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**Department of Defense
Fiscal Year (FY) 2020 Budget Estimates**

March 2019



Navy

Justification Book Volume 1 of 5

Other Procurement, Navy

BA 01

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The estimated cost of this report for the Department of the Navy (DON) is \$52,800.

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

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Department of Defense Appropriations Act, 2020

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, \$10,010,556,000, to remain available for obligation until September 30, 2022.

FY 2020 Overseas Contingency Operations funding can be separated into the following categories:

- OCO for Direct War Costs (\$38,091,000): Direct War costs are those combat or direct combat support costs that will not continue to be expended once combat operations end at major contingency locations.
- OCO for Enduring Requirements (\$319,509,000): OCO for Enduring Requirements are enduring in-theater and in-CONUS costs that will likely remain after combat operations cease, and have previously been funded in OCO.
- OCO for Base Requirements (\$0): OCO for Base Requirements is OCO funding for base budget requirements in support of the National Defense Strategy. The Budget requests these funds in OCO to comply with the base budget defense caps included in the Budget Control Act of 2011.

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

Appropriation -----	FY 2018 (Base + OCO) -----	FY 2019 Base Enacted -----	FY 2019 OCO Enacted -----	FY 2019 Total Enacted -----
Other Procurement, Navy	8,258,598	9,097,138	181,173	9,278,311
Total Department of the Navy	8,258,598	9,097,138	181,173	9,278,311

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

Appropriation -----	FY 2020 Base -----	FY 2020 OCO for Base Requirements -----	FY 2020 OCO for Direct War and Enduring Costs -----	FY 2020 Total OCO -----
Other Procurement, Navy	9,652,956		357,600	357,600
Total Department of the Navy	9,652,956		357,600	357,600

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

Appropriation -----	FY 2020 Total (Base + OCO) -----
Other Procurement, Navy	10,010,556
Total Department of the Navy	10,010,556

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

Appropriation: Other Procurement, Navy

Budget Activity -----	FY 2018 (Base + OCO) -----	FY 2019 Base Enacted -----	FY 2019 OCO Enacted -----	FY 2019 Total Enacted -----
01. Ships Support Equipment	2,711,934	3,039,782	28,260	3,068,042
02. Communications & Electronics Equip	2,740,513	3,059,558	62,150	3,121,708
03. Aviation Support Equipment	459,749	516,566	21,156	537,722
04. Ordnance Support Equipment	978,185	997,917	27,580	1,025,497
05. Civil Engineering Support Equip	107,860	111,224	8,638	119,862
06. Supply Support Equipment	511,217	603,132	500	603,632
07. Personnel & Command Support Equip	461,687	461,384	32,889	494,273
08. Spares and Repair Parts	287,453	307,575		307,575
Total Other Procurement, Navy	8,258,598	9,097,138	181,173	9,278,311

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

Appropriation: Other Procurement, Navy

Budget Activity -----	FY 2020 Base -----	FY 2020 OCO for Base Requirements -----	FY 2020 OCO for Direct War and Enduring Costs -----	FY 2020 Total OCO -----
01. Ships Support Equipment	2,797,292		5,800	5,800
02. Communications & Electronics Equip	3,255,859		310,503	310,503
03. Aviation Support Equipment	640,625		16,830	16,830
04. Ordnance Support Equipment	1,133,944		15,307	15,307
05. Civil Engineering Support Equip	170,574		1,366	1,366
06. Supply Support Equipment	676,793		610	610
07. Personnel & Command Support Equip	602,261		7,184	7,184
08. Spares and Repair Parts	375,608			
Total Other Procurement, Navy	9,652,956		357,600	357,600

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

Appropriation: Other Procurement, Navy

Budget Activity -----	FY 2020 Total (Base + OCO) -----
01. Ships Support Equipment	2,803,092
02. Communications & Electronics Equip	3,566,362
03. Aviation Support Equipment	657,455
04. Ordnance Support Equipment	1,149,251
05. Civil Engineering Support Equip	171,940
06. Supply Support Equipment	677,403
07. Personnel & Command Support Equip	609,445
08. Spares and Repair Parts	375,608
Total Other Procurement, Navy	10,010,556

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

Appropriation: 1810N Other Procurement, Navy

Line No	Item Nomenclature	Ident Code	FY 2018 (Base + OCO) Quantity Cost	FY 2019 Base Enacted Quantity Cost	FY 2019 OCO Enacted Quantity Cost	FY 2019 Total Enacted Quantity Cost	S e c
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Budget Activity 01: Ships Support Equipment							

Ship Propulsion Equipment							
1	Surface Power Equipment	A	41,910	19,196		19,196	U
Generators							
2	Surface Combatant HM&E	A	26,651	23,495		23,495	U
Navigation Equipment							
3	Other Navigation Equipment	A	62,427	60,830		60,830	U
Other Shipboard Equipment							
4	Sub Periscope, Imaging and Supt Equip Prog	A	172,740	176,621		176,621	U
5	DDG Mod	A	592,644	462,908		462,908	U
6	Firefighting Equipment	A	15,887	28,143		28,143	U
7	Command and Control Switchboard	A	2,240	2,248		2,248	U
8	LHA/LHD Midlife	A	4,767	32,353		32,353	U
9	Pollution Control Equipment	B	15,564	20,883		20,883	U
10	Submarine Support Equipment	A	27,190	37,155		37,155	U
11	Virginia Class Support Equipment	A	46,610	66,328		66,328	U
12	LCS Class Support Equipment		43,407	47,241		47,241	U
13	Submarine Batteries		24,394	24,460		24,460	U
14	LPD Class Support Equipment		52,114	62,026		62,026	U

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

Appropriation: 1810N Other Procurement, Navy

Line No	Item Nomenclature	Ident Code	FY 2020 Base Quantity	FY 2020 Base Cost	FY 2020 OCO for Base Requirements Quantity	FY 2020 OCO for Base Requirements Cost	FY 2020 OCO for Direct War and Enduring Costs Quantity	FY 2020 OCO for Direct War and Enduring Costs Cost	FY 2020 Total OCO Quantity	FY 2020 Total OCO Cost	Se
Budget Activity 01: Ships Support Equipment											
Ship Propulsion Equipment											
1	Surface Power Equipment	A		14,490							U
Generators											
2	Surface Combatant HM&E	A		31,583							U
Navigation Equipment											
3	Other Navigation Equipment	A		77,404							U
Other Shipboard Equipment											
4	Sub Periscope, Imaging and Supt Equip Prog	A		160,803							U
5	DDG Mod	A		566,140							U
6	Firefighting Equipment	A		18,223							U
7	Command and Control Switchboard	A		2,086							U
8	LHA/LHD Midlife	A		95,651							U
9	Pollution Control Equipment	B		23,910							U
10	Submarine Support Equipment	A		44,895							U
11	Virginia Class Support Equipment	A		28,465							U
12	LCS Class Support Equipment			19,426							U
13	Submarine Batteries			26,290							U
14	LPD Class Support Equipment			46,945							U

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Total Obligational Authority
(Dollars in Thousands)

Appropriation: 1810N Other Procurement, Navy

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

Ship Propulsion Equipment					
1	Surface Power Equipment	A		14,490	U
Generators					
2	Surface Combatant HM&E	A		31,583	U
Navigation Equipment					
3	Other Navigation Equipment	A		77,404	U
Other Shipboard Equipment					
4	Sub Periscope, Imaging and Supt Equip Prog	A		160,803	U
5	DDG Mod	A		566,140	U
6	Firefighting Equipment	A		18,223	U
7	Command and Control Switchboard	A		2,086	U
8	LHA/LHD Midlife	A		95,651	U
9	Pollution Control Equipment	B		23,910	U
10	Submarine Support Equipment	A		44,895	U
11	Virginia Class Support Equipment	A		28,465	U
12	LCS Class Support Equipment			19,426	U
13	Submarine Batteries			26,290	U
14	LPD Class Support Equipment			46,945	U

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Appropriation: 1810N Other Procurement, Navy

Line No	Item Nomenclature	Ident Code	FY 2018 (Base + OCO) Quantity Cost	FY 2019 Base Enacted Quantity Cost	FY 2019 OCO Enacted Quantity Cost	FY 2019 Total Enacted Quantity Cost	S e c
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15	DDG 1000 Class Support Equipment	A		57,700		57,700	U
16	Strategic Platform Support Equip	A	14,726	22,254		22,254	U
17	DSSP Equipment	A	4,178	3,629		3,629	U
18	CG Modernization	A	299,088	268,509		268,509	U
19	LCAC	A	5,507	3,709		3,709	U
20	Underwater EOD Programs		68,270	73,000	9,200	82,200	U
21	Items Less Than \$5 Million	A	92,451	123,685		123,685	U
22	Chemical Warfare Detectors	A	2,656	2,966		2,966	U
23	Submarine Life Support System	A	4,882	6,924		6,924	U
	Reactor Plant Equipment						
24	Reactor Power Units	A		346,325		346,325	U
25	Reactor Components	A	534,468	497,063		497,063	U
	Ocean Engineering						
26	Diving and Salvage Equipment	A	10,619	10,706		10,706	U
	Small Boats						
27	Standard Boats	A	61,789	49,771	19,060	68,831	U
	Production Facilities Equipment						
28	Operating Forces Ipe	A	179,662	297,181		297,181	U
	Other Ship Support						
29	LCS Common Mission Modules Equipment		18,760	33,237		33,237	U

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Total Obligational Authority
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Appropriation: 1810N Other Procurement, Navy

Line No	Item Nomenclature	Ident Code	FY 2020 Base Quantity	Cost	FY 2020 OCO for Base Requirements Quantity	Cost	FY 2020 OCO for Direct War and Enduring Costs Quantity	Cost	FY 2020 Total OCO Quantity	Cost	S e c
15	DDG 1000 Class Support Equipment	A		9,930							U
16	Strategic Platform Support Equip	A		14,331							U
17	DSSP Equipment	A		2,909							U
18	CG Modernization	A		193,990							U
19	LCAC	A		3,392							U
20	Underwater EOD Programs			71,240			5,800		5,800		U
21	Items Less Than \$5 Million	A		102,543							U
22	Chemical Warfare Detectors	A		2,961							U
23	Submarine Life Support System	A		6,635							U
	Reactor Plant Equipment										
24	Reactor Power Units	A		5,340							U
25	Reactor Components	A		465,726							U
	Ocean Engineering										
26	Diving and Salvage Equipment	A		11,854							U
	Small Boats										
27	Standard Boats	A		79,102							U
	Production Facilities Equipment										
28	Operating Forces Ipe	A		202,238							U
	Other Ship Support										
29	LCS Common Mission Modules Equipment			51,553							U

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Total Obligational Authority
(Dollars in Thousands)

Appropriation: 1810N Other Procurement, Navy

Line No	Item Nomenclature	Ident Code	FY 2020 Total (Base + OCO) Quantity	Cost	S e c
----	-----	-----	-----	-----	-----
15	DDG 1000 Class Support Equipment	A		9,930	U
16	Strategic Platform Support Equip	A		14,331	U
17	DSSP Equipment	A		2,909	U
18	CG Modernization	A		193,990	U
19	LCAC	A		3,392	U
20	Underwater EOD Programs			77,040	U
21	Items Less Than \$5 Million	A		102,543	U
22	Chemical Warfare Detectors	A		2,961	U
23	Submarine Life Support System	A		6,635	U
	Reactor Plant Equipment				
24	Reactor Power Units	A		5,340	U
25	Reactor Components	A		465,726	U
	Ocean Engineering				
26	Diving and Salvage Equipment	A		11,854	U
	Small Boats				
27	Standard Boats	A		79,102	U
	Production Facilities Equipment				
28	Operating Forces Ipe	A		202,238	U
	Other Ship Support				
29	LCS Common Mission Modules Equipment			51,553	U

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Line No	Item Nomenclature	Ident Code	FY 2018 (Base + OCO) Quantity Cost	FY 2019 Base Enacted Quantity Cost	FY 2019 OCO Enacted Quantity Cost	FY 2019 Total Enacted Quantity Cost	S e c
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30	LCS MCM Mission Modules		45,146	98,901		98,901	U
31	LCS ASW Mission Modules						U
32	LCS SUW Mission Modules		20,925	13,025		13,025	U
33	LCS In-Service Modernization	A	139,726	62,526		62,526	U
34	Small & Medium UUV	A					U
	Logistic Support						
35	LSD Midlife & Modernization		80,536	4,784		4,784	U
			-----	-----	-----	-----	
	Total Ships Support Equipment		2,711,934	3,039,782	28,260	3,068,042	
	Budget Activity 02: Communications & Electronics Equip						

	Ship Sonars						
36	SPQ-9B Radar	A	18,993	19,179		19,179	U
37	AN/SQQ-89 Surf ASW Combat System	A	100,222	114,344		114,344	U
38	SSN Acoustic Equipment	A	354,253	328,658		328,658	U
39	Undersea Warfare Support Equipment	A	13,653	10,134		10,134	U
	ASW Electronic Equipment						
40	Submarine Acoustic Warfare System	A	21,449	21,615		21,615	U
41	SSTD	A	12,867	4,777		4,777	U
42	Fixed Surveillance System	A	330,102	237,780	56,950	294,730	U
43	SURTASS	A	36,580	57,872		57,872	U

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Total Obligational Authority
(Dollars in Thousands)

Appropriation: 1810N Other Procurement, Navy

Line No	Item Nomenclature	Ident Code	FY 2020 Base Quantity	FY 2020 Base Cost	FY 2020 OCO for Base Requirements Quantity	FY 2020 OCO for Base Requirements Cost	FY 2020 OCO for Direct War and Enduring Costs Quantity	FY 2020 OCO for Direct War and Enduring Costs Cost	FY 2020 Total OCO Quantity	FY 2020 Total OCO Cost	S e c
30	LCS MCM Mission Modules			197,129							U
31	LCS ASW Mission Modules			27,754							U
32	LCS SUW Mission Modules			26,566							U
33	LCS In-Service Modernization	A		84,972							U
34	Small & Medium UUV	A		40,547							U
	Logistic Support										
35	LSD Midlife & Modernization			40,269							U
	Total Ships Support Equipment			2,797,292				5,800		5,800	
	Budget Activity 02: Communications & Electronics Equip										
	Ship Sonars										
36	SPQ-9B Radar	A		26,195							U
37	AN/SQQ-89 Surf ASW Combat System	A		125,237							U
38	SSN Acoustic Equipment	A		366,968							U
39	Undersea Warfare Support Equipment	A		8,967							U
	ASW Electronic Equipment										
40	Submarine Acoustic Warfare System	A		23,545							U
41	SSTD	A		12,439							U
42	Fixed Surveillance System	A		128,441			310,503		310,503		U
43	SURTASS	A		21,923							U

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

Appropriation: 1810N Other Procurement, Navy

Line No	Item Nomenclature	Ident Code	FY 2020 Total (Base + OCO) Quantity	Cost	S e c
----	-----	-----	-----	-----	-----
30	LCS MCM Mission Modules			197,129	U
31	LCS ASW Mission Modules			27,754	U
32	LCS SUW Mission Modules			26,566	U
33	LCS In-Service Modernization	A		84,972	U
34	Small & Medium UUV	A		40,547	U
	Logistic Support				
35	LSD Midlife & Modernization			40,269	U

	Total Ships Support Equipment			2,803,092	
Budget Activity 02: Communications & Electronics Equip					

	Ship Sonars				
36	SPQ-9B Radar	A		26,195	U
37	AN/SQQ-89 Surf ASW Combat System	A		125,237	U
38	SSN Acoustic Equipment	A		366,968	U
39	Undersea Warfare Support Equipment	A		8,967	U
	ASW Electronic Equipment				
40	Submarine Acoustic Warfare System	A		23,545	U
41	SSTD	A		12,439	U
42	Fixed Surveillance System	A		438,944	U
43	SURTASS	A		21,923	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 + OCO) Quantity Cost	FY 2019 Base Enacted Quantity Cost	FY 2019 OCO Enacted Quantity Cost	FY 2019 Total Enacted Quantity Cost	S e c
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	Electronic Warfare Equipment						
44	AN/SLQ-32	A	233,237	366,147		366,147	U
	Reconnaissance Equipment						
45	Shipboard IW Exploit	A	216,615	218,103		218,103	U
46	Automated Identification System (AIS)		4,592	4,028		4,028	U
	Other Ship Electronic Equipment						
47	Cooperative Engagement Capability	B	23,891	39,076		39,076	U
48	Naval Tactical Command Support System (NTCSS)	A	10,570	10,991		10,991	U
49	ATDLS	A	34,873	30,085		30,085	U
50	Navy Command and Control System (NCCS)		5,158	3,769		3,769	U
51	Minesweeping System Replacement	A	57,343	32,367		32,367	U
52	Shallow Water MCM	B	8,796	8,616		8,616	U
53	Navstar GPS Receivers (SPACE)	A	15,923	10,703		10,703	U
54	American Forces Radio and TV Service	A	2,730	2,626		2,626	U
55	Strategic Platform Support Equip	A	6,889	9,467		9,467	U
	Aviation Electronic Equipment						
56	Ashore ATC Equipment	A	77,218	70,849		70,849	U
57	Afloat ATC Equipment	A	37,278	47,890		47,890	U
58	ID Systems	A	21,239	22,777		22,777	U
59	Joint Precision Approach And Landing System (			38,094		38,094	U

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

Appropriation: 1810N Other Procurement, Navy

Line No	Item Nomenclature	Ident Code	FY 2020 Base Quantity	Cost	FY 2020 OCO for Base Requirements Quantity	Cost	FY 2020 OCO for Direct War and Enduring Costs Quantity	Cost	FY 2020 Total OCO Quantity	Cost	S e c
----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-
	Electronic Warfare Equipment										
44	AN/SLQ-32	A		420,154							U
	Reconnaissance Equipment										
45	Shipboard IW Exploit	A		194,758							U
46	Automated Identification System (AIS)			5,368							U
	Other Ship Electronic Equipment										
47	Cooperative Engagement Capability	B		35,128							U
48	Naval Tactical Command Support System (NTCSS)	A		15,154							U
49	ATDLS	A		52,753							U
50	Navy Command and Control System (NCCS)			3,390							U
51	Minesweeping System Replacement	A		19,448							U
52	Shallow Water MCM	B		8,730							U
53	Navstar GPS Receivers (SPACE)	A		32,674							U
54	American Forces Radio and TV Service	A		2,617							U
55	Strategic Platform Support Equip	A		7,973							U
	Aviation Electronic Equipment										
56	Ashore ATC Equipment	A		72,406							U
57	Afloat ATC Equipment	A		67,410							U
58	ID Systems	A		26,059							U
59	Joint Precision Approach And Landing System (			92,695							U

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(Dollars in Thousands)

Appropriation: 1810N Other Procurement, Navy

Line No	Item Nomenclature	Ident Code	FY 2020 Total (Base + OCO) Quantity	Cost	S e c
----	-----	-----	-----	-----	-----
	Electronic Warfare Equipment				
44	AN/SLQ-32	A		420,154	U
	Reconnaissance Equipment				
45	Shipboard IW Exploit	A		194,758	U
46	Automated Identification System (AIS)			5,368	U
	Other Ship Electronic Equipment				
47	Cooperative Engagement Capability	B		35,128	U
48	Naval Tactical Command Support System (NTCSS)	A		15,154	U
49	ATDLS	A		52,753	U
50	Navy Command and Control System (NCCS)			3,390	U
51	Minesweeping System Replacement	A		19,448	U
52	Shallow Water MCM	B		8,730	U
53	Navstar GPS Receivers (SPACE)	A		32,674	U
54	American Forces Radio and TV Service	A		2,617	U
55	Strategic Platform Support Equip	A		7,973	U
	Aviation Electronic Equipment				
56	Ashore ATC Equipment	A		72,406	U
57	Afloat ATC Equipment	A		67,410	U
58	ID Systems	A		26,059	U
59	Joint Precision Approach And Landing System (			92,695	U

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Appropriation: 1810N Other Procurement, Navy

Line No	Item Nomenclature	Ident Code	FY 2018 (Base + OCO) Quantity Cost	FY 2019 Base Enacted Quantity Cost	FY 2019 OCO Enacted Quantity Cost	FY 2019 Total Enacted Quantity Cost	S e c
----	-----	-----	-----	-----	-----	-----	-
60	Naval Mission Planning Systems	A	17,396	11,966		11,966	U
	Other Shore Electronic Equipment						
61	Tactical/Mobile C4I Systems	A	40,079	42,010		42,010	U
62	DCGS-N	A	19,012	10,219		10,219	U
63	CANES		311,212	404,891		404,891	U
64	RADIAC	A	10,718	8,175		8,175	U
65	CANES-Intell		46,075	53,465		53,465	U
66	GPETE	A	6,861	5,985		5,985	U
67	MASF		8,081	5,413		5,413	U
68	Integ Combat System Test Facility	A	5,019	6,251		6,251	U
69	EMI Control Instrumentation	A	4,188	4,183		4,183	U
70	Items Less Than \$5 Million	A	116,111	140,092		140,092	U
	Shipboard Communications						
71	Shipboard Tactical Communications	A	23,695	45,450		45,450	U
72	Ship Communications Automation	A	99,545	105,087		105,087	U
73	Communications Items Under \$5M	A	16,280	39,081		39,081	U
	Submarine Communications						
74	Submarine Broadcast Support	A	42,640	25,883		25,883	U
75	Submarine Communication Equipment	A	76,327	78,580		78,580	U

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Total Obligational Authority
(Dollars in Thousands)

Appropriation: 1810N Other Procurement, Navy

Line No	Item Nomenclature	Ident Code	FY 2020 Base Quantity	Cost	FY 2020 OCO for Base Requirements Quantity	Cost	FY 2020 OCO for Direct War and Enduring Costs Quantity	Cost	FY 2020 Total OCO Quantity	Cost	S e c
----	-----	-----	-----	----	-----	----	-----	----	-----	----	-
60	Naval Mission Planning Systems	A		15,296							U
	Other Shore Electronic Equipment										
61	Tactical/Mobile C4I Systems	A		36,226							U
62	DCGS-N	A		21,788							U
63	CANES			426,654							U
64	RADIAC	A		6,450							U
65	CANES-Intell			52,713							U
66	GPETE	A		13,028							U
67	MASF			5,193							U
68	Integ Combat System Test Facility	A		6,028							U
69	EMI Control Instrumentation	A		4,209							U
70	Items Less Than \$5 Million	A		168,436							U
	Shipboard Communications										
71	Shipboard Tactical Communications	A		55,853							U
72	Ship Communications Automation	A		137,861							U
73	Communications Items Under \$5M	A		35,093							U
	Submarine Communications										
74	Submarine Broadcast Support	A		50,833							U
75	Submarine Communication Equipment	A		69,643							U

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Total Obligational Authority
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Appropriation: 1810N Other Procurement, Navy

Line No	Item Nomenclature	Ident Code	FY 2020 Total (Base + OCO) Quantity	Cost	S e c
----	-----	-----	-----	-----	-----
60	Naval Mission Planning Systems	A		15,296	U
	Other Shore Electronic Equipment				
61	Tactical/Mobile C4I Systems	A		36,226	U
62	DCGS-N	A		21,788	U
63	CANES			426,654	U
64	RADIAC	A		6,450	U
65	CANES-Intell			52,713	U
66	GPETE	A		13,028	U
67	MASF			5,193	U
68	Integ Combat System Test Facility	A		6,028	U
69	EMI Control Instrumentation	A		4,209	U
70	Items Less Than \$5 Million	A		168,436	U
	Shipboard Communications				
71	Shipboard Tactical Communications	A		55,853	U
72	Ship Communications Automation	A		137,861	U
73	Communications Items Under \$5M	A		35,093	U
	Submarine Communications				
74	Submarine Broadcast Support	A		50,833	U
75	Submarine Communication Equipment	A		69,643	U

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Total Obligational Authority
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Appropriation: 1810N Other Procurement, Navy

Line No	Item Nomenclature	Ident Code	FY 2018 (Base + OCO) Quantity Cost	FY 2019 Base Enacted Quantity Cost	FY 2019 OCO Enacted Quantity Cost	FY 2019 Total Enacted Quantity Cost	S e c
----	-----	-----	-----	-----	-----	-----	-
Satellite Communications							
76	Satellite Communications Systems	A	14,654	38,702	3,200	41,902	U
77	Navy Multiband Terminal (NMT)		62,113	109,385		109,385	U
Shore Communications							
78	Joint Communications Support Element (JCSE)	A	4,256	4,292		4,292	U
Cryptographic Equipment							
79	Info Systems Security Program (ISSP)	A	88,946	151,828		151,828	U
80	MIO Intel Exploitation Team	A	961	951		951	U
Cryptologic Equipment							
81	Cryptologic Communications Equip	A	26,167	17,009	2,000	19,009	U
Other Electronic Support							
82	DON ACTS	A	1,923				U
83	Coast Guard Equipment	A	36,584	40,713		40,713	U
Drug Interdiction Support							
84	Other Drug Interdiction Support	A	17,199				U
Total Communications & Electronics Equip			2,740,513	3,059,558	62,150	3,121,708	
Budget Activity 03: Aviation Support Equipment							

