaft replacement. [P40A / INFORMATION TECHNOLOGY DATA STORAGE REFRESH]: This project replaces Information Technology (IT) storage equipment at PNSY, including all existing production NetApp filers and associated disks and hardware which contain all of the electronic data for shipyard operations. Supports the legacy network (SYLAN), Global Maintenance Application Suite (GMAS), and Secured Network (SECNET). [P40A / PORTAL CRANE, 60 TON, MODERNIZATION]: Modernization/Service Life Extension project for one PNSY 60 ton portal crane. This service life extension is being performed instead of a \$30M new crane procurement. Existing portal crane is beyond reasonable service life, which decreases reliability, increases cost, and undermines mission execution. Dockside cranes must provide safe, reliable, and efficient weight handling of Fleet system components (e.g. nuclear, weapons, platforms, sensitive material and high cost parts). Replacing obsolete parts, such as obsolete electronic drive control components, is becoming cost prohibitive. New diesel generators are more efficient and have reduced emissions that meet current EPA requirements. Engine overhauls are more costly than the replacement cost of new more appropriately sized engines. Installation of a drum brake on the 15-ton whip hoist will bring that hoist into compliance with current design requirements. [P40A / WINDOWS SERVER TECHNICAL REFRESH]: This project supports the planned tech refresh of end-of-life (EOL) Windows servers on the legacy network (CMDNET) at PSNS & IMF. This will result in the procurement and implementation of a suite of virtual software and hardware infrastructure to conform to the DONCIO directive to virtualize all systems by the end of 2017. [P40A / DIESEL GENERATORS, EMERGENCY]: These generators will provide emergency backup power to the nuclear vessels at PHNS&IMF in the event of an electrical power failure, implementing lessons learned from the Fukushima-Daiichi nuclear power plant disaster. Failure to procure a temporary generator sets will leave the submarines berthed and dry docked at these shipyards vulnerable to potential blackout scenarios and unable to meet all requirements. [P40A / MODERNIZE 60 TON PORTAL CRANES]: Modernization/Service Life Extension project for PSNS&IMF 60 ton portal cranes. These service life extensions are being performed instead of a \$30M new crane procurements. Existing portal cranes are beyond reasonable service life, which decreases reliability, increases cost, and undermines mission execution. Dockside cranes must provide safe, reliable, and efficient weight handling of Fleet system components (e.g. nuclear, weapons, platforms, sensitive material and high cost parts).		

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[P40A / EMERGENCY DIESEL GENERATORS]: These generators will provide emergency backup power to the nuclear vessels at NNSY in the event of an electrical power failure, implementing lessons learned from the Fukushima-Daiichi nuclear power plant disaster. Failure to procure a temporary generator sets will leave the submarines berthed and dry docked at these shipyards vulnerable to potential blackout scenarios and unable to meet all requirements.		
[P40A / 25 TON PORTAL CRANE - IMF BANGOR]: This project procures a new high hook speed, moderate capacity (25-ton) portal crane for PSNS&IMF, IMF Bangor site delta pier. This procurement directly supports an increase in workload for the IMF that requires additional portal cranes to meet project demands.		
[P40A / DRY DOCK #1 DEFUELING COMPLEX]: This project funds a defueling complex located at PNSY Dry Dock #1. The project will support Fleet's need for simultaneous Virginia Class Depot level maintenance availabilities and concurrent Los Angeles Class inactivations. The complex footprint consists of portable enclosures and services: Two M140 container service and rail car enclosures, an access control enclosure, Dockside Refueling Enclosure, a series of passageways, ventilation equipment, electrical services, fire alarm, and crane services.		
[P40A / DRY DOCK #2 MATERIAL HIGHWAY]: This is a design-build project for a VIRGINIA Class material handling system (Material Highway (MH)) consisting of equipment platforms, enclosures with pneumatic hoists and manual davit hoist, bridges, carts, manual pallet trucks, Vertical Reciprocating Conveyors (VRCs), and support towers for Dry Dock 2 (DD2) at Pearl Harbor Naval Shipyard and Intermediate Maintenance Facility (PHNSY).		
[P40A / VIRGINIA Class Vertical Launch System Platform]: This project provides a safe means to perform VIRGINIA Class Vertical Launch System (VLS) work at NNSY. All VLS related work requires a VLS Platform to be installed. This is particularly true for any waterborne work as the VLS bathtub area cannot be safely staged in the water. A VLS Platform is typically installed as soon as the ship arrives for an availability to support equipment offload and is then reinstalled shortly after Undocking and typically remains installed through the remainder of the availability up until Fast Cruise. Without this investment NNSY will be unable to meet maintenance requirements for future Virginia Class availabilities.		
[P40A / Hydraulic Component Test System]: This project provides PHNS&IMF a new hydraulic testing system that tests valves, actuators, pressure regulators, accumulators and other miscellaneous hydraulic components. The Entwistle testing system currently used is over 10 years old and past its useful life period. The Hydraulic Power Unit (HPU) and Cooling Tower are corroded and flaking due to being outside on a concrete slab and exposed to Hawaii's environment. Recently, one of the HPU's doors rusted off. Due to the condition of the equipment, it had an average breakdown rate of 4 times per year through 2015. Since then, breakdown rate has increased to 8 times per year. This system is critically needed at PHNSY to reduce operational capacity shortfalls and breakdowns, resulting in overtime to meet schedule without being equip for future needs.		
[P40A / Dry Dock 1 Reactor Access Enclosure System and Support Structure]: This project will fund a RAE (Reactor Access Enclosure) structure and support system for PNSY DD (Dry Dock) #1. The project will support FLEET's need for simultaneous LOS ANGELES Class inactivations. This capability will allow the shipyard to be able to service multiple reactors in the Dry Docks and meet meet the Fleets Scheduled Requirement of simultaneous inactivations starting in FY22.		
[P40A / VIRGINIA Class Bow Dome Ring]: This project procures a bow dome handling system for PHNSY and NNSY. The bow handling system is attached to the VIRGINIA Class bow dome and is used to remove, store, and reinstall the dome during depot availabilities IAW current depot maintenance plan. VIRGINIA Class bow domes are made of GRP so the ring must remain installed the entire time the bow dome is removed to ensure it retains the required circularity. The bow dome handling system procurement is crucially needed at NNSY and PHNSY to perform mandatory, critical path VIRGINIA Class depot maintenance requirements.		
[P40A / 7000 Gallon Waste Water Collection Tanks]: Required by PHNS&IMF to store and dispose of radiological waste liquids collected during depot maintenance evolutions. Existing tanks are beyond operable service life and rehabilitation costs exceed new procurement cost. Procurement will reduce maintenance costs and radiological risk/exposure to personnel.		
[P40A / Portable Paint Room]: This project procures a new portable, cross draft ventilated 50' x 50' x 22' paint enclosure for PNSY to support painting operations during submarine depot availabilities. The current paint room is part of an old building that's scheduled for demolition. This capability crucially needed at PNSY in order to be able to overhaul submarines.		

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[P40A / Relief Valve Test Platform]: A Relief Valve Test Platform (RVTP) is required to support all SSBN/SSGN 726 Class availabilities at IMF, Bangor and PSNS. The RVTP is placed directly on the submarine's turtleback and it provides the enclosures, structure, and platforms necessary to support piping installations, safe radiological work areas, and placement of a large liquid waste (RLW) tank to perform the test while the submarine is waterborne. The proposed work enclosure will provide a working surface to support piping and the RLW tank as well as provide a rigid steel framed weather enclosure for all work areas. This will be replacing the current platform which only supports and encloses the piping portion of the system, and requires use of temporary staging and shrink-wrap to enclose the RLW tank. SSBN/SSGN 726 Class Relief valve testing is critical path work. The existing RVTP has been in use for ten years, is at the end of its useful life, and has multiple safety and design deficiencies. Current nuclear standards have placed the shipyard's existing RVTP out of compliance. Required modifications to keep it operational have resulted in an RVTP not optimized for its mission. Therefore this equipment has become a critical path scheduling concern. A new RVTP will comply with nuclear standards, reduce critical path impact, improve operational safety, reduce labor, and optimize test functionality. [P40A / VIRGINIA Class Sail Racetrack Platform]: The project procures a VIRGINIA Class Sail "Racetrack" for NNSY. This is a work platform that is installed around the top of the Sail with a crane that allows personnel access to safely work Masts, UMMs, Sail Access Plates, etc. on the upper section of the Sail. This platform is mandatory for NNSY to complete sail restoration and maintenance on Virginia Class submarines. [P40A / Pure Water Delivery Trailer]: This is a turnkey project to procure two (2) Pure Water delivery Trailers (PWTs) for Pearl Harbor Naval Shipyard and Intermediate Maintenance Facility (PHNSY). PWTs are 6,000 gallon stainless steel tanks integrated onto double axle semi-trailers with water fill/delivery piping and water delivery pump that meet the stringent cleanliness requirements for nuclear powered ships and submarines. This project will provide replacement PWTs for 29 year old PWT #19 and 21 year old PWT #4. PWT #4 and PWT #19 must be replaced due to being more than 10 years past their useful service life, unreliable, costly to maintain, and exhibiting corrosion stress cracking. In 2015, PWT #19 was deemed un-repairable and put out-of-service earlier than expected due to cracks on the vent piping. PWTs are required for PHNSY to maintain its nuclear license and are required for PHNSY to be a full service shipyard for nuclear powered ships and submarines. Failure to execute this project will result in the PHNSY operating increasingly unreliable PWTs and increased probability PW deliveries will be delayed, potentially delaying submarine deployment, maintenance, and testing. [P40A / Reactor Access Enclosure Training Base Design]: This project funds the design deliverable for a RAE (Radiological Access Enclosure) Training Base located at PNSY Dry Dock #1. The project will support the Fleet's need for simultaneous submarine inactivations at PNSY. The RAE footprint consists of a structural storage base a passageway, electrical services, communications and fire alarms. Without this capability, the shipyard will only be able to train to service reactors in one dry dock, failing to meet the Fleet schedule and training requirements for simultaneous inactivations starting in 2022. [P40A / Modernize 60 Ton Portal Cranes - PSNS&IMF]: Modernization/Service Life Extension project for two PNS&IMF 60 ton portal cranes. These \$3M service life extensions are being performed instead of \$30M (each) new crane procurements. Existing portal cranes are beyond reasonable service life, which decreases reliability, increases cost, and undermines mission execution. Dockside cranes must provide safe, reliable, and efficient weight handling of Fleet system components (e.g. nuclear, weapons, platforms, sensitive material and high cost parts). Replacing obsolete parts, such as obsolete electronic drive control components, is becoming cost prohibitive. New diesel generators are more efficient and have reduced emissions that meet current EPA requirements. Engine overhauls are more costly than the replacement cost of new more appropriately sized engines. Installation of a drum brake on the 15-ton whip hoist will bring that hoist into compliance with current design requirements. [P40A / VIRGINIA Class VIRGINIA Payload Tube (VPT) Platform]: This project provides a safe means to perform VIRGINIA Class VPT maintenance at NNSY. All VPT-related work requires a VPT Platform to be installed. This is particularly true for any waterborne work as the VPT bathtub area cannot be safely staged in the water. A VPT Platform is typically installed as soon as the ship arrives for an availability to support equipment offload and is then reinstalled shortly after Undocking and typically remains installed through the remainder of the availability up until Fast Cruise. Without this investment, NNSY will be unable to meet VIRGINIA Class maintenance requirements. [P40A / Submarine Maintenance Enclosure]: Required by PHNS&IMF to support concurrent VIRGINIA Class dry dock availabilities. This project provides a set of three partially enclosed towers and connecting roof that will be used individually or in combination to support Special Hull Treatment (SHT) tile repair, hull inspection, sonar dome repair, hull penetration repair, submarine access, equipment mounting and collectively to support VIRGINIA Class propulsor/shaft replacement. If this project is not funded in FY18, PHNS&IMF will face difficulty in meeting VIRGINIA Class overhaul completion dates within projected costs due to inefficient existing practice of using scaffolding, makeshift platforms & herculite. Simultaneous VIRGINIA Class availabilities are scheduled beginning in FY20.		

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[P40A / PNSY Pump Test Station Modernization]: The B300 pump test station is used to perform shop testing for non-nuclear submarine pump & motor units for a wide range of pump sizes; 1.5" inlet diameter to 20" inlet diameter. The testing ensures satisfactory operation of Shipyard overhauled pumps and motor units as well as those provided by the Advanced Equipment Repair Program (AERP). This project will fund the replacement/upgrade of the pump test station electrical system which consists of the motor control centers, test station control consoles, and test station power outlets, as well as replace outdated flow meters. The current pump test station was designed in 1980. The system is old and unreliable and replacement parts are obsolete and difficult to obtain. The system is not in compliance with today's electrical code (NEC) and an electrical safety risk. [P40A / Emergency Diesel Generators]: These generators will provide emergency backup power to the nuclear vessels at NNSY, PHNS&IMF, and PNSY in the event of an electrical power failure, implementing lessons learned from the Fukushima-Daiichi nuclear power plant disaster. These generators are crucial when precluding submarines berthed and dry docked at these shipyards to be vulnerable to potential blackout scenarios and unable to meet all requirements. [P40A / 25 Ton Portal Cranes]: This project procures two new high hook speed, moderate capacity (25-ton) portal cranes for PSNS&IMF, Bremerton (Shipyard site). This procurement directly supports an increase in workload for the Shipyard that requires additional portal cranes to meet project demands. This crane is designed to fill a critical capability gap for pier and dry dock support, with appropriate capacity, hook height and reach for carrier support, general lower capacity pier and drydock support, for the In-activation, Recycling and Disposal program. Continued reliance on existing crane population will continue exposure to increasing costs to customer due to lack of support causing delays to the projects, increasing costs to maintain, support, and operate rental/lease cranes, and increasing costs and lower efficiency using higher capacity portal cranes to lift lighter, repetitive loads. [P40A / VIRGINIA Class Propulsor Handling System]: This system provides stacking stands, platforms, Heavy Lift Transporters (HLTs), and the necessary Lifting and Handling system to remove, stow, and reinstall the VIRGINIA Class Propulsor and shaft assembly during depot availabilities. Without this procurement, PHNS&IMF will be unable to support assigned VIRGINIA Class depot maintenance. This is the only approved system design for executing these precise and demanding Propulsor and shaft maintenance actions. PHNS&IMF cannot support mandatory, critical path VIRGINIA Class depot maintenance requirements without this equipment. [P40A / Modernize 60 Ton Portal Crane - NNSY]: Modernization/Service Life Extension project for one NNSY 60 ton portal crane. This \$2M service life extension is being performed instead of a \$30M new crane procurement. Existing portal crane is beyond reasonable service life, which decreases reliability, increases cost, and undermines mission execution. Dockside cranes must provide safe, reliable, and efficient weight handling of Fleet system components (e.g. nuclear, weapons, platforms, sensitive material and high cost parts). Replacing obsolete parts, such as obsolete electronic drive control components, is becoming cost prohibitive. New diesel generators are more efficient and have reduced emissions that meet current EPA requirements. Engine overhauls are more costly than the replacement cost of new more appropriately sized engines. Installation of a drum brake on the 15-ton whip hoist will bring that hoist into compliance with current design requirements. [P40A / Seawater Acid Flush System]: This project procures a submarine Seawater Acid Flush System used for chemically cleaning copper-nickel alloy seawater cooling systems and components. Without this portable acid flush system, PHNSY will continue to perform mechanical cleanings of fouled seawater cooling systems, continuing to place availability schedules at risk when fouling conditions are found as well as eliminating an unobtrusive, rapid defouling option when emergent seawater system fouling conditions occur, typically in warm water conditions. This acid flush system is the only method available to complete any emergent SW system cleanings on operational submarines. The only other method of system cleaning is during a depot availability, requiring affected components, tubing, and piping to be entirely removed, hydro-blasted, inspected, and reinstalled. [P40A / Submarine Camel System]: This project procures one set of universal submarine camels (2 camels) to berth subs at NNSY piers. The proposed camel measures about 36' along the pier, 18' from pier to submarine hull, and 18' top to bottom. The camel features composite panels, ultra high molecular weight polyethylene (UHMWPE) rubber rub strips, arch fenders, lifting bars, cleats, non-slip surface coating, concrete and steel ballast. Without this camel system, NNSY will be unable to support scheduled VIRGINIA Class maintenance assignments. [P40A / CNC Shaft Lathe]: This project procures a Computer Numerically Controlled (CNC) shaft lathe required by PNSY to support submarine shaft maintenance as well as to perform refurbishment to rotatable pool CVN and submarine shafts. This project replaces the 70 ft. Betts Lathe and the RDD Shaft Lathe with a new 80 ton, 80 foot center-center CNC Shaft Lathe. The new CNC shaft lathe will have milling and		

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grinding capabilities, which the current asset does not. It will also be capable of moving the carriage from end to end without removing the shaft or steady rests. This feature allows the new CNC Shaft lathe to accomplish sleeve chamfering that is not readily allowed on other shaft lathes. The existing shaft lathes to be replaced and undersized, outdated, and beyond economical repair. These assets can no longer provide the required dimensional accuracy for shafting processes and is currently used only for stripping fiberglass and coatings. The assets are operating at the upper limits of their capacity when machining 50 ton propulsion shafts. Completion falls inside the critical path for these evolutions. This project is required to maintain core capabilities and meet projected workload. [P40A / Defueling Complex - Design]: This project funds development of the deliverable design package consisting of engineered drawings and all technical criteria for procurement of a Multi-Class Submarine Defueling Complex for PSNS&IMF Dry Dock 2 (DD2). The complex consists of two M-140 Enclosures with cranes, one Radiological Access Enclosure (RAE) with a crane, one RAE Annex, several Support Enclosures also with cranes, a Change Enclosure, radiological ventilation, and process support equipment. Age of existing defueling equipment this procurement will recapitalize is 27 - 45 years. This equipment requires frequent repairs between uses, workarounds during use, and are personnel safety risks. Execution of the new design, when completed, will improve efficiencies during submarine defueling operations, reducing schedule and avoiding workaround, repair, and rework costs. [P40A / Dual Media Discharge Enclosures - NNSY]: Dual Media Discharge (DMD) Enclosures are large structures that enable safe and controlled discharge of radioactive Media for nuclear systems maintenance. This system will be made up of stackable connex boxes. The system will support all submarine classes at NNSY and TRIDENT Refit Facility (TRF) Kings Bay (KB). The existing DMD enclosure at NNSY is 29 years old. The tower assembly used at the NRMD was turned over from Trident Refit Facility Kings Bay in 2007 and is reaching its end of life. Existing equipment has trouble maintaining environmental controls. During rain storms NNSY has experienced leaking inside the enclosure due to rusted and deteriorating external walls and sealing components. This equipment is a critical need of the shipyards and TRF KB in order to collect radioactive media and have the ability to perform assigned maintenance responsibilities. [P40A / Vertical Reciprocating Conveyor]: This project replaces the existing 23 year old four-ton capacity Vertical Reciprocating Conveyor (VRC) installed in Dry Dock 04 at PSNSY. The new VRC will be designed to be submersible and therefore can remain in dock while flooding operations occur, significantly lowering VRC operating costs. The shipyard currently must execute workarounds due to increasing, significant downtime of the existing VRC, increasing costs due to use of a constrained Portal Crane population to move relatively light loads to support dry dock operations and increasing exposure to potentially unsafe work conditions. This is particularly germane given the anticipated increased in workload at this dry dock. [P40A / Dual Media Discharge Complex]: The Dual Media Discharge (DMD) Complex is an integrated assembly of portable enclosures used for higher-risk off-hull effluent collection work on OHIO Class submarines. A new DMD Complex is required to replace the 25-year old DMD Complex at IMF Bangor, which has exceeded its design service life. The new Bangor DMD Complex consists of a Control Point Enclosure (to control access and support remote monitoring of critical work), a Portable Radioactive Waste Collection (PRWC) Tank Enclosure (provides weather protection for the PRWC Tank and discharge hose), and a Modular Tower that houses the Low Pressure Resin Catch (LPRC) Tank and required liquid transfer equipment. The modular tower supports access to the submarine and provides weather protection for the LPRC Tank, discharge hose and associated equipment. The DMD complex is equipped with service air, lights, heating and cooling, fire alarm system, adjustable work platforms to install and monitor equipment, permanent shielding, and stairs to reach the various levels of the complex. NOTE that this project recapitalizes the entire DMD Complex, where NNSY’s comparable project only recapitalizes the DMD enclosures (modular towers without the LPRC tank). [P40A / Modify M-140 Enclosures- Design]: This project funds the design deliverable package that will define the modifications necessary to simplify fuel transfer operations in existing PSNS&IMF M-140 defueling enclosures. The modifications will increase hook height 4 feet to eliminate the cumbersome process of connecting and disconnecting fuel handling tool columns. Additional upgrades include: seismic survivability, ventilation, lighting, a new tool column rack (to hold the connected tool columns), a new rigging platform (to reach the tool columns for attachment of rigging gear), new lower work level floor mods, and a stairwell to reach each work level given its new change in height. Refueling of TRIDENT and LOS ANGELES class reactor plants involves using two tool column extensions that couple together to lower fuel out the refueling container into an M-140 shipping container. The tool columns are suspended by a crane inside of the structure. The Shipyard's existing M-140 Enclosures do not have sufficient crane hook height to allow the two tool column extensions to remain connected		