Sonobuoys							
85	Sonobuoys - All Types	A	173,616	216,191	21,156	237,347	U

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(Dollars in Thousands)

Appropriation: 1810N Other Procurement, Navy

Line No	Item Nomenclature	Ident Code	FY 2020 Base Quantity	Cost	FY 2020 OCO for Base Requirements Quantity	Cost	FY 2020 OCO for Direct War and Enduring Costs Quantity	Cost	FY 2020 Total OCO Quantity	Cost	S e c
----	-----	-----	-----	----	-----	----	-----	----	-----	----	-
Satellite Communications											
76	Satellite Communications Systems	A		45,841							U
77	Navy Multiband Terminal (NMT)			88,021							U
Shore Communications											
78	Joint Communications Support Element (JCSE)	A		4,293							U
Cryptographic Equipment											
79	Info Systems Security Program (ISSP)	A		166,540							U
80	MIO Intel Exploitation Team	A		968							U
Cryptologic Equipment											
81	Cryptologic Communications Equip	A		13,090							U
Other Electronic Support											
82	DON ACTS	A									U
83	Coast Guard Equipment	A		61,370							U
Drug Interdiction Support											
84	Other Drug Interdiction Support	A									U
Total Communications & Electronics Equip				3,255,859			310,503		310,503		
Budget Activity 03: Aviation Support Equipment											

Sonobuoys											
85	Sonobuoys - All Types	A		260,644			2,910		2,910		U

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Total Obligational Authority
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Appropriation: 1810N Other Procurement, Navy

Line No	Item Nomenclature	Ident Code	FY 2020 Total (Base + OCO) Quantity	Cost	S e c
----	-----	-----	-----	-----	-----
Satellite Communications					
76	Satellite Communications Systems	A		45,841	U
77	Navy Multiband Terminal (NMT)			88,021	U
Shore Communications					
78	Joint Communications Support Element (JCSE)	A		4,293	U
Cryptographic Equipment					
79	Info Systems Security Program (ISSP)	A		166,540	U
80	MIO Intel Exploitation Team	A		968	U
Cryptologic Equipment					
81	Cryptologic Communications Equip	A		13,090	U
Other Electronic Support					
82	DON ACTS	A			U
83	Coast Guard Equipment	A		61,370	U
Drug Interdiction Support					
84	Other Drug Interdiction Support	A			U
Total Communications & Electronics Equip				3,566,362	
Budget Activity 03: Aviation Support Equipment					

Sonobuoys					
85	Sonobuoys - All Types	A		263,554	U

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Appropriation: 1810N Other Procurement, Navy

Line No	Item Nomenclature	Ident Code	FY 2018 (Base + OCO) Quantity Cost	FY 2019 Base Enacted Quantity Cost	FY 2019 OCO Enacted Quantity Cost	FY 2019 Total Enacted Quantity Cost	S e c
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Aircraft Support Equipment							
86	Minotaur	A					U
87	Weapons Range Support Equipment	A	66,941	93,864		93,864	U
88	Aircraft Support Equipment	A	103,340	105,943		105,943	U
89	Advanced Arresting Gear (AAG)	A	10,900	11,054		11,054	U
90	Meteorological Equipment	A	21,000	21,072		21,072	U
91	DCRS/DPL	A	660	656		656	U
92	Legacy Airborne MCM	A	19,297	11,299		11,299	U
93	Lamps Equipment			594		594	U
94	Aviation Support Equipment	A	63,995	37,874		37,874	U
95	UMCS-Unman Carrier Aviation(UCA)Mission Cntrl	A		18,019		18,019	U
Total Aviation Support Equipment			459,749	516,566	21,156	537,722	
Budget Activity 04: Ordnance Support Equipment							

Ship Gun System Equipment							
96	Ship Gun Systems Equipment	A	5,277	5,337		5,337	U
Ship Missile Systems Equipment							
97	Harpoon Support Equipment	A					U
98	Ship Missile Support Equipment	A	266,770	200,118		200,118	U
99	Tomahawk Support Equipment	A	73,184	86,045		86,045	U

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Line No	Item Nomenclature	Ident Code	FY 2020 Base Quantity	Cost	FY 2020 OCO for Base Requirements Quantity	Cost	FY 2020 OCO for Direct War and Enduring Costs Quantity	Cost	FY 2020 Total OCO Quantity	Cost	S e c
----	-----	-----	-----	----	-----	----	-----	----	-----	----	-
Aircraft Support Equipment											
86	Minotaur	A		5,000							U
87	Weapons Range Support Equipment	A		101,843							U
88	Aircraft Support Equipment	A		145,601			13,420		13,420		U
89	Advanced Arresting Gear (AAG)	A		4,725							U
90	Meteorological Equipment	A		14,687							U
91	DCRS/DPL	A									U
92	Legacy Airborne MCM	A		19,250							U
93	Lamps Equipment			792							U
94	Aviation Support Equipment	A		55,415			500		500		U
95	UMCS-Unman Carrier Aviation(UCA)Mission Cntrl	A		32,668							U
Total Aviation Support Equipment				640,625			16,830		16,830		
Budget Activity 04: Ordnance Support Equipment											

Ship Gun System Equipment											
96	Ship Gun Systems Equipment	A		5,451							U
Ship Missile Systems Equipment											
97	Harpoon Support Equipment	A		1,100							U
98	Ship Missile Support Equipment	A		228,104							U
99	Tomahawk Support Equipment	A		78,593							U

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Appropriation: 1810N Other Procurement, Navy

Line No	Item Nomenclature	Ident Code	FY 2020 Total (Base + OCO) Quantity	Cost	S e c
----	-----	-----	-----	-----	-----
Aircraft Support Equipment					
86	Minotaur	A		5,000	U
87	Weapons Range Support Equipment	A		101,843	U
88	Aircraft Support Equipment	A		159,021	U
89	Advanced Arresting Gear (AAG)	A		4,725	U
90	Meteorological Equipment	A		14,687	U
91	DCRS/DPL	A			U
92	Legacy Airborne MCM	A		19,250	U
93	Lamps Equipment			792	U
94	Aviation Support Equipment	A		55,915	U
95	UMCS-Unman Carrier Aviation(UCA)Mission Cntrl	A		32,668	U
Total Aviation Support Equipment				657,455	
Budget Activity 04: Ordnance Support Equipment					

Ship Gun System Equipment					
96	Ship Gun Systems Equipment	A		5,451	U
Ship Missile Systems Equipment					
97	Harpoon Support Equipment	A		1,100	U
98	Ship Missile Support Equipment	A		228,104	U
99	Tomahawk Support Equipment	A		78,593	U

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Line No	Item Nomenclature	Ident Code	FY 2018 (Base + OCO) Quantity Cost	FY 2019 Base Enacted Quantity Cost	FY 2019 OCO Enacted Quantity Cost	FY 2019 Total Enacted Quantity Cost	S e c
----	-----	-----	-----	-----	-----	-----	-
	FBM Support Equipment						
100	Strategic Missile Systems Equip	A	238,675	256,817		256,817	U
	ASW Support Equipment						
101	SSN Combat Control Systems	A	146,972	125,903		125,903	U
102	ASW Support Equipment	A	23,209	19,436		19,436	U
	Other Ordnance Support Equipment						
103	Explosive Ordnance Disposal Equip	B	63,766	14,258	27,580	41,838	U
104	Items Less Than \$5 Million	A	5,981	5,378		5,378	U
	Other Expendable Ordnance						
105	Anti-Ship Missile Decoy System	A					U
106	Submarine Training Device Mods	A	72,756	56,834		56,834	U
107	Surface Training Equipment	A	81,595	227,791		227,791	U
	Total Ordnance Support Equipment		978,185	997,917	27,580	1,025,497	
	Budget Activity 05: Civil Engineering Support Equip						
	Civil Engineering Support Equipment						
108	Passenger Carrying Vehicles	A	5,299	4,867	170	5,037	U
109	General Purpose Trucks	A	3,451	2,674	400	3,074	U
110	Construction & Maintenance Equip	A	36,173	20,994		20,994	U
111	Fire Fighting Equipment	A	5,388	17,189	770	17,959	U

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Total Obligational Authority
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Line No	Item Nomenclature	Ident Code	FY 2020 Base Quantity	Cost	FY 2020 OCO for Base Requirements Quantity	Cost	FY 2020 OCO for Direct War and Enduring Costs Quantity	Cost	FY 2020 Total OCO Quantity	Cost	S e c
----	-----	-----	-----	----	-----	----	-----	----	-----	----	-
	FBM Support Equipment										
100	Strategic Missile Systems Equip	A		280,510							U
	ASW Support Equipment										
101	SSN Combat Control Systems	A		148,547							U
102	ASW Support Equipment	A		21,130							U
	Other Ordnance Support Equipment										
103	Explosive Ordnance Disposal Equip	B		15,244			15,307		15,307		U
104	Items Less Than \$5 Million	A		5,071							U
	Other Expendable Ordnance										
105	Anti-Ship Missile Decoy System	A		41,962							U
106	Submarine Training Device Mods	A		75,057							U
107	Surface Training Equipment	A		233,175							U
	Total Ordnance Support Equipment			1,133,944			15,307		15,307		
	Budget Activity 05: Civil Engineering Support Equip										
	Civil Engineering Support Equipment										
108	Passenger Carrying Vehicles	A		4,562			173		173		U
109	General Purpose Trucks	A		10,974			408		408		U
110	Construction & Maintenance Equip	A		43,191							U
111	Fire Fighting Equipment	A		21,142			785		785		U

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Appropriation: 1810N Other Procurement, Navy

Line No	Item Nomenclature	Ident Code	FY 2020 Total (Base + OCO) Quantity Cost	S e c
----	-----	-----	-----	-----
	FBM Support Equipment			
100	Strategic Missile Systems Equip	A	280,510	U
	ASW Support Equipment			
101	SSN Combat Control Systems	A	148,547	U
102	ASW Support Equipment	A	21,130	U
	Other Ordnance Support Equipment			
103	Explosive Ordnance Disposal Equip	B	30,551	U
104	Items Less Than \$5 Million	A	5,071	U
	Other Expendable Ordnance			
105	Anti-Ship Missile Decoy System	A	41,962	U
106	Submarine Training Device Mods	A	75,057	U
107	Surface Training Equipment	A	233,175	U

	Total Ordnance Support Equipment		1,149,251	
	Budget Activity 05: Civil Engineering Support Equip			

	Civil Engineering Support Equipment			
108	Passenger Carrying Vehicles	A	4,735	U
109	General Purpose Trucks	A	11,382	U
110	Construction & Maintenance Equip	A	43,191	U
111	Fire Fighting Equipment	A	21,927	U

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Line No	Item Nomenclature	Ident Code	FY 2018 (Base + OCO) Quantity Cost	FY 2019 Base Enacted Quantity Cost	FY 2019 OCO Enacted Quantity Cost	FY 2019 Total Enacted Quantity Cost	S e c
----	-----	-----	-----	-----	-----	-----	-
112	Tactical Vehicles	B	22,035	19,916	7,298	27,214	U
113	Amphibious Equipment	A	12,162	6,176		6,176	U
114	Pollution Control Equipment	A	2,748	2,713		2,713	U
115	Items Under \$5 Million	A	19,434	35,540		35,540	U
116	Physical Security Vehicles	A	1,170	1,155		1,155	U
	Total Civil Engineering Support Equip		107,860	111,224	8,638	119,862	
Budget Activity 06: Supply Support Equipment							

	Supply Support Equipment						
117	Supply Equipment	A	22,309	17,386		17,386	U
118	First Destination Transportation	A	5,992	5,375	500	5,875	U
119	Special Purpose Supply Systems	A	482,916	580,371		580,371	U
	Total Supply Support Equipment		511,217	603,132	500	603,632	
Budget Activity 07: Personnel & Command Support Equip							

	Training Devices						
120	Training Support Equipment	A		3,400		3,400	U
121	Training and Education Equipment	A	26,024	20,683		20,683	U
	Command Support Equipment						
122	Command Support Equipment	A	78,406	61,577		61,577	U
123	Medical Support Equipment	A	22,483	10,352	6,500	16,852	U

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Line No	Item Nomenclature	Ident Code	FY 2020 Base Quantity	Cost	FY 2020 OCO for Base Requirements Quantity	Cost	FY 2020 OCO for Direct War and Enduring Costs Quantity	Cost	FY 2020 Total OCO Quantity	Cost	S e c
112	Tactical Vehicles	B		33,432							U
113	Amphibious Equipment	A									U
114	Pollution Control Equipment	A		2,633							U
115	Items Under \$5 Million	A		53,467							U
116	Physical Security Vehicles	A		1,173							U
	Total Civil Engineering Support Equip			170,574				1,366		1,366	
Budget Activity 06: Supply Support Equipment											
Supply Support Equipment											
117	Supply Equipment	A		16,730			100		100		U
118	First Destination Transportation	A		5,389			510		510		U
119	Special Purpose Supply Systems	A		654,674							U
	Total Supply Support Equipment			676,793			610		610		
Budget Activity 07: Personnel & Command Support Equip											
Training Devices											
120	Training Support Equipment	A		3,633							U
121	Training and Education Equipment	A		97,636							U
Command Support Equipment											
122	Command Support Equipment	A		66,102			2,800		2,800		U
123	Medical Support Equipment	A		3,633			1,794		1,794		U

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Line No	Item Nomenclature	Ident Code	FY 2020 Total (Base + OCO) Quantity	Cost	S e c
----	-----	-----	-----	-----	-----
112	Tactical Vehicles	B		33,432	U
113	Amphibious Equipment	A			U
114	Pollution Control Equipment	A		2,633	U
115	Items Under \$5 Million	A		53,467	U
116	Physical Security Vehicles	A		1,173	U
	Total Civil Engineering Support Equip			171,940	
Budget Activity 06: Supply Support Equipment					

	Supply Support Equipment				
117	Supply Equipment	A		16,830	U
118	First Destination Transportation	A		5,899	U
119	Special Purpose Supply Systems	A		654,674	U
	Total Supply Support Equipment			677,403	
Budget Activity 07: Personnel & Command Support Equip					

	Training Devices				
120	Training Support Equipment	A		3,633	U
121	Training and Education Equipment	A		97,636	U
	Command Support Equipment				
122	Command Support Equipment	A		68,902	U
123	Medical Support Equipment	A		5,427	U

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Line No	Item Nomenclature	Ident Code	FY 2018 (Base + OCO) Quantity Cost	FY 2019 Base Enacted Quantity Cost	FY 2019 OCO Enacted Quantity Cost	FY 2019 Total Enacted Quantity Cost	S e c
----	-----	-----	-----	-----	-----	-----	-
125	Naval MIP Support Equipment	A	2,030	1,984		1,984	U
126	Operating Forces Support Equipment	A	23,300	15,131		15,131	U
127	C4ISR Equipment	A	4,010	3,576		3,576	U
128	Environmental Support Equipment	A	30,644	31,902	2,200	34,102	U
129	Physical Security Equipment	A	139,972	175,436	19,389	194,825	U
130	Enterprise Information Technology	A	19,733	25,393		25,393	U
	Other						
133	Next Generation Enterprise Service	A	89,178	96,269		96,269	U
999	Classified Programs		25,907	15,681	4,800	20,481	U
	Total Personnel & Command Support Equip		461,687	461,384	32,889	494,273	
	Budget Activity 08: Spares and Repair Parts						
	Spares and Repair Parts						
134	Spares and Repair Parts	A	287,453	307,575		307,575	U
	Total Spares and Repair Parts		287,453	307,575		307,575	
	Total Other Procurement, Navy		8,258,598	9,097,138	181,173	9,278,311	

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Line No	Item Nomenclature	Ident Code	FY 2020 Base Quantity	Cost	FY 2020 OCO for Base Requirements Quantity	Cost	FY 2020 OCO for Direct War and Enduring Costs Quantity	Cost	FY 2020 Total OCO Quantity	Cost	S e c
----	-----	-----	-----	----	-----	----	-----	----	-----	----	-
125	Naval MIP Support Equipment	A		6,097							U
126	Operating Forces Support Equipment	A		16,905			1,090		1,090		U
127	C4ISR Equipment	A		30,146							U
128	Environmental Support Equipment	A		21,986			200		200		U
129	Physical Security Equipment	A		160,046			1,300		1,300		U
130	Enterprise Information Technology	A		56,899							U
	Other										
133	Next Generation Enterprise Service	A		122,832							U
999	Classified Programs			16,346							U
	Total Personnel & Command Support Equip			602,261			7,184		7,184		
	Budget Activity 08: Spares and Repair Parts										
	Spares and Repair Parts										
134	Spares and Repair Parts	A		375,608							U
	Total Spares and Repair Parts			375,608							
	Total Other Procurement, Navy			9,652,956			357,600		357,600		

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Appropriation: 1810N Other Procurement, Navy

Line No	Item Nomenclature	Ident Code	FY 2020 Total (Base + OCO) Quantity	Cost	S e c
----	-----	-----	-----	-----	-----
125	Naval MIP Support Equipment	A		6,097	U
126	Operating Forces Support Equipment	A		17,995	U
127	C4ISR Equipment	A		30,146	U
128	Environmental Support Equipment	A		22,186	U
129	Physical Security Equipment	A		161,346	U
130	Enterprise Information Technology	A		56,899	U
	Other				
133	Next Generation Enterprise Service	A		122,832	U
999	Classified Programs			16,346	U

	Total Personnel & Command Support Equip			609,445	
	Budget Activity 08: Spares and Repair Parts				

	Spares and Repair Parts				
134	Spares and Repair Parts	A		375,608	U

	Total Spares and Repair Parts			375,608	

	Total Other Procurement, Navy			10,010,556	

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7	01	09	0925	Command and Control Switchboard.....	Volume 1 - 281
8	01	09	0933	LHA/LHD Midlife.....	Volume 1 - 289
9	01	09	0935	Pollution Control Equipment.....	Volume 1 - 353
10	01	09	0941	Submarine Support Equipment.....	Volume 1 - 371
11	01	09	0942	Virginia Class Support Equipment.....	Volume 1 - 383
12	01	09	0944	LCS Class Support Equipment.....	Volume 1 - 399
13	01	09	0945	Submarine Batteries.....	Volume 1 - 411
14	01	09	0946	LPD Class Support Equipment.....	Volume 1 - 419
15	01	09	0947	DDG 1000 Class Support Equipment.....	Volume 1 - 467
16	01	09	0950	Strategic Platform Support Equip.....	Volume 1 - 477