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Line Item MDAP/MAIS Code: N/A		
between uses. With the current shorter design of the M-140 enclosures, for each fuel transfer cycle, the fuel cell must be partially lowered into the M-140 container then have the second tool column extension lifted into place and coupled to the first section to complete the discharge into the M-140 container. This operation adds approximately one to 1-1/2 hours to each fuel cell being transferred. The added time and the added operations increase the radiation exposure of personnel, increase the potential for radiological problems, and increase wear on refueling equipment and possible equipment problems during the fuel transfer cycle. This re-design increases hook height so that the tool column extensions can remain coupled together during fuel transfer operations in the M-140 enclosures. This re-design will also include all seismic requirements. [P40A / 2,000 Ton Press Brake]: This project is to procure a 2,000 ton Computer Numerical Control (CNC) hydraulic press brake for the PSNS&IMF Shipfitter Shop. The existing machine, installed over 20 years ago, is obsolete, unsupported by the OEM, unreliable, and is currently down. This reduced reliability and extended downtime has resulted in shop production schedule delays. In many cases, there are no approved alternate methods for fabrication of the structural components. [P40A / NETWORK DATA STORAGE CLUSTER]: This project provides automatically switched redundancy and additional network storage for PNSY's Naval Nuclear Propulsion Program Network (NNPPNet or SECNET) and the Corporate Emergency Control Center (CECC). This added system capability to switch over automatically upon failure of the primary system in Bldg 170/6 will allow the CECC to remain fully functional in an emergency situation and also allow the NNPPNet to continue to operate uninterrupted. The existing Network Storage System devices does not provide redundancy to CECC in the event of the loss of connectivity to Bldg 170/6. The existing assets provide connectivity to critical Information Systems that are accessed by the Nuclear Engineering Department, NRRO office, Business office, Engineering Supply, RADCON, SOMS, Project Teams and Administration. Loss of access to this data due to equipment failure would cause NNPPNet (SECNET) to become unavailable to the work force and impede shipyard productivity. [P40A / Local Traffic Manager]: This project supports a technology refresh of the PNSY's web application environment with the procurement and installation of four (4) Local Traffic Manager (LTM) switches. These Local Traffic Manager (LTM) switches are integral to the Shipyard's web application architecture; they provide the required functionality of load-balancing, Transport Layer Security (TLS) acceleration and offloading, online maintenance without denial of service, and FIPS 140-2 (TLS) and Common Criteria security. FIPS 140-2 is required by Navy policy and DoD Directive 8502.2. The replacement of LTM switches is mandatory for vendor-supported security updates and configurations required by DoD, DoN, and NETWARCOM. End of support for our existing LTM switches will prevent compliance with DoD, DoN, and NWC directives. The inability to meet security requirements will open the shipyard to vulnerabilities. In addition, lack of compliance could jeopardize or cause termination of our network accreditation. The new LTM operating system will support all current IAVA and CTO requirements in support of maintaining Cyber Secure network. [P40A / Horizontal Boring Mill]: This project procures a 5-axis horizontal boring mill that will replace a 24 year old boring mill that is severely worn, has exceeded maximum reasonable service life, only has a 4-axis capacity, and frequently breaks down for repairs. Due to the age, replacement parts have become increasingly more difficult to obtain, which adds to the downtime. Reliability and accuracy is poor and extra care and time are required to even perform simple machining operations. Many shop projects require 5-axis capability and the only 5-axis boring mill at PHNSY&IMF is 12 year old boring mill that is also beyond it's service life and frequently down for repairs. [P40A / CRANE, TRUCK MOUNTED, 300 TON]: This project provides PHNSY a General Purpose Service (GPS) mobile crane with a nominal capacity of 300 tons. The high capacity mobile crane is needed to replace the existing high capacity mobile crane that will be 17 year old in 2018. Expected service life for a mobile crane is 10 years. This high capacity mobile crane is needed to support fleet maintenance submarine and surface ship work at Naval Base Pearl Harbor. The crane is needed to support lifting operations at Submarine Base Pearl Harbor where the shipyard does not have lifting capabilities with a portal crane. The crane will be used to lift submarine sonar domes, submarine propellers, sail platforms, rudder staging and other high capacity or long reach lifts. In a typical year the crane makes over 1200 lifts in support of maintenance work. [P40A / LATHE, TURNING CENTER, 6"]]: This project procures PNSY a Computerized Numerically Controlled (CNC) turning center with milling capabilities for the manufacture of cylindrical shaped submarine components. Current equipment is 20 years old and is well beyond its predicted service life, mechanically worn-out, equipped with unsupportable, obsolete, numerical controls. The original equipment manufacturer is no longer making replacement parts. Rebuild will not alleviate the parts issue and would require an extensive one-of-a-kind CNC control interface and retrofit with little or no gained efficiency. Due to the limited capabilities and deterioration of the current 4" turning center a large majority of the work is partially done on smaller lathes which require multiple setup times due to size constraints. The best		

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solution is to purchase one machine with both turning and milling capability allowing the manufacture of parts requiring both types of machining operations to be done in one set-up. Hours of moving parts and machine set-up will be avoided. This would also free up other assets and machinists in the shop for other productive work. [P40A / Information Technology Storage System]: This project replaces Information Technology (IT) storage equipment of Pearl Harbor Naval Shipyard & Intermediate Maintenance Facility (PHNSY & IMF), including all existing production NetApp filers and associated disks and hardware which contain all of the electronic data for shipyard operations. Supports the legacy network (SYLAN), Global Maintenance Application Suite (GMAS), and Secured Network (SECNET). Storage systems five years or older are less reliable, more prone to failure, and technologically obsolete. Current storage equipment has been in use since 2012 and now experiences failures at least monthly. Design redundancy and maintenance have negated major outages thus far, but the equipment should be replaced before such an outage takes place as it would severely impact every aspect of shipyard business including financial, material ordering, ship overhaul planning, and performance analysis. This equipment is critical for all applications and data used to overhaul submarines and for security access control at PHNSY. This includes all data on virtual servers (Windows and UNIX), Oracle/SQL backend databases for corporate and local applications, file shares, ship drawing and instructions, SharePoint intranet web, and physical security access control IT systems. [P40A / Spherical Grinding Machine]: This project procures a spherical grinding machine capable of grinding valve balls between 1" and 24" diameter to an accuracy of 0.0001" roundness. This machine will be installed at PSNS&IMF, Bangor in Shop 31A's grinding room. Grinding valve balls for SEAWOLF and other class submarines is a new mission in PSNS&IMF. SEAWOLF Class and Trident Class submarines have short availabilities, by resurfacing existing valve balls underway schedules will not be jeopardized by long lead time or back ordered valve balls. [P40A / High Pressure Air Compressor]: This project will purchase a universal High Pressure Air Compressor System to provide high pressure air to submarines under repair PNSY's Point Loma detachment. The high pressure air compressor system (HPAC) shall be designed and engineered to consist of a primary high pressure air compressor (HPAC) connected with a redundant compressor to provide uninterrupted HP air in the event of primary unit failure. The twin HPACs will be interconnected for redundancy, include a heat exchanger/fan for each compressor, and supply 90 SCFM at 5000 psi. The compressors will be configured for unattended automatic operation (with remote sensing) and have self-contained membrane dehydrators. Currently Point Loma does not have enough equipment or facilities to provide HP air to all submarines under repair at the submarine base. When a submarine's onboard HP air system is down for maintenance an alternate air source must be provided to support the ship's reactor and secondary air needs. Currently, in order to fulfill this requirement HPACs are rented for the necessary durations for each availability. Annual rental costs exceed acquisition cost. [P40A / Freeze Seal Compressor Systems]: This project procures four new freeze seal compressor systems for NNSY to provide dry compressed air for vortex freeze seal applications. Vortex freeze seals are used to support repairs to piping, valves and/or piping components in situations where the pipe cannot be isolated by any other means. These freeze seal systems support repairs on nuclear piping that is frequently internally radioactively contaminated. Failure or loss of a freeze seal while in the middle of a repair could have catastrophic consequences. A reliable continuous supply of dry compressed air is critical to maintaining freeze seals. NNSY's existing freeze seal systems are over 25 yards old and are well past their useful life. [P40A / Steam Test Stand - Design]: This project funds the design deliverable that will be used to modernize NNSY's existing steam test stand. This new design will will re-organize the shop with a more efficient workflow alignment, replace out-dated equipment and corroded pipes which contaminate test articles and violate Steam Plant Clean requirements. The shops will realize lower operating costs, faster test setups, and shorter test start/complete cycles and compliance. This design will also replace existing boilers with modern, digitally controlled, high-efficiency boilers, replace all steam pipe with chrome-moly steel, install fixed manifolds for the Grade A water trailer, relocate the existing accumulator outside of the work area, install (2) dedicated relief valve test stands powered with properly sized electric steam generators, and install two large valve test stands powered by properly sized gas-fired steam generators. It is expected that the design deliverable will require 12 months to complete after awarded, so the resulting modernization effort executing the completed design deliverable is projected for FY20.		

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NNSY is tasked with testing steam system valves and reliefs from surface ships and subs. The existing boilers and test stands cannot consistently provide dry steam for testing leading to seal damage and rework of valves/reliefs. Until this new modernization design is completed and executed, the shop will not be capable of testing the larger pumps and valves now being inducted and anticipated in the future in the required turn-around time constraints nor avoid reworks due to poor quality steam. [P40A / Plasma Cutting System]: This project provides a new "State-of-the-Art" Commercial-Off-The-Shelf (COTS) Computer Numerical Controlled (CNC) plasma cutting system for the Structural Shop in Building 155 at Pearl Harbor Naval Shipyard & IMF (PHNSY). The new system will have a CNC control system, water or down draft cutting table, plasma and oxy-fuel cutting torches, and be capable of cutting plates up to 10' X 20" X 6" thick. Existing Heath plasma cutting machine is 40 years old, obsolete, and repair parts are no longer available; therefore, this machine will not be repairable once the repair parts available at PHNSY are exhausted. The existing ESAB plasma cutting machine is 13 years old, obsolete, difficult to operate, and repair parts are becoming difficult to obtain. A CNC Plasma cutting machine is the most efficient machine to use for cutting thick metal plates (up to 6 inches thick) into the structural parts needed for the modifications, maintenance, and repairs for ships and submarines; therefore, the Structural Shop needs a reliable CNC plasma cutting machine to be fully functional and efficient. [P40A / Reactor Access Enclosure (RAE) Support Tower]: This Project will procure a "Bridge/Towers" steel structure to be anchored to the floor of NNSY Dry Dock 1 and straddle a LOS ANGELES Class submarine. The structural bridge (connecting the towers over the submarine) places the Reactor Access Enclosure (RAE), RAE Annex Enclosures and support equipment directly above the submarine. The Bridge/Towers structure includes a coaming to fill the space between the hull and the bottom of the RAE; and it provides landing points for service equipment and personnel access to the Ship. By executing this project, a support structure will exist that will allow the RAE to be mounted on board a LOS ANGELES Class Submarine without supporting the weight on the hull. Currently the RAE is physically landed on the hull of the submarine. Extensive hull welding is required to provide the proper structural support for the weight of the RAE on the hull. In addition the installation of the RAE on the hull requires a greater area of the hull to have the special hull treatment (SHT) tiles removed then is necessary just to support the reactor access hull cut. The cost and time for installing and then subsequently removing the RAE from the hull is significant. As well as the replacement cost of the SHT tiles and the work necessary to remove and reinstall the extra area covered by the RAE. [P40A / WINDOWS SERVER VIRTUALIZATION PHASE II]: This PSNS & IMF project procures a suite of virtual infrastructure software and hardware to further capitalize on the use of virtualization to reduce IT costs while improving upon efficiencies. The procurement includes 35 servers and support equipment that will replace 128 existing physical servers. Existing devices were purchased in 2006 & 2008 are well beyond the manufacturers end of life and operation capability and cybersecurity risks. Key components of the project would include implementation of a virtual desktop infrastructure, configuration improvements, operations and monitoring improvements, and site recovery and contingency improvements. [P40A / UNIX SERVERS]: This project replaces NNSY's existing Corporate System (UNIX) Servers with Oracle/Sun Microsystems T-7 series servers, along with the associated support equipment, and 12 HP DL-560 Linux Servers and associated support equipment. The T3, T5140 and T5220 server platforms are part of the Corporate Server Datacenter Standard Architecture (CS/DSA) and have reached End of Life, and reach their End of Service support date in 2017, increasing cybersecurity risk. The servers are required to run all mission critical and essential systems. This new equipment provides a technology refresh of critical shipyard systems. Replacement of this system is crucial to all NNSY overhaul and repair work, as well as work performed at the other Naval Shipyards, as NNSY centrally hosts selected Corporate Systems that are used by all shipyards. The ability to meet Cyber Security regulations and requirements is necessary to maintain accreditation and preclude disconnection. [P40A / Switch and Router System]: This project refreshes existing switches and routers with compliant devices on the Portsmouth Naval Shipyard (PNS) local Secure Network (SECNET) attached to the Naval Nuclear Propulsion Program Network (NNPP Net). The existing network devices have reached the manufacturer's End-of-Life/End-of-Support threshold and are cybersecurity risks. These devices are critical components of the IT infrastructure; loss of these devices due to failure will render SECNET inoperable. This replacement is mandatory to retain vendor support. These assets provide connectivity to critical Information Systems that are accessed by Nuclear Engineering Department, NRRO office, Business office, Engineering Supply, RADCON, SOMS, Project Teams and Administration. Loss of these devices would cause SECNET to become unavailable to the work force and impede the productivity of the mission to the fleet.		

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[P40A / Tool Grinding Machine]: This project procures a Computer Numerically Controlled (CNC) Tool Grinding Machine for PSNS&IMF's Toolmaker shop to produce federal stock system tooling for active nuclear systems, and sharpen drills and cutters. The new machine will be a CNC five-axis tool grinder with a 37 HP or greater direct drive spindle capable of handling work pieces up to 88 pounds, 9.8 inch diameter and 14.5 inches long. CNC tool grinding is an essential capability for Toolmakers to manufacture corporate tooling. The existing CNC Tool Grinding Machine is 14 years old and experiencing increasing maintenance downtimes. The machine has been down for maintenance at least 170 calendar days each year over the past three years and was down from July 2015 to July 2016. The existing machine cannot meet current and future workload, nor can it reduce tooling backlog caused by machine breakdowns. The machine does not have a coolant chiller which causes it to overheat and not function if it is worked for longer than one shift. This project increases Toolmaker capacity, productivity, and throughput required to fully support corporate tooling requirements thereby reducing Fleet wait times on Valve Seat Refurbishment kits. PSNS&IMF is the only supplier of Valves Seats Refurbishment kits for nuclear repair work. Allowing this supply to dry up due to obsolete machinery impacts cost and safety of nuclear work throughout the Navy, including PSNS&IMF Projects in San Diego, Everett, Bangor, Bremerton, Guam, and Yokosuka. Replacing obsolete, inaccurate machinery also impacts PSNS nuclear and PSNS&IMF nonnuclear Projects by making new process improvements more readily achievable. [P40A / KN400: SHIP MAINTENANCE INVESTMENT PROGRAM]: This line item provides funding to support capital investments for the Regional Maintenance Centers (RMCs) and Trident Refit Facility (TRF) Kings Bay (KB). Funds will be used for the procurement and execution of personal property projects (including Industrial Plant Equipment (IPE), IT HW/SW, portal/bridge cranes, MILCON collateral equipment, etc.) of a capital nature (greater then \$250K) to maintain and modernize the ship maintenance industrial base, with a focus on reducing total ownership costs. These personal property projects are required for the RMCs and TRF KB to perform their mission of repairing, conversion, and modernization of fleet ships and submarines. [P40A / KN504: Commander, U.S. Pacific Fleet (PACFLT)]: These funds are used by PACFLT to procure investment items required to maintain and modernize the Fleet's ship maintenance industrial base with a focus on reducing total ownership costs. [P40A / Environmental Welding Chamber]: Environmental Welding Chamber is an environmentally controlled chamber for doing titanium welding. [P40A / LOX/LIN Provider]: The LOX/LIN Provider is a mobile nitrogen charger to submarines berthed at pier. [P40A / Boring, Drilling and Milling (BDM) Machine]: Boring, Drilling and Milling (BDM) Machine used for boring, drilling and milling work pieces of various materials such as heating exchanger tube sheet, AMMO elevator platform and rader foundation. [P40A / A-47 Gantry Crane]: Replacement of old equipment. Crane support in metal plate yard is required to support the 7th Fleet ship maintenance and repair. [P40A / Planomiller (compact type)]: Replacement of old equipment. This equipment is used for milling and drilling operation for battle ship's repair such as equipment foundations, deck plates, heat exchanger components, turbine casings. [P40A / Waterjet Cutting Machine]: This equipment is used to cut thinner pieces of aluminum automatically using Computer Numerical Control (CNC)instead of by hand. [P40A / Planer]: New requirement to support docking of vessels and building of docking blocks. [P40A / Hydraulic Press]: Replacement of old equipment. This equipment is used to bend the material or straighten the distorted material [P40A / Abrasive Blast and Recovery System, X-71]: Equipment to be utilized in the blasting of a ship's tank. [P40A / Propeller Shaft Lathe]: Propeller Shaft Lathe replaces obsolete equipment intially installed in the 1940s.		

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[P40A / Scanning Electron Microscope (SEM)]: SEM will provide upgraded accuracy, precision, reliability and image resolution with updated technologies to improve laboratory services. [P40A / Emergency Generator and Fuel Tank for Dry Docks]: Equipment is used to provide emergent electric power to Dry Dock #1, #2, and #3 for continuous operation of auxiliary equipment if primal power supply is down. [P40A / Inductively Coupled Plasma - Atomic Emission Spectrometer]: Replacement of old equipment. The ICP-AES is used to provide upgraded accuracy, precision, and reliability to maintain the laboratory capability in testing detrimental materials for CVN steam plant cleanliness. [P40A / Power Press Brake]: Replacement of old equipment. This equipment is used to bend and form sheet metal, forming predetermined bends supported by Computer Numerical Control (CNC). [P40A / Blast Cleaning and Finishing System]: Replacement of old equipment. This equipment is used to remove paint from items by use of hard media to meet required surface finish standards prior to powder-coating or repainting. [P40A / Burning Oven, Walk-in]: Replacement of old equipment. This equipment is used to remove residual paint, which is not removed by mechanical means, by use of high temperature prior to powder coating. [P40A / Powder Coating System]: Replacement of old equipment. System is comprised of a spray booth and curing oven to process powder coating projects. [P40A / Grinding Machine, Cylindrical]: Replacement of old equipment. This equipment is used to grind the outside of cylindrical object. [P40A / Balancing Machine, Horizontal]: Replacement of old equipment. This equipment is used for a balancing of rotor as a step of motor/generator repair work. [P40A / 60 Ton Portal Crane #1 for Berth 5 Upgrade]: 60 ton portal crane #1 for Berth 5 upgrade to support 7th Fleet ship maintenance and repair. [P40A / Heavy Lift Transporter System]: New requirement to replace current capabilities supporting shaft work and movement of other large pieces of equipment (i.e., Main Reduction Gears). Will reduce manning requirements and increase safety during large lifting and handling evolutions. [P40A / 65 Ton Portal Crane]: Replacement of old equipment. Crane support is required to support 7th Fleet ship maintenance and repair. [P40A / Grinding Machine, Thread CNC]: Replacement of old equipment. Equipment is used to shape the thread. [P40A / Boring Machine, Portable]: Replacement of old equipment. Portable equipment used to bore into work pieces. [P40A / Abrasive Blast System]: Replacement of old equipment. The equipment is used for the blasting of ship's tanks and other metal surfaces. [P40A / Dust Collector]: Replacement of old equipment. This equipment is used to control the dust levels of environment during blasting and painting of ship's tanks. [P40A / Horizontal Bending Machine]: Replacement of old equipment. This equipment is used to bend the material, even in a narrow work space. [P40A / Dehumidifier]: Replacement of old equipment. This equipment is used to control the humidity of ship's tanks during blasting and painting. [P40A / Lathe, Engine Profiling]: Replacement of old equipment. This equipment is used to create a symmetrical object about a rotation axis.		

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Line Item MDAP/MAIS Code: N/A		
[P40A / Rolling Machine, Thread]: Replacement of old equipment. Equipment is used to form a screw thread by rolling. [P40A / KN800: INTEGRATED CONDITION ASSESSMENT SYSTEM (ICAS) NEW INSTALL]: Funding procures all new installations of the Integrated Condition Assessment System (ICAS) hardware and software aboard Surface Fleet hulls. New Installation include: ICAS workstation hardware (including Palm Pilot Portable Data Terminal (PDTs)), latest version of ICAS system software, Configuration Data Set (CDS) (including the implementation of developed enhancements), firewall (if applicable), remote monitoring utility (RMU), ILS and ship's force training. Manage contractor efforts, prepare installation plans, perform ship checks, procure material, oversee shipboard installation and Quality Assurance (QA), develop/implement CDS, install/test all software and CDSs, provide ship's force training. [P40A / KN900: INTEGRATED CONDITION ASSESSMENT SYSTEM (ICAS) TECH REFRESH]: Funding procures all technical refresh upgrades of the Integrated Condition Assessment System (ICAS) hardware and software aboard Surface Fleet hulls. Upgrades will include: ICAS workstation hardware (including Palm Pilot Portable Data Terminal (PDTs)), latest version of ICAS system software, Configuration Data Set (CDS) groom (including the implementation of developed enhancements), firewall (if applicable), remote monitoring utility (RMU), and ship's force refresher training. Manage contractor efforts, prepare installation plans, perform ship checks, procure material, oversee shipboard installation and Quality Assurance (QA), develop/implement CDS updates, install/test all software and CDSs, provide ship's force training. [P40A / KN505 - Joint Ops Center- PACOM]: This is a Classified Program. Time-Sensitive Targeting (TST) cell requires OPN equipment in the USPACOM J3 Joint Fires Element (JFE) and Joint Operations Center (JOC). OPN funding will allow personnel to coordinate joint fires effects from emerging threats across multiple sources and components. [P40A / KN202: Maintenance and Shipwork Planning (M&SWP)]: This funding supports configuration and material procurement of the Maintenance and Shipwork Planning (M&SWP) Technical Refresh. [P40A / Maintenance and Shipwork Planning (M&SWP)]: This funding supports configuration and material procurement of the Maintenance and Shipwork Planning (M&SWP) Technical Refresh. [P40A / KN201: NAVY MARITIME MAINTENANCE ENTERPRISE SOLUTION TECHNICAL REFRESH (NMMES-TR)]: The NMMES-TR plan for acquisition that has been endorsed by the Executive Steering Committee and recently approved at a Gate 2 Review by the R3B is to procure initial COTS licenses in FY18 that could address the functional requirements for work brokering, MRO requirements management and scheduling. These licenses will be used to either prototype a potential solution or procure software licenses to address the critical need to replace the VSB, RMAIS and PSS systems that are either unsupported or not fulfilling the required functional requirement.		

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Line Item MDAP/MAIS Code: N/A

Exhibits Schedule					Prior Years	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 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-40a	Operating Forces IPE				- / 518.338	- / 61.718	- / 75.421	- / 191.541	- / -	- / 191.541
P-40	Total Gross/Weapon System Cost				- / 518.338	- / 61.718	- / 75.421	- / 191.541	- / 0.000	- / 191.541

*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. Title represents the P-40a Title when only the P-40a Summary/Total is shown.

Note: Totals in this Exhibit P-40 set may not be exact or sum exactly due to rounding.

Justification:

FY 2018 funding request reflects a reduction of \$1.984 million to account for the availability of prior year funds.

The Operating Forces IPE Budget has been restructured to identify and break out individual component costs previously consolidated within Item Numbers in previous Budget submits.

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Exhibit P-40a, Budget Item Justification For Aggregated Items: FY 2018 Navy															Date: May 2017					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 14								P-1 Line Item Number / Title: 1445 / Operating Forces IPE							Aggregated Items Title: Operating Forces IPE					
Item Number / Title [DODIC]	ID CD	MDAP/MAIS Code	Prior Years			FY 2016			FY 2017			FY 2018 Base			FY 2018 OCO			FY 2018 Total		
			Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)
1) KN100: INDUSTRIAL PLANT EQUIPMENT (IPE) REPLACEMENT/AFLOAT SUPPORT																				
1.1) AFLOAT IPE SUPPORT (BFIMA UPGRADE) - SURFACE SUPPORT	A		-	-	2.451	-	-	0.300	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: 1) KN100: INDUSTRIAL PLANT EQUIPMENT (IPE) REPLACEMENT/AFLOAT SUPPORT			-	-	2.451	-	-	0.300	-	-	-	-	-	-	-	-	-	-	-	-
2) KN200: NAVY MARITIME MAINTENANCE ENTERPRISE SOLUTION SUSTAINMENT																				
2.1) NAVY MARITIME MAINTENANCE ENTERPRISE SOLUTION SUSTAINMENT	A		-	-	7.695	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2.2) eTWD NEDC Hardware	A		-	-	-	-	-	-	-	-	-	8,000K	1	8.000	-	-	-	8,000K	1	8.000
2.3) MSE 1.1 Alt. Production Site	A		-	-	-	-	-	-	-	-	-	5,000K	1	5.000	-	-	-	5,000K	1	5.000
2.4) Product Data Management SW	A		-	-	-	-	-	-	-	-	-	9,000K	1	9.000	-	-	-	9,000K	1	9.000
2.5) Mobility Solutions	A		-	-	-	-	-	-	-	-	-	1,000K	1	1.000	-	-	-	1,000K	1	1.000
2.6) RFIDs	A		-	-	-	-	-	-	-	-	-	1,000K	1	1.000	-	-	-	1,000K	1	1.000
Subtotal: 2) KN200: NAVY MARITIME MAINTENANCE ENTERPRISE SOLUTION SUSTAINMENT			-	-	7.695	-	-	-	-	-	-	-	-	24.000	-	-	-	-	-	24.000
3) KN300: SHIPYARD CAPITAL INVESTMENT PROGRAM (CIP)																				
3.1) SHIPYARD CAPITAL INVESTMENT PROGRAM (CIP)	A		-	-	477.508	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3.2) NETWORK STORAGE & BACKUP	A		-	-	-	3,518K	1	3.518	-	-	-	-	-	-	-	-	-	-	-	-
3.3) CVN 68/78 CAMEL SYSTEM	A		-	-	-	8,050K	1	8.050	-	-	-	-	-	-	-	-	-	-	-	-
3.4) VIRGINIA CLASS PROPULSOR HANDLING SYSTEM	A		-	-	-	6,300K	1	6.300	-	-	-	-	-	-	-	-	-	-	-	-
3.5) VIRGINIA CLASS BOW DOME RING HANDLING SYSTEM	A		-	-	-	800,000.00	1	0.800	-	-	-	-	-	-	-	-	-	-	-	-
3.6) VIRGINIA CLASS PROPULSOR ENCLOSURE	A		-	-	-	8,022K	1	8.022	-	-	-	-	-	-	-	-	-	-	-	-

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Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 14								P-1 Line Item Number / Title: 1445 / Operating Forces IPE							Aggregated Items Title: Operating Forces IPE					
Item Number / Title [DODIC]	ID CD	MDAP/MAIS Code	Prior Years			FY 2016			FY 2017			FY 2018 Base			FY 2018 OCO			FY 2018 Total		
			Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)
3.7) INFORMATION TECHNOLOGY DATA STORAGE REFRESH	A		-	-	-	1,540K	1	1.540	-	-	-	-	-	-	-	-	-	-	-	-
3.8) PORTAL CRANE, 60 TON, MODERNIZATION	A		-	-	-	2,458K	1	2.458	-	-	-	-	-	-	-	-	-	-	-	-
3.9) WINDOWS SERVER TECHNICAL REFRESH	A		-	-	-	3,400K	1	3.400	-	-	-	-	-	-	-	-	-	-	-	-
3.10) DIESEL GENERATORS, EMERGENCY	A		-	-	-	664,166.67	6	3.985	-	-	-	-	-	-	-	-	-	-	-	-
3.11) MODERNIZE 60 TON PORTAL CRANES	A		-	-	-	-	-	-	2,364K	2	4.728	-	-	-	-	-	-	-	-	-
3.12) EMERGENCY DIESEL GENERATORS	A		-	-	-	-	-	-	785,000.00	2	1.570	-	-	-	-	-	-	-	-	-
3.13) 25 TON PORTAL CRANE - IMF BANGOR	A		-	-	-	-	-	-	13,814K	1	13.814	-	-	-	-	-	-	-	-	-
3.14) DRY DOCK #1 DEFUELING COMPLEX	A		-	-	-	-	-	-	30,000K	1	30.000	-	-	-	-	-	-	-	-	-
3.15) DRY DOCK #2 MATERIAL HIGHWAY	A		-	-	-	-	-	-	10,000K	1	10.000	-	-	-	-	-	-	-	-	-
3.16) VIRGINIA Class Vertical Launch System Platform	A		-	-	-	-	-	-	-	-	-	500,000.00	1	0.500	-	-	-	500,000.00	1	0.500
3.17) Hydraulic Component Test System	A		-	-	-	-	-	-	-	-	-	2,070K	1	2.070	-	-	-	2,070K	1	2.070
3.18) Dry Dock 1 Reactor Access Enclosure System and Support Structure	A		-	-	-	-	-	-	-	-	-	11,450K	1	11.450	-	-	-	11,450K	1	11.450
3.19) VIRGINIA Class Bow Dome Ring	A		-	-	-	-	-	-	-	-	-	800,000.00	2	1.600	-	-	-	800,000.00	2	1.600
3.20) 7000 Gallon Waste Water Collection Tanks	A		-	-	-	-	-	-	-	-	-	1,065K	1	1.065	-	-	-	1,065K	1	1.065
3.21) Portable Paint Room	A		-	-	-	-	-	-	-	-	-	650,000.00	1	0.650	-	-	-	650,000.00	1	0.650
3.22) Relief Valve Test Platform	A		-	-	-	-	-	-	-	-	-	2,515K	1	2.515	-	-	-	2,515K	1	2.515

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Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 14							P-1 Line Item Number / Title: 1445 / Operating Forces IPE								Aggregated Items Title: Operating Forces IPE					
Item Number / Title [DODIC]	ID CD	MDAP/MAIS Code	Prior Years			FY 2016			FY 2017			FY 2018 Base			FY 2018 OCO			FY 2018 Total		
			Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)
3.23) VIRGINIA Class Sail Racetrack Platform	A		-	-	-	-	-	-	-	-	-	1,400K	1	1.400	-	-	-	1,400K	1	1.400
3.24) Pure Water Delivery Trailer	A		-	-	-	-	-	-	-	-	-	528,500.00	2	1.057	-	-	-	528,500.00	2	1.057
3.25) Reactor Access Enclosure Training Base Design	A		-	-	-	-	-	-	-	-	-	648,000.00	1	0.648	-	-	-	648,000.00	1	0.648
3.26) Modernize 60 Ton Portal Cranes - PSNS&IMF	A		-	-	-	-	-	-	-	-	-	3,025K	2	6.050	-	-	-	3,025K	2	6.050
3.27) VIRGINIA Class VIRGINIA Payload Tube (VPT) Platform	A		-	-	-	-	-	-	-	-	-	2,507K	1	2.507	-	-	-	2,507K	1	2.507
3.28) Submarine Maintenance Enclosure	A		-	-	-	-	-	-	-	-	-	4,500K	1	4.500	-	-	-	4,500K	1	4.500
3.29) PNSY Pump Test Station Modernization	A		-	-	-	-	-	-	-	-	-	1,500K	1	1.500	-	-	-	1,500K	1	1.500
3.30) Emergency Diesel Generators	A		-	-	-	-	-	-	-	-	-	796,750.00	12	9.561	-	-	-	796,750.00	12	9.561
3.31) 25 Ton Portal Cranes	A		-	-	-	-	-	-	-	-	-	16,080K	2	32.159	-	-	-	16,080K	2	32.159
3.32) VIRGINIA Class Propulsor Handling System	A		-	-	-	-	-	-	-	-	-	7,536K	1	7.536	-	-	-	7,536K	1	7.536
3.33) Modernize 60 Ton Portal Crane - NNSY	A		-	-	-	-	-	-	-	-	-	2,500K	1	2.500	-	-	-	2,500K	1	2.500
3.34) Seawater Acid Flush System	A		-	-	-	-	-	-	-	-	-	1,600K	1	1.600	-	-	-	1,600K	1	1.600
3.35) Submarine Camel System	A		-	-	-	-	-	-	-	-	-	1,300K	1	1.300	-	-	-	1,300K	1	1.300
3.36) CNC Shaft Lathe	A		-	-	-	-	-	-	-	-	-	15,000K	1	15.000	-	-	-	15,000K	1	15.000
3.37) Defueling Complex - Design	A		-	-	-	-	-	-	-	-	-	3,000K	1	3.000	-	-	-	3,000K	1	3.000
3.38) Dual Media Discharge Enclosures - NNSY	A		-	-	-	-	-	-	-	-	-	950,000.00	2	1.900	-	-	-	950,000.00	2	1.900
3.39) Vertical Reciprocating Conveyor	A		-	-	-	-	-	-	-	-	-	2,670K	1	2.670	-	-	-	2,670K	1	2.670
3.40) Dual Media Discharge Complex	A		-	-	-	-	-	-	-	-	-	2,875K	1	2.875	-	-	-	2,875K	1	2.875

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Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 14							P-1 Line Item Number / Title: 1445 / Operating Forces IPE								Aggregated Items Title: Operating Forces IPE					
Item Number / Title [DODIC]	ID CD	MDAP/MAIS Code	Prior Years			FY 2016			FY 2017			FY 2018 Base			FY 2018 OCO			FY 2018 Total		
			Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)
3.41) Modify M-140 Enclosures- Design	A		-	-	-	-	-	-	-	-	-	300,000.00	1	0.300	-	-	-	300,000.00	1	0.300
3.42) 2,000 Ton Press Brake	A		-	-	-	-	-	-	-	-	-	5,434K	1	5.434	-	-	-	5,434K	1	5.434
3.43) NETWORK DATA STORAGE CLUSTER	A		-	-	-	-	-	-	-	-	-	900,000.00	1	0.900	-	-	-	900,000.00	1	0.900
3.44) Local Traffic Manager	A		-	-	-	-	-	-	-	-	-	600,000.00	1	0.600	-	-	-	600,000.00	1	0.600
3.45) Horizontal Boring Mill	A		-	-	-	-	-	-	-	-	-	1,560K	1	1.560	-	-	-	1,560K	1	1.560
3.46) CRANE, TRUCK MOUNTED, 300 TON	A		-	-	-	-	-	-	-	-	-	2,400K	1	2.400	-	-	-	2,400K	1	2.400
3.47) LATHE, TURNING CENTER, 6"	A		-	-	-	-	-	-	-	-	-	550,000.00	1	0.550	-	-	-	550,000.00	1	0.550
3.48) Information Technology Storage System	A		-	-	-	-	-	-	-	-	-	2,590K	1	2.590	-	-	-	2,590K	1	2.590
3.49) Spherical Grinding Machine	A		-	-	-	-	-	-	-	-	-	1,524K	1	1.524	-	-	-	1,524K	1	1.524
3.50) High Pressure Air Compressor	A		-	-	-	-	-	-	-	-	-	350,000.00	1	0.350	-	-	-	350,000.00	1	0.350
3.51) Freeze Seal Compressor Systems	A		-	-	-	-	-	-	-	-	-	400,000.00	4	1.600	-	-	-	400,000.00	4	1.600
3.52) Steam Test Stand - Design	A		-	-	-	-	-	-	-	-	-	2,500K	1	2.500	-	-	-	2,500K	1	2.500
3.53) Plasma Cutting System	A		-	-	-	-	-	-	-	-	-	3,000K	1	3.000	-	-	-	3,000K	1	3.000
3.54) Reactor Access Enclosure (RAE) Support Tower	A		-	-	-	-	-	-	-	-	-	1,150K	1	1.150	-	-	-	1,150K	1	1.150
3.55) WINDOWS SERVER VIRTUALIZATION PHASE II	A		-	-	-	-	-	-	-	-	-	3,800K	1	3.800	-	-	-	3,800K	1	3.800
3.56) UNIX SERVERS	A		-	-	-	-	-	-	-	-	-	2,903K	1	2.903	-	-	-	2,903K	1	2.903
3.57) Switch and Router System	A		-	-	-	-	-	-	-	-	-	1,852K	1	1.852	-	-	-	1,852K	1	1.852
3.58) Tool Grinding Machine	A		-	-	-	-	-	-	-	-	-	835,000.00	1	0.835	-	-	-	835,000.00	1	0.835
Subtotal: 3) KN300: SHIPYARD CAPITAL INVESTMENT PROGRAM (CIP)			-	-	477.508	-	-	38.073	-	-	60.112	-	-	151.461	-	-	-	-	-	151.461
4) KN400: SHIP MAINTENANCE INVESTMENT PROGRAM																				

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Item Number / Title [DODIC]	ID CD	MDAP/MAIS Code	Prior Years			FY 2016			FY 2017			FY 2018 Base			FY 2018 OCO			FY 2018 Total			
			Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	
4.1) SHIP MAINTENANCE INVESTMENT PROGRAM	A		-	-	11.899	-	-	6.223	-	-	6.061	-	-	8.500	-	-	-	-	-	8.500	
Subtotal: 4) KN400: SHIP MAINTENANCE INVESTMENT PROGRAM			-	-	11.899	-	-	6.223	-	-	6.061	-	-	8.500	-	-	-	-	-	8.500	
5) KN504: Commander, U.S. Pacific Fleet (PACFLT)																					
5.1) Environmental Welding Chamber ⁽¹⁾	A		-	-	-	-	-	-	-	-	-	315,000.00	1	0.315	-	-	-	315,000.00	1	0.315	
5.2) LOX/LIN Provider	A		-	-	-	700,000.00	2	1.400	-	-	-	-	-	-	-	-	-	-	-	-	
5.3) Boring, Drilling and Milling (BDM) Machine ⁽²⁾	A		-	-	-	656,000.00	1	0.656	-	-	-	-	-	-	-	-	-	-	-	-	
5.4) A-47 Gantry Crane	A		-	-	-	1,681K	1	1.681	-	-	-	-	-	-	-	-	-	-	-	-	
5.5) Planomiller (compact type)	A		-	-	-	750,000.00	1	0.750	-	-	-	-	-	-	-	-	-	-	-	-	
5.6) Waterjet Cutting Machine ⁽³⁾	A		-	-	-	761,000.00	1	0.761	-	-	-	460,000.00	1	0.460	-	-	-	460,000.00	1	0.460	
5.7) Planer ⁽⁴⁾	A		-	-	-	345,000.00	1	0.345	-	-	-	-	-	-	-	-	-	-	-	-	
5.8) Hydraulic Press ⁽⁵⁾	A		-	-	-	560,000.00	1	0.560	-	-	-	-	-	-	-	-	-	-	-	-	
5.9) Abrasive Blast and Recovery System, X-71 ⁽⁶⁾	A		-	-	-	895,000.00	1	0.895	-	-	-	-	-	-	-	-	-	-	-	-	
5.10) Propeller Shaft Lathe ⁽⁷⁾	A		-	-	-	-	-	-	6,134K	1	6.134	-	-	-	-	-	-	-	-	-	
5.11) Scanning Electron Microscope (SEM)	A		-	-	-	-	-	-	-	-	-	330,000.00	1	0.330	-	-	-	330,000.00	1	0.330	
5.12) Emergency Generator and Fuel Tank for Dry Docks	A		-	-	-	-	-	-	-	-	-	392,500.00	2	0.785	-	-	-	392,500.00	2	0.785	
5.13) Inductively Coupled Plasma - Atomic Emission Spectrometer	A		-	-	-	-	-	-	-	-	-	315,000.00	1	0.315	-	-	-	315,000.00	1	0.315	
5.14) Power Press Brake	A		-	-	-	-	-	-	-	-	-	425,000.00	2	0.850	-	-	-	425,000.00	2	0.850	
5.15) Blast Cleaning and Finishing System	A		-	-	-	-	-	-	-	-	-	700,000.00	1	0.700	-	-	-	700,000.00	1	0.700	
5.19) Balancing Machine, Horizontal	A		-	-	-	-	-	-	-	-	-	289,000.00	1	0.289	-	-	-	289,000.00	1	0.289	

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Item Number / Title [DODIC]	ID CD	MDAP/MAIS Code	Prior Years			FY 2016			FY 2017			FY 2018 Base			FY 2018 OCO			FY 2018 Total		
			Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)
Subtotal: 5) KN504: Commander, U.S. Pacific Fleet (PACFLT)			-	-	0.000	-	-	7.048	-	-	6.134	-	-	4.044	-	-	-	-	-	4.044
6) KN800: INTEGRATED CONDITION ASSESSMENT SYSTEM (ICAS) NEW INSTALL																				
6.1) INTEGRATED CONDITION ASSESSMENT SYSTEM (ICAS)		A	-	-	7.612	-	-	2.063	-	-	0.662	-	-	0.748	-	-	-	-	-	0.748
Subtotal: 6) KN800: INTEGRATED CONDITION ASSESSMENT SYSTEM (ICAS) NEW INSTALL			-	-	7.612	-	-	2.063	-	-	0.662	-	-	0.748	-	-	-	-	-	0.748
7) KN900: INTEGRATED CONDITION ASSESSMENT SYSTEM (ICAS) TECH REFRESH																				
7.1) INTEGRATED CONDITION ASSESSMENT SYSTEM (ICAS)		A	-	-	11.173	-	-	1.604	-	-	1.492	-	-	1.588	-	-	-	-	-	1.588
Subtotal: 7) KN900: INTEGRATED CONDITION ASSESSMENT SYSTEM (ICAS) TECH REFRESH			-	-	11.173	-	-	1.604	-	-	1.492	-	-	1.588	-	-	-	-	-	1.588
8) KN505 - Joint Ops Center- PACOM ⁽⁸⁾																				
8.1) Joint Operations Center		A	-	-	-	-	-	2.600	-	-	0.960	-	-	-	-	-	-	-	-	-
Subtotal: 8) KN505 - Joint Ops Center- PACOM			-	-	0.000	-	-	2.600	-	-	0.960	-	-	-	-	-	-	-	-	-
9) KN202: Maintenance and Shipwork Planning (M&SWP)																				
9.1) Maintenance and Shipwork Planning (M&SWP)		A	-	-	-	-	-	3.807	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: 9) KN202: Maintenance and Shipwork Planning (M&SWP)			-	-	0.000	-	-	3.807	-	-	-	-	-	-	-	-	-	-	-	-
10) KN201: NAVY MARITIME MAINTENANCE ENTERPRISE SOLUTION TECHNICAL REFRESH (NMMES-TR)																				
10.1) NAVY MARITIME MAINTENANCE ENTERPRISE SOLUTION TECHNICAL REFRESH		A	-	-	-	-	-	-	-	-	-	-	-	1.200	-	-	-	-	-	1.200
Subtotal: 10) KN201: NAVY MARITIME MAINTENANCE ENTERPRISE SOLUTION TECHNICAL REFRESH (NMMES-TR)			-	-	0.000	-	-	-	-	-	-	-	-	1.200	-	-	-	-	-	1.200
Total			-	-	518.338	-	-	61.718	-	-	75.421	-	-	191.541	-	-	-	-	-	191.541
Note: Subtotals or Totals in this Exhibit P-40a may not be exact or sum exactly, due to rounding.																				
Footnotes:																				

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Exhibit P-40a, Budget Item Justification For Aggregated Items: FY 2018 Navy		Date: May 2017
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 14	P-1 Line Item Number / Title: 1445 / Operating Forces IPE	Aggregated Items Title: Operating Forces IPE
(1) Environmental Welding Chamber was initially budgeted for \$300k in FY16. Due to unforeseen reductions to FY14 and FY15 OPN, the equipment requirement was pushed to the right to FY18, which resulted in a small increase of \$15k to the estimated cost. (2) Requirement reflects updated requirement based on the increased workload with Pivot to the Pacific, and space coordination in Sasebo. (3) This is a new requirement that serves to improve shop capability to drill and mill numerous types of stock automatically. (4) Planer was moved from FY15 to FY16 due to independent review of the specifications since the original cost estimate was significantly different and determined specification resulted in an expanded requirement. (5) Hydraulic Press is a new requirement added to FY16 as a result of the degraded condition of existing equipment. (6) Abrasive Blast and Recovery System moved from FY18 to FY16 due to deteriorating condition of existing equipment. (7) Increased cost of Propeller Shaft Lathe is the result of updated specifications for related foundation work. (8) This is a Classified Program. Time-Sensitive Targeting (TST) cell requires OPN equipment in the USPACOM J3 Joint Fires Element (JFE) and Joint Operations Center (JOC). OPN funding will allow personnel to coordinate joint fires effects from emerging threats across multiple sources and components.		