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20	01	09	0977	Underwater EOD Programs.....	Volume 1 - 527
21	01	09	0981	Items less than \$5 Million.....	Volume 1 - 551
22	01	09	0989	Chemical Warfare Detectors.....	Volume 1 - 593
23	01	09	0990	Submarine Life Support System.....	Volume 1 - 627
24	01	10	1010	Reactor Power Units.....	Volume 1 - 633
25	01	10	1020	Reactor Components.....	Volume 1 - 637
26	01	11	1130	Diving and Salvage Equipment.....	Volume 1 - 641
27	01	12	1210	Standard Boats.....	Volume 1 - 659
28	01	14	1445	Operating Forces IPE.....	Volume 1 - 673
29	01	15	1600	LCS Common Mission Modules Equipment.....	Volume 1 - 687
30	01	15	1601	LCS MCM Mission Modules.....	Volume 1 - 701
31	01	15	1602	LCS ASW Mission Modules.....	Volume 1 - 719
32	01	15	1603	LCS SUW Mission Modules.....	Volume 1 - 731
33	01	15	1604	LCS In-Service Modernization.....	Volume 1 - 739
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37	02	02	2136	AN/SQQ-89 Surf ASW Cmbt Sys.....	Volume 2 - 11
38	02	02	2150	SSN Acoustic Equipment.....	Volume 2 - 43
39	02	02	2176	Undersea Warfare Support Equipment.....	Volume 2 - 87
40	02	03	2210	Submarine Acoustic Warfare System.....	Volume 2 - 95
41	02	03	2213	Surface Ship Torpedo Def (SSTD).....	Volume 2 - 119
42	02	03	2225	Fixed Surveillance System.....	Volume 2 - 129
43	02	03	2237	SURTASS.....	Volume 2 - 133
44	02	04	2312	AN/SLQ-32.....	Volume 2 - 157
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46	02	05	2361	Automatic Identification System (AIS).....	Volume 2 - 217
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50	02	07	2618	Navy Command and Control System (NCCS).....	Volume 2 - 273
51	02	07	2622	Minesweeping System Replacement.....	Volume 2 - 281
52	02	07	2624	Shallow Water MCM.....	Volume 2 - 293
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54	02	07	2666	American Forces Radio and TV Service (AFRTS).....	Volume 2 - 315
55	02	07	2676	Strategic Platform Support Equip.....	Volume 2 - 323
56	02	09	2820	Ashore ATC Equipment.....	Volume 2 - 327
57	02	09	2830	Afloat ATC Equipment.....	Volume 2 - 383
58	02	09	2851	ID Systems.....	Volume 2 - 425
59	02	09	2867	Joint Precision Approach and Landing System(JPALS).....	Volume 2 - 459
60	02	09	2876	Naval Mission Planning Systems.....	Volume 2 - 465
61	02	10	2906	Tactical/Mobile C4I Systems.....	Volume 2 - 471
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69	02	10	2970	EMI Control Instrumentation.....	Volume 2 - 565
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71	02	11	3010	Shipboard Tactical Comms.....	Volume 2 - 599
72	02	11	3050	Ship Communications Automation.....	Volume 2 - 609
73	02	11	3057	Communications Items under \$5M.....	Volume 2 - 633
74	02	12	3107	Submarine Broadcast Support.....	Volume 2 - 645
75	02	12	3130	Submarine Communication Equipment.....	Volume 2 - 649
76	02	13	3215	Satellite Communications Systems.....	Volume 2 - 653
77	02	13	3216	Navy Multiband Terminal (NMT).....	Volume 2 - 669
78	02	14	3302	Joint Communications Support Element (JCSE).....	Volume 2 - 687
79	02	15	3415	Info Systems Security Program (ISSP).....	Volume 2 - 691
80	02	15	3417	MIO Intel Exploitation Team.....	Volume 2 - 729
81	02	16	3501	Cryptologic Communications Equip.....	Volume 2 - 733
83	02	17	3620	Coast Guard Equipment.....	Volume 2 - 745
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88	03	03	4213	Aircraft Support Equipment.....	Volume 3 - 27
89	03	03	4217	Advanced Arresting Gear (AAG).....	Volume 3 - 77
90	03	03	4226	Meteorological Equipment.....	Volume 3 - 89
91	03	03	4242	DCRS/DPL.....	Volume 3 - 97
92	03	03	4248	Legacy Airborne MCM.....	Volume 3 - 101
93	03	03	4250	Common Control System.....	Volume 3 - 115
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100	04	04	5358	Strategic Missile Systems Equip.....	Volume 4 - 59
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104	04	06	5543	Items Less Than \$5 Million.....	Volume 4 - 145
105	04	07	5530	Anti-ship Missile Decoy System.....	Volume 4 - 149
106	04	07	5661	Submarine Training Device Mods.....	Volume 4 - 161
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113	05	01	6033	Amphibious Equipment.....	Volume 5 - 63
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122	07	02	8106	Command Support Equipment.....	Volume 5 - 169
123	07	02	8109	Medical Support Equipment.....	Volume 5 - 199
125	07	02	8114	Naval MIP Support Equipment.....	Volume 5 - 209
126	07	02	8118	Operating Forces Supt Equip.....	Volume 5 - 215
127	07	02	8120	C4ISR Equipment.....	Volume 5 - 221
128	07	02	8126	Environmental Support Equipment.....	Volume 5 - 229
129	07	02	8128	Physical Security Equipment.....	Volume 5 - 247
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ASW Support Equipment	5429	102	04	05.....	Volume 4 - 121
Adv Tact Data Link Sys (ATDLS)	2614	49	02	07.....	Volume 2 - 261
Advanced Arresting Gear (AAG)	4217	89	03	03.....	Volume 3 - 77
Afloat ATC Equipment	2830	57	02	09.....	Volume 2 - 383
Aircraft Support Equipment	4213	88	03	03.....	Volume 3 - 27
American Forces Radio and TV Service (AFRTS)	2666	54	02	07.....	Volume 2 - 315
Amphibious Equipment	6033	113	05	01.....	Volume 5 - 63
Anti-ship Missile Decoy System	5530	105	04	07.....	Volume 4 - 149
Ashore ATC Equipment	2820	56	02	09.....	Volume 2 - 327
Automatic Identification System (AIS)	2361	46	02	05.....	Volume 2 - 217
Aviation Support Equipment	4268	94	03	03.....	Volume 3 - 119
C4ISR Equipment	8120	127	07	02.....	Volume 5 - 221
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CANES Intell	2925	65	02	10.....	Volume 2 - 539
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Command and Control Switchboard	0925	7	01	09.....	Volume 1 - 281
Common Control System	4250	93	03	03.....	Volume 3 - 115
Communications Items under \$5M	3057	73	02	11.....	Volume 2 - 633
Construction & Maint Equip	6024	110	05	01.....	Volume 5 - 29
Cooperative Engagement Capability	2606	47	02	07.....	Volume 2 - 223
Cryptologic Communications Equip	3501	81	02	16.....	Volume 2 - 733
DCRS/DPL	4242	91	03	03.....	Volume 3 - 97
DDG 1000 Class Support Equipment	0947	15	01	09.....	Volume 1 - 467
DDG Mod	0900	5	01	09.....	Volume 1 - 181
Deep Subm Sys Proj (DSSP) Equip	0955	17	01	09.....	Volume 1 - 485
Distributed Common Ground System-Navy (DCGS-N)	2914	62	02	10.....	Volume 2 - 489
Diving and Salvage Equipment	1130	26	01	11.....	Volume 1 - 641
EMI Control Instrumentation	2970	69	02	10.....	Volume 2 - 565
Enterprise Information Technology	8161	130	07	02.....	Volume 5 - 257
Environmental Support Equipment	8126	128	07	02.....	Volume 5 - 229
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Gen Purp Elec Test Equip (GPETE)	2940	66	02	10.....	Volume 2 - 549
General Purpose Trucks	6007	109	05	01.....	Volume 5 - 15
HARPOON Support Equipment	5227	97	04	03.....	Volume 4 - 5
ID Systems	2851	58	02	09.....	Volume 2 - 425
Info Systems Security Program (ISSP)	3415	79	02	15.....	Volume 2 - 691
Integ Combat System Test Facility	2960	68	02	10.....	Volume 2 - 561
Items Less Than \$5 Million	5543	104	04	06.....	Volume 4 - 145
Items less than \$5 Million	0981	21	01	09.....	Volume 1 - 551
Items less than \$5 Million	2980	70	02	10.....	Volume 2 - 569
Items under \$5 million	6060	115	05	01.....	Volume 5 - 75
Joint Communications Support Element (JCSE)	3302	78	02	14.....	Volume 2 - 687
Joint Precision Approach and Landing System(JPALS)	2867	59	02	09.....	Volume 2 - 459
LCAC	0970	19	01	09.....	Volume 1 - 523
LCS ASW Mission Modules	1602	31	01	15.....	Volume 1 - 719
LCS Class Support Equipment	0944	12	01	09.....	Volume 1 - 399
LCS Common Mission Modules Equipment	1600	29	01	15.....	Volume 1 - 687
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LPD Class Support Equipment	0946	14	01	09.....	Volume 1 - 419
LSD Midlife & Modernization	1610	35	01	16.....	Volume 1 - 761
Legacy Airborne MCM	4248	92	03	03.....	Volume 3 - 101
MIO Intel Exploitation Team	3417	80	02	15.....	Volume 2 - 729
Medical Support Equipment	8109	123	07	02.....	Volume 5 - 199
Meteorological Equipment	4226	90	03	03.....	Volume 3 - 89
Minesweeping System Replacement	2622	51	02	07.....	Volume 2 - 281
Minotaur	3640	86	03	03.....	Volume 3 - 13
NAVSTAR GPS Receivers (Space)	2657	53	02	07.....	Volume 2 - 303
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Navy Multiband Terminal (NMT)	3216	77	02	13.....	Volume 2 - 669
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Physical Security Equipment	8128	129	07	02.....	Volume 5 - 247
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Pollution Control Equipment	6058	114	05	01.....	Volume 5 - 71
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Reactor Power Units	1010	24	01	10.....	Volume 1 - 633
SPQ-9B Radar	2026	36	02	02.....	Volume 2 - 1
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SSN Combat Control Systems	5420	101	04	05.....	Volume 4 - 89
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Satellite Communications Systems	3215	76	02	13.....	Volume 2 - 653
Shallow Water MCM	2624	52	02	07.....	Volume 2 - 293
Shallow Water Multi-Sensor Surveillance	2562	999	02	06.....	Volume 2 - 757
Ship Communications Automation	3050	72	02	11.....	Volume 2 - 609
Ship Gun Systems Equipment	5111	96	04	02.....	Volume 4 - 1
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Strategic Platform Support Equip	0950	16	01	09.....	Volume 1 - 477
Strategic Platform Support Equip	2676	55	02	07.....	Volume 2 - 323
Sub Periscope, Imaging and Supt Equip Prog	0840	4	01	09.....	Volume 1 - 125
Submarine Acoustic Warfare System	2210	40	02	03.....	Volume 2 - 95
Submarine Batteries	0945	13	01	09.....	Volume 1 - 411
Submarine Broadcast Support	3107	74	02	12.....	Volume 2 - 645
Submarine Communication Equipment	3130	75	02	12.....	Volume 2 - 649
Submarine Life Support System	0990	23	01	09.....	Volume 1 - 627
Submarine Support Equipment	0941	10	01	09.....	Volume 1 - 371
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Tactical/Mobile C4I Systems	2906	61	02	10.....	Volume 2 - 471
Tomahawk Support Equipment	5253	99	04	03.....	Volume 4 - 53
Training Support Equipment	8081	120	07	01.....	Volume 5 - 119
Training and Education Equipment	8101	121	07	01.....	Volume 5 - 139
UMCS-Unman Carrier Aviation(UCA)Mission Cntrl Stn	4269	95	03	03.....	Volume 3 - 145
Undersea Warfare Support Equipment	2176	39	02	02.....	Volume 2 - 87
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Exhibit P-40, Budget Line Item Justification: PB 2020 Navy										Date: March 2019		
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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity (<i>Units in Each</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost (<i>\$ in Millions</i>)	15.514	41.910	19.196	14.490	0.000	14.490	21.512	32.248	27.643	9.817	14.045	196.375
Less PY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (<i>\$ in Millions</i>)	15.514	41.910	19.196	14.490	0.000	14.490	21.512	32.248	27.643	9.817	14.045	196.375
Plus CY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority (<i>\$ in Millions</i>)	15.514	41.910	19.196	14.490	0.000	14.490	21.512	32.248	27.643	9.817	14.045	196.375
<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 FY 2020 funding request was reduced by \$4.100 million to account for the availability of prior year execution balances.

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 MT5S is used within the RR4500 auxiliary turbine generator (ATG) aboard DDG-1000 Class ships. The MT5S-HE+ is used within the AG9160RF SSGTG aboard DDG-51 Flight III ships. Based on the MT5S design, the MT5S-HE+ includes several material changes designed to improve fuel efficiency and increase AG9160RF electrical power output when compared to the RR4500. 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.

DFC procurement quantities are based upon the DDG modernization schedule and quantities are procured one year in advance of the scheduled availabilities due to long material lead times.

The Surface Power Equipment budget line may also be used to procure 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.

The budget funds the following:

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Exhibit P-40, Budget Line Item Justification: PB 2020 Navy		Date: March 2019	
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 / PE009 GE Readiness Improvement Upgrade Kits]: PE009 - MODIFICATION KIT PROGRAM: This cost element 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 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 and LM2500+ single shank propulsion gas turbines to support surface combatant and amphibious assault class surface ships. The programs projected FY-19 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. 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/LHA7 LM2500+ Single Shank Gas Generator Assembly (SST GGA) and Power Turbine Assembly (PTA) 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 procured 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. Moreover, the PTA on the LM2500+ is also of significantly different configuration than the PTA on the LM2500. 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 repairable limits. 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			

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Exhibit P-40, Budget Line Item Justification: PB 2020 Navy		Date: March 2019
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		
--HPT Nozzles --Compressor Blades [P40A / PE014 Special Support Equipage]: PE014 Special Support Equipage - This cost element procures Special Support Equipment to allow for increased I-level (intermediate level) repair capability, thereby reducing the number of engine change outs required and stabilizing or reducing the cost to overhaul engines at the depot. FY18 funding was provided to procure support tooling for the LM2500+ Gas Turbine as part of Strategic Lay-Down 15 (SLD15). One of the purposes of SLD15 is to put I-level support in place for the LHA-6 LM2500+ main propulsion engines, which is being homeported in Sasebo, Japan. No installation cost is associated with this cost element. [P40A / PE015 LM2500 DIGITAL FUEL CONTROL]: PE015 - LM2500 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. Procurement and installations are budgeted to correspond with CNO ship availabilities. One DFC kit is required to update each of the four LM2500 engines, which makes one DFC shipset. The DFC upgrade is a mandatory portion of DDG-51 modernizations; the modernized machinery control system (MCS)is incapable of interfacing with LM2500 engines not equipped with DFC. The DFC is the most significant change to the LM2500 engine since its inception into the USN that addresses obsolete 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 also replaces the Hydro-mechanical main fuel control (MFC) system, which was designed for aircraft, with a DFC system designed for a 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)- This cost element funds the installation of Cost element PE015, LM2500 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. [P40A - 2 / PE001 STOCK ROTATING SPARES]: PE001 - STOCK ROTATING SPARES This cost element procures the MT-30 for DDG1000 Zumwalt Class and Littoral Combat Ship (LCS) Independence Variant, MT-5 series gas turbines for the DDG 1000 Zumwalt Class and DDG-51 Flight III 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 and necessary hardware to allow for installation of the MT30 gas turbine into DDG1000 or LCS5AF hull types. 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) with four (4) budgeted for procurement in FY18-FY21. Per OPNAV N96 direction, the current budget exhibit reflects the Surface Power Equipment program (BLI: 0131) procuring one (1) MT-30 spare in FY18, one (1) in FY22, and one (1) in FY23 while the LCS program will procure one (1) MT-30 spare in FY18. Earlier budget exhibits called for the Surface Power Equipment program to procure (1) MT-30 in FY18 and (1) in FY21, with the LCS program procuring one (1) in FY19 and one (1) in FY20. The projected FY-23 and beyond in-service population of MT-30 gas turbine engines is thirty-six (36) 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 4 MT-5 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-5S gas turbine engines is six (6) due to new construction of DDG1000 and thirty (30) of the higher efficiency MT5S-HE+ units for DDG-51 Flight III. Earlier budget exhibits called for procurement of (1) MT-5S in FY19 and (1) in FY20. The current budget calls for procurement of one (1) MT-5S in FY18, one (1) in FY19, and one (1) in FY23. The program will begin procuring the remaining three (3) MT5S-HE+ engines in FY25. 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-19 in-service population of starter engines is 103 due to new construction, but would be 169 if Flight IIA and Flight III were included. 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 eight (8) replacements from FY17 through FY23.		

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Exhibit P-40, Budget Line Item Justification: PB 2020 Navy		Date: March 2019
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		
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 current budget calls for procurement of one (1) 501-K34 per fiscal year between FY19-22. The projected FY24 in-service population of gas turbine engines is 222 due to new construction. [P40A - 2 / PE007 MODIFICATION PROGRAM]: PE007 - MODIFICATION PROGRAM This cost element 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: --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 Navy Data Environment (NDE), Marine Gas Turbine Information System (MGTIS) and Weblog to reflect completed installations and ensure consistent documentation for engine configuration management.		

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

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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Exhibit Type	Title*	Subexhibits	ID CD	MDAP/MAIS Code	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)
P-40a	General Electric Gas Turbine	P-5a			- / 1.354	- / 6.881	- / 0.166	- / -	- / -	- / -
P-40a	Rolls Royce Gas Turbine	P-5a			- / 4.315	- / 24.779	- / 8.804	- / 3.629	- / -	- / 3.629
P-40a	PE830 PRODUCTION ENGINEERING				- / 0.346	- / 0.349	- / 0.349	- / 0.350	- / -	- / 0.350
P-3a	1 / PE015 - LM2500 GAS TURBINE DIGITAL FUEL CONTROL (TBD)				- / 9.499	- / 9.901	- / 9.877	- / 10.511	- / 0.000	- / 10.511
P-40	Total Gross/Weapon System Cost				- / 15.514	- / 41.910	- / 19.196	- / 14.490	- / 0.000	- / 14.490

Exhibits Schedule					FY 2021	FY 2022	FY 2023	FY 2024	To Complete	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	P-5a			- / -	- / -	- / -	- / -	- / -	- / -
P-40a	Rolls Royce Gas Turbine	P-5a			- / -	- / -	- / -	- / -	- / -	- / -
P-40a	PE830 PRODUCTION ENGINEERING				- / -	- / -	- / -	- / -	- / -	- / -
P-3a	1 / PE015 - LM2500 GAS TURBINE DIGITAL FUEL CONTROL (TBD)				- / 7.065	- / 2.832	- / 2.842	- / 0.558	- / 0.195	- / 53.280
P-40	Total Gross/Weapon System Cost				- / 21.512	- / 32.248	- / 27.643	- / 9.817	- / 14.045	- / 196.375

*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: PB 2020 Navy															Date: March 2019					
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					
Item Number / Title [DODIC]	ID CD	MDAP/MAIS Code	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 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			-	-	0.490	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2) PE010 Stock Rotating Spares																				
2.2) LHD/LHA6 LM2500+(†)		A	-	-	-	5,329K	1	5.329	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: 2) PE010 Stock Rotating Spares			-	-	0.000	-	-	5.329	-	-	-	-	-	-	-	-	-	-	-	-
3) PE014 Special Support Equipage ⁽¹⁾																				
3.1) Special Support Equipage		A	-	-	0.800	-	-	1.389	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: 3) PE014 Special Support Equipage			-	-	0.800	-	-	1.389	-	-	-	-	-	-	-	-	-	-	-	-
4) PE015 LM2500 DIGITAL FUEL CONTROL																				
4.1) ANCILLARY EQUIPMENT/ INSTALLATION MATERIALS		A	-	-	0.064	-	-	0.163	-	-	0.166	-	-	-	-	-	-	-	-	-
Subtotal: 4) PE015 LM2500 DIGITAL FUEL CONTROL			-	-	0.064	-	-	0.163	-	-	0.166	-	-	-	-	-	-	-	-	-
Total			-	-	1.354	-	-	6.881	-	-	0.166	-	-	-	-	-	-	-	-	-
Note: Subtotals or Totals in this Exhibit P-40a may not be exact or sum exactly, due to rounding.																				
(†) indicates the presence of a P-5a																				
Footnotes:																				
⁽¹⁾ This cost element procures Special Support Equipment to allow for increased I-level (intermediate level) repair capability, thereby reducing the number of engine change outs required and stabilizing or reducing the cost to overhaul engines at the depot. Funding was previously provided to procure support tooling for the LM2500+ Gas Turbine as part of Strategic Lay-Down 15 (SLD15). One of the purposes of SLD15 is to put I-level support in place for the LHA-6 LM2500+ main propulsion engines, which is being homeported in Sasebo, Japan. No installation cost is associated with this cost element.																				

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Exhibit P-5a, Procurement History and Planning: PB 2020 Navy									Date: March 2019			
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 1				P-1 Line Item Number / Title: 0131 / Surface Power Equipment					Aggregated Items: General Electric Gas Turbine			
Item Number / Title [DODIC]	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
2) PE010 Stock Rotating Spares												
2.2) LHD/LHA6 LM2500+		2018	General Electric Co. / Cincinnati, OH	SS / FFP	NAVSUP WSS, Mechanicsburg PA	Jun 2018	Feb 2021	1	5,329K	Y		Dec 2017

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Exhibit P-40a, Budget Item Justification For Aggregated Items: PB 2020 Navy															Date: March 2019					
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 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 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																				
1.1) 501-K34 ^{(2)(†)}	A		-	-	-	-	-	-	2,950K	1	2.950	3,075K	1	3.075	-	-	-	3,075K	1	3.075
1.2) 250-KS4 ^(†)	A		474,000.00	1	0.474	493,000.00	1	0.493	528,000.00	1	0.528	554,000.00	1	0.554	-	-	-	554,000.00	1	0.554
1.3) MT-30 ^{(3)(†)}	A		-	-	-	19,001K	1	19.001	-	-	-	-	-	-	-	-	-	-	-	-
1.4) MT-5S ^(†)	A		-	-	-	4,128K	1	4.128	4,334K	1	4.334	-	-	-	-	-	-	-	-	-
Subtotal: 1) PE001 STOCK ROTATING SPARES			-	-	0.474	-	-	23.622	-	-	7.812	-	-	3.629	-	-	-	-	-	3.629
2) PE007 MODIFICATION PROGRAM																				
2.1) PROCURE MODIFICATION KITS ⁽⁴⁾	A		-	-	2.810	-	-	0.900	-	-	0.735	-	-	-	-	-	-	-	-	-
2.2) INSTALLATION FOR MODIFICATION KITS	A		-	-	1.031	-	-	0.257	-	-	0.257	-	-	-	-	-	-	-	-	-
Subtotal: 2) PE007 MODIFICATION PROGRAM			-	-	3.841	-	-	1.157	-	-	0.992	-	-	-	-	-	-	-	-	-
Total			-	-	4.315	-	-	24.779	-	-	8.804	-	-	3.629	-	-	-	-	-	3.629
Note: Subtotals or Totals in this Exhibit P-40a may not be exact or sum exactly, due to rounding.																				
^(†) indicates the presence of a P-5a																				
Footnotes:																				
⁽²⁾ The cost estimates for the 501-K34 engine procurements between FY19-FY23 are based on the Rough Order of Magnitude pricing provided by Rolls Royce Naval Marine. The program will update the actual costs during the FY the contract is awarded.																				
⁽³⁾ PE001, MT-30 - Changes from PB19. Shift one (1) spare MT-30 procurement from FY21 to FY22 to match assessed spare requirement based on LCS-1/DDG-1000 ship inventory. In FY23 consolidate one (1) spare MT-30 procurement for LCS-1 and DDG-1000 class ships into a single program offices (realigns QTY of one (1) from BLI 0944 to BLI 0131).																				
⁽⁴⁾ 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 number and type of kits installed in any given Fiscal Year (FY) varies depending upon ship availability schedules during that FY. The planned procurement of modification kits for the FY2020 budget includes FADC conversion upgrade kits only, specifically SCD 22119 (HMI tech refresh) and SCD 22122 (Micronet upgrade). Both SCDs are part of 'FADC Obsolescence' but can be installed independently of each other.																				

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Exhibit P-5a, Procurement History and Planning: PB 2020 Navy								Date: March 2019				
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 1			P-1 Line Item Number / Title: 0131 / Surface Power Equipment					Aggregated Items: Rolls Royce Gas Turbine				
Item Number / Title [DODIC]	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) PE001 STOCK ROTATING SPARES												
1.1) 501-K34 ⁽²⁾		2019	ROLLS ROYCE / WALEPOLE, MA	SS / FFP	NAVSEA, Washington DC	Apr 2019	Oct 2020	1	2,950K	Y		Dec 2017
1.1) 501-K34 ⁽²⁾		2020	ROLLS ROYCE / WALEPOLE, MA	C / TBD	NAVSEA, Washington DC	Apr 2020	Oct 2021	1	3,075K	Y		Dec 2018
1.2) 250-KS4		2017	ROLLS ROYCE / WALEPOLE, MA	SS / FFP	NAVSUP WSS, Mechanicsburg PA	Oct 2017	Apr 2019	1	474,000.00	Y		Dec 2016
1.2) 250-KS4		2018	ROLLS ROYCE / WALEPOLE, MA	SS / FFP	NAVSEA, Washington DC	Dec 2018	Jun 2020	1	493,000.00	Y		Dec 2017
1.2) 250-KS4		2019	ROLLS ROYCE / WALEPOLE, MA	SS / FFP	NAVSEA, Washington DC	Aug 2019	Feb 2021	1	528,000.00	Y		Dec 2018
1.2) 250-KS4		2020	ROLLS ROYCE / WALEPOLE, MA	C / TBD	NAVSEA, Washington DC	Aug 2020	Feb 2022	1	554,000.00	Y		Dec 2019
1.3) MT-30 ⁽³⁾		2018	ROLLS ROYCE / WALEPOLE, MA	SS / FFP	NAVSEA, Washington DC	Sep 2018	Dec 2020	1	19,001K	Y		Dec 2017
1.4) MT-5S		2018	ROLLS ROYCE / WALEPOLE, MA	SS / FFP	NAVSEA, Washington DC	Sep 2018	Mar 2020	1	4,128K	Y		Dec 2017
1.4) MT-5S		2019	ROLLS ROYCE / WALEPOLE, MA	SS / FFP	NAVSEA, Washington DC	May 2019	Mar 2021	1	4,334K	Y		Dec 2018

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Exhibit P-40a, Budget Item Justification For Aggregated Items: PB 2020 Navy															Date: March 2019					
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 (5)						
Item Number / Title [DODIC]	ID CD	MDAP/MAIS Code	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 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																				
1.1) Production Engineering	A		-	-	0.346	-	-	0.349	-	-	0.349	-	-	0.350	-	-	-	-	-	0.350
Subtotal: 1) Production Engineering			-	-	0.346	-	-	0.349	-	-	0.349	-	-	0.350	-	-	-	-	-	0.350
Total			-	-	0.346	-	-	0.349	-	-	0.349	-	-	0.350	-	-	-	-	-	0.350

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

Footnotes:

⁽⁵⁾ 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 Navy Data Environment (NDE), Marine Gas Turbine Information System (MGTIS) and Weblog to reflect completed installations and ensure consistent documentation for engine configuration management.

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Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019		
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 1					P-1 Line Item Number / Title: 0131 / Surface Power Equipment					Modification Number / Title: 1 / PE015 - LM2500 GAS TURBINE DIGITAL FUEL CONTROL		
ID Code (A=Service Ready, B=Not Service Ready) :							MDAP/MAIS Code:					
Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity (<i>Units in Each</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost (<i>\$ in Millions</i>)	9.499	9.901	9.877	10.511	0.000	10.511	7.065	2.832	2.842	0.558	0.195	53.280
Less PY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (<i>\$ in Millions</i>)	9.499	9.901	9.877	10.511	0.000	10.511	7.065	2.832	2.842	0.558	0.195	53.280
Plus CY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority (<i>\$ in Millions</i>)	9.499	9.901	9.877	10.511	0.000	10.511	7.065	2.832	2.842	0.558	0.195	53.280
<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: PE015 - LM2500 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 update each of the four LM2500 engines, which makes one DFC shipset. The DFC upgrade is a mandatory portion of DDG-51 modernizations; the modernized machinery control system (MCS) is incapable of interfacing with LM2500 engines not equipped with DFC. The DFC is the most significant change to the LM2500 engine since its inception into the USN that addresses obsolete 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 also replaces the Hydro-mechanical main fuel control (MFC) system, which was designed for aircraft, with a DFC system designed for a 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)- This cost element funds the installation of Cost element PE015, LM2500 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-3a, Individual Modification: PB 2020 Navy										Date: March 2019			
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 1					P-1 Line Item Number / Title: 0131 / Surface Power Equipment					Modification Number / Title: 1 / PE015 - LM2500 GAS TURBINE DIGITAL FUEL CONTROL			
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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total	
	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	
Procurement													
Modification Item 1 of 1: PE015 - LM2500 GAS TURBINE DIGITAL FUEL CONTROL													
B Kits													
Recurring													
1.1.1) PE015 DIGITAL FUEL CONTROL SHIPSET/ PE6IN INSTALLATION FOR DFC - NonOrganic ⁽⁶⁾	5 / 8.954	5 / 9.400	5 / 9.877	5 / 9.995	- / -	5 / 9.995	3 / 6.537	1 / 2.296	1 / 2.295	- / -	- / 0.195	25 / 49.549	
<i>Subtotal: Recurring</i>	- / 8.954	- / 9.400	- / 9.877	- / 9.995	- / -	- / 9.995	- / 6.537	- / 2.296	- / 2.295	- / -	- / 0.195	- / 49.549	
<i>Subtotal: PE015 - LM2500 GAS TURBINE DIGITAL FUEL CONTROL</i>	5 / 8.954	5 / 9.400	5 / 9.877	5 / 9.995	- / -	5 / 9.995	3 / 6.537	1 / 2.296	1 / 2.295	- / -	- / 0.195	25 / 49.549	
<i>Subtotal: Procurement, All Modification Items</i>	- / 8.954	- / 9.400	- / 9.877	- / 9.995	- / -	- / 9.995	- / 6.537	- / 2.296	- / 2.295	- / -	- / 0.195	- / 49.549	
Installation													
Modification Item 1 of 1: PE015 - LM2500 GAS TURBINE DIGITAL FUEL CONTROL	- / 0.545	- / 0.501	- / 0.000	- / 0.516	- / 0.000	- / 0.516	- / 0.528	- / 0.536	- / 0.547	- / 0.558	- / 0.000	- / 3.731	
<i>Subtotal: Installation</i>	- / 0.545	- / 0.501	- / -	- / 0.516	- / -	- / 0.516	- / 0.528	- / 0.536	- / 0.547	- / 0.558	- / 0.000	- / 3.731	
Total													
Total Cost (Procurement + Support + Installation)	9.499	9.901	9.877	10.511	0.000	10.511	7.065	2.832	2.842	0.558	0.195	53.280	

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Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019																					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 1										P-1 Line Item Number / Title: 0131 / Surface Power Equipment										Modification Number / Title: 1 / PE015 - LM2500 GAS TURBINE DIGITAL FUEL CONTROL											
ID Code (A=Service Ready, B=Not Service Ready) :															MDAP/MAIS Code:																
Modification Item 1 of 1: PE015 - LM2500 GAS TURBINE DIGITAL FUEL CONTROL																															
Manufacturer Information																															
Manufacturer Name: General Electric															Manufacturer Location: Cincinnati, OH																
Administrative Leadtime (in Months): 2															Production Leadtime (in Months): 10																
Dates		FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024					
Contract Dates		Feb 2018				Feb 2019				Feb 2020				Feb 2021				Feb 2022				Feb 2023				Feb 2024					
Delivery Dates		Feb 2019				Feb 2020				Feb 2021				Feb 2022				Feb 2023				Feb 2024				Feb 2025					
Installation Information																															
Method of Implementation: GOVERNMENT:: Installation Name: PE015 DIGITAL FUEL CONTROL SHIPSET/ PE6IN INSTALLATION FOR DFC																															
Installation Cost		Prior Years		FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total		FY 2021		FY 2022		FY 2023		FY 2024		To Complete		Total							
		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)							
Prior Years		0 / 0.545		5 / 0.501		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.000		5 / 1.046							
FY 2018		- / -		- / -		5 / 0.000		- / -		- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.000		5 / -							
FY 2019		- / -		- / -		- / -		4 / 0.516		0 / 0.000		4 / 0.516		1 / 0.176		- / -		- / -		- / -		0 / 0.000		5 / 0.692							
FY 2020		- / -		- / -		- / -		- / -		- / -		- / -		2 / 0.352		3 / 0.402		- / -		- / -		0 / 0.000		5 / 0.754							
FY 2021		- / -		- / -		- / -		- / -		- / -		- / -		- / -		1 / 0.134		2 / 0.365		- / -		0 / 0.000		3 / 0.499							
FY 2022		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		1 / 0.182		- / -		0 / 0.000		1 / 0.182							
FY 2023		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		1 / 0.558		0 / 0.000		1 / 0.558							
FY 2024		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -							
To Complete		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -							
Total		0 / 0.545		5 / 0.501		5 / 0.000		4 / 0.516		0 / 0.000		4 / 0.516		3 / 0.528		4 / 0.536		3 / 0.547		1 / 0.558		0 / 0.000		25 / 3.731							
Installation Schedule																															
	PYS	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				TC	Tot
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4		
In	-	-	1	2	2	-	1	2	2	-	1	2	1	-	2	1	-	-	1	2	1	-	1	2	-	-	-	1	-		
Out	-	-	1	2	2	-	1	2	2	-	1	2	1	-	2	1	-	-	1	2	1	-	1	2	-	-	-	1	-		
Footnotes: ⁽⁶⁾ DFC ship-set procurement and installation costs updated based on actual prior year contract award prices. DFC ship-set installation costs were adjusted from FY20 through FY24 to properly align to the most current DDG 51 Class modernization schedule and accurately reflect the correct distribution of planned procurement and installation dollars based on sponsor requirements. DFC Install schedule lags the																															

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Exhibit P-3a, Individual Modification: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 1	P-1 Line Item Number / Title: 0131 / Surface Power Equipment	Modification Number / Title: 1 / PE015 - LM2500 GAS TURBINE DIGITAL FUEL CONTROL
ID Code (A=Service Ready, B=Not Service Ready) :		MDAP/MAIS Code:
Procurement schedule by 12-24 months. 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.		

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Exhibit P-40, Budget Line Item Justification: PB 2020 Navy								Date: March 2019				
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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity (Units in Each)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost (\$ in Millions)	107.100	26.651	23.495	31.583	0.000	31.583	48.869	71.720	61.919	52.402	-	423.739
Less PY Advance Procurement (\$ in Millions)	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (\$ in Millions)	107.100	26.651	23.495	31.583	0.000	31.583	48.869	71.720	61.919	52.402	-	423.739
Plus CY Advance Procurement (\$ in Millions)	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority (\$ in Millions)	107.100	26.651	23.495	31.583	0.000	31.583	48.869	71.720	61.919	52.402	-	423.739
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)												
Initial Spares (\$ in Millions)	-	-	0.227	0.049	-	0.049	0.029	0.029	0.035	-	-	0.369
Flyaway Unit Cost (\$ in Dollars)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost (\$ in Dollars)	-	-	-	-	-	-	-	-	-	-	-	-
Description:												
The FY 2020 funding request was reduced by \$5.0 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. FY20 indicates an increase from FY19 to purchase Twisted Rudders for DDG51 Class ships and increase in Situational Awareness, Boundary Enforcement & Response(SABER)funds for DDG51 and Surface Combatants and Command Ships.												
[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]: Funds provided support the procurement and installation of Ship Control Systems (SCS) upgrades 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 the HM&E COTS systems/												

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Exhibit P-40, Budget Line Item Justification: PB 2020 Navy		Date: March 2019
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		
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 / GB005 - Boundary Defense and Situational Awareness, ECR]: Enterprise Cyber Resiliency (ECR) - Procurement and installation of permanent HM&E cyber upgrades on CG-47 and DDG-51 class ships to sustain a threat-based cyber security architecture that will reduce the cost and effort required to pace the rapidly evolving cyber threat through strategically placed boundary defense capability between enclaves.		
[P40A / GB005 - CG Equipment (Installed under 5.3)]: Accelerate Cyber Upgrades of Situational Awareness (ECR) - CG 47 Platforms and Command Ships.		
[P40A / GB005 - DDG Equipment (Installed under 5.4)]: GB005 - Procure and install permanent HM&E cyber upgrades on DDG class ships. These upgrades encompass Enterprise Cyber Resiliency (ECR) initiative developed by NAVSEA, which includes boundary defense capability a central HM&E Situational Awareness (SA) tool, Cyber taps into HM&E data flow and weasel board backplane analysis systems to monitor the backplanes of selected HM&E equipment.		
[P3A / GB003 - Twisted Rudder]: GB003 - FY20, DDG 51 Class has implemented the use of Twisted Rudders to reduce the impact of cavitation, which will reduce the need for inspection and maintenance of the rudders. Cavitation causes early wear and tear on rudders, increasing the inspection and maintenance requirements. It will also have a secondary affect by reducing the noise that is usually generated by the cavitation which will increase the performance of its ships primary mission.		
[P3A - 2 / 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.		
[P3A - 3 / 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.		
[P3A - 4 / 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.		
[P3A - 5 / 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.		

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Exhibit P-40, Budget Line Item Justification: PB 2020 Navy				Date: March 2019	
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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Exhibit Type	Title*	Subexhibits	ID CD	MDAP/MAIS Code	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)
P-40a	Surface Combatant HM&E	P-5a			- / 57.960	- / 7.522	- / 20.795	- / 27.965	- / -	- / 27.965
P-3a	1 / GB003 - Twisted Rudder (TBD)				- / 0.000	- / 0.000	- / 0.000	- / 3.618	- / 0.000	- / 3.618
P-3a	2 / GB004 - Maritime Energy Initiatives (TMCS) (TBD)				- / 25.738	- / 8.600	- / 0.000	- / 0.000	- / 0.000	- / 0.000
P-3a	3 / GB004 - Maritime Energy Initiatives (VSD for CPS) (TBD)				- / 9.700	- / 4.971	- / 0.000	- / 0.000	- / 0.000	- / 0.000
P-3a	4 / GB004 - Maritime Energy Initiatives (SSL) (TBD)				- / 12.546	- / 5.384	- / 2.700	- / 0.000	- / 0.000	- / 0.000
P-3a	5 / GB004 - Maritime Energy Initiatives (Shipboard Energy Dashboard FLT IIA) (TBD)				- / 1.156	- / 0.174	- / 0.000	- / 0.000	- / 0.000	- / 0.000
P-40	Total Gross/Weapon System Cost				- / 107.100	- / 26.651	- / 23.495	- / 31.583	- / 0.000	- / 31.583

Exhibits Schedule					FY 2021	FY 2022	FY 2023	FY 2024	To Complete	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	P-5a			- / -	- / -	- / -	- / -	- / -	- / -
P-3a	1 / GB003 - Twisted Rudder (TBD)				- / 4.248	- / 13.313	- / 2.706	- / 2.760	- / 0.000	- / 26.645
P-3a	2 / GB004 - Maritime Energy Initiatives (TMCS) (TBD)				- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 34.338
P-3a	3 / GB004 - Maritime Energy Initiatives (VSD for CPS) (TBD)				- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 14.671
P-3a	4 / GB004 - Maritime Energy Initiatives (SSL) (TBD)				- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 20.630
P-3a	5 / GB004 - Maritime Energy Initiatives (Shipboard Energy Dashboard FLT IIA) (TBD)				- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 1.330
P-40	Total Gross/Weapon System Cost				- / 48.869	- / 71.720	- / 61.919	- / 52.402	- / -	- / 423.739

*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: PB 2020 Navy															Date: March 2019						
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 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 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		A		-	-	21.528	-	-	1.737	-	-	5.656	-	-	2.911	-	-	-	-	-	2.911
Subtotal: 1) GB001 - CG/DDG COTS Tech Refresh			-	-	21.528	-	-	1.737	-	-	5.656	-	-	2.911	-	-	-	-	-	2.911	
2) GB002 - Class Common Equipment																					
2.1) GB002 - Class Common Equipment		A		-	-	8.297	-	-	1.398	-	-	2.426	-	-	2.161	-	-	-	-	-	2.161
Subtotal: 2) GB002 - Class Common Equipment			-	-	8.297	-	-	1.398	-	-	2.426	-	-	2.161	-	-	-	-	-	2.161	
3) GB003 - Ship Control Systems ⁽¹⁾																					
3.1) GB003 - CG 47 Class (Installed under GB6IN 3.4) ^{(2)(†)}		A		1,885K	3	5.655	1,957K	1	1.957	100,000.00	1	0.100	1,695K	1	1.695	-	-	-	1,695K	1	1.695
3.2) GB003 - DDG 51 Class (Installed under GB6IN 3.5) ^{(3)(†)}		A		4,112K	3	12.336	319,000.00	1	0.319	5,975K	1	5.975	3,377K	1	3.377	-	-	-	3,377K	1	3.377
3.3) GB003 - Ship Control Systems Software Licenses		A		-	-	3.149	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
3.4) GB003 - Bridge and CIC ⁽⁴⁾		A		-	-	-	-	-	-	-	2.000	-	-	0.900	-	-	-	-	-	0.900	
3.5) GB6IN - CG 47 Class Install (Procured under GB003 3.1) ⁽⁵⁾		A		-	-	1.681	-	-	1.760	1,551K	1	1.551	1,208K	1	1.208	-	-	-	1,208K	1	1.208
3.6) GB6IN - DDG 51 Class Install (Procured under GB003 3.2) ⁽⁶⁾		A		-	-	2.536	-	-	0.351	987,000.00	1	0.987	1,024K	3	3.071	-	-	-	1,024K	3	3.071
Subtotal: 3) GB003 - Ship Control Systems			-	-	25.357	-	-	4.387	-	-	10.613	-	-	10.251	-	-	-	-	-	10.251	
4) GB004 - Maritime Energy Initiatives (Previously Procured in BLI 0110 and BLI 0120) ⁽⁷⁾																					
4.1) GB004 - Maritime Energy Initiative Install (Procured prior to transfer)		A		-	-	2.778	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Subtotal: 4) GB004 - Maritime Energy Initiatives (Previously Procured in BLI 0110 and BLI 0120)			-	-	2.778	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
5) GB005 - Boundary Defense and Situational Awareness, ECR																					
5.1) GB005 - CG Equipment (Installed under 5.3) ⁽⁸⁾		A		-	-	-	-	-	-	525,000.00	1	0.525	584,000.00	2	1.168	-	-	-	584,000.00	2	1.168

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Exhibit P-40a, Budget Item Justification For Aggregated Items: PB 2020 Navy															Date: March 2019				
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 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 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)
5.2) GB005 - DDG Equipment (Installed under 5.4) ⁽⁹⁾	A		-	-	-	-	-	-	1,253K	1	1.253	1,284K	6	7.704	-	-	-	1,284K	6	7.704
5.3) GB6IN - CG Installation/DSA (Procured under 5.1) ⁽¹⁰⁾	A		-	-	-	-	-	-	-	-	0.091	686,000.00	1	0.686	-	-	-	686,000.00	1	0.686
5.4) GB6IN - DDG Installation/DSA (Procured under 5.2) ⁽¹¹⁾	A		-	-	-	-	-	-	-	-	0.231	3,084K	1	3.084	-	-	-	3,084K	1	3.084
Subtotal: 5) GB005 - Boundary Defense and Situational Awareness, ECR			-	-	0.000	-	-	-	-	-	2.100	-	-	12.642	-	-	-	-	-	12.642
Total			-	-	57.960	-	-	7.522	-	-	20.795	-	-	27.965	-	-	-	-	-	27.965

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

(t) indicates the presence of a P-5a

Footnotes:

⁽¹⁾ 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.

⁽²⁾ GB003 Scheduled Procurements for CG 47 Class (To be installed under GB6IN 5.1): FY18: 10 different Kits procured for 3 ships to be installed in FY19 under GB6IN. FY19: NRE for software development and 4 Kits Procured for 1 Ship to be install in FY20 GB6IN. FY20: 8 Kits procured for 2 ships to be installed in FY21 under GB6IN. FY21 4 Kits procured for 1 ship to be install in FY22 GB6IN. FY22: No Procurements. At PB19 CG 60 did not have an FY20 avail. An FY20 SRA was added after the PB19 submit. The FY19 procurement is to support FY20 install on CG 60. Funding has been reprioritized from CCE buy to procure equipment in FY19. FY23: No procurements. FY24 No procurements.

⁽³⁾ GB003 Scheduled Procurements for DDG 51 Class (To be installed under GB6IN 5.2): FY18: 7 different kits procured for 1 ship to be install in FY19 under GB6IN. FY19: 20 different kits procured for 3 ships to be install in FY20 under GB6IN. FY20 39 different kits procured for 5 ships to be installed under GB6IN. FY21 30 Different kits procured for 5 ships to be installed under FY22 GB6IN. FY22: 22 different kits for 5 ships to be installed in FY23 GB6IN. FY23: 21 different kits for 5 ships to be installed in FY23 GB6IN. FY24: 21 different kits for 5 ships to be installed in FY25 GB6IN.

⁽⁴⁾ Corrective Action based on the Surface Ship Comprehensive Review for Digital Recording for Bridge and Combat Information Center (CIC).

⁽⁵⁾ GB6IN Scheduled Installs for CG 47 Class (Procured under GB003 3.1). FY19: 10 kits installed on 3 ships procured under FY18 GB003. There should only be (1) installation for FY19, the qty was inadvertently changed while making adjustments. FY20 4 Kits installed on 1 Ship procured under FY19 GB003. FY21: 8 kits installed on 2 ships that were procured under FY20 GB003. FY22: No installs. FY23: No installs. FY24: No installs.

⁽⁶⁾ GB6IN Scheduled Installs for DDG 51 Class (Procured under GB003 3.2): FY18: 5 different kits installed on 2 ships. FY19: 7 Kits installed on 1 ship procured under GB003. FY20: 20 Kits install on 3 ships procured under FY19 GB003. FY21: 39 kits installed on 5 ships procured under FY20 GB003. FY22: 30 kits installed on 5 ships procured under FY21 GB003. FY23: 22 kits installed on 5 ships procured under FY22 GB003. FY24: 21 kits installed on 5 ships procured under FY23 GB003. (

⁽⁷⁾ 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.

⁽⁸⁾ GB005 - FY19 ECR procurement (1 shipset) to be installed in FY20. All subsequent year procurements will be installed in the following FY. Procurement profile is as follows: FY19-(1); Increase in funding supports final testing and SCD development. FY20-(1); FY21-(2); FY22-(2); FY23-(1); FY24-(2). The FY 2020 funding request was reduced by \$5.000 million to account for the availability of prior year execution balance.

⁽⁹⁾ GB005 - FY19 ECR procurement and installation (1 shipset) to be installed in FY20. All subsequent year procurements will be installed in the following FY. Procurement profile is as follows: FY19-(1); FY20-(6); FY21-(10); FY22-(14); FY23-(13); FY24-(7);

⁽¹⁰⁾ GB6IN FY19 is DSA and installation. In FY20 and follow, funding will include DSA and installation. DSA is required the year prior to and the year of installation. Installation profile is as follows: FY20-(1); FY21-(1); FY22-(2); FY23-(2); FY24-(1);

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Exhibit P-40a, Budget Item Justification For Aggregated Items: PB 2020 Navy		Date: March 2019
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
⁽¹¹⁾ GB6IN FY19 is DSA and installation. In FY20 and follow, funding will include DSA and installation. DSA is required the year prior to and the year of installation. Installation profile is as follows: FY20-(1); The additional \$1.4M is for DSA in support of the (6) DDG installations planned for FY21. FY21-(6); FY22-(10); FY23-(14); FY24-(13).		

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Exhibit P-5a, Procurement History and Planning: PB 2020 Navy									Date: March 2019			
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 2			P-1 Line Item Number / Title: 0200 / Surface Combatant HM&E						Aggregated Items: Surface Combatant HM&E			
Item Number / Title [DODIC]	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
3) GB003 - Ship Control Systems												
3.1) GB003 - CG 47 Class (Installed under GB6IN 3.4) ⁽²⁾		2018 ⁽¹²⁾	Various / Various	Various	NAVSSSES	Apr 2018	Apr 2019	1	1,957K	Y		
3.1) GB003 - CG 47 Class (Installed under GB6IN 3.4) ⁽²⁾		2019 ⁽¹³⁾	Various / Various	Various	NAVSESS	Apr 2019	Apr 2020	1	100,000.00	Y		
3.1) GB003 - CG 47 Class (Installed under GB6IN 3.4) ⁽²⁾		2020 ⁽¹⁴⁾	Various / Various	Various	NAVSESS	Mar 2020	Mar 2020	1	1,695K	Y		
3.2) GB003 - DDG 51 Class (Installed under GB6IN 3.5) ⁽³⁾		2018 ⁽¹⁵⁾	Various / Various	Various	NAVSSSES	Aug 2018	Aug 2019	1	319,000.00	Y		
3.2) GB003 - DDG 51 Class (Installed under GB6IN 3.5) ⁽³⁾		2019 ⁽¹⁶⁾	Various / Various	Various	NAVSESS	Dec 2018	Dec 2019	1	5,975K	Y		
3.2) GB003 - DDG 51 Class (Installed under GB6IN 3.5) ⁽³⁾		2020 ⁽¹⁷⁾	Various / Various	Various	NAVSESS	Mar 2020	Mar 2021	1	3,377K	Y		

Footnotes:

- ⁽¹²⁾ The unit cost accounts for 10 different kits procured for 2 ship (CG57 and 58) over multiple contracts. FY18 procurements are dependent upon the specific alterations required for each ship. Ship set costs and quantities vary based on the individual ship's configuration.
- ⁽¹³⁾ The unit cost accounts for 3 different kits procured for 1 ship (CG 60) over multiple contracts. FY19 procurements are dependent upon the specific alterations required for each ship. Ship set costs and quantities vary based on the individual ship's configuration.
- ⁽¹⁴⁾ The unit cost accounts for 5 different kits procured for 1 ship (CG 61) over multiple contracts. FY20 procurements are dependent upon the specific alterations required for each ship. Ship set costs and quantities vary based on the individual ship's configuration.
- ⁽¹⁵⁾ The unit cost accounts for 9 different kits procured for 4 ships (DDG 51, DDG 53, DDG 59, and DDG 68) over multiple contracts. FY18 procurements are dependent upon the specific alterations required for each ship. Ship set costs and quantities vary based on the individual ship's configuration.
- ⁽¹⁶⁾ The unit cost accounts for 17 different kits procured for 7 ships (DDG 55, 53, 59, 60, 61, 63, & 66) over multiple contracts. FY19 procurements are dependent upon the specific alterations required for each ship. Ship set costs and quantities vary based on the individual ship's configuration.
- ⁽¹⁷⁾ The unit cost accounts for 17 different kits procured for 3 ships (DDG 55, 61, and 66) over multiple contracts. FY20 procurements are dependent upon the specific alterations required for each ship. Ship set costs and quantities vary based on the individual ship's configuration.

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Exhibit P-3a, Individual Modification: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 2	P-1 Line Item Number / Title: 0200 / Surface Combatant HM&E	Modification Number / Title: 1 / GB003 - Twisted Rudder

ID Code (A=Service Ready, B=Not Service Ready) :						MDAP/MAIS Code:						
Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity (Units in Each)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost (\$ in Millions)	0.000	0.000	0.000	3.618	0.000	3.618	4.248	13.313	2.706	2.760	0.000	26.645
Less PY Advance Procurement (\$ in Millions)	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (\$ in Millions)	0.000	0.000	0.000	3.618	0.000	3.618	4.248	13.313	2.706	2.760	0.000	26.645
Plus CY Advance Procurement (\$ in Millions)	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority (\$ in Millions)	0.000	0.000	0.000	3.618	0.000	3.618	4.248	13.313	2.706	2.760	0.000	26.645
(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:

GB003 - FY20, DDG 51 Class has implemented the use of Twisted Rudders to reduce the impact of cavitation, which will reduce the need for inspection and maintenance of the rudders. Cavitation causes early wear and tear on rudders, increasing the inspection and maintenance requirements. It will also have a secondary affect by reducing the noise that is usually generated by the cavitation which will increase the performance of its ships primary mission.