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Exhibit P-40, Budget Line Item Justification: FY 2018 Navy										Date: May 2017		
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 01: Ships Support Equipment / BSA 15: Other Ship Support							P-1 Line Item Number / Title: 1480 / Nuclear Alterations					
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 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	To Complete	Total
Procurement Quantity (<i>Units in Each</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost (<i>\$ in Millions</i>)	626.583	132.625	172.718	0.000	0.000	0.000	0.000	0.000	0.000	0.000	-	931.926
Less PY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (<i>\$ in Millions</i>)	626.583	132.625	172.718	0.000	0.000	0.000	0.000	0.000	0.000	0.000	-	931.926
Plus CY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority (<i>\$ in Millions</i>)	626.583	132.625	172.718	0.000	0.000	0.000	0.000	0.000	0.000	0.000	-	931.926
<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 Dollars</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost (<i>\$ in Dollars</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Description: The details of this program are classified CONFIDENTIAL and are submitted to Congress annually in the classified budget justification books. This line item has been consolidated into line item 1020 beginning in FY18.												
Justification: The details of this program are classified CONFIDENTIAL and are submitted to Congress annually in the classified budget justification books. Beginning in FY 18, funding previously requested in this line item is now requested under OPN line item 1020, Reactor Components.												

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Exhibit P-40, Budget Line Item Justification: FY 2018 Navy										Date: May 2017		
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 01: Ships Support Equipment / BSA 15: Other Ship Support							P-1 Line Item Number / Title: 1600 / LCS Common Mission Modules Equipment					
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: 374												
Resource Summary	Prior Years	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	To Complete	Total
Procurement Quantity (<i>Units in Each</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost (<i>\$ in Millions</i>)	380.987	23.061	27.840	34.666	0.000	34.666	29.388	30.221	24.282	24.666	806.332	1,381.443
Less PY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (<i>\$ in Millions</i>)	380.987	23.061	27.840	34.666	0.000	34.666	29.388	30.221	24.282	24.666	806.332	1,381.443
Plus CY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority (<i>\$ in Millions</i>)	380.987	23.061	27.840	34.666	0.000	34.666	29.388	30.221	24.282	24.666	806.332	1,381.443
<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>)	-	2.173	0.061	0.118	-	0.118	0.087	0.098	0.048	0.042	Continuing	Continuing
Flyaway Unit Cost (<i>\$ in Dollars</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost (<i>\$ in Dollars</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Description: Littoral Combat Ship (LCS) focused mission packages provide the operational commander with capabilities to perform littoral mine countermeasures (MCM) operations, a detect-to-engage capability to counter small boat threats, and a detect-to-engage capability to counter enemy submarines. A mission package (MP) is a combination of warfare mission modules (MM) with specialized crew, support equipment, and vehicles, including embarked manned helicopters and unmanned aircraft and maritime systems. Mission Modules are packaged in a modular fashion so that they can be quickly swapped in and out pier side on any LCS platform. The program has an inventory objective of 24 MCM mission packages, 24 surface warfare (SUW) mission packages, and 16 anti-submarine warfare (ASW) mission packages. Mission package procurement and delivery are aligned with the ship delivery schedule, mission area demand signal from the combatant commanders, and the retirement of legacy platforms. This means that 64 interchangeable mission packages will be available for use among the two seaframe variants of the LCS class to support global warfighting and peacetime presence requirements. The LCS MMs program has developed two principal Seaframe-installed components to facilitate MP operation, the Mission Package Computing Environment (MPCE) and the Data Mission Payload. Additionally, each MP uses tailored Support Containers (SCs) whose designs are based upon an International Organization for Standardization (ISO) compliant base container. The initial SUW, MCM, and ASW MPs utilize the common equipment, infrastructure, and services to the maximum extent possible. Future MMs and MPs will utilize the common infrastructure and services as well. The base container is built to print with adjustable interior rails that can be reconfigured for a variety of applications. The containers are built to a lightweight design and specialized to accommodate particular mission systems with maximum efficiency. The Common Mission Modules Equipment (Line Item Number 1600) by itself or support containers by themselves do not comprise a Mission Package and are only deployable when part of a complete Mission Package. A Mission Package is deployable and capable of meeting its focused mission requirements on an LCS only when it includes the full complement of Common Mission Modules Equipment combined with all the mission systems that comprise the LCS MCM Mission Module (Line Item Number 1601), or combined with all the mission systems that comprise the LCS ASW Mission Module (Line Item Number 1602), or combined with all the mission systems that comprise the LCS SUW Mission Module (Line Item Number 1603). Other Related Budgets: BLIs: OPN 1601, OPN 1602, OPN 1603, OPN 4248, OPN 2622, OPN 2624, WPN 4221, WPN 4225, RDT&E 0603596N [P40A / LM005 - OBSOLESCENCE MISSION MODULE ECPs]: Supports Engineering Change Proposals (ECPs) for the obsolete systems in the MCM and SUW mission packages. ECPs are required to add the RT-1944/U Multiband Radio to LCS 1-2 and to replace existing radios (which have been de-certified for operational use) in the MCM mission package including all Remote Multi-Mission Vehicle (RMMV) and Unmanned Surface Vehicles (USVs). ECPs are required to retrofit MCM Mission Package #1 RMMV (two vehicles) to the Multiple Vehicle Communications System (MVCS) common communications system.												

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Exhibit P-40, Budget Line Item Justification: FY 2018 Navy		Date: May 2017
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 01: Ships Support Equipment / BSA 15: Other Ship Support		P-1 Line Item Number / Title: 1600 / LCS Common Mission Modules Equipment
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: 374		
[P40A / LM006 - LCS MISSION MODULES RADIO]: Communications terminal equipment to provide communications capability for LCS Mission Modules from off-board vehicles to the seaframe. Includes installation and checkout on-board the seaframe.		
[P40A / LM007 - C-HAWKLINK SUPPORT EQUIPMENT]: The C-Hawklink Support Equipment consists of a C-Band to Ku-Band radio conversion equipment set to enable the SH-60B and MH-60R helicopters interoperability with LCS Seaframe and Mission Modules via the Ku-Band Tactical Control Data Link.		
[P40A / LM008 - MPCE]: Commercial Off The Shelf (COTS)- Based Common Computing environment will support legacy Mission Package (MP) Command & Control (C2) applications and transition to Modular Open Systems Approach (MOSA) & Navy Open Architecture Computing Environment (OACE). It also provides a common computing environment to support the execution of Mission Package Application Software (MPAS), the shipboard tactical software associated with each mission package that enables execution of its focused mission. Includes installation and checkout on-board the seaframe.		
[P40A / LM009 - DATA MISSION PAYLOAD]: Provides the capability to extend the communications range of the LCS mission module vehicles over the horizon. It provides the LCS mission modules and seaframe with a network-centric capability that may be installed on air and surface vehicles supporting multiple sensors operating in the maritime environment.		
[P40A / LM010 - MISSION PACKAGE INTEGRATION]: The system engineering partner from industry is responsible for assembling each mission package, via the consolidation of the requisite modules, and ensuring that all integration and interface requirements are met.		
[P40A / LM012 - TRAINING EQUIPMENT]: Procurement of training systems for the LCS Mission Module detachment training at the San Diego LCS Training Facility (LTF), future LTF sites and other formal training locations. Systems include: Common Mission Package Trainer (CMPT) tactical team trainer Technical Training Equipment (TTE) consisting of: Mission Package Computing Environment (MPCE) tactical processing hardware capable of hosting tactical Mission Package Application Software (MPAS) for display on optimized/non-ruggedized operator consoles with a training wrap around that includes: Instructor Operator Station (IOS), scenario generator, visualization and various models and simulations necessary to stimulate the tactical environment that is capable of integrating with ship type Combat Management System trainers and Navy Cooperative Training Environment to perform Joint Synthetic Training; Mission Package Training System (MPTS) Part Task Trainer (PTT) Training Device (TD) consisting of COTS hardware and emulation of tactical environment for training specific watch station tasks in preparation for training in team environment using CMPT; MK-50 Gun Weapon System (GWS) TTE consisting of elements necessary to make the MK-46 GWS integrate into LCS weapons zones; Post Mission Analysis TD consisting of COTS hardware hosting Post Mission Analysis (PMA), PMA scenario, and Learning Management System (LMS) software capable of initial training and proficiency training for off hull Sailors; and the Mission Bay Trainer, which includes various elements of Mission Package hardware found in Mission Bay and Weapons zones to train in individual skills and team skills with larger LCS team in the LTF Mission Bay Trainer. These elements include Support Container TTE, Mission System Part Task Trainers (PTT) PTT TD, Airborne Laser Mines Detection System (ALMDS) PTT TD, Airborne Mine Neutralization System (AMNS) AMNS PTT TD, Unmanned Influence Sweep System (UISS) PTT TD, KNIFEFISH PTT TD, MHE TTE, MK50 GWS PTT TTE, MK50 GWS PTT TD, 11M RHIB Cradle, 11M RHIB PTT, EMIO equipment, and ASW EMM PTT. This equipment provides the training platform to train Mission Package sailors in individual and team skills associated with mission planning, execution and post mission analysis necessary to achieve the Train to Certify (T2C) Key Performance Parameter (KPP).		
[P40A / MISSION BAY TRAINING DEVICES - MCM]: FY17 Procurement includes the following: one set MCM increment 1 (less RMS related) Mission Bay Trainer items for Mayport that include: Support Containers, support equipment, tools, spares, and Mission System Part Task Trainers. FY18 Procurement includes the following: KNIFEFISH and UISS Technical Training Equipment as well as San Diego EMM Launch and Recovery Systems and IVSE.		
[P40A / LM015 - CONTAINERS (SHIPPING & SUPPORT)]: Each MP variant uses a base Support Container (SC) which is an ISO compliant shipping container, and comes in two variants: Type I and Type II. The Type I container is a 20-foot ISO container with nominal dimensions of 20' x 8' x 8'. The Type II container is a 10-foot ISO container with nominal dimensions of 10' x 8' x 8'. In both cases the base SC is constructed of high strength steel to reduce the overall weight and features a number of standard configuration items. Mission systems fit inside standard ten- or twenty-foot ISO SCs, or on ISO compliant flat racks and vehicle cradles. The LCS MP zones inside each seaframe mission bay are configured to accommodate the SCs.		
[P40A / MCM SUPPORT CONTAINER]: Unit price for the MCM Containers is an average cost that does not reflect the actual cost of each container. Individual containers for each of the different MCM mission systems have unique requirements and vary in cost.		

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Exhibit P-40, Budget Line Item Justification: FY 2018 Navy		Date: May 2017
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 01: Ships Support Equipment / BSA 15: Other Ship Support		P-1 Line Item Number / Title: 1600 / LCS Common Mission Modules Equipment
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: 374		
[P40A / LM016 - MVCS]: The Multiple Vehicle Communications System (MVCS) provides the Littoral Combat Ship (LCS) Mission Modules with the capability to simultaneously communicate with multiple Unmanned Surface Vehicles (USVs) and surfaced Unmanned Underwater Vehicles (UUVs) by providing common data link and network communication services. These services include link establishment, link management, communications fail-safes, Emissions Control (EMCON) handling, data routing and protection, packet shaping, Priority of Service (PoS), and automated communications system configuration. MVCS establishes a common interface for these services in the form of hardware and message definitions to maximize the usefulness of limited radio equipment onboard the LCS seaframe. [P40A / LM900 - CONSULTING SERVICES]: Provides program management support, engineering and technical support, studies, analysis and evaluation on mission package systems.		

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Exhibit P-40, Budget Line Item Justification: FY 2018 Navy								Date: May 2017		
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 01: Ships Support Equipment / BSA 15: Other Ship Support						P-1 Line Item Number / Title: 1600 / LCS Common Mission Modules Equipment				
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: 374										
Exhibits Schedule					Prior Years	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 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-40a	LCS MISSION MODULES				- / 380.987	- / 23.061	- / 27.840	- / 34.666	- / -	- / 34.666
P-40	Total Gross/Weapon System Cost				- / 380.987	- / 23.061	- / 27.840	- / 34.666	- / 0.000	- / 34.666
*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. Title represents the P-40a Title when only the P-40a Summary/Total is shown.										
Note: Totals in this Exhibit P-40 set may not be exact or sum exactly due to rounding.										

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Exhibit P-40a, Budget Item Justification For Aggregated Items: FY 2018 Navy															Date: May 2017					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 15							P-1 Line Item Number / Title: 1600 / LCS Common Mission Modules Equipment								Aggregated Items Title: LCS MISSION MODULES					
Item Number / Title [DODIC]	ID CD	MDAP/MAIS Code	Prior Years			FY 2016			FY 2017			FY 2018 Base			FY 2018 OCO			FY 2018 Total		
			Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)
1) LM001 - MCM Mission Package																				
1.1) USV	A		-	-	1.675	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.2) USV - SWEEP	A		-	-	2.410	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.3) RMMV	A		-	-	15.571	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.4) RMMV CRADLE	A		7,604K	2	15.208	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.5) AMNS	A		7,595K	1	7.595	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.6) ALMDS	A		19,867K	1	19.867	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.7) AN/AQS-20A	A		-	-	39.099	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.8) COBRA	A		-	-	7.792	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.9) MCM SUPPORT CONTAINERS	A		1,510K	15	22.654	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.10) SUPPORT EQUIPMENT	A		-	-	11.064	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.11) PRODUCTION ENGINEERING SUPPORT	A		-	-	8.360	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.12) MCM INCREMENTAL WHOLENESS - AQS-20A	A		-	-	5.773	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: 1) LM001 - MCM Mission Package			-	-	157.068	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2) LM002 - ASW MISSION PACKAGE																				
2.1) ASW MISSION PACKAGE	A		-	-	17.498	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: 2) LM002 - ASW MISSION PACKAGE			-	-	17.498	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3) LM003 - SUW MISSION PACKAGE																				
3.1) GUN MODULE	A		12,618K	2	25.237	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3.2) SUW SHIPPING CONTAINER	A		144,833.33	6	0.869	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3.3) SUW SUPPORT CONTAINER	A		980,250.00	4	3.921	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3.4) SURFACE-TO-SURFACE MISSILE MODULE	A		-	-	2.400	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3.5) PRODUCTION ENGINEERING	A		-	-	2.013	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: 3) LM003 - SUW MISSION PACKAGE			-	-	34.440	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4) LM005 - OBSOLESENC E MISSION MODULE ECPs																				

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Exhibit P-40a, Budget Item Justification For Aggregated Items: FY 2018 Navy															Date: May 2017					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 15							P-1 Line Item Number / Title: 1600 / LCS Common Mission Modules Equipment								Aggregated Items Title: LCS MISSION MODULES					
Item Number / Title [DODIC]	ID CD	MDAP/MAIS Code	Prior Years			FY 2016			FY 2017			FY 2018 Base			FY 2018 OCO			FY 2018 Total		
			Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)
4.1) ENGINEERING CHANGE PROPOSALS	A		-	-	23.107	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: 4) LM005 - OBSOLESCENCE MISSION MODULE ECPs			-	-	23.107	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5) LM006 - LCS MISSION MODULES RADIO																				
5.1) LCS MISSION MODULES RADIO	A		1,540K	8	12.316	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5.2) PRODUCTION ENGINEERING	A		-	-	1.436	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: 5) LM006 - LCS MISSION MODULES RADIO			-	-	13.752	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6) LM007 - C-HAWKLINK SUPPORT EQUIPMENT																				
6.1) C-HAWKLINK SUPPORT EQUIPMENT	A		-	-	5.885	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: 6) LM007 - C-HAWKLINK SUPPORT EQUIPMENT			-	-	5.885	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7) LM008 - MPCE																				
7.1) MPCE	A		826,714.29	14	11.574	793,000.00	4	3.172	810,000.00	2	1.620	810,000.00	2	1.620	-	-	-	810,000.00	2	1.620
7.2) MPCE Tech Refresh	A		726,333.33	3	2.179	-	-	-	-	-	-	778,500.00	4	3.114	-	-	-	778,500.00	4	3.114
7.3) PRODUCTION ENGINEERING	A		-	-	0.872	-	-	0.228	-	-	0.240	-	-	0.294	-	-	-	-	-	0.294
Subtotal: 7) LM008 - MPCE			-	-	14.625	-	-	3.400	-	-	1.860	-	-	5.028	-	-	-	-	-	5.028
8) LM009 - DATA MISSION PAYLOAD																				
8.1) DATA MISSION PAYLOAD	A		5,391K	2	10.782	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
8.2) PRODUCTION ENGINEERING	A		-	-	1.638	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: 8) LM009 - DATA MISSION PAYLOAD			-	-	12.420	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
9) LM010 - MISSION PACKAGE INTEGRATION																				
9.1) MISSION PACKAGE PRODUCTION ENGINEERING & ASSEMBLY	A		-	-	4.523	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: 9) LM010 - MISSION PACKAGE INTEGRATION			-	-	4.523	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10) LM012 - TRAINING EQUIPMENT																				
10.1) COMMON MISSION PACKAGE TRAINER (CMPT)	A		6,010K	1	6.010	-	-	-	2,622K	1	2.622	-	-	-	-	-	-	-	-	-

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Exhibit P-40a, Budget Item Justification For Aggregated Items: FY 2018 Navy																Date: May 2017				
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 15						P-1 Line Item Number / Title: 1600 / LCS Common Mission Modules Equipment										Aggregated Items Title: LCS MISSION MODULES				
Item Number / Title [DODIC]	ID CD	MDAP/MAIS Code	Prior Years			FY 2016			FY 2017			FY 2018 Base			FY 2018 OCO			FY 2018 Total		
			Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)
10.2) Mission Package Training Equipment Tech Refresh	A		-	-	0.823	-	-	1.412	-	-	2.052	-	-	0.750	-	-	-	-	-	0.750
10.3) MISSION PACKAGE TRAINING SYSTEM (MPTS)	A		-	-	0.993	-	-	-	-	-	-	-	-	0.620	-	-	-	-	-	0.620
10.4) MK-50 GUN WEAPON SYSTEM TTE	A		6,359K	1	6.359	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10.5) MISSION BAY TRAINING DEVICES - MCM	A		-	-	13.977	-	-	6.475	-	-	12.170	-	-	13.056	-	-	-	-	-	13.056
10.6) MISSION BAY TRAINING DEVICES - ASW	A		-	-	-	-	-	-	-	-	-	-	-	2.230	-	-	-	-	-	2.230
10.7) MISSION BAY TRAINING DEVICES - SUW	A		-	-	-	-	-	-	-	-	0.250	-	-	-	-	-	-	-	-	-
Subtotal: 10) LM012 - TRAINING EQUIPMENT			-	-	28.162	-	-	7.887	-	-	17.094	-	-	16.656	-	-	-	-	-	16.656
11) LM013 - MARITIME SECURITY MODULE																				
11.1) MARITIME SECURITY MODULE	A		3,850K	4	15.402	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11.2) PRODUCTION ENGINEERING	A		-	-	1.279	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: 11) LM013 - MARITIME SECURITY MODULE			-	-	16.681	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12) LM015 - CONTAINERS (SHIPPING & SUPPORT)																				
12.1) MCM SUPPORT CONTAINER	A		1,340K	21	28.144	-	-	-	1,662K	2	3.324	1,672K	3	5.015	-	-	-	1,672K	3	5.015
12.2) SUW SUPPORT CONTAINER	A		527,214.29	14	7.381	706,250.00	8	5.650	722,750.00	4	2.891	737,750.00	8	5.902	-	-	-	737,750.00	8	5.902
12.3) SUW SHIPPING CONTAINER	A		147,250.00	12	1.767	210,500.00	12	2.526	-	-	-	-	-	-	-	-	-	-	-	-
12.4) PRODUCTION ENGINEERING	A		-	-	3.024	-	-	2.324	-	-	2.398	-	-	0.565	-	-	-	-	-	0.565
Subtotal: 12) LM015 - CONTAINERS (SHIPPING & SUPPORT)			-	-	40.316	-	-	10.500	-	-	8.613	-	-	11.482	-	-	-	-	-	11.482
13) LM016 - MVCS																				
13.1) MVCS Tech Refresh	A		272,500.00	4	1.090	280,000.00	2	0.560	-	-	-	292,000.00	4	1.168	-	-	-	292,000.00	4	1.168
13.2) Production Engineering	A		-	-	0.066	-	-	0.027	-	-	-	-	-	0.060	-	-	-	-	-	0.060

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Exhibit P-40a, Budget Item Justification For Aggregated Items: FY 2018 Navy															Date: May 2017					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 15							P-1 Line Item Number / Title: 1600 / LCS Common Mission Modules Equipment								Aggregated Items Title: LCS MISSION MODULES					
Item Number / Title [DODIC]	ID CD	MDAP/MAIS Code	Prior Years			FY 2016			FY 2017			FY 2018 Base			FY 2018 OCO			FY 2018 Total		
			Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)
Subtotal: 13) LM016 - MVCS			-	-	1.156	-	-	0.587	-	-	-	-	-	1.228	-	-	-	-	-	1.228
14) LM900 - CONSULTING SERVICES																				
14.1) CONSULTING SERVICES	A		-	-	11.354	-	-	0.687	-	-	0.273	-	-	0.272	-	-	-	-	-	0.272
Subtotal: 14) LM900 - CONSULTING SERVICES			-	-	11.354	-	-	0.687	-	-	0.273	-	-	0.272	-	-	-	-	-	0.272
Total			-	-	380.987	-	-	23.061	-	-	27.840	-	-	34.666	-	-	-	-	-	34.666

Note: Subtotals or Totals in this Exhibit P-40a may not be exact or sum exactly, due to rounding.

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Exhibit P-40, Budget Line Item Justification: FY 2018 Navy										Date: May 2017		
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 01: Ships Support Equipment / BSA 15: Other Ship Support							P-1 Line Item Number / Title: 1601 / LCS MCM Mission Modules					
ID Code (A=Service Ready, B=Not Service Ready): A				Program Elements for Code B Items: N/A				Other Related Program Elements: 0603596N				
Line Item MDAP/MAIS Code: 000												
Resource Summary	Prior Years	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	To Complete	Total
Procurement Quantity (<i>Units in Each</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost (<i>\$ in Millions</i>)	81.984	67.451	57.146	55.870	0.000	55.870	73.903	75.373	158.293	188.844	1,406.438	2,165.302
Less PY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (<i>\$ in Millions</i>)	81.984	67.451	57.146	55.870	0.000	55.870	73.903	75.373	158.293	188.844	1,406.438	2,165.302
Plus CY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority (<i>\$ in Millions</i>)	81.984	67.451	57.146	55.870	0.000	55.870	73.903	75.373	158.293	188.844	1,406.438	2,165.302
<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>)	-	0.966	3.964	4.304	-	4.304	3.826	1.445	0.362	0.320	Continuing	Continuing
Flyaway Unit Cost (<i>\$ in Dollars</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost (<i>\$ in Dollars</i>)	-	-	-	-	-	-	-	-	-	-	-	-

Description:

The LCS Mine Countermeasures (MCM) mission package counters bottom, deep, shallow, surface, near surface, and tethered mines in the littoral without putting Sailors in the minefield. When the MCM mission package is embarked, LCS is capable of conducting detect-to-engage operations (hunting, sweeping, and neutralization) against shallow and deep-water sea mine threats. The MCM mission package provides these capabilities through the use of sensors and weapons deployed from an embarked MH-60S multi-mission helicopter and unmanned off-board vehicles. The embarked MH-60S employs the Organic Airborne Mine Countermeasures Module to provide rapid mine hunting and clearing using helicopter deployed systems. Future phases will add the Coastal Mine Reconnaissance Module (CMRM) to allow detection of minefield patterns and obstacles from an embarked Fire Scout Vertical Takeoff and Landing Tactical Unmanned Aerial Vehicle (VTUAV), a surface influence sweep capability for high-speed influence minesweeping, and the KNIFEFISH to detect buried mines. When complete, the MCM mission package will provide full capability against floating, tethered, bottom, and buried mines.

The MCM Mission Package is deployable and capable of meeting its focused mission requirements on an LCS only when it includes the full complement of Common Mission Modules Equipment (Line Item Number 1600) and the full complement of mission systems that comprise the LCS MCM Mission Module (Line Item Number 1601). If mission systems are removed in any given Fiscal Year, the MCM Mission Package will be non-deployable until the mission systems are replaced in a subsequent Fiscal Year.

The number of LCS mission packages must not only keep pace with the number of ships, more are required to account for the mission packages that will be forward staged or unavailable due to periodic maintenance requirements.

Other Related Budgets: BLIs: OPN 1600, OPN 1602, OPN 1603, OPN 4248, OPN 2622, OPN 2624, WPN 4221, WPN 4225, RDT&E 0603596N

Prior to FY13, MCM mission module systems were funded under OPN BLI 1600.

The MCM package consists of the following systems: Coastal Battlefield Reconnaissance & Analysis (COBRA), Airborne Laser Mine Detection System (ALMDS), AQS-20A Minehunting Sonar, Airborne Mine Neutralization System (AMNS), Unmanned Surface Vehicle (USV) with Unmanned Surface Sweep System (USSS), KNIFEFISH and Support Containers. The individual systems are combined into five modules: Influence Mine Sweep Module, Organic Airborne Mine Countermeasures (OAMCM) Module, Coastal Mine Reconnaissance Module, and Unmanned Undersea Module.

[P5 / MC001 - UNMANNED INFLUENCE MINE SWEEP MODULE]: The Influence Mine Sweep Module provides an unmanned surface, long endurance bottom sweep capability to clear large areas of mines that may remain after mine-hunting operations are complete.

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Exhibit P-40, Budget Line Item Justification: FY 2018 Navy		Date: May 2017
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 01: Ships Support Equipment / BSA 15: Other Ship Support		P-1 Line Item Number / Title: 1601 / LCS MCM Mission Modules
ID Code (A=Service Ready, B=Not Service Ready): A	Program Elements for Code B Items: N/A	Other Related Program Elements: 0603596N
Line Item MDAP/MAIS Code: 000		
[P5 / MC003 - ORGANIC AIRBORNE MINE COUNTERMEASURES (OAMCM)]: The OAMCM Module provides the long-range, airborne capability to conduct mine hunting and clearing operations in littoral zones, confined straits, choke points, and the Amphibious Objective Area (AOA) quickly. [P5 / AMNS Obsolescence Upgrades]: The upgrades to previously procured AMNS units improve reliability and maintainability and correct deficiencies to allow the equipment to perform in accordance with current operational requirements and the current deployment configuration. [P5 / ALMDS Obsolescence Upgrades]: The upgrades to previously procured ALMDS units improve reliability and maintainability and correct deficiencies to allow the equipment to perform in accordance with current operational requirements and the current deployment configuration. [P5 / MC004 - COASTAL MINE RECONNAISSANCE MODULE]: The Coastal Mine Reconnaissance Module will detect mines in the surface zone and beach zone areas, providing the Joint Force Commander with the information needed to clear mines with non-LCS assets and allow military forces to safely and effectively storm the beaches. This procurement line supports the LCS mine countermeasures mission package, providing deployable combat capability to the LCS MCM squadron. Separately, in BLI 2624 Shallow Water Mine CM, COBRA systems are procured to provide initial and proficiency training to Navy aircrews (FY18 - 1 system; FY19 - 1; FY20 - 1; FY21 - 0; FY22 - 0). [P5 / MC005 - BURIED MINEHUNTING MODULE]: The Buried Minehunting Module provides capability to detect and identify buried mines and mines in a cluttered ocean bottom environment. This procurement line supports the LCS mine countermeasures mission package, providing deployable combat capability to the LCS MCM squadron. Separately, in BLI 2622 Mine Sweeping Replacement, Knifefish systems are procured to provide initial and proficiency training to Navy crews (FY17 - 2 systems). [P5 / MC006 - MCM SUPPORT EQUIPMENT]: Support equipment related to the individual modules. [P5 / MC007 - MCM WHOLENESS SYSTEMS]: MCM Incremental Wholeness procures the individual mission systems required to bring previously acquired mission packages up to the incremental acquisition baseline. [P5 / MC008 - MCM USV]: The Mine Countermeasures (MCM) Unmanned Surface Vehicle (USV) is integrated with the AQS-20 minehunting sonar. It provides minehunting capability from the USV for LCS MCM Mission Packages. [P5 / MC900 - CONSULTING SERVICES]: Provides program management support, engineering and technical support, studies, analysis and evaluation on mission module systems.		

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Exhibit P-40, Budget Line Item Justification: FY 2018 Navy								Date: May 2017		
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 01: Ships Support Equipment / BSA 15: Other Ship Support						P-1 Line Item Number / Title: 1601 / LCS MCM Mission Modules				
ID Code (A=Service Ready, B=Not Service Ready): A			Program Elements for Code B Items: N/A			Other Related Program Elements: 0603596N				
Line Item MDAP/MAIS Code: 000										
Exhibits Schedule					Prior Years	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 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	1 / LCS MCM Mission Packages	P-5a, P-21			- / 81.984	- / 67.451	- / 57.146	- / 55.870	- / 0.000	- / 55.870
P-40	Total Gross/Weapon System Cost				- / 81.984	- / 67.451	- / 57.146	- / 55.870	- / 0.000	- / 55.870
*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.										

Justification:

FY18 funds the baseline Mine Countermeasures program, procuring one UISS, two AMNS, one ALMDS, one COBRA and associated support equipment.

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Exhibit P-5, Cost Analysis: FY 2018 Navy												Date: May 2017							
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 15						P-1 Line Item Number / Title: 1601 / LCS MCM Mission Modules						Item Number / Title [DODIC]: 1 / LCS MCM Mission Packages							
ID Code (A=Service Ready, B=Not Service Ready) :									MDAP/MAIS Code:										
Resource Summary						Prior Years		FY 2016		FY 2017		FY 2018 Base		FY 2018 OCO		FY 2018 Total			
Procurement Quantity <i>(Units in Each)</i>						-		-		-		-		-		-			
Gross/Weapon System Cost <i>(\$ in Millions)</i>						81.984		67.451		57.146		55.870		0.000		55.870			
Less PY Advance Procurement <i>(\$ in Millions)</i>						-		-		-		-		-		-			
Net Procurement (P-1) <i>(\$ in Millions)</i>						81.984		67.451		57.146		55.870		0.000		55.870			
Plus CY Advance Procurement <i>(\$ in Millions)</i>						-		-		-		-		-		-			
Total Obligation Authority <i>(\$ in Millions)</i>						81.984		67.451		57.146		55.870		0.000		55.870			
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)																			
Initial Spares <i>(\$ in Millions)</i>						-		0.966		3.964		4.304		-		4.304			
Gross/Weapon System Unit Cost <i>(\$ in Dollars)</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 2016			FY 2017			FY 2018 Base			FY 2018 OCO			FY 2018 Total		
		Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)
Hardware - MC001 - UNMANNED INFLUENCE MINE SWEEP MODULE Cost																			
Recurring Cost																			
1.1.1) Unmanned Influenced Sweep System ^(†)		-	-	-	-	-	-	11,800K	1	11.800	11,800K	1	11.800	-	-	-	11,800K	1	11.800
Subtotal: Recurring Cost		-	-	-	-	-	-	-	-	11.800	-	-	11.800	-	-	-	-	-	11.800
Subtotal: Hardware - MC001 - UNMANNED INFLUENCE MINE SWEEP MODULE Cost		-	-	-	-	-	-	-	-	11.800	-	-	11.800	-	-	-	-	-	11.800
Hardware - MC003 - ORGANIC AIRBORNE MINE COUNTERMEASURES (OAMCM) Cost																			
Recurring Cost																			
2.1.1) AMNS ^(†)		2,741K	1	2.741	5,014K	2	10.028	-	-	-	5,114K	2	10.228	-	-	-	5,114K	2	10.228
2.1.2) ALMDS ^{(†) (1)}		6,765K	1	6.765	7,251K	3	21.754	13,826K	1	13.826	14,120K	1	14.120	-	-	-	14,120K	1	14.120
2.1.3) AN/AQS-20A ^{(†) (2)}		9,420K	2	18.840	5,218K	4	20.872	-	-	-	-	-	-	-	-	-	-	-	-
2.1.4) AMNS Obsolescence Upgrades		-	-	-	-	-	2.651	-	-	-	-	-	-	-	-	-	-	-	-
2.1.5) ALMDS Obsolescence Upgrades		-	-	-	-	-	3.900	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: Recurring Cost		-	-	28.346	-	-	59.205	-	-	13.826	-	-	24.348	-	-	-	-	-	24.348
Subtotal: Hardware - MC003 - ORGANIC AIRBORNE MINE		-	-	28.346	-	-	59.205	-	-	13.826	-	-	24.348	-	-	-	-	-	24.348

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Exhibit P-5, Cost Analysis: FY 2018 Navy												Date: May 2017						
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 15						P-1 Line Item Number / Title: 1601 / LCS MCM Mission Modules						Item Number / Title [DODIC]: 1 / LCS MCM Mission Packages						
ID Code (A=Service Ready, B=Not Service Ready) :										MDAP/MAIS Code:								
Note: Subtotals or Totals in this Exhibit P-5 may not be exact or sum exactly due to rounding.																		
Cost Elements	Prior Years			FY 2016			FY 2017			FY 2018 Base			FY 2018 OCO			FY 2018 Total		
	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)
COUNTERMEASURES (OAMCM) Cost																		
Hardware - MC004 - COASTAL MINE RECONNAISSANCE MODULE Cost																		
Recurring Cost																		
3.1.1) COBRA ^(†)	-	-	-	-	-	-	8,522K	1	8.522	8,525K	1	8.525	-	-	-	8,525K	1	8.525
Subtotal: Recurring Cost	-	-	-	-	-	-	-	-	8.522	-	-	8.525	-	-	-	-	-	8.525
Subtotal: Hardware - MC004 - COASTAL MINE RECONNAISSANCE MODULE Cost	-	-	-	-	-	-	-	-	8.522	-	-	8.525	-	-	-	-	-	8.525
Hardware - MC005 - BURIED MINEHUNTING MODULE Cost																		
Recurring Cost																		
4.1.1) KNIFEFISH ^(†)	-	-	-	-	-	-	10,800K	1	10.800	-	-	-	-	-	-	-	-	-
Subtotal: Recurring Cost	-	-	-	-	-	-	-	-	10.800	-	-	-	-	-	-	-	-	-
Subtotal: Hardware - MC005 - BURIED MINEHUNTING MODULE Cost	-	-	-	-	-	-	-	-	10.800	-	-	-	-	-	-	-	-	-
Hardware - MC006 - MCM SUPPORT EQUIPMENT Cost																		
Recurring Cost																		
5.1.1) SUPPORT EQUIPMENT ⁽³⁾	-	-	7.510	-	-	2.279	-	-	5.025	-	-	4.185	-	-	-	-	-	4.185
Subtotal: Recurring Cost	-	-	7.510	-	-	2.279	-	-	5.025	-	-	4.185	-	-	-	-	-	4.185
Subtotal: Hardware - MC006 - MCM SUPPORT EQUIPMENT Cost	-	-	7.510	-	-	2.279	-	-	5.025	-	-	4.185	-	-	-	-	-	4.185
Hardware - MC007 - MCM WHOLENESS SYSTEMS Cost																		
Recurring Cost																		
6.1.1) MCM INCREMENTAL WHOLENESS - AQS-20A ^(†)	8,578K	4	34.312	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: Recurring Cost	-	-	34.312	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: Hardware - MC007 - MCM WHOLENESS SYSTEMS Cost	-	-	34.312	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Support - MC900 - CONSULTING SERVICES Cost																		
8.1) CONSULTING SERVICES	-	-	1.868	-	-	1.746	-	-	1.881	-	-	1.910	-	-	-	-	-	1.910

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Exhibit P-5, Cost Analysis: FY 2018 Navy												Date: May 2017						
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 15						P-1 Line Item Number / Title: 1601 / LCS MCM Mission Modules						Item Number / Title [DODIC]: 1 / LCS MCM Mission Packages						
ID Code (A=Service Ready, B=Not Service Ready) :										MDAP/MAIS Code:								
Note: Subtotals or Totals in this Exhibit P-5 may not be exact or sum exactly due to rounding.																		
Cost Elements	Prior Years			FY 2016			FY 2017			FY 2018 Base			FY 2018 OCO			FY 2018 Total		
	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)
Subtotal: Support - MC900 - CONSULTING SERVICES Cost	-	-	1.868	-	-	1.746	-	-	1.881	-	-	1.910	-	-	-	-	-	1.910
Support - PRODUCTION ENGINEERING Cost																		
9.1) MC001 - UNMANNED INFLUENCE MINE SWEEP	-	-	-	-	-	-	-	-	0.500	-	-	0.532	-	-	-	-	-	0.532
9.2) MC003 - ORGANIC AIRBORNE MINE COUNTERMEASURES (OAMCM) ⁽⁴⁾	-	-	8.754	-	-	3.550	-	-	3.117	-	-	3.319	-	-	-	-	-	3.319
9.3) MC004 - COASTAL MINE RECONNAISSANCE MODULE	-	-	-	-	-	-	-	-	0.500	-	-	0.532	-	-	-	-	-	0.532
9.4) MC005 - UNMANNED UNDERSEA MODULE	-	-	-	-	-	-	-	-	0.500	-	-	-	-	-	-	-	-	-
9.5) MC006 - MCM SUPPORT EQUIPMENT	-	-	1.194	-	-	0.671	-	-	0.675	-	-	0.719	-	-	-	-	-	0.719
Subtotal: Support - PRODUCTION ENGINEERING Cost	-	-	9.948	-	-	4.221	-	-	5.292	-	-	5.102	-	-	-	-	-	5.102
Gross/Weapon System Cost	-	-	81.984	-	-	67.451	-	-	57.146	-	-	55.870	-	-	0.000	-	-	55.870

(†) indicates the presence of a P-5a

Footnotes:

(1) ALMDS unit prices are based on economic order quantity / step-ladder pricing in existing contract. FY16 unit cost is based on quantity of 3 units. FY17 and FY18 unit price based on 1 production unit each year.

(2) AQS-20 unit prices are based on economic order quantity / step-ladder pricing in current contract.

(3) FY17 funding is the first year of funding for UISS and KNIFEFISH and the additional equipment required to support those systems.

(4) FY17 funding is the first year of funding for UISS and KNIFEFISH and the additional contract management required to support those systems.

(†) indicates the presence of a P-5a

Footnotes:

- (1) ALMDS unit prices are based on economic order quantity / step-ladder pricing in existing contract. FY16 unit cost is based on quantity of 3 units. FY17 and FY18 unit price based on 1 production unit each year.
- (2) AQS-20 unit prices are based on economic order quantity / step-ladder pricing in current contract.
- (3) FY17 funding is the first year of funding for UISS and KNIFEFISH and the additional equipment required to support those systems.
- (4) FY17 funding is the first year of funding for UISS and KNIFEFISH and the additional contract management required to support those systems.