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Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019			
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 2				P-1 Line Item Number / Title: 0200 / Surface Combatant HM&E						Modification Number / Title: 1 / GB003 - Twisted Rudder			
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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	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)	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: GB003 - Twisted Rudder													
A Kits													
Recurring													
1.1.1) Twisted Rudder - NonOrganic ⁽¹⁸⁾	- / -	- / -	- / -	1 / 2.285	- / -	1 / 2.285	2 / 4.157	2 / 5.010	- / -	- / -	- / -	5 / 11.452	
Subtotal: Recurring	- / 0.000	- / -	- / -	- / 2.285	- / -	- / 2.285	- / 4.157	- / 5.010	- / -	- / -	- / 0.000	- / 11.452	
Subtotal: GB003 - Twisted Rudder	- / -	- / -	- / -	1 / 2.285	- / -	1 / 2.285	2 / 4.157	2 / 5.010	- / -	- / -	- / -	5 / 11.452	
Subtotal: Procurement, All Modification Items	- / 0.000	- / -	- / -	- / 2.285	- / -	- / 2.285	- / 4.157	- / 5.010	- / -	- / -	- / 0.000	- / 11.452	
Support (All Modification Items)													
3.1) Engineering Services	- / -	- / -	- / -	- / 1.311	- / -	- / 1.311	- / -	- / -	- / -	- / -	- / -	- / 1.311	
3.2) End Item Battle Spare	- / -	- / -	- / -	- / -	- / -	- / -	- / -	2 / 5.010	- / -	- / -	- / -	2 / 5.010	
Subtotal: Support	- / 0.000	- / -	- / -	- / 1.311	- / -	- / 1.311	- / -	- / 5.010	- / -	- / -	- / 0.000	- / 6.321	
Installation													
Modification Item 1 of 1: GB003 - Twisted Rudder	- / 0.000	- / 0.000	- / 0.000	- / 0.022	- / 0.000	- / 0.022	- / 0.091	- / 3.293	- / 2.706	- / 2.760	- / 0.000	- / 8.872	
Subtotal: Installation	- / 0.000	- / -	- / -	- / 0.022	- / -	- / 0.022	- / 0.091	- / 3.293	- / 2.706	- / 2.760	- / 0.000	- / 8.872	
Total													
Total Cost (Procurement + Support + Installation)	0.000	0.000	0.000	3.618	0.000	3.618	4.248	13.313	2.706	2.760	0.000	26.645	

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Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019																					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 2										P-1 Line Item Number / Title: 0200 / Surface Combatant HM&E										Modification Number / Title: 1 / GB003 - Twisted Rudder											
ID Code (A=Service Ready, B=Not Service Ready) :															MDAP/MAIS Code:																
Modification Item 1 of 1: GB003 - Twisted Rudder																															
Manufacturer Information																															
Manufacturer Name: Bath Iron Works (BIW)															Manufacturer Location: Bath, ME																
Administrative Leadtime (in Months): 6															Production Leadtime (in Months): 20																
Dates		FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024					
Contract Dates										Feb 2020				Jan 2021				Jul 2022													
Delivery Dates										May 2022				Apr 2023				Sep 2024													
Installation Information																															
Method of Implementation: [none specified]:: Installation Name: Twisted Rudder																															
Installation Cost		Prior Years		FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total		FY 2021		FY 2022		FY 2023		FY 2024		To Complete		Total							
		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)							
Prior Years		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
FY 2018		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
FY 2019		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
FY 2020		- / -		- / -		- / -		0 / 0.022		0 / 0.000		0 / 0.022		0 / 0.068		1 / 3.269		- / -		- / -		0 / 0.000		1 / 3.359							
FY 2021		- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.023		- / -		2 / 2.488		- / -		0 / 0.000		2 / 2.511							
FY 2022		- / -		- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.024		0 / 0.218		2 / 2.760		0 / 0.000		2 / 3.002							
FY 2023		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -							
FY 2024		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -							
To Complete		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -							
Total		- / -		- / -		- / -		0 / 0.022		0 / 0.000		0 / 0.022		0 / 0.091		1 / 3.293		2 / 2.706		2 / 2.760		0 / 0.000		5 / 8.872							
Installation Schedule																															
	PYS	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				TC	Tot
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4		
In	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	1	1	-	-	-	1	1	-	5
Out	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	1	1	2	5
Footnotes:																															
(18) FY20: NRE will be provided for development and engineering of Twisted Rudders. Procure (1) ship set of Twisted Rudders that will be installed in 2022. FY21: Procure (2) ships sets of Twisted Rudders that will be installed FY23. FY22: Procure (2) ship Sets of Twisted Rudders that (2) will be installed in FY24, (2) Ship Set will be sent to the CCE Warehouse as a Battle Spare. FY22: Increase in DSA in FY22 are due to funding of additional Engineers and planning yard support during first time installs on DDG Class Ship.																															

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Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019		
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 2					P-1 Line Item Number / Title: 0200 / Surface Combatant HM&E					Modification Number / Title: 2 / GB004 - Maritime Energy Initiatives (TMCS)		
ID Code (A=Service Ready, B=Not Service Ready) :							MDAP/MAIS Code:					
Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity (<i>Units in Each</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost (<i>\$ in Millions</i>)	25.738	8.600	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	34.338
Less PY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (<i>\$ in Millions</i>)	25.738	8.600	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	34.338
Plus CY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority (<i>\$ in Millions</i>)	25.738	8.600	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	34.338
<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 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.												

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Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019			
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 2					P-1 Line Item Number / Title: 0200 / Surface Combatant HM&E					Modification Number / Title: 2 / GB004 - Maritime Energy Initiatives (TMCS)			
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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	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)	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: GB004 - Maritime Energy Initiatives (TMCS)													
B Kits													
Recurring													
1.1.1) Thermal Management Control System Equipment - NonOrganic ⁽¹⁹⁾	10 / 9.808	2 / 1.103	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	12 / 10.911	
<i>Subtotal: Recurring</i>	- / 9.808	- / 1.103	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / 0.000	- / 10.911	
<i>Subtotal: GB004 - Maritime Energy Initiatives (TMCS)</i>	10 / 9.808	2 / 1.103	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	12 / 10.911	
<i>Subtotal: Procurement, All Modification Items</i>	- / 9.808	- / 1.103	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / 0.000	- / 10.911	
Support (All Modification Items)													
2.1) TMCS Engineering Services	- / 0.388	- / 0.085	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / 0.473	
<i>Subtotal: Support</i>	- / 0.388	- / 0.085	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / 0.000	- / 0.473	
Installation													
Modification Item 1 of 1: GB004 - Maritime Energy Initiatives (TMCS)	- / 15.542	- / 7.412	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 22.954	
<i>Subtotal: Installation</i>	- / 15.542	- / 7.412	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / 0.000	- / 22.954	
Total													
Total Cost (Procurement + Support + Installation)	25.738	8.600	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	34.338	

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Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019																					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 2										P-1 Line Item Number / Title: 0200 / Surface Combatant HM&E										Modification Number / Title: 2 / GB004 - Maritime Energy Initiatives (TMCS)											
ID Code (A=Service Ready, B=Not Service Ready) :															MDAP/MAIS Code:																
Modification Item 1 of 1: GB004 - Maritime Energy Initiatives (TMCS)																															
Manufacturer Information																															
Manufacturer Name: NAG Marine															Manufacturer Location: Norfolk, VA																
Administrative Leadtime (in Months): 6															Production Leadtime (in Months): 12																
Dates		FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024					
Contract Dates		Dec 2017																													
Delivery Dates		Dec 2018																													
Installation Information																															
Method of Implementation: AIT INSTALLATION FOR TMCS:: Installation Name: Thermal Management Control System Equipment																															
Installation Cost		Prior Years		FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total		FY 2021		FY 2022		FY 2023		FY 2024		To Complete		Total							
		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)							
Prior Years		8 / 15.542		2 / 3.426		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.000		10 / 18.968					
FY 2018		- / -		2 / 3.986		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.000		2 / 3.986					
FY 2019		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
FY 2020		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
FY 2021		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
FY 2022		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
FY 2023		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
FY 2024		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
To Complete		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
Total		8 / 15.542		4 / 7.412		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.000		12 / 22.954					
Installation Schedule																															
	PYS	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				TC	Tot
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4		
In	8	-	2	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12
Out	8	-	-	-	2	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12
Footnotes: ⁽¹⁹⁾ Installation costs include planning support that is conducted the year prior to installation (i.e., \$0.489M installation cost in FY17 refers to the prior year planning for FY18 installation). FY19 installations will be funded with FY18, due to TMCS not being funded in FY19.																															

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Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019		
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 2					P-1 Line Item Number / Title: 0200 / Surface Combatant HM&E					Modification Number / Title: 3 / GB004 - Maritime Energy Initiatives (VSD for CPS)		
ID Code (A=Service Ready, B=Not Service Ready) :							MDAP/MAIS Code:					
Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity (<i>Units in Each</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost (<i>\$ in Millions</i>)	9.700	4.971	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	14.671
Less PY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (<i>\$ in Millions</i>)	9.700	4.971	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	14.671
Plus CY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority (<i>\$ in Millions</i>)	9.700	4.971	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	14.671
<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 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.												

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Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019			
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 2					P-1 Line Item Number / Title: 0200 / Surface Combatant HM&E					Modification Number / Title: 3 / GB004 - Maritime Energy Initiatives (VSD for CPS)			
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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	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)	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: GB004 - Maritime Energy Initiatives (VSD for CPS)													
B Kits													
Recurring													
1.1.1) Variable Speed Drive Equipment - NonOrganic (20)	6 / 4.508	2 / 1.514	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	8 / 6.022	
<i>Subtotal: Recurring</i>	- / 4.508	- / 1.514	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / 0.000	- / 6.022	
<i>Subtotal: GB004 - Maritime Energy Initiatives (VSD for CPS)</i>	6 / 4.508	2 / 1.514	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	8 / 6.022	
<i>Subtotal: Procurement, All Modification Items</i>	- / 4.508	- / 1.514	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / 0.000	- / 6.022	
Support (All Modification Items)													
2.1) Variable Speed Drive Engineering Services	- / 0.389	- / 0.080	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / 0.469	
<i>Subtotal: Support</i>	- / 0.389	- / 0.080	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / 0.000	- / 0.469	
Installation													
Modification Item 1 of 1: GB004 - Maritime Energy Initiatives (VSD for CPS)	- / 4.803	- / 3.377	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 8.180	
<i>Subtotal: Installation</i>	- / 4.803	- / 3.377	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / 0.000	- / 8.180	
Total													
Total Cost (Procurement + Support + Installation)	9.700	4.971	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	14.671	

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Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019																					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 2										P-1 Line Item Number / Title: 0200 / Surface Combatant HM&E										Modification Number / Title: 3 / GB004 - Maritime Energy Initiatives (VSD for CPS)											
ID Code (A=Service Ready, B=Not Service Ready) :															MDAP/MAIS Code:																
Modification Item 1 of 1: GB004 - Maritime Energy Initiatives (VSD for CPS)																															
Manufacturer Information																															
Manufacturer Name: Rockwell Automation															Manufacturer Location: Cleveland, OH																
Administrative Leadtime (<i>in Months</i>): 6															Production Leadtime (<i>in Months</i>): 12																
Dates		FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024					
Contract Dates		Dec 2017																													
Delivery Dates		Dec 2018																													
Installation Information																															
Method of Implementation: ALT:: Installation Name: Variable Speed Drive Equipment																															
Installation Cost		Prior Years		FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total		FY 2021		FY 2022		FY 2023		FY 2024		To Complete		Total							
		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)							
Prior Years		5 / 4.803		1 / 0.921		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.000		6 / 5.724					
FY 2018		- / -		2 / 2.456		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.000		2 / 2.456					
FY 2019		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
FY 2020		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
FY 2021		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
FY 2022		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
FY 2023		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
FY 2024		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
To Complete		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
Total		5 / 4.803		3 / 3.377		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.000		8 / 8.180					
Installation Schedule																															
	PYS	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				TC	Tot
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4		
In	5	-	1	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8
Out	4	1	-	-	1	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8
Footnotes: ⁽²⁰⁾ Installation costs include planning support that is conducted the year prior to installation (i.e., \$0.071M installation cost in FY17 refers to the prior year planning for FY18 installation). FY19 installation will be funded with FY18, due to VSD not being funded in FY19.																															

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Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019		
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 2					P-1 Line Item Number / Title: 0200 / Surface Combatant HM&E					Modification Number / Title: 4 / GB004 - Maritime Energy Initiatives (SSL)		
ID Code (A=Service Ready, B=Not Service Ready) :							MDAP/MAIS Code:					
Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity (<i>Units in Each</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost (<i>\$ in Millions</i>)	12.546	5.384	2.700	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	20.630
Less PY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (<i>\$ in Millions</i>)	12.546	5.384	2.700	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	20.630
Plus CY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority (<i>\$ in Millions</i>)	12.546	5.384	2.700	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	20.630
<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: 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-3a, Individual Modification: PB 2020 Navy										Date: March 2019			
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 2				P-1 Line Item Number / Title: 0200 / Surface Combatant HM&E						Modification Number / Title: 4 / GB004 - Maritime Energy Initiatives (SSL)			
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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	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)	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> GB004 - Maritime Energy Initiatives (SSL)													
B Kits													
Recurring													
1.1.1) Solid State Lighting Equipment - NonOrganic	13 / 6.457	5 / 2.523	2 / 1.028	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	20 / 10.008	
1.1.2) Hanger Bay Solid State Lighting Equipment (SSL) - NonOrganic	- / -	2 / 0.083	4 / 0.170	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	6 / 0.253	
<i>Subtotal: Recurring</i>	- / 6.457	- / 2.606	- / 1.198	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / 0.000	- / 10.261	
<i>Subtotal: GB004 - Maritime Energy Initiatives (SSL)</i>	13 / 6.457	7 / 2.606	6 / 1.198	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	26 / 10.261	
<i>Subtotal: Procurement, All Modification Items</i>	- / 6.457	- / 2.606	- / 1.198	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / 0.000	- / 10.261	
Support (All Modification Items)													
2.1) Solid State Lighting Engineering Services	- / 0.181	- / 0.070	- / 0.095	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / 0.346	
<i>Subtotal: Support</i>	- / 0.181	- / 0.070	- / 0.095	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / 0.000	- / 0.346	
Installation													
<i>Modification Item 1 of 1:</i> GB004 - Maritime Energy Initiatives (SSL)	- / 5.908	- / 2.708	- / 1.407	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 10.023	
<i>Subtotal: Installation</i>	- / 5.908	- / 2.708	- / 1.407	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / 0.000	- / 10.023	
Total													
Total Cost (Procurement + Support + Installation)	12.546	5.384	2.700	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	20.630	

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Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019																					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 2										P-1 Line Item Number / Title: 0200 / Surface Combatant HM&E										Modification Number / Title: 4 / GB004 - Maritime Energy Initiatives (SSL)											
ID Code (A=Service Ready, B=Not Service Ready) :															MDAP/MAIS Code:																
Modification Item 1 of 1: GB004 - Maritime Energy Initiatives (SSL)																															
Manufacturer Information																															
Manufacturer Name: Energy Focus Inc.															Manufacturer Location: Solon, OH																
Administrative Leadtime (in Months): 3															Production Leadtime (in Months): 6																
Dates		FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024					
Contract Dates		Nov 2017				Nov 2018																									
Delivery Dates		May 2018				May 2019																									
Installation Information																															
Method of Implementation: AIT:: Installation Name: Solid State Lighting Equipment																															
Installation Cost		Prior Years	FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total		FY 2021		FY 2022		FY 2023		FY 2024		To Complete		Total								
		Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)								
Prior Years		13 / 5.908		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.000		13 / 5.908							
FY 2018		- / -		5 / 2.521		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.000		5 / 2.521							
FY 2019		- / -		- / -		2 / 1.026		- / -		- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.000		2 / 1.026							
FY 2020		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -							
FY 2021		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -							
FY 2022		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -							
FY 2023		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -							
FY 2024		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -							
To Complete		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -							
Total		13 / 5.908		5 / 2.521		2 / 1.026		- / -		- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.000		20 / 9.455							
Installation Schedule																															
	PYS	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				TC	Tot
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4		
In	13	-	-	5	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	20
Out	13	-	-	-	5	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	20

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Exhibit P-3a, Individual Modification: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 2	P-1 Line Item Number / Title: 0200 / Surface Combatant HM&E	Modification Number / Title: 4 / GB004 - Maritime Energy Initiatives (SSL)

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

Modification Item 1 of 1: GB004 - Maritime Energy Initiatives (SSL)

Installation Information

Method of Implementation: [none specified]:: Installation Name: Hanger Bay Solid State Lighting Equipment (SSL)

Installation Cost	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)
Prior Years	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2018	- / -	2 / 0.187	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	2 / 0.187
FY 2019	- / -	- / -	4 / 0.381	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	4 / 0.381
FY 2020	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2021	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2022	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2023	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2024	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
To Complete	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
Total	- / -	2 / 0.187	4 / 0.381	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	6 / 0.568

Installation Schedule

	PYS	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				TC	Tot
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4		
In	-	-	-	2	-	-	-	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6
Out	-	-	-	-	2	-	-	-	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6

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Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019		
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 2					P-1 Line Item Number / Title: 0200 / Surface Combatant HM&E					Modification Number / Title: 5 / GB004 - Maritime Energy Initiatives (Shipboard Energy Dashboard FLT IIA)		
ID Code (A=Service Ready, B=Not Service Ready) :							MDAP/MAIS Code:					
Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity (<i>Units in Each</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost (<i>\$ in Millions</i>)	1.156	0.174	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.330
Less PY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (<i>\$ in Millions</i>)	1.156	0.174	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.330
Plus CY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority (<i>\$ in Millions</i>)	1.156	0.174	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.330
<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 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.												

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Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019			
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 2					P-1 Line Item Number / Title: 0200 / Surface Combatant HM&E					Modification Number / Title: 5 / GB004 - Maritime Energy Initiatives (Shipboard Energy Dashboard FLT IIA)			
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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	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)	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> GB004 - Maritime Energy Initiatives (Shipboard Energy Dashboard FLT IIA)													
B Kits													
Recurring													
1.1.1) Shipboard Energy Dashboard FLT IIA Equipment - NonOrganic ⁽²¹⁾	9 / 0.374	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	9 / 0.374	
<i>Subtotal: Recurring</i>	- / 0.374	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / 0.000	- / 0.374	
<i>Subtotal: GB004 - Maritime Energy Initiatives (Shipboard Energy Dashboard FLT IIA)</i>	9 / 0.374	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	9 / 0.374	
<i>Subtotal: Procurement, All Modification Items</i>	- / 0.374	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / 0.000	- / 0.374	
Support (All Modification Items)													
2.1) Shipboard Energy Dashboard FLT IIA Engineering Services	- / 0.192	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / 0.192	
<i>Subtotal: Support</i>	- / 0.192	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / 0.000	- / 0.192	
Installation													
<i>Modification Item 1 of 1:</i> GB004 - Maritime Energy Initiatives (Shipboard Energy Dashboard FLT IIA)	- / 0.590	- / 0.174	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.764	
<i>Subtotal: Installation</i>	- / 0.590	- / 0.174	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / 0.000	- / 0.764	
Total													
Total Cost (Procurement + Support + Installation)	1.156	0.174	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.330	

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Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019																					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 2										P-1 Line Item Number / Title: 0200 / Surface Combatant HM&E										Modification Number / Title: 5 / GB004 - Maritime Energy Initiatives (Shipboard Energy Dashboard FLT IIA)											
ID Code (A=Service Ready, B=Not Service Ready) :															MDAP/MAIS Code:																
Modification Item 1 of 1: GB004 - Maritime Energy Initiatives (Shipboard Energy Dashboard FLT IIA)																															
Manufacturer Information																															
Manufacturer Name: Hoffer Flow Controls, Inc.															Manufacturer Location: Elizabeth City, NC																
Administrative Leadtime (in Months): 6															Production Leadtime (in Months): 12																
Dates		FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024					
Contract Dates																															
Delivery Dates																															
Installation Information																															
Method of Implementation: ALT:: Installation Name: Shipboard Energy Dashboard FLT IIA Equipment																															
Installation Cost		Prior Years		FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total		FY 2021		FY 2022		FY 2023		FY 2024		To Complete		Total							
		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)							
Prior Years		7 / 0.590		2 / 0.174		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.000		9 / 0.764					
FY 2018		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
FY 2019		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
FY 2020		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
FY 2021		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
FY 2022		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
FY 2023		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
FY 2024		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
To Complete		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
Total		7 / 0.590		2 / 0.174		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.000		9 / 0.764					
Installation Schedule																															
	PYS	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				TC	Tot
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4		
In	7	-	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	9
Out	7	-	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	9
Footnotes:																															
⁽²¹⁾ Shipboard Energy Dashboard Flt IIA effort planned to complete in FY18.																															

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Exhibit P-40, Budget Line Item Justification: PB 2020 Navy										Date: March 2019		
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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity (<i>Units in Each</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost (<i>\$ in Millions</i>)	395.385	62.427	60.830	77.404	0.000	77.404	73.153	74.297	75.709	66.846	Continuing	Continuing
Less PY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (<i>\$ in Millions</i>)	395.385	62.427	60.830	77.404	0.000	77.404	73.153	74.297	75.709	66.846	Continuing	Continuing
Plus CY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority (<i>\$ in Millions</i>)	395.385	62.427	60.830	77.404	0.000	77.404	73.153	74.297	75.709	66.846	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>)	-	-	-	0.270	-	0.270	-	-	-	-	-	0.270
Flyaway Unit Cost (<i>\$ in Dollars</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost (<i>\$ in Dollars</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Description: 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 / GW054: NAVIGATION TRAINING EQUIPMENT]: Funds are required for the procurement of training equipment for multiple Navigation classrooms in support of Navigation System Technician pipeline maintenance 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 / 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. [P40A / GW065: NAVIGATION SHORESITE EQUIPMENT]: These funds are required for the procurement and Non Recurring Engineering (NRE)/ Integrated Logistics Support (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]: 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. This Cost Element 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.												

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Exhibit P-40, Budget Line Item Justification: PB 2020 Navy		Date: March 2019
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		
[P3A / 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. [P3A - 2 / GW051: 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. [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 - 4 / GW055: SPEED LOGS]: These funds are for the procurement and installation of Speed Log upgrades and Tech Refresh on amphibious, surface, submarine, and carrier platforms. [P3A - 5 / GW056: NAVY ECDIS]: 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 - 6 / 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. [P3A - 8 / 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. [P3A - 9 / 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. [P3A - 10 / 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. [P3A - 11 / GW067: DIGITAL DEPTH DETECTOR]: These funds are required for the procurement and installation of Digital Depth Detector to replace legacy depth detectors on submarine platforms. [P3A - 12 / GW069: BOUNDARY DEFENSE CABINET]: These funds are required for the procurement and installation of Boundary Defense Cabinets on surface platforms for cyber protection. [P3A - 13 / GW070: MILITARY GLOBAL POSITIONING SYSTEM (GPS) USER EQUIPMENT (MGUE)]: These funds are required for the procurement and installation of Military GPS User Equipment on submarine platforms.		