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Exhibit P-5a, Procurement History and Planning: FY 2018 Navy								Date: May 2017				
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 15				P-1 Line Item Number / Title: 1601 / LCS MCM Mission Modules				Item Number / Title [DODIC]: 1 / LCS MCM Mission Packages				

Cost Elements	O C O	FY	Contractor and Location	Method/Type or Funding Vehicle	Location of PCO	Award Date	Date of First Delivery	Qty (Each)	Unit Cost (\$)	Specs Avail Now?	Date Revision Available	RFP Issue Date
1.1.1) Unmanned Influenced Sweep System ^(†)		2017	Textron / Hunt Valley, MD	C / FFP	NAVSEA	Jun 2017	Jun 2019	1	11,800K	Y		
1.1.1) Unmanned Influenced Sweep System ^(†)		2018	Textron / Hunt Valley, MD	C / FFP	NAVSEA	Feb 2018	Feb 2020	1	11,800K	Y		
2.1.1) AMNS ^(†)		2016	Raytheon / Portsmouth, RI	SS / FFP	NAVSEA	Apr 2017	Sep 2018	2	5,014K	Y		
2.1.1) AMNS ^(†)		2018	Raytheon / Portsmouth, RI	SS / FFP	NAVSEA	Feb 2018	Jul 2019	2	5,114K	Y		
2.1.2) ALMDS ^(†)		2016	Northrop Grumman / Melborn, FL	C / FFP	NAVSEA	Feb 2016	Aug 2017	3	7,251K	Y		
2.1.2) ALMDS ^(†)		2017	Northrop Grumman / Melborn, FL	C / FFP	NAVSEA	Feb 2017	Aug 2018	1	13,826K	Y		
2.1.2) ALMDS ^(†)		2018	Northrop Grumman / Melborn, FL	C / FFP	NAVSEA	Mar 2018	Sep 2019	1	14,120K	Y		
2.1.3) AN/AQS-20A		2013	Raytheon / Portsmouth, RI	C / FFP	NAVSEA	Feb 2014	Apr 2017	1	11,612K	Y		Jan 2012
2.1.3) AN/AQS-20A		2014	Raytheon / Portsmouth, RI	C / FFP	NAVSEA	Feb 2014	May 2017	1	7,228K	Y		
2.1.3) AN/AQS-20A		2016	Raytheon / Portsmouth, RI	C / FFP	NAVSEA	Mar 2016	Mar 2018	4	5,218K	Y		
3.1.1) COBRA		2017	ARETE / TUCSON, AZ	C / FFP	NSWC PC	Feb 2017	Aug 2018	1	8,522K	Y		
3.1.1) COBRA		2018	ARETE / TUCSON, AZ	C / FFP	NSWC PC	Mar 2018	Sep 2019	1	8,525K	Y		
4.1.1) KNIFEFISH		2017	General Dynamics MS / Mcleansville, NC	C / FFP	NAVSEA	Jun 2017	Sep 2018	1	10,800K	Y		
6.1.1) MCM INCREMENTAL WHOLENESS - AQS-20A		2013	Raytheon / Portsmouth, RI	C / FFP	NAVSEA	Feb 2014	May 2017	1	11,612K	Y		Jan 2012
6.1.1) MCM INCREMENTAL WHOLENESS - AQS-20A		2014	Raytheon / Portsmouth, RI	C / FFP	NAVSEA	Aug 2014	May 2017	2	7,228K	Y		
6.1.1) MCM INCREMENTAL WHOLENESS - AQS-20A		2015	Raytheon / Portsmouth, RI	C / FFP	NAVSEA	Nov 2014	Jun 2017	1	8,244K	Y		

^(†) indicates the presence of a P-21

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Exhibit P-21, Production Schedule: FY 2018 Navy																				Date: May 2017												
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 15										P-1 Line Item Number / Title: 1601 / LCS MCM Mission Modules										Item Number / Title [DODIC]: 1 / LCS MCM Mission Packages												
Cost Elements <i>(Units in Each)</i>							Fiscal Year 2014										Fiscal Year 2015													BALANCE		
OCO	MFR #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2013	BAL DUE AS OF 1 OCT	Calendar Year 2014										Calendar Year 2015															
							OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG		SEP	
1.1.1) Unmanned Influenced Sweep System																																
	1	2017	NAVY	1	0	1																										1
	1	2018	NAVY	1	0	1																										1
2.1.1) AMNS																																
Prior Years Deliveries: 1																																
	2	2016	NAVY	2	0	2																										2
	2	2018	NAVY	2	0	2																										2
2.1.2) ALMDS ⁽¹⁾																																
Prior Years Deliveries: 1																																
	3	2016	NAVY	3	0	3																										3
	3	2017	NAVY	1	0	1																										1
	3	2018	NAVY	1	0	1	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	1	

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Exhibit P-21, Production Schedule: FY 2018 Navy																				Date: May 2017																														
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 15										P-1 Line Item Number / Title: 1601 / LCS MCM Mission Modules										Item Number / Title [DODIC]: 1 / LCS MCM Mission Packages																														
Cost Elements (Units in Each)							Fiscal Year 2016										Fiscal Year 2017										B A L A N C E																							
O C C O	M F R #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2015	BAL DUE AS OF 1 OCT	Calendar Year 2016																Calendar Year 2017																											
							O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P	O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y		J U N	J U L	A U G	S E P																			
1.1.1) Unmanned Influenced Sweep System																																																		
	1	2017	NAVY	1	0	1																									A -	-	-	-		1														
	1	2018	NAVY	1	0	1																																										1		
2.1.1) AMNS																																																		
Prior Years Deliveries: 1																																																		
	2	2016	NAVY	2	0	2																									A -	-	-	-	-	-	-		2											
	2	2018	NAVY	2	0	2																																										2		
2.1.2) ALMDS ⁽¹⁾																																																		
Prior Years Deliveries: 1																																																		
	3	2016	NAVY	3	0	3											A -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	1															
	3	2017	NAVY	1	0	1																									A -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		1		
	3	2018	NAVY	1	0	1																																												1
							O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P	O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P																				

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Exhibit P-21, Production Schedule: FY 2018 Navy																				Date: May 2017															
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 15										P-1 Line Item Number / Title: 1601 / LCS MCM Mission Modules										Item Number / Title [DODIC]: 1 / LCS MCM Mission Packages															
Cost Elements <i>(Units in Each)</i>							Fiscal Year 2018										Fiscal Year 2019													B A L A N C E					
O C C O	M F R #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2017	BAL DUE AS OF 1 OCT				Calendar Year 2018										Calendar Year 2019															
							O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P	O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G		S E P				
1.1.1) Unmanned Influenced Sweep System																																			
	1	2017	NAVY	1	0	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1			0			
	1	2018	NAVY	1	0	1					A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1			
2.1.1) AMNS																																			
Prior Years Deliveries: 1																																			
	2	2016	NAVY	2	0	2	-	-	-	-	-	-	-	-	-	-	-	1	1																0
	2	2018	NAVY	2	0	2					A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1		0		
2.1.2) ALMDS ⁽¹⁾																																			
Prior Years Deliveries: 1																																			
	3	2016	NAVY	3	2	1	1																									0			
	3	2017	NAVY	1	0	1	-	-	-	-	-	-	-	-	-	-	1																0		
	3	2018	NAVY	1	0	1					A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1		0		
							O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P	O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P					

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LI 1601 - LCS MCM Mission Modules

Navy

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Exhibit P-21, Production Schedule: FY 2018 Navy			Date: May 2017		
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 15		P-1 Line Item Number / Title: 1601 / LCS MCM Mission Modules			Item Number / Title [DODIC]: 1 / LCS MCM Mission Packages

MFR Ref #	Manufacturer Name - Location	Production Rates (Each / Year)			Procurement Leadtime (Months)							
		MSR For 2018	1-8-5 For 2018	MAX For 2018	Initial				Reorder			
					ALT Prior to Oct 1	ALT After Oct 1	Manufacturing PLT	Total After Oct 1	ALT Prior to Oct 1	ALT After Oct 1	Manufacturing PLT	Total After Oct 1
1	Textron - Hunt Valley, MD	1	2	8	3	3	24	27	3	3	24	27
2	Raytheon - Portsmouth, RI	1	4	8	3	3	17	20	3	3	17	20
3	Northrop Grumman - Melborn, FL	1	4	8	3	3	18	21	3	3	18	21

"A" in the Delivery Schedule indicates the Contract Award Date.

Note: Due to space limitations, quantities in the Exhibit P-21 delivery calendar are truncated and rounded based on the maximum quantity in the calendar as follows. If the maximum quantity is less than or equal to than 9,999, all quantities are shown as each. If the maximum quantity is between 10,000 and 999,999 all quantities are shown in thousands. If the maximum quantity is between 1,000,000 and 999,999,999 all quantities are shown in millions (rounded to the nearest thousand). If the maximum quantity is equal or greater than 1,000,000,000 all quantities are shown in billions (rounded to the nearest million).

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Exhibit P-40, Budget Line Item Justification: FY 2018 Navy										Date: May 2017		
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 01: Ships Support Equipment / BSA 15: Other Ship Support							P-1 Line Item Number / Title: 1602 / LCS ASW Mission Modules					
ID Code (A=Service Ready, B=Not Service Ready): A				Program Elements for Code B Items: N/A				Other Related Program Elements: 0603596N				
Line Item MDAP/MAIS Code: 000												
Resource Summary	Prior Years	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	To Complete	Total
Procurement Quantity (<i>Units in Each</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost (<i>\$ in Millions</i>)	0.000	0.000	31.952	0.000	0.000	0.000	82.188	54.553	90.354	61.808	140.673	461.528
Less PY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (<i>\$ in Millions</i>)	0.000	0.000	31.952	0.000	0.000	0.000	82.188	54.553	90.354	61.808	140.673	461.528
Plus CY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority (<i>\$ in Millions</i>)	0.000	0.000	31.952	0.000	0.000	0.000	82.188	54.553	90.354	61.808	140.673	461.528
<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>)	-	0.954	0.080	0.506	-	0.506	0.816	0.643	0.521	0.459	Continuing	Continuing
Flyaway Unit Cost (<i>\$ in Dollars</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost (<i>\$ in Dollars</i>)	-	-	-	-	-	-	-	-	-	-	-	-

Description:

The Anti-Submarine Warfare (ASW) mission package enables the Littoral Combat Ship (LCS) to conduct detect-to-engage operations against modern submarines that pose a threat. Specific ASW capabilities include protecting forces in transit, protecting joint operating areas, and establishing ASW barriers. ASW Modules are developed to provide the warfighter capabilities that can be employed for ASW area search as well as high value unit escort missions. Module components include a torpedo countermeasures system, a Variable Depth Sonar (VDS) and a Multi-Function Towed Array (MFTA). The Aviation Module provides airborne threat localization and engagement capability through an MH-60R helicopter with MK54 torpedoes and the ability to incorporate a Fire Scout Vertical Takeoff and Landing Unmanned Aerial Vehicle.

An ASW Mission Package is deployable and capable of meeting its focused mission requirements on an LCS only when it includes the full complement of Common Mission Modules Equipment (Line Item Number 1600) and the full complement of mission systems that comprise the LCS ASW Mission Module (Line Item Number 1602). If mission systems are removed from the mission module in any given Fiscal Year, the ASW Mission Package will be non-deployable until the mission system is replaced in a subsequent Fiscal Year.

The number of LCS mission packages must not only keep pace with the number of ships, more are required to account for the mission packages that will be forward staged or unavailable due to periodic maintenance requirements.

Other Related Budgets: BLIs: OPN 1600, OPN 1601, OPN 1603, RDT&E 0603596N

ASW MP Quantities Procured:
 Prior Years: ASW = 0
 FY 2016: ASW = 1 (RDTEN funded)
 FY 2017: ASW = 1
 FY 2018: ASW = 0
 FY 2019: ASW = 3
 FY 2020: ASW = 2
 FY 2021: ASW = 3
 FY 2022: ASW = 3

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Exhibit P-40, Budget Line Item Justification: FY 2018 Navy		Date: May 2017
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 01: Ships Support Equipment / BSA 15: Other Ship Support		P-1 Line Item Number / Title: 1602 / LCS ASW Mission Modules
ID Code (A=Service Ready, B=Not Service Ready): A	Program Elements for Code B Items: N/A	Other Related Program Elements: 0603596N
Line Item MDAP/MAIS Code: 000		
Total ASW MPs Delivered/Deployable: Prior Years: ASW= 0 FY 2016: ASW = 0 FY 2017: ASW = 1 FY 2018: ASW = 1 FY 2019: ASW = 2 FY 2020: ASW = 2 FY 2021: ASW = 4 FY 2022: ASW = 7 [P5 / (AS001) - ASW Escort Module]: The ASW Escort Mission Module (MM) contains the sensors and signal processing required to detect, classify and localize submarine threats. The Escort MM consists of two towed sensors; a VDS active source and an MFTA passive/bi-static active receiver; launch, handling and recovery equipment for the towed sensors, and AN/SQQ-89 V(15) active and passive signal processing applications. [P5 / (AS002) - Torpedo Defense Countermeasure Module]: The Light Weight Tow (LWT) system is a towed persistent torpedo countermeasure optimized for use in littoral conditions. LWT is a standalone autonomous system capable of defeating threat torpedoes through soft-kill to independently increase LCS Platform Probability of Survival. [P5 / (AS005) - ASW Mission Package Containers]: The foundation of each ASW Support Container (SC) is an International Organization for Standardization (ISO) compliant shipping container. The ISO shipping containers are outfitted with Unistrut rails (for shelving and drawer attachments), lighting (standard/emergency), fire/smoke alarms, service panels for power, and a circuit breaker box. From this base container configuration, a variety of racks, cradles, and handling gear can be installed as needed to form a SC. [P5 / (AS900) - Consulting Services]: Provides program management support, engineering and technical support, studies, analysis and evaluation on mission module systems.		

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Exhibit P-40, Budget Line Item Justification: FY 2018 Navy **Date:** May 2017

Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 01: Ships Support Equipment / BSA 15: Other Ship Support	P-1 Line Item Number / Title: 1603 / LCS SUW Mission Modules

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: 000

Resource Summary	Prior Years	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	To Complete	Total
Procurement Quantity (<i>Units in Each</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost (<i>\$ in Millions</i>)	64.532	35.228	22.466	52.960	0.000	52.960	56.556	30.093	12.454	42.929	415.399	732.617
Less PY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (<i>\$ in Millions</i>)	64.532	35.228	22.466	52.960	0.000	52.960	56.556	30.093	12.454	42.929	415.399	732.617
Plus CY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority (<i>\$ in Millions</i>)	64.532	35.228	22.466	52.960	0.000	52.960	56.556	30.093	12.454	42.929	415.399	732.617

(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)

Initial Spares (<i>\$ in Millions</i>)	-	2.242	-	1.984	-	1.984	1.629	-	-	-	-	5.855
Flyaway Unit Cost (<i>\$ in Dollars</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost (<i>\$ in Dollars</i>)	-	-	-	-	-	-	-	-	-	-	-	-

Description:

The Surface Warfare (SUW) mission package increases firepower and offensive/defensive capabilities against large numbers of highly maneuverable, fast, small craft threats, giving LCS the ability to protect the sea lanes and move a force quickly through a choke point or other strategic waterway. With the SUW mission package embarked, LCS has enhanced detection and engagement capability against enemy small craft and similar littoral surface threats. The SUW (Phase 2) mission package is composed of two high velocity 30mm cannons to augment the ship's 57mm gun, embarked support aircraft (MH-60R helicopter with Hellfire missile) and the Maritime Security Module to support the embarkation of visit, board, search, and seizure (VBSS) teams. Six SUW mission packages have been delivered to the Fleet and one more is in production. Future SUW mission package phases include the addition of the MQ-8 Fire Scout Vertical Take-off and Landing Tactical Unmanned Aerial Vehicle (VTUAV) for the detection, identification, and classification of surface contacts, and a Surface-to-Surface Missile Module (SSMM) to provide in-close and eventually an over-the-horizon engagement capability against surface threats.

A SUW mission package is deployable and capable of meeting its focused mission requirements on an LCS only when it includes the full complement of Common Mission Modules Equipment (Line Item Number 1600) and the full complement of mission systems that comprise the LCS SUW Mission Module (Line Item Number 1603). If mission systems are removed from the mission module in any given Fiscal Year, the SUW Mission Package will be non-deployable until the mission system is replaced in a subsequent Fiscal Year.

The number of LCS mission packages must not only keep pace with the number of ships, more are required to account for the mission packages that will be forward staged or unavailable due to periodic maintenance requirements.

Other Related Budgets: BLIs: OPN 1600, OPN 1601, OPN 1602, WPN 4221, RDT&E 0603596N

Prior to FY13, SUW mission module systems were funded under OPN BLI 1600.

[P40A / SU001 - GUN MODULE]: The gun mission module (GMM) is comprised of two high velocity 30mm cannons to augment the ship's 57mm gun, and embarked support aircraft (MH-60R helicopter with Hellfire missile and the MQ-8B Fire Scout Vertical Take-off and Landing Tactical Unmanned Aerial Vehicle (VTUAV)) for the detection, identification, and classification of surface contacts.

[P40A / SU002 - SURFACE-TO-SURFACE MISSILE MODULE (SSMM)]: The Surface-to-Surface Missile Module (SSMM) will provide in-close and eventually an over-the-horizon engagement capability against surface threats.

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Exhibit P-40, Budget Line Item Justification: FY 2018 Navy		Date: May 2017
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 01: Ships Support Equipment / BSA 15: Other Ship Support		P-1 Line Item Number / Title: 1603 / LCS SUW Mission Modules
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: 000		
[P40A / SU003 - MARITIME SECURITY MODULE]: The Maritime Security Module (MSM) provides LCS with the capability to conduct Level II visit, board, search and seizure (VBSS) operations and the ability to conduct anti-piracy and maritime interdiction missions. This budget line procures hardware for a full MSM that includes two 11 meter Rigid Hull Inflatable Boats (RHIB), two boat cradles, a VBSS Allowance Equipment List (AEL) for communications and tactical equipment, and habitability and support containers. Funding also includes production, assembly, installation and checkout of all mission system components. [P40A / SU900 - CONSULTING SERVICES]: Provides program management support, engineering and technical support, studies, analysis and evaluation on mission module systems.		

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Exhibit P-40, Budget Line Item Justification: FY 2018 Navy								Date: May 2017		
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 01: Ships Support Equipment / BSA 15: Other Ship Support						P-1 Line Item Number / Title: 1603 / LCS SUW Mission Modules				
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: 000										
Exhibits Schedule					Prior Years	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 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-40a	LCS SUW Mission Packages				- / 64.532	- / 35.228	- / 22.466	- / 52.960	- / -	- / 52.960
P-40	Total Gross/Weapon System Cost				- / 64.532	- / 35.228	- / 22.466	- / 52.960	- / 0.000	- / 52.960
*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. Title represents the P-40a Title when only the P-40a Summary/Total is shown.										
Note: Totals in this Exhibit P-40 set may not be exact or sum exactly due to rounding.										

Justification:

FY18 funds the baseline Surface Warfare Mission Package, procuring two sets of Gun Mission Modules, 1 Surface to Surface Mission Module, and two Maritime Security Modules

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Exhibit P-40a, Budget Item Justification For Aggregated Items: FY 2018 Navy															Date: May 2017					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 15							P-1 Line Item Number / Title: 1603 / LCS SUW Mission Modules							Aggregated Items Title: LCS SUW Mission Packages						
Item Number / Title [DODIC]	ID CD	MDAP/MAIS Code	Prior Years			FY 2016			FY 2017			FY 2018 Base			FY 2018 OCO			FY 2018 Total		
			Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)
1) SU001 - GUN MODULE																				
1.1) MK-50 Gun Module	A		5,803K	6	34.819	4,536K	4	18.144	4,252K	2	8.505	3,579K	4	14.316	-	-	-	3,579K	4	14.316
1.2) MK-46 Gun Weapon System	A		4,828K	4	19.312	4,566K	2	9.133	4,608K	2	9.216	4,657K	4	18.628	-	-	-	4,657K	4	18.628
1.3) PRODUCTION ENGINEERING SUPPORT	A		-	-	5.177	-	-	1.738	-	-	1.804	-	-	1.996	-	-	-	-	-	1.996
Subtotal: 1) SU001 - GUN MODULE			-	-	59.308	-	-	29.015	-	-	19.525	-	-	34.940	-	-	-	-	-	34.940
2) SU002 - SURFACE-TO-SURFACE MISSILE MODULE (SSMM)																				
2.1) SURFACE-TO-SURFACE MISSILE MODULE	A		-	-	-	-	-	-	-	-	-	11,036K	1	11.036	-	-	-	11,036K	1	11.036
2.2) PRODUCTION ENGINEERING SUPPORT	A		-	-	-	-	-	-	-	-	-	-	-	0.595	-	-	-	-	-	0.595
Subtotal: 2) SU002 - SURFACE-TO-SURFACE MISSILE MODULE (SSMM)			-	-	0.000	-	-	-	-	-	-	-	-	11.631	-	-	-	-	-	11.631
3) SU003 - MARITIME SECURITY MODULE																				
3.1) MARITIME SECURITY MODULE	A		2,575K	1	2.575	2,550K	2	5.100	2,201K	1	2.201	2,653K	2	5.306	-	-	-	2,653K	2	5.306
3.2) PRODUCTION ENGINEERING	A		-	-	0.596	-	-	0.613	-	-	0.230	-	-	0.563	-	-	-	-	-	0.563
Subtotal: 3) SU003 - MARITIME SECURITY MODULE			-	-	3.171	-	-	5.713	-	-	2.431	-	-	5.869	-	-	-	-	-	5.869
4) SU900 - CONSULTING SERVICES																				
4.1) CONSULTING SERVICES	A		-	-	2.053	-	-	0.500	-	-	0.510	-	-	0.520	-	-	-	-	-	0.520
Subtotal: 4) SU900 - CONSULTING SERVICES			-	-	2.053	-	-	0.500	-	-	0.510	-	-	0.520	-	-	-	-	-	0.520
Total			-	-	64.532	-	-	35.228	-	-	22.466	-	-	52.960	-	-	-	-	-	52.960

Note: Subtotals or Totals in this Exhibit P-40a may not be exact or sum exactly, due to rounding.