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Exhibit P-40, Budget Line Item Justification: PB 2020 Navy				Date: March 2019	
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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Exhibit Type	Title*	Subexhibits	ID CD	MDAP/MAIS Code	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)
P-40a	Other Navigation Equipment				- / 265.222	- / 17.189	- / 16.001	- / 22.741	- / -	- / 22.741
P-3a	1 / GW036: AN/WSN-7B (AN/WSN-7B)				- / 69.056	- / 0.050	- / 0.860	- / 0.655	- / 0.000	- / 0.655
P-3a	2 / GW051: ECDIS-N MODERNIZATION (ECDIS-N MODERNIZATION)				- / 16.751	- / 8.641	- / 5.413	- / 0.000	- / 0.000	- / 0.000
P-3a	3 / GW053: AN/WSN-12 (AN/WSN-12)				- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000
P-3a	4 / GW055: SPEED LOGS (SPEED LOGS)				- / 17.825	- / 6.081	- / 11.617	- / 8.433	- / 0.000	- / 8.433
P-3a	5 / GW056: NAVY ECDIS (NAVY ECDIS)				- / 5.880	- / 13.485	- / 11.196	- / 23.976	- / 0.000	- / 23.976
P-3a	6 / GW058: NAVSSI CAPSTONE (NAVSSI CAPSTONE)				- / 2.932	- / 3.010	- / 1.702	- / 1.387	- / 0.000	- / 1.387
P-3a	8 / GW060: NEXT GENERATION FATHOMETER (NEXT GENERATION FATHOMETER)				- / 6.544	- / 2.792	- / 1.864	- / 1.348	- / 0.000	- / 1.348
P-3a	9 / GW061: MK 27 REPLACEMENT (MK 27 REPLACEMENT)				- / 4.663	- / 1.355	- / 1.480	- / 0.870	- / 0.000	- / 0.870
P-3a	10 / GW062: AN/WSN-7 MODERNIZATION (AN/WSN-7 MODERNIZATION)				- / 5.737	- / 8.811	- / 9.784	- / 8.593	- / 0.000	- / 8.593
P-3a	11 / GW067: DIGITAL DEPTH DETECTOR (DIGITAL DEPTH DETECTOR)				- / 0.775	- / 1.013	- / 0.913	- / 0.775	- / 0.000	- / 0.775
P-3a	12 / GW069: BOUNDARY DEFENSE CABINET (BOUNDARY DEFENSE CABINET)				- / 0.000	- / 0.000	- / 0.000	- / 8.626	- / 0.000	- / 8.626
P-3a	13 / GW070: MILITARY GLOBAL POSITIONING SYSTEM (GPS) USER EQUIPMENT (MGUE) (MILITARY GPS USER EQUIPMENT)				- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000
P-40	Total Gross/Weapon System Cost				- / 395.385	- / 62.427	- / 60.830	- / 77.404	- / 0.000	- / 77.404

Exhibits Schedule					FY 2021	FY 2022	FY 2023	FY 2024	To Complete	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				- / -	- / -	- / -	- / -	- / -	- / -
P-3a	1 / GW036: AN/WSN-7B (AN/WSN-7B)				- / 0.250	- / 0.100	- / 0.100	- / 0.102	Continuing	Continuing
P-3a	2 / GW051: ECDIS-N MODERNIZATION (ECDIS-N MODERNIZATION)				- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 30.805
P-3a	3 / GW053: AN/WSN-12 (AN/WSN-12)				- / 11.780	- / 17.906	- / 21.474	- / 22.728	Continuing	Continuing
P-3a	4 / GW055: SPEED LOGS (SPEED LOGS)				- / 3.015	- / 0.963	- / 0.378	- / 0.000	- / 0.000	- / 48.312
P-3a	5 / GW056: NAVY ECDIS (NAVY ECDIS)				- / 13.294	- / 26.260	- / 27.007	- / 23.955	Continuing	Continuing
P-3a	6 / GW058: NAVSSI CAPSTONE (NAVSSI CAPSTONE)				- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 9.031
P-3a	8 / GW060: NEXT GENERATION FATHOMETER (NEXT GENERATION FATHOMETER)				- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 12.548
P-3a	9 / GW061: MK 27 REPLACEMENT (MK 27 REPLACEMENT)				- / 0.510	- / 0.100	- / 0.000	- / 0.000	- / 0.000	- / 8.978
P-3a	10 / GW062: AN/WSN-7 MODERNIZATION (AN/WSN-7 MODERNIZATION)				- / 7.471	- / 7.182	- / 5.103	- / 4.585	Continuing	Continuing

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Exhibit P-40, Budget Line Item Justification: PB 2020 Navy								Date: March 2019		
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					FY 2021	FY 2022	FY 2023	FY 2024	To Complete	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-3a	11 / GW067: DIGITAL DEPTH DETECTOR (DIGITAL DEPTH DETECTOR)				- / 0.813	- / 0.238	- / 0.000	- / 0.000	- / 0.000	- / 4.527
P-3a	12 / GW069: BOUNDARY DEFENSE CABINET (BOUNDARY DEFENSE CABINET)				- / 12.569	- / 6.410	- / 6.538	- / 0.000	Continuing	Continuing
P-3a	13 / GW070: MILITARY GLOBAL POSITIONING SYSTEM (GPS) USER EQUIPMENT (MGUE) (MILITARY GPS USER EQUIPMENT)				- / 0.000	- / 0.000	- / 2.000	- / 2.040	Continuing	Continuing
P-40	Total Gross/Weapon System Cost				- / 73.153	- / 74.297	- / 75.709	- / 66.846	Continuing	Continuing
*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: PB 2020 Navy															Date: March 2019					
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 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 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		-	-	7.824	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.2) SUBMARINE CONVENTIONAL NAVIGATION FC KITS	A		-	-	20.351	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: 1) GW013: CONVENTIONAL NAVIGATION FIELD CHANGE KITS			-	-	28.175	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2) GW029: INERTIAL NAVIGATION SYSTEMS FIELD CHANGE KITS																				
2.1) SURFACE INERTIAL NAV SYS ECP/FC KITS	A		-	-	21.003	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2.2) SUBMARINE INERTIAL NAV SYS ECP/FC KITS	A		-	-	38.668	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2.3) CARRIER INERTIAL NAV SYS ECP/FC KITS	A		-	-	17.020	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: 2) GW029: INERTIAL NAVIGATION SYSTEMS FIELD CHANGE KITS			-	-	76.691	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3) GW038: AN/BPS ECDIS-N/VMS FC KITS:																				
3.1) SUBMARINE AN/BPS ECDIS-N/VMS FC KITS:	A		-	-	44.392	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: 3) GW038: AN/BPS ECDIS-N/VMS FC KITS:			-	-	44.392	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4) GW051: SCALABLE ECDIS-N ENGINEERING CHANGE PROPOSAL (ECP)/FIELD CHANGE KITS:																				
4.1) SURFACE SCALABLE ECDIS-N ECP/ FIELD CHANGE KITS	A		-	-	47.562	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4.2) CARRIER SCALABLE ECDIS-N ECP/FIELD CHANGE KITS:	A		-	-	5.831	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: 4) GW051: SCALABLE ECDIS-N ENGINEERING CHANGE PROPOSAL (ECP)/FIELD CHANGE KITS:			-	-	53.393	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5) GW054: NAVIGATION TRAINING EQUIPMENT																				
5.1) SURFACE NAVIGATION	A		-	-	3.607	-	-	0.612	-	-	0.624	-	-	0.636	-	-	-	-	-	0.636

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Exhibit P-40a, Budget Item Justification For Aggregated Items: PB 2020 Navy														Date: March 2019						
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 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 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)
TRAINING EQUIPMENT																				
Subtotal: 5) GW054: NAVIGATION TRAINING EQUIPMENT			-	-	3.607	-	-	0.612	-	-	0.624	-	-	0.636	-	-	-	-	-	0.636
6) GW059: EMERGENCY NAVIGATION LAPTOP																				
6.1) AMPHIB EMERGENCY NAVIGATION LAPTOP	A		13,450.98	51	0.686	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6.2) SURFACE EMERGENCY NAVIGATION LAPTOP	A		13,460.32	189	2.544	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6.3) CARRIER EMERGENCY NAVIGATION LAPTOP	A		13,500.00	10	0.135	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: 6) GW059: EMERGENCY NAVIGATION LAPTOP			-	-	3.365	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7) GW056 ECDIS-N MODERNIZATION																				
7.1) SURFACE ECDIS-N MODERNIZATION	A		-	-	4.741	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: 7) GW056 ECDIS-N MODERNIZATION			-	-	4.741	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
8) GW063: NAVIGATION CERTIFICATION																				
8.1) AMPHIB NAVIGATION CERTIFICATION	A		-	-	3.192	-	-	0.855	-	-	0.765	-	-	0.630	-	-	-	-	-	0.630
8.2) SURFACE NAVIGATION CERTIFICATION	A		-	-	11.660	-	-	2.835	-	-	2.070	-	-	2.025	-	-	-	-	-	2.025
8.3) SUBMARINE NAVIGATION CERTIFICATION ⁽¹⁾	A		-	-	1.350	-	-	1.080	-	-	0.675	-	-	0.720	-	-	-	-	-	0.720
8.4) CARRIER NAVIGATION CERTIFICATION ⁽²⁾	A		-	-	0.450	-	-	0.180	-	-	0.225	-	-	0.315	-	-	-	-	-	0.315
Subtotal: 8) GW063: NAVIGATION CERTIFICATION			-	-	16.652	-	-	4.950	-	-	3.735	-	-	3.690	-	-	-	-	-	3.690
9) GW064: OWN SHIP SPEED (OSS) AND COURSE REPEATERS																				
9.1) SURFACE OSS AND COURSE REPEATERS	A		-	-	0.335	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

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Exhibit P-40a, Budget Item Justification For Aggregated Items: PB 2020 Navy															Date: March 2019					
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 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 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: 9) GW064: OWN SHIP SPEED (OSS) AND COURSE REPEATERS			-	-	0.335	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10) GW065: NAVIGATION SHORESITE EQUIPMENT																				
10.1) NAVIGATION SHORESITE EQUIPMENT	A		689,000.00	4	2.756	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: 10) GW065: NAVIGATION SHORESITE EQUIPMENT			-	-	2.756	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11) GW066: SSBN NAVIGATION SENSOR OBSOLESCENCE																				
11.1) SSBN NAVIGATION SENSOR OBSOLESCENCE ⁽³⁾	A		-	-	1.300	-	-	3.017	-	-	3.428	-	-	-	-	-	-	-	-	-
Subtotal: 11) GW066: SSBN NAVIGATION SENSOR OBSOLESCENCE			-	-	1.300	-	-	3.017	-	-	3.428	-	-	-	-	-	-	-	-	-
12) GW068: NAVIGATION CERTIFICATION SUITE																				
12.1) SURFACE NAVIGATION CERTIFICATION SUITE ⁽⁴⁾	A		-	-	-	-	-	-	-	-	-	-	-	6.167	-	-	-	-	-	6.167
12.2) SUBMARINE NAVIGATION CERTIFICATION SUITE ⁽⁵⁾	A		-	-	-	-	-	-	-	-	-	-	-	2.084	-	-	-	-	-	2.084
12.3) CARRIER NAVIGATION CERTIFICATION SUITE	A		-	-	2.034	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: 12) GW068: NAVIGATION CERTIFICATION SUITE			-	-	2.034	-	-	-	-	-	-	-	-	8.251	-	-	-	-	-	8.251
13) GW830: PRODUCTION ENGINEERING																				
13.1) AMPHIB PRODUCTION ENGINEERING ⁽⁶⁾	A		-	-	0.915	-	-	1.052	-	-	1.568	-	-	2.503	-	-	-	-	-	2.503
13.2) SURFACE PRODUCTION ENGINEERING ⁽⁷⁾	A		-	-	13.771	-	-	5.948	-	-	4.978	-	-	5.553	-	-	-	-	-	5.553
13.3) SUBMARINE PRODUCTION ENGINEERING ⁽⁸⁾	A		-	-	8.789	-	-	1.347	-	-	1.280	-	-	1.850	-	-	-	-	-	1.850
13.4) CARRIER PRODUCTION ENGINEERING	A		-	-	4.306	-	-	0.263	-	-	0.388	-	-	0.258	-	-	-	-	-	0.258

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Exhibit P-40a, Budget Item Justification For Aggregated Items: PB 2020 Navy										Date: March 2019	
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 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 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) GW830: PRODUCTION ENGINEERING			-	-	27.781	-	-	8.610	-	-	8.214	-	-	10.164	-	-	-	-	-	10.164
Total			-	-	265.222	-	-	17.189	-	-	16.001	-	-	22.741	-	-	-	-	-	22.741

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

Footnotes:

- (1) GW063 (SUB): Change from FY19 to FY20 due to increase in submarine Navigation Certifications.
- (2) GW063 (CARRIER): Change from FY19 to FY20 due to increase in carrier Navigation Certifications.
- (3) GW066: Prior year 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.
- (4) GW068 (SURFACE): Change from FY19 to FY20 due to new requirement starting in FY20.
- (5) GW068 (SUB): Change from FY19 to FY20 due to new requirement starting in FY20.
- (6) GW830 (AMPHIB): Change from FY19 to FY20 due to additional support required for increased procurement and installation quantities and initial procurements of new systems.
- (7) GW830 (SURFACE): Change from FY19 to FY20 due to additional support required for initial procurement of new systems.
- (8) GW830 (SUB): Change from FY19 to FY20 due to additional support required for TI/APB process for new baseline.

UNCLASSIFIED

Exhibit P-3a, Individual Modification: PB 2020 Navy							Date: March 2019				
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 6				P-1 Line Item Number / Title: 0670 / Other Navigation Equipment				Modification Number / Title: 1 / GW036: AN/WSN-7B			

ID Code (A=Service Ready, B=Not Service Ready) :						MDAP/MAIS Code:						
Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity (Units in Each)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost (\$ in Millions)	69.056	0.050	0.860	0.655	0.000	0.655	0.250	0.100	0.100	0.102	Continuing	Continuing
Less PY Advance Procurement (\$ in Millions)	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (\$ in Millions)	69.056	0.050	0.860	0.655	0.000	0.655	0.250	0.100	0.100	0.102	Continuing	Continuing
Plus CY Advance Procurement (\$ in Millions)	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority (\$ in Millions)	69.056	0.050	0.860	0.655	0.000	0.655	0.250	0.100	0.100	0.102	Continuing	Continuing
(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 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.

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Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019			
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 6					P-1 Line Item Number / Title: 0670 / Other Navigation Equipment					Modification Number / Title: 1 / GW036: AN/WSN-7B			
ID Code (A=Service Ready, B=Not Service Ready) :								MDAP/MAIS Code:					
Models of Systems Affected: GW036: RING LASER GYRO NAVIGATION RING LASER GYROCOMPASS (AN/WSN-7B)					Modification Type: AN/WSN-7B					Related RDT&E PEs:			
Financial Plan		Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
		Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	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: AMPHIB AN/WSN-7B													
B Kits													
Recurring													
1.1.1) AMPHIB AN/WSN-7B PROCUREMENT - NonOrganic ⁽⁹⁾		91 / 38.092	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	91 / 38.092
Subtotal: Recurring		- / 38.092	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / 0.000	- / 38.092
Subtotal: AMPHIB AN/WSN-7B		91 / 38.092	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	91 / 38.092
Modification Item 2 of 2: SUBMARINE AN/WSN-7B													
B Kits													
Recurring													
2.1.1) SUBMARINE AN/WSN-7B FIELD CHANGE 1 - NonOrganic ⁽¹⁰⁾		- / -	1 / 0.050	1 / 0.050	5 / 0.250	- / -	5 / 0.250	5 / 0.250	2 / 0.100	2 / 0.100	2 / 0.102	Continuing	Continuing
Subtotal: Recurring		- / 0.000	- / 0.050	- / 0.050	- / 0.250	- / -	- / 0.250	- / 0.250	- / 0.100	- / 0.100	- / 0.102	Continuing	Continuing
Subtotal: SUBMARINE AN/WSN-7B		- / -	1 / 0.050	1 / 0.050	5 / 0.250	- / -	5 / 0.250	5 / 0.250	2 / 0.100	2 / 0.100	2 / 0.102	Continuing	Continuing
Subtotal: Procurement, All Modification Items		- / 38.092	- / 0.050	- / 0.050	- / 0.250	- / -	- / 0.250	- / 0.250	- / 0.100	- / 0.100	- / 0.102	Continuing	Continuing
Installation													
Modification Item 1 of 2: AMPHIB AN/WSN-7B		- / 30.964	- / 0.000	- / 0.810	- / 0.405	- / 0.000	- / 0.405	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 32.179
Modification Item 2 of 2: SUBMARINE AN/WSN-7B		- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	Continuing	Continuing
Subtotal: Installation		- / 30.964	- / -	- / 0.810	- / 0.405	- / -	- / 0.405	- / -	- / -	- / -	- / -	Continuing	Continuing
Total													
Total Cost (Procurement + Support + Installation)		69.056	0.050	0.860	0.655	0.000	0.655	0.250	0.100	0.100	0.102	Continuing	Continuing

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Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019																					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 6										P-1 Line Item Number / Title: 0670 / Other Navigation Equipment										Modification Number / Title: 1 / GW036: AN/WSN-7B											
ID Code (A=Service Ready, B=Not Service Ready) :															MDAP/MAIS Code:																
Modification Item 1 of 2: AMPHIB AN/WSN-7B																															
Manufacturer Information																															
Manufacturer Name: NORTHROP GRUMMAN SYSTEMS CORP. (Amphib WSN-7B)															Manufacturer Location: CHARLOTTESVILLE, VA																
Administrative Leadtime (in Months): 0															Production Leadtime (in Months): 0																
Dates		FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024					
Contract Dates																															
Delivery Dates																															
Installation Information																															
Method of Implementation: AIT:: Installation Name: AMPHIB AN/WSN-7B PROCUREMENT																															
Installation Cost		Prior Years	FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total		FY 2021		FY 2022		FY 2023		FY 2024		To Complete		Total								
		Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)								
Prior Years		88 / 30.964		- / -		2 / 0.810		1 / 0.405		0 / 0.000		1 / 0.405		- / -		- / -		- / -		- / -		0 / 0.000		91 / 32.179							
FY 2018		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -							
FY 2019		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -							
FY 2020		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -							
FY 2021		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -							
FY 2022		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -							
FY 2023		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -							
FY 2024		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -							
To Complete		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -							
Total		88 / 30.964		- / -		2 / 0.810		1 / 0.405		0 / 0.000		1 / 0.405		- / -		- / -		- / -		- / -		- / -		0 / 0.000		91 / 32.179					
Installation Schedule																															
	PYS	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				TC	Tot
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4		
In	88	-	-	-	-	-	-	-	2	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	91
Out	88	-	-	-	-	-	-	-	2	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	91

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Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019																						
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 6										P-1 Line Item Number / Title: 0670 / Other Navigation Equipment										Modification Number / Title: 1 / GW036: AN/WSN-7B												
ID Code (A=Service Ready, B=Not Service Ready) :															MDAP/MAIS Code:																	
Modification Item 2 of 2: SUBMARINE AN/WSN-7B																																
Manufacturer Information																																
Manufacturer Name: NORTHROP GRUMMAN SYSTEMS CORP. (Sub WSN-7B FC1)															Manufacturer Location: CHARLOTTESVILLE, VA																	
Administrative Leadtime <i>(in Months)</i> : 3															Production Leadtime <i>(in Months)</i> : 3																	
Dates		FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024						
Contract Dates		Dec 2017				Dec 2018				Dec 2019				Dec 2020				Dec 2021				Dec 2022				Dec 2023						
Delivery Dates		Mar 2018				Mar 2019				Mar 2020				Mar 2021				Mar 2022				Mar 2023				Mar 2024						
Installation Information																																
Method of Implementation: AIT:: Installation Name: SUBMARINE AN/WSN-7B FIELD CHANGE 1																																
Installation Cost		Prior Years	FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total		FY 2021		FY 2022		FY 2023		FY 2024		To Complete		Total									
		Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)									
Prior Years		- / -	- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -							
FY 2018		- / -	1 / 0.000		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.000		1 / -							
FY 2019		- / -	- / -		1 / 0.000		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.000		1 / -							
FY 2020		- / -	- / -		- / -		5 / 0.000		0 / 0.000		5 / 0.000		- / -		- / -		- / -		- / -		- / -		0 / 0.000		5 / -							
FY 2021		- / -	- / -		- / -		- / -		- / -		- / -		5 / 0.000		- / -		- / -		- / -		- / -		0 / 0.000		5 / -							
FY 2022		- / -	- / -		- / -		- / -		- / -		- / -		- / -		2 / 0.000		- / -		- / -		- / -		0 / 0.000		2 / -							
FY 2023		- / -	- / -		- / -		- / -		- / -		- / -		- / -		- / -		2 / 0.000		- / -		- / -		0 / 0.000		2 / -							
FY 2024		- / -	- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		2 / 0.000		0 / 0.000		2 / -							
To Complete		- / -	- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		Continuing		Continuing							
Total		- / -	1 / 0.000		1 / 0.000		5 / 0.000		0 / 0.000		5 / 0.000		5 / 0.000		2 / 0.000		2 / 0.000		2 / 0.000		2 / 0.000		Continuing		Continuing							
Installation Schedule																																
	PYS	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				TC	Tot	
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4			
In	-	-	-	1	-	-	-	-	1	-	-	-	-	5	-	-	-	-	5	-	-	-	-	2	-	-	-	-	2	-	Cont.	Cont.
Out	-	-	-	1	-	-	-	-	1	-	-	-	-	5	-	-	-	-	5	-	-	-	-	2	-	-	-	-	2	-	Cont.	Cont.
Footnotes: ⁽⁹⁾ AMPHIB AN/WSN-7 PROCUREMENT: Systems procured in prior years as Economic Ordering Quantities based on previous fielding plans. Fielding plan aligns with SSDS modernization on LSD platforms and results in later installation of systems that were procured in prior years. ⁽¹⁰⁾ SUBMARINE AN/WSN-7B FIELD CHANGE 1: Field Change consists of reprogramming existing circuit cards and involves installation costs of less than \$1,000. Installation costs are included in procurement costs.																																

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Exhibit P-3a, Individual Modification: PB 2020 Navy									Date: March 2019			
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 6				P-1 Line Item Number / Title: 0670 / Other Navigation Equipment					Modification Number / Title: 2 / GW051: ECDIS-N MODERNIZATION			
ID Code (A=Service Ready, B=Not Service Ready) :							MDAP/MAIS Code:					
Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity (<i>Units in Each</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost (<i>\$ in Millions</i>)	16.751	8.641	5.413	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	30.805
Less PY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (<i>\$ in Millions</i>)	16.751	8.641	5.413	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	30.805
Plus CY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority (<i>\$ in Millions</i>)	16.751	8.641	5.413	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	30.805
(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>)	-	-	-	-	-	-	-	-	-	-	-	-
Description: 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-3a, Individual Modification: PB 2020 Navy								Date: March 2019					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 6				P-1 Line Item Number / Title: 0670 / Other Navigation Equipment				Modification Number / Title: 2 / GW051: ECDIS-N MODERNIZATION					
ID Code (A=Service Ready, B=Not Service Ready) :							MDAP/MAIS Code:						
Models of Systems Affected: GW051: ECDIS-N MODERNIZATION			Modification Type: ECDIS-N MODERNIZATION					Related RDT&E PEs:					
Financial Plan	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total	
	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	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 3: AMPHIB ECDIS-N FIELD CHANGES													
B Kits													
Recurring													
1.1.1) AMPHIB SCALABLE ECDIS-N HARDWARE/ SOFTWARE - NonOrganic ⁽¹¹⁾		12 / 3.715	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	12 / 3.715	
1.1.2) AMPHIB SCALABLE ECDIS-N SOFTWARE - NonOrganic ⁽¹²⁾		7 / 0.000	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	7 / 0.000	
Subtotal: Recurring		- / 3.715	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / 0.000	- / 3.715	
Subtotal: AMPHIB ECDIS-N FIELD CHANGES		19 / 3.715	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	19 / 3.715	
Modification Item 2 of 3: SURFACE ECDIS-N FIELD CHANGES													
B Kits													
Recurring													
2.1.1) SURFACE INTEGRATED BRIDGE SYSTEM (IBS) HARDWARE/SOFTWARE - NonOrganic ⁽¹³⁾		3 / 3.121	2 / 2.101	3 / 3.184	- / -	- / -	- / -	- / -	- / -	- / -	- / -	8 / 8.406	
2.1.2) SURFACE SCALABLE ECDIS-N HARDWARE/ SOFTWARE - NonOrganic ⁽¹⁴⁾		12 / 3.698	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	12 / 3.698	
2.1.3) SURFACE SCALABLE ECDIS-N SOFTWARE - NonOrganic ⁽¹⁵⁾		31 / 0.000	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	31 / 0.000	
Subtotal: Recurring		- / 6.819	- / 2.101	- / 3.184	- / -	- / -	- / -	- / -	- / -	- / -	- / 0.000	- / 12.104	
Subtotal: SURFACE ECDIS-N FIELD CHANGES		46 / 6.819	2 / 2.101	3 / 3.184	- / -	- / -	- / -	- / -	- / -	- / -	- / -	51 / 12.104	
Modification Item 3 of 3: CARRIER ECDIS-N FIELD CHANGES													
B Kits													
Recurring													
3.1.1) CARRIER SCALABLE ECDIS-N HARDWARE/ SOFTWARE - NonOrganic ⁽¹⁶⁾		6 / 1.836	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	6 / 1.836	
3.1.2) CARRIER SCALABLE ECDIS-N SOFTWARE - NonOrganic ⁽¹⁷⁾		8 / 0.000	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	8 / 0.000	
Subtotal: Recurring		- / 1.836	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / 0.000	- / 1.836	
Subtotal: CARRIER ECDIS-N FIELD CHANGES		14 / 1.836	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	14 / 1.836	

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Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019			
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 6					P-1 Line Item Number / Title: 0670 / Other Navigation Equipment					Modification Number / Title: 2 / GW051: ECDIS-N MODERNIZATION			
ID Code (A=Service Ready, B=Not Service Ready) :							MDAP/MAIS Code:						
Models of Systems Affected: GW051: ECDIS-N MODERNIZATION				Modification Type: ECDIS-N MODERNIZATION				Related RDT&E PEs:					
Financial Plan	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total	
	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	
<i>Subtotal: Procurement, All Modification Items</i>													
Installation													
<i>Modification Item 1 of 3: AMPHIB ECDIS-N FIELD CHANGES</i>	- / 1.112	- / 1.584	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 2.696	
<i>Modification Item 2 of 3: SURFACE ECDIS-N FIELD CHANGES</i>	- / 2.366	- / 4.299	- / 2.229	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 8.894	
<i>Modification Item 3 of 3: CARRIER ECDIS-N FIELD CHANGES</i>	- / 0.903	- / 0.657	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 1.560	
<i>Subtotal: Installation</i>	- / 4.381	- / 6.540	- / 2.229	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / 0.000	- / 13.150	
Total													
Total Cost (Procurement + Support + Installation)	16.751	8.641	5.413	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	30.805	