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Exhibit P-40, Budget Line Item Justification: FY 2018 Navy										Date: May 2017		
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 01: Ships Support Equipment / BSA 15: Other Ship Support							P-1 Line Item Number / Title: 1604 / LCS In-Service Modernization					
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 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	To Complete	Total
Procurement Quantity (<i>Units in Each</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost (<i>\$ in Millions</i>)	0.000	0.000	0.000	74.426	0.000	74.426	61.755	47.317	61.361	66.667	-	311.526
Less PY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (<i>\$ in Millions</i>)	0.000	0.000	0.000	74.426	0.000	74.426	61.755	47.317	61.361	66.667	-	311.526
Plus CY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority (<i>\$ in Millions</i>)	0.000	0.000	0.000	74.426	0.000	74.426	61.755	47.317	61.361	66.667	-	311.526
<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 Dollars</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost (<i>\$ in Dollars</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Description: This line provides funding for mandatory safety design changes, cyber security remediation actions, habitability modifications, and obsolescence and reliability resolution to maintain LCS operational availability and achieve the full 25-year service life. Funding covers planned CNO availabilities and includes two years of planning costs and long lead time materials (LLTM). LN001 - Habitability Modification Modifications to increase the permanent berths to 98 on the FREEDOM and INDEPENDENCE variants for LCS 11 and LCS 13-20. The change addresses the following additional racks in berthing spaces, increased refrigeration (chill and freeze), increased dry provision stores, increased potable water capability, increased solid waste storage, and laundry capability, to support the increase in core crew size from 40 to 50 personnel. LN002 - LCS Ships Class Safety Design Changes Safety modifications fund the redesigned stern ramp back-fit on five FREEDOM variant ships (LCS 11/13/15/17/19) to support 11M Rigid Hull Inflatable Boats (RHIB) operations and the installation of bridge wing for safe and effective operation of four INDEPENDENCE variant ships (LCS 14/16/18/20). This funding also supports installation of the Man Overboard Indicator (MOBI) system on LCS 9-20. Note: Earlier ships changes were completed in prior years. Later ships will be corrected in-line. LN003 - LCS Modernization Modernization funds back-fit and fact-of-life obsolescence changes on the Littoral Combat Ships (LCS) to include: - Mandatory Safety changes eliminate or reduce hazards to ship personnel or components. Safety considerations include human (includes human/system interfaces), toxic/hazardous materials and substances, testing, logistical support, weapons, and munitions/explosives. - Cyber Security changes protect data and information processed by installed networks and information systems. This includes hardware, software, and firmware that provide integrity, confidentiality, non-repudiation, identification and authentication, and availability of shipboard systems. - Obsolescence changes are required to prevent systems from becoming incompatible with newer technologies, or to update systems. - Reliability changes are key to the LCS reaching its full operational capabilities for the 25 year service life. System and structural reliability modifications will increase the LCS Ao and performance, while decreasing maintenance costs.												

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Exhibit P-40, Budget Line Item Justification: FY 2018 Navy								Date: May 2017		
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 01: Ships Support Equipment / BSA 15: Other Ship Support						P-1 Line Item Number / Title: 1604 / LCS In-Service Modernization				
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 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 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-40a	LCS In-Service Modernization				- / 0.000	- / -	- / -	- / 74.426	- / -	- / 74.426
P-40	Total Gross/Weapon System Cost				- / 0.000	- / 0.000	- / 0.000	- / 74.426	- / 0.000	- / 74.426
*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. Title represents the P-40a Title when only the P-40a Summary/Total is shown.										
Note: Totals in this Exhibit P-40 set may not be exact or sum exactly due to rounding.										

Justification:

LN001 - Habitability Modification

Modifications to increase the permanent berths to 98 on the FREEDOM and INDEPENDENCE variants for LCS 11 and LCS 13-20.

LN002 - LCS Ships Class Safety Design Changes

Safety modifications address the redesigned stern ramp back-fit on five FREEDOM variant ships (LCS 11/13/15/17/19) and installation of bridge wing on four INDEPENDENCE variant ships (LCS 14/16/18/20)

LN003 - LCS Modernization

Modernization funds back-fit and fact-of-life obsolescence changes on the Littoral Combat Ships (LCS)

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Exhibit P-40a, Budget Item Justification For Aggregated Items: FY 2018 Navy															Date: May 2017				
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 15								P-1 Line Item Number / Title: 1604 / LCS In-Service Modernization							Aggregated Items Title: LCS In-Service Modernization				

Item Number / Title [DODIC]	ID CD	MDAP/MAIS Code	Prior Years			FY 2016			FY 2017			FY 2018 Base			FY 2018 OCO			FY 2018 Total		
			Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)
1) LN001 Habitability Modifications																				
1.1) Habitability Mod (FRE Variant)	A		-	-	-	-	-	-	-	-	-	4,916K	3	14.748	-	-	-	4,916K	3	14.748
1.2) Habitability Mod (IND Variant)	A		-	-	-	-	-	-	-	-	-	4,878K	2	9.756	-	-	-	4,878K	2	9.756
Subtotal: 1) LN001 Habitability Modifications			-	-	0.000	-	-	-	-	-	-	-	-	24.504	-	-	-	-	-	24.504
2) LN002 LCS Ship Class Safety Design Changes																				
2.1) Stern Ramp (FRE Variant)	A		-	-	-	-	-	-	-	-	-	600,000.00	3	1.800	-	-	-	600,000.00	3	1.800
2.2) Bridge Wings (IND Variant)	A		-	-	-	-	-	-	-	-	-	2,500K	2	5.000	-	-	-	2,500K	2	5.000
Subtotal: 2) LN002 LCS Ship Class Safety Design Changes			-	-	0.000	-	-	-	-	-	-	-	-	6.800	-	-	-	-	-	6.800
3) LN003 LCS Modernization ⁽¹⁾																				
3.1) Mandatory Safety	A		-	-	-	-	-	-	-	-	-	-	-	6.236	-	-	-	-	-	6.236
3.2) Cyber Security	A		-	-	-	-	-	-	-	-	-	-	-	13.550	-	-	-	-	-	13.550
3.3) Obsolesence	A		-	-	-	-	-	-	-	-	-	-	-	10.706	-	-	-	-	-	10.706
3.4) Reliability	A		-	-	-	-	-	-	-	-	-	-	-	12.630	-	-	-	-	-	12.630
Subtotal: 3) LN003 LCS Modernization			-	-	0.000	-	-	-	-	-	-	-	-	43.122	-	-	-	-	-	43.122
Total			-	-	0.000	-	-	-	-	-	-	-	-	74.426	-	-	-	-	-	74.426

Note: Subtotals or Totals in this Exhibit P-40a may not be exact or sum exactly, due to rounding.

Footnotes:

⁽¹⁾ LN003 - LCS Modernization: The funding for Design Services Allocation begins two years prior to the start of an Availability. As of 10 April 2017 the schedule for LCS CNO Availabilities is as follows: FY18: LCS 4 FY19: LCS 1, LCS 2, LCS 6 FY20: LCS 3, LCS 4, LCS 5, LCS 7, LCS 8, LCS 9, LCS 10 FY21: LCS 1, LCS 11, LCS 12, LCS 13, LCS 14, LCS 16 FY22: LCS 2, LCS 3, LCS 5, LCS 6, LCS 7, LCS 10, LCS 15, LCS 17, LCS 18, LCS 20

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Exhibit P-40, Budget Line Item Justification: FY 2018 Navy										Date: May 2017		
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 01: Ships Support Equipment / BSA 15: Other Ship Support							P-1 Line Item Number / Title: 1605 / Remote Minehunting System (RMS)					
ID Code (A=Service Ready, B=Not Service Ready): B				Program Elements for Code B Items: N/A				Other Related Program Elements: 0603596N, 0604122N				
Line Item MDAP/MAIS Code: 286												
Resource Summary	Prior Years	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	To Complete	Total
Procurement Quantity (<i>Units in Each</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost (<i>\$ in Millions</i>)	0.000	53.077	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	-	53.077
Less PY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (<i>\$ in Millions</i>)	0.000	53.077	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	-	53.077
Plus CY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority (<i>\$ in Millions</i>)	0.000	53.077	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	-	53.077
<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 Dollars</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost (<i>\$ in Dollars</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Description: The AN/WLD-1(V)2 Remote Mine hunting System (RMS) was a mine reconnaissance system designed for the detection, classification, identification, and localization of bottom and moored mines in shallow and deep water. As a result of the Department's Independent Review Team (IRT)the RMS program of record was cancelled. The FY 2016 budget supported the upgrade of the Remote Multi-Mission Vehicle (RMMV) from the v4.0 to the v6.0 baseline configuration.												

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Exhibit P-40, Budget Line Item Justification: FY 2018 Navy									Date: May 2017			
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 01: Ships Support Equipment / BSA 16: Logistic Support							P-1 Line Item Number / Title: 1610 / LSD Midlife & Modernization					
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 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	To Complete	Total
Procurement Quantity (Units in Each)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost (\$ in Millions)	573.811	48.174	10.813	89.536	0.000	89.536	6.310	42.365	64.910	64.953	-	900.872
Less PY Advance Procurement (\$ in Millions)	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (\$ in Millions)	573.811	48.174	10.813	89.536	0.000	89.536	6.310	42.365	64.910	64.953	-	900.872
Plus CY Advance Procurement (\$ in Millions)	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority (\$ in Millions)	573.811	48.174	10.813	89.536	0.000	89.536	6.310	42.365	64.910	64.953	-	900.872
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)												
Initial Spares (\$ in Millions)	-	-	-	-	-	-	-	-	-	-	-	-
Flyaway Unit Cost (\$ in Dollars)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost (\$ in Dollars)	-	-	-	-	-	-	-	-	-	-	-	-
Description:												
Modernized LSD 41/49 Class ships transport and launch amphibious craft and vehicles with their crews and embarked personnel in amphibious assault operations. Supporting amphibious operations include landings via Landing Craft, Air Cushion (LCAC), conventional landing craft, and helicopters, onto hostile shores.												
PRIOR SMOSF EQUIPMENT: \$64.3 million requested in FY 2018 is for installation of equipment on LSD 46 USS Tortuga. For FY 2018-FY 2022, this funding is shifting from SMOSF to the base budget. This equipment was procured in prior years with SMOSF funds. LSD 46 Tortuga Midlife is being installed as phased modernization. The LSD 46 Phased Modernization program replaces obsolete/unsupported HM&E systems and legacy C5I systems, and implements TOC savings upgrades to maintain amphibious warfare capabilities through DECOM (2038). These include items such as LPAC, Steering Control Systems (SCS), A/C-plants, Generators, Propulsion Load Management Units (PLMU), Reverse Osmosis (RO) Desalinators, Automated Digital Network System (ADNS), Battle Force Tactical Network (BFTN), Digital Modular Radio (DMR), Global Broadcast System (GBS), Information Systems Security Program (KMI and KW46), Naval Modular Automated Communications System (NAVMACS), Advanced Digital Antenna Production (ADAP), Navy Multiband Terminal (NMT), CRYPTO, Ship Self Defense System (SSDS) Upgrade suite, Interior Communications (IC) Systems and LSD 46 Davit Upgrade.												
The LSD 41 Whidbey Island and LSD 42 Germantown is being installed as phased modernization receiving a five year service life extension package.												
[P40A / ST001 C4I Systems]: Procures C4I System including equipment procurement, recurring equipment engineering, equipment integration, and ILS.												
[P40A / Canned Lube Oil Pump]: Procures and installs a lube oil pump and controllers for the main four (4) propulsion diesel engines, including piping and sensor modifications.												
[P40A / ST5IN Installation/DSA/AIT]: Provides Planning Yard Design Services Allocation (DSA) (design, advance planning, and kitted material), MSR installations and AIT installation support.												
[P40A / LSD 41 FY22 EDSRA INSTALLATION / AIT]: FY22 EDSRA Availability for Major Ship Repair (MSR) / AIT installations. Availability installs HM&E Mod Conjunctive Alteration, C4I Systems, IC Systems, and Combat Systems.												
[P40A / LSD 46 FY18 EDSRA Installation / AIT]: FY18 Extended Docking Selected Restricted Availability (EDSRA) Availability for MSR / AIT installations. Availability installs include C4I Systems, IC Systems, Combat Systems, and HM&E Mod and Conjunctive Alterations (Reverse Osmosis (RO) configurations specific to the LSD 46, Electric Water Heater and Galley Mods for All Electric Upgrade, 130 Ton Air Conditioning Plant, Damage Control Console Upgrades, and Slewing Arm Davit.) This is installation of equipment that was procured in prior years with SMOSF funds.												

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Exhibit P-40, Budget Line Item Justification: FY 2018 Navy		Date: May 2017
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 01: Ships Support Equipment / BSA 16: Logistic Support		P-1 Line Item Number / Title: 1610 / LSD Midlife & Modernization
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		
[P40A / LSD 46 Design Services Allocation (DSA)]: FY15 SMOSF for First Year DSA and ADVANCE PLANNING LLTM on the LSD 46 USS Tortuga. FY16 SMOSF for DSA and ADVANCE PLANNING LLTM on the LSD 46 USS Tortuga. [P40A / ST001 - LSD Conjunctive Combat System]: Procures Combat Systems including equipment procurement, recurring equipment engineering, equipment integration, and ILS. [P40A / LSD 41 Combat System Equipment]: Procures LSD 41 Ship Self Defense System (SSDS) combat system upgrade suite. [P40A / LSD 46 Combat System Equipment]: Procures LSD 46 Ship Self Defense System (SSDS) combat system upgrade suite. [P40A / ST001 - HM&E Mod]: Procures HM&E Modernization Systems including equipment procurement, recurring equipment engineering, equipment integration, and ILS. [P40A / ST001 LSD 41 HM&E Mod and Conjunctive Alterations]: Procurements in FY20 are for HM&E Midlife Mods and Conjunctive Alterations for LSD 41. FY20 Conjunctive Alteration procurement costs included equipment procurements, recurring engineering, equipment integration, and integrated logistics support for the 5 year extended service life modernization package. Equipment is scheduled to be installed on the LSD41 FY22 EDSRA. [P40A / ST001 LSD 46 HM&E Mod and Conjunctive Alterations]: Procurements in FY16 HM&E Midlife Mods and Conjunctive alterations was funded under Ship Modernization Operation Sustainment Fund (SMOSF) for LSD 46. FY16 Alterations procurement costs included equipment procurements, recurring engineering, equipment integration, and integrated logistics Support. Alterations include Reverse Osmosis (RO) configurations specific to the LSD 46, Electric Water Heater and Galley Mods for All Electric Upgrade, 130 Ton Air Conditioning Plant, Damage Control Console Upgrades, and Slewing Arm Davit. Equipment is scheduled to be installed on the LSD 46 FY18 EDSRA. [P40AMOD / ST002 - Propeller Blades & PLMU]: Replaces the existing Propeller Blades with higher efficiency blades and installs Propulsion Load Management Units (PLMU). [P40AMOD / ST002 - Steering Control System]: Replaces the analog Helm and Lee Helm Steering Consoles and equipment with an electronic, computerized Steering Control System (SCS). [P40AMOD / ST002 - Low Pressure Air Compressor]: Replaces the Low-Pressure Air Compressors (LPAC) with modern, oil-free compressors. [P40AMOD / LT329 LSD Deck Crane]: LT329 - Replaces the control system for the 60 and 20 Ton Cranes with a modern, electronic, computerized control system. [P40AMOD / LT329 LSD Flight Deck Thermal Management System]: Provides Flight Deck Thermal Management System (FDTMS) on the flight deck to mitigate damage resulting from MV-22 vertical take off/ landing (VTOL) flight operations. [P40AMOD / LT329 - LSD Ballast Control Console]: Provides upgrades to the existing Ballast Control Consoles (BCS). [P3A - 8 / ST002 - Generators & Elect Distribution]: Replaces the generator on the Ship Service Diesel Generators (SSDG) with a higher wattage version and increased electric distribution capability for shore power, switchboard and load centers.		

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Exhibit P-40, Budget Line Item Justification: FY 2018 Navy								Date: May 2017		
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 01: Ships Support Equipment / BSA 16: Logistic Support						P-1 Line Item Number / Title: 1610 / LSD Midlife & Modernization				
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 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 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-40a	LSD Midlife				- / 488.936	- / 45.400	- / 0.789	- / 64.300	- / -	- / 64.300
P-40a	ST002 - Propeller Blades & PLMU				- / 17.737	- / 0.000	- / 2.115	- / 1.362	- / 0.000	- / 1.362
P-40a	ST002 - Steering Control System				- / 50.708	- / 0.000	- / 2.072	- / 1.828	- / 0.000	- / 1.828
P-40a	ST002 - Low Pressure Air Compressor				- / 16.430	- / 0.850	- / 0.327	- / 1.438	- / 0.000	- / 1.438
P-40a	LT329 LSD Deck Crane				- / 0.000	- / 0.000	- / 0.000	- / 1.736	- / 0.000	- / 1.736
P-40a	LT329 LSD Flight Deck Thermal Management System				- / 0.000	- / 0.000	- / 0.000	- / 0.420	- / 0.000	- / 0.420
P-40a	LT329 - LSD Ballast Control Console				- / 0.000	- / 0.000	- / 0.000	- / 1.428	- / 0.000	- / 1.428
P-3a	8 / ST002 - Generators & Elect Distribution (TBD)				- / 0.000	- / 1.924	- / 5.510	- / 17.024	- / 0.000	- / 17.024
P-40	Total Gross/Weapon System Cost				- / 573.811	- / 48.174	- / 10.813	- / 89.536	- / 0.000	- / 89.536
*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. Title represents the P-40a Title when only the P-40a Summary/Total is shown. Note: Totals in this Exhibit P-40 set may not be exact or sum exactly due to rounding.										

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Exhibit P-40a, Budget Item Justification For Aggregated Items: FY 2018 Navy															Date: May 2017					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 16								P-1 Line Item Number / Title: 1610 / LSD Midlife & Modernization							Aggregated Items Title: LSD Midlife ⁽¹⁾					
Item Number / Title [DODIC]	ID CD	MDAP/MAIS Code	Prior Years			FY 2016			FY 2017			FY 2018 Base			FY 2018 OCO			FY 2018 Total		
			Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)
1) ST001 C4I Systems ⁽²⁾																				
1.1) Automated Digital Network System (ADNS)	A		-	-	0.497	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.2) Battle Force Tactical Network (BFTN)	A		-	-	0.220	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.3) Digital Modular Radio (DMR)	A		-	-	0.755	-	-	0.396	-	-	-	-	-	-	-	-	-	-	-	-
1.4) Global Broadcast System (GBS)	A		-	-	0.383	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.5) Information Systems Security Program (KMI and KW46)	A		-	-	0.110	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.6) Naval Modular Automated Communications System (NAVMACS)	A		-	-	0.301	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.7) Advanced Digital Antenna Production (ADAP)	A		-	-	0.425	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.8) Navy Multiband Terminal (NMT)	A		-	-	7.635	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.9) CRYPTO	A		-	-	0.082	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.10) CANES	A		-	-	-	-	-	5.000	-	-	-	-	-	-	-	-	-	-	-	-
1.11) VINSON/ANDVT Cryptographic Modernization (VACM)	A		-	-	-	-	-	0.325	-	-	-	-	-	-	-	-	-	-	-	-
1.12) Interior Communications (IC) Systems	A		-	-	-	-	-	3.300	-	-	-	-	-	-	-	-	-	-	-	-
1.13) Canned Lube Oil Pump ⁽³⁾	A		-	-	15.754	-	-	-	-	-	0.789	-	-	-	-	-	-	-	-	-
Subtotal: 1) ST001 C4I Systems			-	-	26.162	-	-	9.021	-	-	0.789	-	-	-	-	-	-	-	-	-
2) ST5IN Installation/DSA/AIT ⁽⁴⁾																				
2.3) LSD 46 FY18 EDSRA Installation / AIT	A		-	-	-	-	-	-	-	-	-	-	-	63.300	-	-	-	-	-	63.300
2.4) LSD 46 Special Selected Restrited Availability (SSRA)	A		-	-	-	-	-	9.400	-	-	-	-	-	-	-	-	-	-	-	-

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Exhibit P-40a, Budget Item Justification For Aggregated Items: FY 2018 Navy																Date: May 2017			
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 16								P-1 Line Item Number / Title: 1610 / LSD Midlife & Modernization								Aggregated Items Title: LSD Midlife ⁽¹⁾			

Item Number / Title [DODIC]	ID CD	MDAP/MAIS Code	Prior Years			FY 2016			FY 2017			FY 2018 Base			FY 2018 OCO			FY 2018 Total		
			Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)
2.5) LSD 46 Design Services Allocation (DSA) ⁽⁵⁾	A		-	-	3.392	-	-	4.500	-	-	-	-	-	1.000	-	-	-	-	-	1.000
Subtotal: 2) ST5IN Installation/DSA/AIT			-	-	3.392	-	-	13.900	-	-	-	-	-	64.300	-	-	-	-	-	64.300
3) ST001 - LSD Conjunctive Combat System ⁽⁶⁾																				
3.2) LSD 46 Combat System Equipment	A		-	-	-	-	-	7.456	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: 3) ST001 - LSD Conjunctive Combat System			-	-	0.000	-	-	7.456	-	-	-	-	-	-	-	-	-	-	-	-
4) ST001 - HM&E Mod																				
4.2) ST001 LSD 46 HM&E Mod and Conjunctive Alterations ⁽⁷⁾	A		-	-	-	-	-	15.023	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: 4) ST001 - HM&E Mod			-	-	0.000	-	-	15.023	-	-	-	-	-	-	-	-	-	-	-	-
5) Other Prior Year Costs ⁽⁸⁾																				
5.1) All Other Prior Year Costs	A		-	-	459.382	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: 5) Other Prior Year Costs			-	-	459.382	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total			-	-	488.936	-	-	45.400	-	-	0.789	-	-	64.300	-	-	-	-	-	64.300

Note: Subtotals or Totals in this Exhibit P-40a may not be exact or sum exactly, due to rounding.