UNCLASSIFIED

Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019																					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 6										P-1 Line Item Number / Title: 0670 / Other Navigation Equipment										Modification Number / Title: 2 / GW051: ECDIS-N MODERNIZATION											
ID Code (A=Service Ready, B=Not Service Ready) :															MDAP/MAIS Code:																
Modification Item 1 of 3: AMPHIB ECDIS-N FIELD CHANGES																															
Manufacturer Information																															
Manufacturer Name: NORTHROP GRUMMAN SYSTEMS CORP. (Amphib Scalable SW)															Manufacturer Location: CHARLOTTESVILLE, VA																
Administrative Leadtime (in Months): 0															Production Leadtime (in Months): 0																
Dates		FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024					
Contract Dates																															
Delivery Dates																															
Manufacturer Name: NORTHROP GRUMMAN SYSTEMS CORP. (Amphib Scalable HW/SW)															Manufacturer Location: CHARLOTTESVILLE, VA																
Administrative Leadtime (in Months): 3															Production Leadtime (in Months): 6																
Dates		FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024					
Contract Dates																															
Delivery Dates																															
Installation Information																															
Method of Implementation: AIT:: Installation Name: AMPHIB SCALABLE ECDIS-N HARDWARE/SOFTWARE																															
Installation Cost		Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total																		
		Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)																		
Prior Years		5 / 1.020	7 / 1.457	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	12 / 2.477																		
FY 2018		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -																		
FY 2019		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -																		
FY 2020		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -																		
FY 2021		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -																		
FY 2022		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -																		
FY 2023		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -																		
FY 2024		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -																		
To Complete		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -																		
Total		5 / 1.020	7 / 1.457	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	12 / 2.477																		
Installation Schedule																															
	PYS	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				TC	Tot
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4		
In	5	-	-	-	7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12
Out	5	-	-	-	7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12

UNCLASSIFIED

Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019																					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 6										P-1 Line Item Number / Title: 0670 / Other Navigation Equipment										Modification Number / Title: 2 / GW051: ECDIS-N MODERNIZATION											
ID Code (A=Service Ready, B=Not Service Ready) :															MDAP/MAIS Code:																
Modification Item 1 of 3: AMPHIB ECDIS-N FIELD CHANGES																															
Installation Information																															
Method of Implementation: AIT:: Installation Name: AMPHIB SCALABLE ECDIS-N SOFTWARE																															
Installation Cost		Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total																		
		<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>																	
Prior Years		3 / 0.092	4 / 0.127	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	7 / 0.219																		
FY 2018		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -																		
FY 2019		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -																		
FY 2020		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -																		
FY 2021		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -																		
FY 2022		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -																		
FY 2023		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -																		
FY 2024		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -																		
To Complete		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -																		
Total		3 / 0.092	4 / 0.127	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	7 / 0.219																		
Installation Schedule																															
	PYS	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				TC	Tot
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4		
In	3	-	-	-	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7
Out	3	-	-	-	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7

UNCLASSIFIED

Exhibit P-3a, Individual Modification: PB 2020 Navy							Date: March 2019					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 6				P-1 Line Item Number / Title: 0670 / Other Navigation Equipment				Modification Number / Title: 2 / GW051: ECDIS-N MODERNIZATION				
ID Code (A=Service Ready, B=Not Service Ready) :							MDAP/MAIS Code:					
Modification Item 2 of 3: SURFACE ECDIS-N FIELD CHANGES												
Manufacturer Information												
Manufacturer Name: NORTHROP GRUMMAN SYSTEMS CORP. (Surf Scalable HW/SW)							Manufacturer Location: CHARLOTTESVILLE, VA					
Administrative Leadtime (in Months): 3							Production Leadtime (in Months): 6					
Dates	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024					
Contract Dates												
Delivery Dates												
Manufacturer Name: NORTHROP GRUMMAN SYSTEMS CORP. (IBS HW/SW)							Manufacturer Location: CHARLOTTESVILLE, VA					
Administrative Leadtime (in Months): 3							Production Leadtime (in Months): 6					
Dates	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024					
Contract Dates	Dec 2017	Dec 2018										
Delivery Dates	Jun 2018	Jun 2019										
Manufacturer Name: NORTHROP GRUMMAN SYSTEMS CORP. (Surf Scalable SW)							Manufacturer Location: CHARLOTTESVILLE, VA					
Administrative Leadtime (in Months): 0							Production Leadtime (in Months): 0					
Dates	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024					
Contract Dates												
Delivery Dates												
Installation Information												
Method of Implementation: AIT:: Installation Name: SURFACE INTEGRATED BRIDGE SYSTEM (IBS) HARDWARE/SOFTWARE												
Installation Cost	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)
Prior Years	- / -	3 / 2.228	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	3 / 2.228
FY 2018	- / -	2 / 1.485	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	2 / 1.485
FY 2019	- / -	- / -	3 / 2.229	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	3 / 2.229
FY 2020	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2021	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2022	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2023	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2024	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
To Complete	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
Total	- / -	5 / 3.713	3 / 2.229	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	8 / 5.942

UNCLASSIFIED

Exhibit P-3a, Individual Modification: PB 2020 Navy																								Date: March 2019							
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 6										P-1 Line Item Number / Title: 0670 / Other Navigation Equipment										Modification Number / Title: 2 / GW051: ECDIS-N MODERNIZATION											
ID Code (A=Service Ready, B=Not Service Ready) :																		MDAP/MAIS Code:													
Modification Item 2 of 3: SURFACE ECDIS-N FIELD CHANGES																															
Installation Information																															
Method of Implementation: AIT:: Installation Name: SURFACE INTEGRATED BRIDGE SYSTEM (IBS) HARDWARE/SOFTWARE																															
Installation Schedule																															
	PYS	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				TC	Tot
In	-	-	-	-	5	-	-	-	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8		
Out	-	-	-	-	5	-	-	-	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8		
Method of Implementation: AIT:: Installation Name: SURFACE SCALABLE ECDIS-N HARDWARE/SOFTWARE																															
Installation Cost		Prior Years		FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total		FY 2021		FY 2022		FY 2023		FY 2024		To Complete		Total							
		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)							
Prior Years		8 / 1.632		1 / 0.143		3 / 0.000		- / -		- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.000		12 / 1.775							
FY 2018		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -							
FY 2019		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -							
FY 2020		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -							
FY 2021		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -							
FY 2022		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -							
FY 2023		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -							
FY 2024		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -							
To Complete		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -							
Total		8 / 1.632		1 / 0.143		3 / 0.000		- / -		- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.000		12 / 1.775							
Installation Schedule																															
	PYS	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				TC	Tot
In	8	-	-	-	1	-	-	-	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12		
Out	8	-	-	-	1	-	-	-	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12		
Method of Implementation: AIT:: Installation Name: SURFACE SCALABLE ECDIS-N SOFTWARE																															
Installation Cost		Prior Years		FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total		FY 2021		FY 2022		FY 2023		FY 2024		To Complete		Total							
		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)							
Prior Years		17 / 0.734		14 / 0.443		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.000		31 / 1.177							

UNCLASSIFIED

Exhibit P-3a, Individual Modification: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 6	P-1 Line Item Number / Title: 0670 / Other Navigation Equipment	Modification Number / Title: 2 / GW051: ECDIS-N MODERNIZATION
ID Code (A=Service Ready, B=Not Service Ready) :		MDAP/MAIS Code:

Modification Item 2 of 3: SURFACE ECDIS-N FIELD CHANGES

Installation Information

Method of Implementation: AIT:: Installation Name: SURFACE SCALABLE ECDIS-N SOFTWARE

Installation Cost	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)
FY 2018	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2019	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2020	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2021	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2022	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2023	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2024	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
To Complete	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
Total	17 / 0.734	14 / 0.443	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	31 / 1.177

Installation Schedule

	PYS	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				TC	Tot
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4		
In	17	-	-	-	14	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	31
Out	17	-	-	-	14	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	31

UNCLASSIFIED

Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019																					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 6										P-1 Line Item Number / Title: 0670 / Other Navigation Equipment										Modification Number / Title: 2 / GW051: ECDIS-N MODERNIZATION											
ID Code (A=Service Ready, B=Not Service Ready) :															MDAP/MAIS Code:																
Modification Item 3 of 3: CARRIER ECDIS-N FIELD CHANGES																															
Manufacturer Information																															
Manufacturer Name: NORTHROP GRUMMAN SYSTEMS CORP. (Carrier Scalable SW)															Manufacturer Location: CHARLOTTESVILLE, VA																
Administrative Leadtime (in Months): 0															Production Leadtime (in Months): 0																
Dates		FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024					
Contract Dates																															
Delivery Dates																															
Manufacturer Name: NORTHROP GRUMMAN SYSTEMS CORP. (Carrier Scalable HW/SW)															Manufacturer Location: CHARLOTTESVILLE, VA																
Administrative Leadtime (in Months): 3															Production Leadtime (in Months): 6																
Dates		FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024					
Contract Dates																															
Delivery Dates																															
Installation Information																															
Method of Implementation: AIT:: Installation Name: CARRIER SCALABLE ECDIS-N HARDWARE/SOFTWARE																															
Installation Cost		Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total																		
		Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)																		
Prior Years		3 / 0.689	3 / 0.625	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	6 / 1.314																		
FY 2018		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -																		
FY 2019		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -																		
FY 2020		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -																		
FY 2021		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -																		
FY 2022		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -																		
FY 2023		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -																		
FY 2024		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -																		
To Complete		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -																		
Total		3 / 0.689	3 / 0.625	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	6 / 1.314																		
Installation Schedule																															
	PYS	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				TC	Tot
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4		
In	3	-	-	-	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6
Out	3	-	-	-	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6

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Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019																					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 6										P-1 Line Item Number / Title: 0670 / Other Navigation Equipment										Modification Number / Title: 2 / GW051: ECDIS-N MODERNIZATION											
ID Code (A=Service Ready, B=Not Service Ready) :															MDAP/MAIS Code:																
Modification Item 3 of 3: CARRIER ECDIS-N FIELD CHANGES																															
Installation Information																															
Method of Implementation: AIT:: Installation Name: CARRIER SCALABLE ECDIS-N SOFTWARE																															
Installation Cost		Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total																		
		<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>																	
Prior Years		7 / 0.214	1 / 0.032	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	8 / 0.246																		
FY 2018		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -																		
FY 2019		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -																		
FY 2020		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -																		
FY 2021		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -																		
FY 2022		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -																		
FY 2023		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -																		
FY 2024		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -																		
To Complete		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -																		
Total		7 / 0.214	1 / 0.032	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	8 / 0.246																		
Installation Schedule																															
	PYS	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				TC	Tot
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4		
In	7	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8
Out	7	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8
Footnotes: (11) AMPHIB SCALABLE ECDIS-N HARDWARE/SOFTWARE: Systems procured in prior years as Economic Ordering Quantities and to maintain shipboard configuration for installation through FY18. (12) AMPHIB SCALABLE ECDIS-N SOFTWARE: Prior year software licenses procured as Economic Ordering Quantities and funded under P40A Cost Element GW051. (13) SURFACE INTEGRATED BRIDGE SYSTEM (IBS) HARDWARE/SOFTWARE: Systems procured/delivered in prior years 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). (14) SURFACE SCALABLE ECDIS-N HARDWARE/SOFTWARE: Systems procured in prior years as Economic Ordering Quantities and to maintain shipboard configuration for installation through FY18. (15) SURFACE SCALABLE ECDIS-N SOFTWARE: Prior year software licenses procured as Economic Ordering Quantities and funded under P40A Cost Element GW051. (16) CARRIER SCALABLE ECDIS-N HARDWARE/SOFTWARE: Systems procured in prior years as Economic Ordering Quantities and to maintain shipboard configuration for installation. (17) CARRIER SCALABLE ECDIS-N SOFTWARE: Prior year software licenses procured as Economic Ordering Quantities and funded under P40A Cost Element GW051.																															

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Exhibit P-3a, Individual Modification: PB 2020 Navy							Date: March 2019				
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 6				P-1 Line Item Number / Title: 0670 / Other Navigation Equipment				Modification Number / Title: 3 / GW053: AN/WSN-12			

ID Code (A=Service Ready, B=Not Service Ready) :						MDAP/MAIS Code:						
Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity <i>(Units in Each)</i>	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost <i>(\$ in Millions)</i>	0.000	0.000	0.000	0.000	0.000	0.000	11.780	17.906	21.474	22.728	Continuing	Continuing
Less PY Advance Procurement <i>(\$ in Millions)</i>	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) <i>(\$ in Millions)</i>	0.000	0.000	0.000	0.000	0.000	0.000	11.780	17.906	21.474	22.728	Continuing	Continuing
Plus CY Advance Procurement <i>(\$ in Millions)</i>	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority <i>(\$ in Millions)</i>	0.000	0.000	0.000	0.000	0.000	0.000	11.780	17.906	21.474	22.728	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>	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost <i>(\$ in Dollars)</i>	-	-	-	-	-	-	-	-	-	-	-	-

Description:

These funds are for the procurement and installation of AN/WSN-12 Inertial Navigation Systems on surface and submarine platforms.

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Exhibit P-3a, Individual Modification: PB 2020 Navy									Date: March 2019				
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 6				P-1 Line Item Number / Title: 0670 / Other Navigation Equipment					Modification Number / Title: 3 / GW053: AN/WSN-12				
ID Code (A=Service Ready, B=Not Service Ready) :							MDAP/MAIS Code:						
Models of Systems Affected: GW053: AN/WSN-12				Modification Type: AN/WSN-12				Related RDT&E PEs: 0204228N					
Financial Plan	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total	
	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	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> GW053: AN/WSN-12													
B Kits													
Recurring													
1.1.1) SURFACE AN/WSN-12 PROCUREMENT - NonOrganic ⁽¹⁸⁾	- / -	- / -	- / -	- / -	- / -	- / -	4 / 11.780	5 / 14.348	4 / 12.256	4 / 12.501	Continuing	Continuing	
1.1.2) SUBMARINE AN/WSN-12 PROCUREMENT - NonOrganic ⁽¹⁹⁾	- / -	- / -	- / -	- / -	- / -	- / -	- / -	1 / 3.558	2 / 6.010	2 / 6.130	Continuing	Continuing	
<i>Subtotal: Recurring</i>	- / 0.000	- / -	- / -	- / -	- / -	- / -	- / 11.780	- / 17.906	- / 18.266	- / 18.631	Continuing	Continuing	
<i>Subtotal: GW053: AN/WSN-12</i>	- / -	- / -	- / -	- / -	- / -	- / -	4 / 11.780	6 / 17.906	6 / 18.266	6 / 18.631	Continuing	Continuing	
<i>Subtotal: Procurement, All Modification Items</i>	- / 0.000	- / -	- / -	- / -	- / -	- / -	- / 11.780	- / 17.906	- / 18.266	- / 18.631	Continuing	Continuing	
Installation													
<i>Modification Item 1 of 1:</i> GW053: AN/WSN-12	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 3.208	- / 4.097	Continuing	Continuing	
<i>Subtotal: Installation</i>	- / 0.000	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / 3.208	- / 4.097	Continuing	Continuing	
Total													
Total Cost (Procurement + Support + Installation)	0.000	0.000	0.000	0.000	0.000	0.000	11.780	17.906	21.474	22.728	Continuing	Continuing	

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Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019																					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 6					P-1 Line Item Number / Title: 0670 / Other Navigation Equipment										Modification Number / Title: 3 / GW053: AN/WSN-12																
ID Code (A=Service Ready, B=Not Service Ready) :										MDAP/MAIS Code:																					
Modification Item 1 of 1: GW053: AN/WSN-12																															
Manufacturer Information																															
Manufacturer Name: TBD (Sub WSN-12)												Manufacturer Location: TBD																			
Administrative Leadtime (in Months): 3												Production Leadtime (in Months): 17																			
Dates		FY 2018			FY 2019			FY 2020			FY 2021			FY 2022			FY 2023			FY 2024											
Contract Dates														Dec 2021			Dec 2022			Dec 2023											
Delivery Dates														May 2023			May 2024			May 2025											
Manufacturer Name: TBD (Surf WSN-12)												Manufacturer Location: TBD																			
Administrative Leadtime (in Months): 3												Production Leadtime (in Months): 17																			
Dates		FY 2018			FY 2019			FY 2020			FY 2021			FY 2022			FY 2023			FY 2024											
Contract Dates											Dec 2020			Dec 2021			Dec 2022			Dec 2023											
Delivery Dates											May 2022			May 2023			May 2024			May 2025											
Installation Information																															
Method of Implementation: AIT:: Installation Name: SURFACE AN/WSN-12 PROCUREMENT																															
Installation Cost		Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total																		
		Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)																		
Prior Years		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -																		
FY 2018		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -																		
FY 2019		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -																		
FY 2020		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -																		
FY 2021		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	4 / 3.208	- / -	0 / 0.000	4 / 3.208																		
FY 2022		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	4 / 3.272	Continuing	Continuing																		
FY 2023		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	Continuing	Continuing																		
FY 2024		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	Continuing	Continuing																		
To Complete		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	Continuing	Continuing																		
Total		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	4 / 3.208	4 / 3.272	Continuing	Continuing																		
Installation Schedule																															
	PYS	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				TC	Tot
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4		
In	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4	-	-	-	4	Cont.	Cont.
Out	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4	-	-	-	4	Cont.	Cont.

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Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019																						
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 6										P-1 Line Item Number / Title: 0670 / Other Navigation Equipment										Modification Number / Title: 3 / GW053: AN/WSN-12												
ID Code (A=Service Ready, B=Not Service Ready) :															MDAP/MAIS Code:																	
Modification Item 1 of 1: GW053: AN/WSN-12																																
Installation Information																																
Method of Implementation: AIT:: Installation Name: SUBMARINE AN/WSN-12 PROCUREMENT																																
Installation Cost		Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total																			
		<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>																		
Prior Years		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -																			
FY 2018		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -																			
FY 2019		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -																			
FY 2020		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -																			
FY 2021		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -																			
FY 2022		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	1 / 0.825	0 / 0.000	1 / 0.825																			
FY 2023		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	Continuing	Continuing																			
FY 2024		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	Continuing	Continuing																			
To Complete		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	Continuing	Continuing																			
Total		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	1 / 0.825	Continuing	Continuing																			
Installation Schedule																																
	PYS	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				TC	Tot	
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4			
In	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	Cont.	Cont.
Out	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	Cont.	Cont.
Footnotes: ⁽¹⁸⁾ SURFACE AN/WSN-12 PROCUREMENT: Production leadtime of 17 months does not include integration testing to be conducted by the ISEA prior to delivery to ship for installation. Overall leadtime from contract award to delivery to ship for installation is no less than 20 months. ⁽¹⁹⁾ SUBMARINE AN/WSN-12 PROCUREMENT: Production leadtime of 17 months does not include integration testing to be conducted by the ISEA prior to delivery to ship for installation. Overall leadtime from contract award to delivery to ship for installation is no less than 20 months.																																

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Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019		
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 6					P-1 Line Item Number / Title: 0670 / Other Navigation Equipment					Modification Number / Title: 4 / GW055: SPEED LOGS		
ID Code (A=Service Ready, B=Not Service Ready) :							MDAP/MAIS Code:					
Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity (<i>Units in Each</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost (<i>\$ in Millions</i>)	17.825	6.081	11.617	8.433	0.000	8.433	3.015	0.963	0.378	0.000	0.000	48.312
Less PY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (<i>\$ in Millions</i>)	17.825	6.081	11.617	8.433	0.000	8.433	3.015	0.963	0.378	0.000	0.000	48.312
Plus CY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority (<i>\$ in Millions</i>)	17.825	6.081	11.617	8.433	0.000	8.433	3.015	0.963	0.378	0.000	0.000	48.312
<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: These funds are for the procurement and installation of Speed Log upgrades and Tech Refresh on amphibious, surface, submarine, and carrier platforms.												

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Exhibit P-3a, Individual Modification: PB 2020 Navy								Date: March 2019					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 6				P-1 Line Item Number / Title: 0670 / Other Navigation Equipment				Modification Number / Title: 4 / GW055: SPEED LOGS					
ID Code (A=Service Ready, B=Not Service Ready) :							MDAP/MAIS Code:						
Models of Systems Affected: GW055: SPEED LOGS				Modification Type: SPEED LOGS				Related RDT&E PEs:					
Financial Plan	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total	
	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	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 4: AMPHIB SPEED LOG													
B Kits													
Recurring													
1.1.1) AMPHIB AN/WSN-9 PROCUREMENT - NonOrganic ⁽²⁰⁾ 16 / 4.9392 / 0.3885 / 0.9702 / 0.388- / -2 / 0.388- / - - / - - / - - / - - / - -25 / 6.685													
1.1.2) AMPHIB SWITCHBOARD - NonOrganic ⁽²¹⁾ 7 / 0.350- / - - / - - / - - - / - - / - - - / - - / - - - / - -7 / 0.350													
Subtotal: Recurring- / 5.289- / 0.388- / 0.970- / 0.388- / - - / 0.388- / - - / - - / - - - / 0.000- / 7.035													
Subtotal: AMPHIB SPEED LOG23 / 5.2892 / 0.3885 / 0.9702 / 0.388- / -2 / 0.388- / - - / - - / - - - / - -32 / 7.035													
Modification Item 2 of 4: SURFACE SPEED LOG													
B Kits													
Recurring													
2.1.1) SURFACE AN/WSN-9 PROCUREMENT - NonOrganic37 / 6.721- / -17 / 3.2984 / 0.776- / -4 / 0.776- / - - / - - / - - - / - -58 / 10.795													
Subtotal: Recurring- / 6.721- / - - / 3.298- / 0.776- / - - / 0.776- / - - / - - - / - - - / 0.000- / 10.795													
Subtotal: SURFACE SPEED LOG37 / 6.721- / -17 / 3.2984 / 0.776- / -4 / 0.776- / - - / - - - / - -58 / 10.795													
Modification Item 3 of 4: SUBMARINE SPEED LOG													
B Kits													
Recurring													
3.1.1) SUBMARINE AN/WSN-9 PROCUREMENT (SSBN) - NonOrganic ⁽²²⁾ 5 / 0.3003 / 0.3002 / 0.2003 / 0.300- / -3 / 0.3001 / 0.100- / - - / - - / - - - / - -14 / 1.200													
3.1.2) SUBMARINE AN/WSN-9 PROCUREMENT (SSN) - NonOrganic ⁽²³⁾ 3 / 0.1484 / 0.6208 / 1.2404 / 0.620- / -4 / 0.6202 / 0.3101 / 0.155- / - - / - - - / - -22 / 3.093													
Subtotal: Recurring- / 0.448- / 0.920- / 1.440- / 0.920- / - - / 0.920- / 0.410- / 0.155- / - - / - - - / 0.000- / 4.293													
Subtotal: SUBMARINE SPEED LOG8 / 0.4487 / 0.92010 / 1.4407 / 0.920- / -7 / 0.9203 / 0.4101 / 0.155- / - - / - - - / - -36 / 4.293													
Modification Item 4 of 4: CARRIER SPEED LOG													
B Kits													
Recurring													
4.1.1) CARRIER AN/WSN-9 PROCUREMENT - NonOrganic ⁽²⁴⁾ 1 / 0.000- / -1 / 0.194- / - - / - - - / - -1 / 0.194- / - - / - - - / - -3 / 0.388													
4.1.2) CARRIER AN/WSN-8 TECH REFRESH - NonOrganic ⁽²⁵⁾ 4 / 0.776- / - - / - - - / - - - / - - - / - - - / - - - / - -4 / 0.776													
Subtotal: Recurring- / 0.776- / - - / 0.194- / - - / - - - / - - - / 0.194- / - - - / - - - / 0.000- / 1.164													

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Exhibit P-3a, Individual Modification: PB 2020 Navy								Date: March 2019				
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 6				P-1 Line Item Number / Title: 0670 / Other Navigation Equipment				Modification Number / Title: 4 / GW055: SPEED LOGS				
ID Code (A=Service Ready, B=Not Service Ready) :							MDAP/MAIS Code:					
Models of Systems Affected: GW055: SPEED LOGS				Modification Type: SPEED LOGS				Related RDT&E PEs:				
Financial Plan	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)
Subtotal: CARRIER SPEED LOG	5 / 0.776	- / -	1 / 0.194	- / -	- / -	- / -	- / -	1 / 0.194	- / -	- / -	- / -	7 / 1.164
Subtotal: Procurement, All Modification Items	- / 13.234	- / 1.308	- / 5.902	- / 2.084	- / -	- / 2.084	- / 0.410	- / 0.349	- / -	- / -	- / 0.000	- / 23.287
Installation												
Modification Item 1 of 4: AMPHIB SPEED LOG	- / 1.513	- / 0.760	- / 1.140	- / 0.950	- / 0.000	- / 0.950	- / 0.380	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 4.743
Modification Item 2 of 4: SURFACE SPEED LOG	- / 1.578	- / 3.040	- / 2.850	- / 3.230	- / 0.000	- / 3.230	- / 0.760	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 11.458
Modification Item 3 of 4: SUBMARINE SPEED LOG	- / 1.050	- / 0.713	- / 1.465	- / 1.979	- / 0.000	- / 1.979	- / 1.465	- / 0.614	- / 0.188	- / 0.000	- / 0.000	- / 7.474
Modification Item 4 of 4: CARRIER SPEED LOG	- / 0.450	- / 0.260	- / 0.260	- / 0.190	- / 0.000	- / 0.190	- / 0.000	- / 0.000	- / 0.190	- / 0.000	- / 0.000	- / 1.350
Subtotal: Installation	- / 4.591	- / 4.773	- / 5.715	- / 6.349	- / -	- / 6.349	- / 2.605	- / 0.614	- / 0.378	- / -	- / 0.000	- / 25.025
Total												
Total Cost (Procurement + Support + Installation)	17.825	6.081	11.617	8.433	0.000	8.433	3.015	0.963	0.378	0.000	0.000	48.312