Footnotes:

⁽¹⁾ (1) PRIOR SMOSF EQUIPMENT: \$64.3 million requested in FY 2018 is for installation of equipment on LSD 46 USS Tortuga. For FY 2018-FY 2022, this funding is shifting from SMOSF to the base budget. This equipment was procured in prior years with SMOSF funds. (a) The Consolidated Appropriations Act, 2015, H.R. 8110 re-appropriated and extended the Ship Modernization, Operations and Sustainment fund (SMOSF) to provide for costs associated with the continued operations and modernization of eleven CGs and LSD 46. Received \$13,800,000 FY15 SMOSF funds for the LSD 46 Tortuga. Received \$45,400,000 FY16 SMOSF for the LSD 46 Tortuga. (b) FY15 C4I procurements, FY16 HM&E Modernization procurements, FY16 combat systems procurement and FY16 SSRA for LSD 46 Tortuga. (c) FY15 SMOSF for First Year DSA on the LSD 46 Tortuga. FY16 SMOSF for DSA and ADVANCE PLANNING LLTM on the LSD 46 Tortuga. (d) Funding for FY18 - FY22 is shifting funds from SMOSF to base budget.

⁽²⁾ FY2015/FY2016 ST001-C4I System funded via Ship Modernization, Operations, and Sustainment Funds (SMOSF).

⁽³⁾ Procures and installs a lube oil pump and controllers for the main four (4) propulsion diesel engines, including piping and sensor modifications.

⁽⁴⁾ FY2016 ST5IN Installation/DSA/AIT funded via Ship Modernization, Operations, and Sustainment Funds (SMOSF).

⁽⁵⁾ FY15 SMOSF for First Year DSA and ADVANCE PLANNING LLTM on the LSD 46 USS Tortuga. FY16 SMOSF for DSA and ADVANCE PLANNING LLTM on the LSD 46 USS Tortuga.

⁽⁶⁾ FY2016 LSD 46 Conjunctive Combat System funded via Ship Modernization, Operations, and Sustainment Funds (SMOSF).

⁽⁷⁾ Procurements in FY16 HM&E Midlife Mods and Conjunctive alterations was funded under Ship Modernization Operation Sustainment Fund (SMOSF) for LSD 46. FY16 Alterations procurement costs included equipment procurements, recurring engineering, equipment integration, and integrated logistics Support. Alterations include Reverse Osmosis (RO) configurations specific to the LSD 46, Electric Water Heater and Galley Mods for All Electric Upgrade, 130 Ton Air Conditioning Plant, Damage Control Console Upgrades, and Slewing Arm Davit. Equipment is scheduled to be installed on the LSD 46 FY18 EDSRA.

⁽⁸⁾ Accounting entry for prior year funds of all other cost elements no longer funded.

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Exhibit P-40a, Budget Item Justification For Aggregated Items: FY 2018 Navy															Date: May 2017								
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 16									P-1 Line Item Number / Title: 1610 / LSD Midlife & Modernization									Aggregated Items Title: ST002 - Propeller Blades & PLMU					
Item Number / Title [DODIC]	ID CD	MDAP/MAIS Code	Prior Years			FY 2016			FY 2017			FY 2018 Base			FY 2018 OCO			FY 2018 Total					
			Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)			
B Kits/Recurring																							
FMP Ship Units -- Procurement	A		1,017K	7	7.121	-	-	-	1,742K	1	1.742	-	-	-	-	-	-	-	-	-			
FMP Ship Units -- Installation	A		-	-	8.678	-	-	-	-	-	0.373	-	-	1.362	-	-	-	-	-	1.362			
End Item Spares	A		969,000.00	2	1.938	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
Subtotal: B Kits/Recurring			-	-	17.737	-	-	-	-	-	2.115	-	-	1.362	-	-	-	-	-	1.362			
Total			-	-	17.737	-	-	0.000	-	-	2.115	-	-	1.362	-	-	0.000	-	-	1.362			
Note: Subtotals or Totals in this Exhibit P-40a may not be exact or sum exactly, due to rounding.																							
Remarks: Models of Systems Affected: Propeller Blades & PLMU																							
This SHIPALT replaces the existing Propeller Blades with higher efficiency blades and installs Propulsion Load Management Units (PLMU) that result in fuel savings and engine maintenance reduction as well as operational benefits. The prototype for this SHIPALT was installed and proven aboard the LSD 44 under the DOD sponsored Commercial Operations and Support Savings Initiative (COSSI). Return On Investment (ROI) for the class is estimated at over \$40M (after payback) and operational benefits include increased top speed, quicker response/deceleration, and elimination of existing system performance problems (i.e., low lube-oil pressure trip of main engines). Only 9 LSDs will require this SHIPALT as part of the Midlife Program.																							

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Exhibit P-40a, Budget Item Justification For Aggregated Items: FY 2018 Navy															Date: May 2017					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 16							P-1 Line Item Number / Title: 1610 / LSD Midlife & Modernization								Aggregated Items Title: ST002 - Steering Control System					
Item Number / Title [DODIC]	ID CD	MDAP/MAIS Code	Prior Years			FY 2016			FY 2017			FY 2018 Base			FY 2018 OCO			FY 2018 Total		
			Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)
B Kits/Recurring																				
Non-FMP Shore Site Units -- Procurement	A		716,500.00	2	1.433	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Non-FMP Shore Site Units -- Installation	A		-	-	7.102	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
FMP Ship Units -- Procurement ⁽⁹⁾	A		871,090.91	11	9.582	-	-	-	844,000.00	1	0.844	-	-	-	-	-	-	-	-	-
FMP Ship Units -- Installation	A		-	-	32.591	-	-	-	-	-	1.228	-	-	1.828	-	-	-	-	-	1.828
Subtotal: B Kits/Recurring			-	-	50.708	-	-	-	-	-	2.072	-	-	1.828	-	-	-	-	-	1.828
Total			-	-	50.708	-	-	0.000	-	-	2.072	-	-	1.828	-	-	0.000	-	-	1.828

Note: Subtotals or Totals in this Exhibit P-40a may not be exact or sum exactly, due to rounding.

Remarks:

Models of Systems Affected: Steering Control System

This SHIPALT replaces the analog Helm and Lee Helm Steering Consoles and equipment with an electronic, computerized Steering Control System (SCS) that integrates various navigation parameters, such as location (latitude, longitude) from GPS as well as pitch, roll, speed, heading, and wind. SCS will be designed to integrate with Electronic Chart Display and Information Systems-Navy (ECDIS-N) digital nautical charts. The existing Bridge control system was designed in the late 1970s and is near the end of its useful service life. Parts obsolescence is a rapidly growing and more costly problem on this maintenance intensive control system. The IBS also provides significantly enhanced operational and monitoring capabilities as well as real-time Navigation data. This system will reduce workload, provide significant readiness improvement, improve safety and provide cost avoidance.

Footnotes:

⁽⁹⁾ IN/OUT based on current phased mod availability. FY 2017 DSA (\$1.2 million) efforts in support of the FY 2018 LSD Class install.

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Exhibit P-40a, Budget Item Justification For Aggregated Items: FY 2018 Navy															Date: May 2017					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 16							P-1 Line Item Number / Title: 1610 / LSD Midlife & Modernization							Aggregated Items Title: ST002 - Low Pressure Air Compressor						
Item Number / Title [DODIC]	ID CD	MDAP/MAIS Code	Prior Years			FY 2016			FY 2017			FY 2018 Base			FY 2018 OCO			FY 2018 Total		
			Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)
B Kits/Recurring																				
FMP Ship Units -- Procurement	A		818,571.43	7	5.730	750,000.00	1	0.750	-	-	-	-	-	-	-	-	-	-	-	-
FMP Ship Units -- Installation	A		-	-	10.700	-	-	0.100	-	-	0.327	-	-	1.438	-	-	-	-	-	1.438
Subtotal: B Kits/Recurring			-	-	16.430	-	-	0.850	-	-	0.327	-	-	1.438	-	-	-	-	-	1.438
Total			-	-	16.430	-	-	0.850	-	-	0.327	-	-	1.438	-	-	0.000	-	-	1.438

Note: Subtotals or Totals in this Exhibit P-40a may not be exact or sum exactly, due to rounding.

Remarks:

Models of Systems Affected: LPAC

This Ship Change replaces the Low-Pressure Air Compressors (LPAC) with modern, oil-free compressors. Parts obsolescence is a rapidly growing and more costly problem on these maintenance intensive compressors. This Ship Change provides Return On Investment (ROI) through improved reliability and maintainability of LPACs and reduced maintenance by elimination of oil contamination of pneumatic controls components (new compressors are oil-free). In addition, the new compressors will provide significant readiness improvement through increased reliability of Vital, low-pressure air supply to Vital combat systems and the main propulsion controls.

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Exhibit P-40a, Budget Item Justification For Aggregated Items: FY 2018 Navy															Date: May 2017					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 16								P-1 Line Item Number / Title: 1610 / LSD Midlife & Modernization							Aggregated Items Title: LT329 LSD Deck Crane					
Item Number / Title [DODIC]	ID CD	MDAP/MAIS Code	Prior Years			FY 2016			FY 2017			FY 2018 Base			FY 2018 OCO			FY 2018 Total		
			Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)
Support Cost																				
Non-recurring Engineering ⁽¹⁰⁾	A		-	-	-	-	-	-	-	-	-	-	-	1.736	-	-	-	-	-	1.736
Subtotal: Support Cost			-	-	0.000	-	-	-	-	-	-	-	-	1.736	-	-	-	-	-	1.736
Total			-	-	0.000	-	-	0.000	-	-	0.000	-	-	1.736	-	-	0.000	-	-	1.736
Note: Subtotals or Totals in this Exhibit P-40a may not be exact or sum exactly, due to rounding.																				
Remarks: SCD 19102 (60 Ton) and SCD 19770 (20 Ton) Crane controls - These ship changes replaces the control system for the 60 and 20 Ton Cranes with a modern, electronic, computerized control system. The existing crane control system was designed in the late 1970s and is no longer logistically supported. Maintenance costs continue to be high due to the difficulty in obtaining repair parts and frequent failure of components. In addition, mission capability has been frequently degraded because the Deck Crane is required to support USMC amphibious assault landings and boat ops. The LSD-41 class crane control upgrades will include: replace obsolete and at-risk parts/subsystems (brakes, motors, safety devices), replace and upgrading electrical and control system (motor controllers, electrical circuits, panels, and switches), improve design of high failure items, upgrade operator control interface and preservation corrosion control requirements.																				
Footnotes: ⁽¹⁰⁾ FY18 Non-Recurring Engineering (NRE) is required to support the first procurement in FY20 and the installation of two alterations (20 Ton Crane and 60 Ton Crane) in FY21, which is scheduled to start in January of 2021. Funds will be used to identify obsolete and at-risk parts/subsystems (brakes, motors, safety devices), to redesign and upgrade electrical and control systems (motor controllers, electrical circuits, panels, and switches), to improve design of high failure items, and to upgrade operator control interface and preservation corrosion control requirements. Other NRE efforts include conducting vendor and industrial surveys to identify current obsolete crane components and recommending best course of actions for life-cycle support. Other efforts involve identifying new training requirements, spare parts requirements, technical manual updates and other logistics element support.																				

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Exhibit P-40a, Budget Item Justification For Aggregated Items: FY 2018 Navy										Date: May 2017	
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 16					P-1 Line Item Number / Title: 1610 / LSD Midlife & Modernization					Aggregated Items Title: LT329 LSD Flight Deck Thermal Management System	

Item Number / Title [DODIC]	ID CD	MDAP/MAIS Code	Prior Years			FY 2016			FY 2017			FY 2018 Base			FY 2018 OCO			FY 2018 Total		
			Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)
B Kits/Recurring																				
LSD Flight Deck Thermal Management System -- Installation	A		-	-	-	-	-	-	-	-	-	-	-	0.164	-	-	-	-	-	0.164
Subtotal: B Kits/Recurring			-	-	0.000	-	-	-	-	-	-	-	-	0.164	-	-	-	-	-	0.164
Support Cost																				
Non-recurring Engineering	A		-	-	-	-	-	-	-	-	-	-	-	0.256	-	-	-	-	-	0.256
Subtotal: Support Cost			-	-	0.000	-	-	-	-	-	-	-	-	0.256	-	-	-	-	-	0.256
Total			-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.420	-	-	0.000	-	-	0.420

Note: Subtotals or Totals in this Exhibit P-40a may not be exact or sum exactly, due to rounding.

Remarks:

SCD 16657 - The Flight Deck Thermal Management System (FDTMS) consists of the installation of heat mitigating, two layer, composite panels that provides heat protection to the helicopter deck to mitigate damage resulting from MV-22 vertical take off/landing (VTOL) flight operations.

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Exhibit P-40a, Budget Item Justification For Aggregated Items: FY 2018 Navy															Date: May 2017					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 16						P-1 Line Item Number / Title: 1610 / LSD Midlife & Modernization									Aggregated Items Title: LT329 - LSD Ballast Control Console					
Item Number / Title [DODIC]	ID CD	MDAP/MAIS Code	Prior Years			FY 2016			FY 2017			FY 2018 Base			FY 2018 OCO			FY 2018 Total		
			Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)
B Kits/Recurrring																				
BALLAST CONTROL CONSOLE UPGRADE -- Installation	A		-	-	-	-	-	-	-	-	-	-	-	0.248	-	-	-	-	-	0.248
Subtotal: B Kits/Recurring			-	-	0.000	-	-	-	-	-	-	-	-	0.248	-	-	-	-	-	0.248
Support Cost																				
System Engineering/ NonRecurring Engineering ⁽¹¹⁾	A		-	-	-	-	-	-	-	-	-	-	-	1.180	-	-	-	-	-	1.180
Subtotal: Support Cost			-	-	0.000	-	-	-	-	-	-	-	-	1.180	-	-	-	-	-	1.180
Total			-	-	0.000	-	-	0.000	-	-	0.000	-	-	1.428	-	-	0.000	-	-	1.428
Note: Subtotals or Totals in this Exhibit P-40a may not be exact or sum exactly, due to rounding.																				
Remarks: SCD 10828 - Ballast Control Console (BCS) - This mission and safety critical SCD addresses system degradation due to obsolescence issues, extensive downtime and reduced system capability/reliability. The system is currently operating in a degraded capacity and requires immediate replacement. The SCD leverages hardware/software commonality with LSD Tech Refresh and LHD Mid Life efforts to integrate legacy equipment controlled and monitored in BCS utilizing an Open System Architecture.																				
Footnotes: ⁽¹¹⁾ FY18 NRE is required to support Request for Proposal (RFP) and first procurement award in FY19 without schedule delays. Funds will be used to identify obsolete and at-risk 1970's vintage parts/subsystems, to redesign and upgrade electrical and control systems (motor controllers, electrical circuits, panels, and switches), to improve design of high failure items, and to upgrade operator ballast control console interface and preservation corrosion control requirements. Other NRE efforts include conducting vendor and industrial surveys to identify currently obsolete ballast control console components, recommending best course of actions for life-cycle support, and identifying new training requirements, spare parts requirements, technical manual updates, other logistics element support. Additional Engineering/Non-Recurring Engineering is for performing Electro-Magnetic Interference (EMI), shock and vibration testing; and for development of the formal lifecycle training Front End Analysis (FEA), development of the formal lifecycle training Navy Training System Plan (NTSP) and procurement of training equipment for the LSD controls systems Maintainer Classrooms in Norfolk and San Diego. Also funds the In-Service Engineering Agent (ISEA) to serve as the government Subject Matter Expertise (SME) for evaluating new ballast control console designs, interfacing with commercial manufactures, evaluating new technologies, and determining best form/fit/function for ballast control design efforts.																				

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Exhibit P-3a, Individual Modification: FY 2018 Navy					Date: May 2017	
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 16			P-1 Line Item Number / Title: 1610 / LSD Midlife & Modernization		Modification Number / Title: 8 / ST002 - Generators & Elect Distribution	
ID Code (A=Service Ready, B=Not Service Ready) :				MDAP/MAIS Code:		
Resource Summary	Prior Years	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
Procurement Quantity (<i>Units in Each</i>)	-	-	-	-	-	-
Gross/Weapon System Cost (<i>\$ in Millions</i>)	0.000	1.924	5.510	17.024	0.000	17.024
Less PY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-
Net Procurement (P-1) (<i>\$ in Millions</i>)	0.000	1.924	5.510	17.024	0.000	17.024
Plus CY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-
Total Obligation Authority (<i>\$ in Millions</i>)	0.000	1.924	5.510	17.024	0.000	17.024
<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>)	-	-	-	-	-	-
Gross/Weapon System Unit Cost (<i>\$ in Dollars</i>)	-	-	-	-	-	-
Description: This SHIPALT replaces the generator on the Ship Service Diesel Generators (SSDG) with a higher wattage version and increased electric distribution capability for shore power, switchboard and load centers. This SHIPALT provides significant Return on Investment (ROI) through improved reliability and maintainability of electrical ship systems/equipment versus the obsolete and maintenance intensive equipment. Also, additional electrical plant loads will improve efficient operation of the currently under-loaded SSDGs and contribute to the ROI through reduced maintenance costs for the SSDGs.						

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Exhibit P-3a, Individual Modification: FY 2018 Navy						Date: May 2017	
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 16			P-1 Line Item Number / Title: 1610 / LSD Midlife & Modernization			Modification Number / Title: 8 / ST002 - Generators & Elect Distribution	
ID Code (A=Service Ready, B=Not Service Ready) :					MDAP/MAIS Code:		
Models of Systems Affected: Generators & Elect Distribution			Modification Type: TBD			Related RDT&E PEs:	
Financial Plan	Prior Years	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	
	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)	
Procurement							
Modification Item 1 of 1: ST002 - Generators & Elect Distribution							
B Kits							
Recurring							
1.1.1) FMP Ship Units - NonOrganic ⁽¹²⁾		- / -	1 / 1.738	- / 2.576	- / 0.649	- / -	- / 0.649
<i>Subtotal: Recurring</i>		- / 0.000	- / 1.738	- / 2.576	- / 0.649	- / -	- / 0.649
<i>Subtotal: ST002 - Generators & Elect Distribution</i>		- / -	1 / 1.738	- / 2.576	- / 0.649	- / -	- / 0.649
<i>Subtotal: Procurement, All Modification Items</i>		- / 0.000	- / 1.738	- / 2.576	- / 0.649	- / -	- / 0.649
Installation							
Modification Item 1 of 1: ST002 - Generators & Elect Distribution		- / 0.000	- / 0.186	- / 2.934	- / 16.375	- / 0.000	- / 16.375
<i>Subtotal: Installation</i>		- / 0.000	- / 0.186	- / 2.934	- / 16.375	- / -	- / 16.375
Total							
Total Cost (Procurement + Support + Installation)		0.000	1.924	5.510	17.024	0.000	17.024

UNCLASSIFIED

Exhibit P-3a, Individual Modification: FY 2018 Navy						Date: May 2017							
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 16				P-1 Line Item Number / Title: 1610 / LSD Midlife & Modernization				Modification Number / Title: 8 / ST002 - Generators & Elect Distribution					
ID Code (A=Service Ready, B=Not Service Ready) :						MDAP/MAIS Code:							
Modification Item 1 of 1: ST002 - Generators & Elect Distribution													
Manufacturer Information													
Manufacturer Name: Awua-Chem						Manufacturer Location: Knoxville, TN							
Administrative Leadtime (in Months): 2						Production Leadtime (in Months): 21							
Dates		FY 2016		FY 2017		FY 2018							
Contract Dates		Mar 2016		Jan 2017									
Delivery Dates		Dec 2017		Dec 2017									
Installation Information													
Method of Implementation: SHIPYARD/AIT:: Installation Name: FMP Ship Units													
Installation Cost		Prior Years		FY 2016		FY 2017		FY 2018 Base		FY 2018 OCO		FY 2018 Total	
		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)	
Prior Years		- / -		- / -		- / -		- / -		- / -		- / -	
FY 2016		- / -		0 / 0.186		0 / 2.934		1 / 16.375		0 / 0.000		1 / 16.375	
FY 2017		- / -		- / -		- / -		- / -		- / -		- / -	
FY 2018		- / -		- / -		- / -		- / -		- / -		- / -	
Total		- / -		0 / 0.186		0 / 2.934		1 / 16.375		0 / 0.000		1 / 16.375	
Installation Schedule													
	PYS	FY 2016				FY 2017				FY 2018			
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
In	-	-	-	-	-	-	-	-	-	1	-	-	-
Out	-	-	-	-	-	-	-	-	-	-	-	-	-
Footnotes: (12) The replacement generator to be installed in FY18 for LSD-46 is procured in components and is budgeted in FY16, FY17, and FY18 based on the production lead-times of individual components. FY16 funding is required to procure generator couplings, load centers, shore power receptacles, and shore power switchboard with lead-times ranging from 11 to 21 months. IN/OUT based on current phased mod availability. FY17 DSA is for the year prior to install costs associated with the remainder of Midlife Long Lead Time Material and Advanced Planning. IN/OUT based on current phased mod availability. FY18 funding is required to procure Generator and Electric Distribution System Sensors, circuit breakers, buss bars, and actuators.													