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Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019																					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 6					P-1 Line Item Number / Title: 0670 / Other Navigation Equipment										Modification Number / Title: 4 / GW055: SPEED LOGS																
ID Code (A=Service Ready, B=Not Service Ready) :										MDAP/MAIS Code:																					
Modification Item 1 of 4: AMPHIB SPEED LOG																															
Manufacturer Information																															
Manufacturer Name: Valkyrie (Amphib Switchboard)													Manufacturer Location: Virginia Beach, VA																		
Administrative Leadtime (in Months): 0													Production Leadtime (in Months): 0																		
Dates		FY 2018			FY 2019			FY 2020			FY 2021			FY 2022			FY 2023			FY 2024											
Contract Dates																															
Delivery Dates																															
Manufacturer Name: WR Systems. (Amphib WSN-9)													Manufacturer Location: Norfolk, VA																		
Administrative Leadtime (in Months): 3													Production Leadtime (in Months): 8																		
Dates		FY 2018			FY 2019			FY 2020			FY 2021			FY 2022			FY 2023			FY 2024											
Contract Dates		Dec 2017			Dec 2018			Dec 2019																							
Delivery Dates		Aug 2018			Aug 2019			Aug 2020																							
Installation Information																															
Method of Implementation: AIT:: Installation Name: AMPHIB AN/WSN-9 PROCUREMENT																															
Installation Cost		Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total																		
		Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)																		
Prior Years		8 / 1.513	4 / 0.760	4 / 0.760	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	16 / 3.033																		
FY 2018		- / -	- / -	2 / 0.380	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	2 / 0.380																		
FY 2019		- / -	- / -	- / -	5 / 0.950	0 / 0.000	5 / 0.950	- / -	- / -	- / -	- / -	0 / 0.000	5 / 0.950																		
FY 2020		- / -	- / -	- / -	- / -	- / -	- / -	2 / 0.380	- / -	- / -	- / -	0 / 0.000	2 / 0.380																		
FY 2021		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -																		
FY 2022		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -																		
FY 2023		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -																		
FY 2024		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -																		
To Complete		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -																		
Total		8 / 1.513	4 / 0.760	6 / 1.140	5 / 0.950	0 / 0.000	5 / 0.950	2 / 0.380	- / -	- / -	- / -	0 / 0.000	25 / 4.743																		
Installation Schedule																															
	PYS	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				TC	Tot
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4		
In	8	4	-	-	-	6	-	-	-	5	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	25
Out	8	4	-	-	-	6	-	-	-	5	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	25

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Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019																					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 6										P-1 Line Item Number / Title: 0670 / Other Navigation Equipment										Modification Number / Title: 4 / GW055: SPEED LOGS											
ID Code (A=Service Ready, B=Not Service Ready) :															MDAP/MAIS Code:																
Modification Item 1 of 4: AMPHIB SPEED LOG																															
Installation Information																															
Method of Implementation: AIT:: Installation Name: AMPHIB SWITCHBOARD																															
Installation Cost		Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total																		
		<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>																	
Prior Years		6 / 0.000	1 / 0.000	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	7 / -																		
FY 2018		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -																		
FY 2019		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -																		
FY 2020		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -																		
FY 2021		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -																		
FY 2022		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -																		
FY 2023		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -																		
FY 2024		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -																		
To Complete		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -																		
Total		6 / 0.000	1 / 0.000	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	7 / -																		
Installation Schedule																															
	PYS	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				TC	Tot
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4		
In	6	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7
Out	6	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7

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Exhibit P-3a, Individual Modification: PB 2020 Navy											Date: March 2019																					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 6											P-1 Line Item Number / Title: 0670 / Other Navigation Equipment											Modification Number / Title: 4 / GW055: SPEED LOGS										
ID Code (A=Service Ready, B=Not Service Ready) :											MDAP/MAIS Code:																					
Modification Item 2 of 4: SURFACE SPEED LOG																																
Manufacturer Information																																
Manufacturer Name: WR Systems (Surf WSN-9)													Manufacturer Location: Norfolk, VA																			
Administrative Leadtime (in Months): 3													Production Leadtime (in Months): 8																			
Dates		FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024						
Contract Dates						Dec 2018				Dec 2019																						
Delivery Dates						Aug 2019				Aug 2020																						
Installation Information																																
Method of Implementation: AIT:: Installation Name: SURFACE AN/WSN-9 PROCUREMENT																																
Installation Cost		Prior Years		FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total		FY 2021		FY 2022		FY 2023		FY 2024		To Complete		Total								
		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)								
Prior Years		6 / 1.578		16 / 3.040		15 / 2.850		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.000		37 / 7.468						
FY 2018		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -						
FY 2019		- / -		- / -		- / -		17 / 3.230		0 / 0.000		17 / 3.230		- / -		- / -		- / -		- / -		- / -		0 / 0.000		17 / 3.230						
FY 2020		- / -		- / -		- / -		- / -		- / -		- / -		4 / 0.760		- / -		- / -		- / -		- / -		0 / 0.000		4 / 0.760						
FY 2021		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -						
FY 2022		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -						
FY 2023		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -						
FY 2024		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -						
To Complete		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -						
Total		6 / 1.578		16 / 3.040		15 / 2.850		17 / 3.230		0 / 0.000		17 / 3.230		4 / 0.760		- / -		- / -		- / -		- / -		0 / 0.000		58 / 11.458						
Installation Schedule																																
	PYS	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				TC	Tot	
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4			
In	6	16	-	-	-	15	-	-	-	17	-	-	-	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	58	
Out	6	16	-	-	-	15	-	-	-	17	-	-	-	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	58	

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Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019																					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 6										P-1 Line Item Number / Title: 0670 / Other Navigation Equipment										Modification Number / Title: 4 / GW055: SPEED LOGS											
ID Code (A=Service Ready, B=Not Service Ready) :															MDAP/MAIS Code:																
Modification Item 3 of 4: SUBMARINE SPEED LOG																															
Manufacturer Information																															
Manufacturer Name: WR Systems (Sub WSN-9 SSN)															Manufacturer Location: Norfolk, VA																
Administrative Leadtime (in Months): 3															Production Leadtime (in Months): 8																
Dates		FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024					
Contract Dates		Dec 2017				Dec 2018				Dec 2019				Dec 2020				Dec 2021													
Delivery Dates		Aug 2018				Aug 2019				Aug 2020				Aug 2021				Aug 2022													
Manufacturer Name: WR Systems (Sub WSN-9 SSBN)															Manufacturer Location: Norfolk, VA																
Administrative Leadtime (in Months): 3															Production Leadtime (in Months): 8																
Dates		FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024					
Contract Dates		Dec 2017				Dec 2018				Dec 2019				Dec 2020																	
Delivery Dates		Aug 2018				Aug 2019				Aug 2020				Aug 2021																	
Installation Information																															
Method of Implementation: AIT:: Installation Name: SUBMARINE AN/WSN-9 PROCUREMENT (SSBN)																															
Installation Cost		Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total																		
		<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>																	
Prior Years		2 / 0.475	3 / 0.713	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	5 / 1.188																		
FY 2018		- / -	- / -	3 / 0.713	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	3 / 0.713																		
FY 2019		- / -	- / -	- / -	2 / 0.475	0 / 0.000	2 / 0.475	- / -	- / -	- / -	- / -	0 / 0.000	2 / 0.475																		
FY 2020		- / -	- / -	- / -	- / -	- / -	- / -	3 / 0.713	- / -	- / -	- / -	0 / 0.000	3 / 0.713																		
FY 2021		- / -	- / -	- / -	- / -	- / -	- / -	- / -	1 / 0.238	- / -	- / -	0 / 0.000	1 / 0.238																		
FY 2022		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -																		
FY 2023		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -																		
FY 2024		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -																		
To Complete		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -																		
Total		2 / 0.475	3 / 0.713	3 / 0.713	2 / 0.475	0 / 0.000	2 / 0.475	3 / 0.713	1 / 0.238	- / -	- / -	0 / 0.000	14 / 3.327																		
Installation Schedule																															
	PYS	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				TC	Tot
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4		
In	2	3	-	-	-	3	-	-	-	2	-	-	-	3	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	14
Out	2	3	-	-	-	3	-	-	-	2	-	-	-	3	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	14

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Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019																					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 6										P-1 Line Item Number / Title: 0670 / Other Navigation Equipment										Modification Number / Title: 4 / GW055: SPEED LOGS											
ID Code (A=Service Ready, B=Not Service Ready) :															MDAP/MAIS Code:																
Modification Item 3 of 4: SUBMARINE SPEED LOG																															
Installation Information																															
Method of Implementation: AIT:: Installation Name: SUBMARINE AN/WSN-9 PROCUREMENT (SSN)																															
Installation Cost		Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total																		
		<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>																	
Prior Years		3 / 0.575	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	3 / 0.575																		
FY 2018		- / -	- / -	4 / 0.752	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	4 / 0.752																		
FY 2019		- / -	- / -	- / -	8 / 1.504	0 / 0.000	8 / 1.504	- / -	- / -	- / -	- / -	0 / 0.000	8 / 1.504																		
FY 2020		- / -	- / -	- / -	- / -	- / -	- / -	4 / 0.752	- / -	- / -	- / -	0 / 0.000	4 / 0.752																		
FY 2021		- / -	- / -	- / -	- / -	- / -	- / -	- / -	2 / 0.376	- / -	- / -	0 / 0.000	2 / 0.376																		
FY 2022		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	1 / 0.188	- / -	0 / 0.000	1 / 0.188																		
FY 2023		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -																		
FY 2024		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -																		
To Complete		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -																		
Total		3 / 0.575	- / -	4 / 0.752	8 / 1.504	0 / 0.000	8 / 1.504	4 / 0.752	2 / 0.376	1 / 0.188	- / -	0 / 0.000	22 / 4.147																		
Installation Schedule																															
	PYS	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				TC	Tot
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4		
In	3	-	-	-	-	4	-	-	-	8	-	-	-	4	-	-	-	2	-	-	-	1	-	-	-	-	-	-	-	-	22
Out	3	-	-	-	-	4	-	-	-	8	-	-	-	4	-	-	-	2	-	-	-	1	-	-	-	-	-	-	-	-	22

UNCLASSIFIED

Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019																					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 6										P-1 Line Item Number / Title: 0670 / Other Navigation Equipment										Modification Number / Title: 4 / GW055: SPEED LOGS											
ID Code (A=Service Ready, B=Not Service Ready) :															MDAP/MAIS Code:																
Modification Item 4 of 4: CARRIER SPEED LOG																															
Manufacturer Information																															
Manufacturer Name: WR Systems (Carrier WSN-8 Tech Ref)															Manufacturer Location: Norfolk, VA																
Administrative Leadtime (in Months): 3															Production Leadtime (in Months): 8																
Dates		FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024					
Contract Dates																															
Delivery Dates																															
Manufacturer Name: WR Systems (Carrier WSN-9)															Manufacturer Location: Norfolk, VA																
Administrative Leadtime (in Months): 3															Production Leadtime (in Months): 8																
Dates		FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024					
Contract Dates						Dec 2018												Dec 2021													
Delivery Dates						Aug 2019												Aug 2022													
Installation Information																															
Method of Implementation: AIT:: Installation Name: CARRIER AN/WSN-9 PROCUREMENT																															
Installation Cost		Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total																		
		Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)																		
Prior Years		1 / 0.190	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	1 / 0.190																		
FY 2018		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -																		
FY 2019		- / -	- / -	- / -	1 / 0.190	0 / 0.000	1 / 0.190	- / -	- / -	- / -	- / -	0 / 0.000	1 / 0.190																		
FY 2020		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -																		
FY 2021		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -																		
FY 2022		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	1 / 0.190	- / -	0 / 0.000	1 / 0.190																		
FY 2023		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -																		
FY 2024		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -																		
To Complete		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -																		
Total		1 / 0.190	- / -	- / -	1 / 0.190	0 / 0.000	1 / 0.190	- / -	- / -	1 / 0.190	- / -	0 / 0.000	3 / 0.570																		
Installation Schedule																															
	PYS	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				TC	Tot
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4		
In	1	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	3
Out	1	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	3

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Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019																					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 6										P-1 Line Item Number / Title: 0670 / Other Navigation Equipment										Modification Number / Title: 4 / GW055: SPEED LOGS											
ID Code (A=Service Ready, B=Not Service Ready) :															MDAP/MAIS Code:																
Modification Item 4 of 4: CARRIER SPEED LOG																															
Installation Information																															
Method of Implementation: AIT:: Installation Name: CARRIER AN/WSN-8 TECH REFRESH																															
Installation Cost		Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total																		
		<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>																	
Prior Years		0 / 0.260	2 / 0.260	2 / 0.260	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	4 / 0.780																		
FY 2018		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -																		
FY 2019		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -																		
FY 2020		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -																		
FY 2021		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -																		
FY 2022		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -																		
FY 2023		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -																		
FY 2024		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -																		
To Complete		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -																		
Total		0 / 0.260	2 / 0.260	2 / 0.260	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	4 / 0.780																		
Installation Schedule																															
	PYS	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				TC	Tot
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4		
In	-	2	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4
Out	-	2	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4
Footnotes: ⁽²⁰⁾ AMPHIB AN/WSN-9 PROCUREMENT: Systems procured in prior years as Economic Ordering Quantities and to maintain shipboard configuration for installation through FY19. ⁽²¹⁾ AMPHIB SWITCHBOARD: Hardware procured in prior years as Economic Ordering Quantities for installation through FY18. Installation costs included in procurement costs. ⁽²²⁾ SUBMARINE AN/WSN-9 PROCUREMENT (SSBN): Prior year systems procured and funded under P40A Cost Element GW013. ⁽²³⁾ SUBMARINE AN/WSN-9 PROCUREMENT (SSN): Prior year systems procured and funded under P40A Cost Element GW013. ⁽²⁴⁾ CARRIER AN/WSN-9 PROCUREMENT: Prior year systems procured and funded under P40A Cost Element GW013. ⁽²⁵⁾ CARRIER AN/WSN-8 TECH REFRESH: Systems procured in prior years as Economic Ordering Quantities and to maintain shipboard configuration for installation through FY19.																															

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Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019		
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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity (Units in Each)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost (\$ in Millions)	5.880	13.485	11.196	23.976	0.000	23.976	13.294	26.260	27.007	23.955	Continuing	Continuing
Less PY Advance Procurement (\$ in Millions)	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (\$ in Millions)	5.880	13.485	11.196	23.976	0.000	23.976	13.294	26.260	27.007	23.955	Continuing	Continuing
Plus CY Advance Procurement (\$ in Millions)	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority (\$ in Millions)	5.880	13.485	11.196	23.976	0.000	23.976	13.294	26.260	27.007	23.955	Continuing	Continuing
(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: PB 2020 Navy								Date: March 2019					
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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	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)	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	- / 5.880	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	Continuing	Continuing	
Subtotal: Non-Recurring	- / 5.880	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	Continuing	Continuing	
Subtotal: NAVY ECDIS NON-RECURRING	- / 5.880	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	Continuing	Continuing	
Modification Item 2 of 2: NAVY ECDIS PROCUREMENT													
B Kits													
Recurring													
2.1.1) NAVY ECDIS SOFTWARE PRODUCTION - Organic ⁽²⁶⁾	- / -	- / 13.485	- / 8.136	- / 0.566	- / -	- / 0.566	- / 8.542	- / 0.420	- / 8.887	- / 5.000	Continuing	Continuing	
2.1.2) AMPHIB NAVY ECDIS HARDWARE - NonOrganic ⁽²⁷⁾	- / -	- / -	- / -	4 / 4.236	- / -	4 / 4.236	- / -	8 / 8.664	4 / 4.419	2 / 1.680	Continuing	Continuing	
2.1.3) SURFACE NAVY ECDIS HARDWARE - NonOrganic ⁽²⁸⁾	- / -	- / -	2 / 2.040	11 / 11.456	- / -	11 / 11.456	3 / 3.186	8 / 8.664	7 / 7.732	10 / 8.400	Continuing	Continuing	
Subtotal: Recurring	- / 0.000	- / 13.485	- / 10.176	- / 16.258	- / -	- / 16.258	- / 11.728	- / 17.748	- / 21.038	- / 15.080	Continuing	Continuing	
Subtotal: NAVY ECDIS PROCUREMENT	- / -	- / 13.485	2 / 10.176	15 / 16.258	- / -	15 / 16.258	3 / 11.728	16 / 17.748	11 / 21.038	12 / 15.080	Continuing	Continuing	
Subtotal: Procurement, All Modification Items	- / 5.880	- / 13.485	- / 10.176	- / 16.258	- / -	- / 16.258	- / 11.728	- / 17.748	- / 21.038	- / 15.080	Continuing	Continuing	
Installation													
Modification Item 2 of 2: NAVY ECDIS PROCUREMENT													
Subtotal: Installation	- / 0.000	- / -	- / 1.020	- / 7.718	- / -	- / 7.718	- / 1.566	- / 8.512	- / 5.969	- / 8.875	Continuing	Continuing	
Total													
Total Cost (Procurement + Support + Installation)	5.880	13.485	11.196	23.976	0.000	23.976	13.294	26.260	27.007	23.955	Continuing	Continuing	

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Exhibit P-3a, Individual Modification: PB 2020 Navy		Date: March 2019
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: PB 2020 Navy										Date: March 2019																					
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 (Surf Navy ECDIS HW)															Manufacturer Location: TBD																
Administrative Leadtime (in Months): 6															Production Leadtime (in Months): 7																
Dates		FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024					
Contract Dates						Mar 2019				Dec 2019				Dec 2020				Dec 2021				Dec 2022				Dec 2023					
Delivery Dates						Oct 2019				Jul 2020				Jul 2021				Jul 2022				Jul 2023				Jul 2024					
Manufacturer Name: TBD (Amphib Navy ECDIS HW)															Manufacturer Location: TBD																
Administrative Leadtime (in Months): 0															Production Leadtime (in Months): 0																
Dates		FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024					
Contract Dates										Dec 2019				Dec 2020				Dec 2021				Dec 2022				Dec 2023					
Delivery Dates										Jul 2020				Jul 2021				Jul 2022				Jul 2023				Jul 2024					
Installation Information																															
Method of Implementation: AIT:: Installation Name: AMPHIB NAVY ECDIS HARDWARE																															
Installation Cost		Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total																		
		Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)																		
Prior Years		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -																		
FY 2018		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -																		
FY 2019		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -																		
FY 2020		- / -	- / -	- / -	4 / 2.086	0 / 0.000	4 / 2.086	- / -	- / -	- / -	- / -	0 / 0.000	4 / 2.086																		
FY 2021		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -																		
FY 2022		- / -	- / -	- / -	- / -	- / -	- / -	- / -	8 / 4.256	- / -	- / -	0 / 0.000	8 / 4.256																		
FY 2023		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	4 / 2.171	- / -	0 / 0.000	4 / 2.171																		
FY 2024		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	2 / 1.456	0 / 0.000	2 / 1.456																		
To Complete		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	Continuing	Continuing																		
Total		- / -	- / -	- / -	4 / 2.086	0 / 0.000	4 / 2.086	- / -	8 / 4.256	4 / 2.171	2 / 1.456	Continuing	Continuing																		
Installation Schedule																															
	PYS	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				TC	Tot
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4		
In	-	-	-	-	-	-	-	-	-	-	-	-	4	-	-	-	-	-	-	-	8	-	-	-	4	-	-	-	2	Cont.	Cont.
Out	-	-	-	-	-	-	-	-	-	-	-	-	4	-	-	-	-	-	-	-	8	-	-	-	4	-	-	-	2	Cont.	Cont.

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Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019																													
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																																							
Installation Information																																							
Method of Implementation: AIT:: Installation Name: SURFACE NAVY ECDIS HARDWARE																																							
Installation Cost		Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total																										
		<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>																									
Prior Years		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -																										
FY 2018		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -																										
FY 2019		- / -	- / -	2 / 1.020	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	2 / 1.020																										
FY 2020		- / -	- / -	- / -	11 / 5.632	0 / 0.000	11 / 5.632	- / -	- / -	- / -	- / -	0 / 0.000	11 / 5.632																										
FY 2021		- / -	- / -	- / -	- / -	- / -	- / -	3 / 1.566	- / -	- / -	- / -	0 / 0.000	3 / 1.566																										
FY 2022		- / -	- / -	- / -	- / -	- / -	- / -	- / -	8 / 4.256	- / -	- / -	0 / 0.000	8 / 4.256																										
FY 2023		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	7 / 3.798	- / -	0 / 0.000	7 / 3.798																										
FY 2024		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	10 / 7.419	0 / 0.000	10 / 7.419																										
To Complete		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	Continuing	Continuing																										
Total		- / -	- / -	2 / 1.020	11 / 5.632	0 / 0.000	11 / 5.632	3 / 1.566	8 / 4.256	7 / 3.798	10 / 7.419	Continuing	Continuing																										
Installation Schedule																																							
	PYS	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				TC	Tot								
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4										
In	-	-	-	-	-	-	-	-	-	2	-	-	11	-	-	-	3	-	-	-	8	-	-	-	7	-	-	-	10	Cont.	Cont.								
Out	-	-	-	-	-	-	-	-	-	2	-	-	11	-	-	-	3	-	-	-	8	-	-	-	7	-	-	-	10	Cont.	Cont.								
Method of Implementation (Organic): NAVY ECDIS SOFTWARE PRODUCTION - Not Installed																														Installation Quantity: 0									
Footnotes: ⁽²⁶⁾ NAVY ECDIS SOFTWARE PRODUCTION: Funding is for initial Navy ECDIS software production build and follow-on Navy ECDIS software builds on a two-year cycle. ⁽²⁷⁾ AMPHIB NAVY ECDIS HARDWARE: Funds provide for the procurement and installation of hardware upgrades to replace legacy ECDIS-N capability on amphibious platforms. ⁽²⁸⁾ SURFACE NAVY ECDIS HARDWARE: Funds provide for the procurement and installation of hardware upgrades to replace legacy ECDIS-N capability on surface platforms. FY19 hardware contract expected to be awarded in FY19. Delay due to delay in award of Navy ECDIS software contract. Installation funding required in FY19 for planning.																																							

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Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019		
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 6					P-1 Line Item Number / Title: 0670 / Other Navigation Equipment					Modification Number / Title: 6 / GW058: NAVSSI CAPSTONE		
ID Code (A=Service Ready, B=Not Service Ready) :							MDAP/MAIS Code:					
Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity (<i>Units in Each</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost (<i>\$ in Millions</i>)	2.932	3.010	1.702	1.387	0.000	1.387	0.000	0.000	0.000	0.000	0.000	9.031
Less PY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (<i>\$ in Millions</i>)	2.932	3.010	1.702	1.387	0.000	1.387	0.000	0.000	0.000	0.000	0.000	9.031
Plus CY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority (<i>\$ in Millions</i>)	2.932	3.010	1.702	1.387	0.000	1.387	0.000	0.000	0.000	0.000	0.000	9.031
<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: 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.												

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LI 0670 - Other Navigation Equipment
Navy

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Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019																					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 6										P-1 Line Item Number / Title: 0670 / Other Navigation Equipment										Modification Number / Title: 6 / GW058: NAVSSI CAPSTONE											
ID Code (A=Service Ready, B=Not Service Ready) :															MDAP/MAIS Code:																
Modification Item 1 of 1: GW058: NAVSSI CAPSTONE																															
Manufacturer Information																															
Manufacturer Name: Multiple Vendors (Amphib NAVSSI Capstone)															Manufacturer Location: Various																
Administrative Leadtime (<i>in Months</i>): 3															Production Leadtime (<i>in Months</i>): 8																
Dates		FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024					
Contract Dates		Dec 2017				Dec 2018																									
Delivery Dates		Aug 2018				Aug 2019																									
Installation Information																															
Method of Implementation: AIT:: Installation Name: AMPHIB NAVSSI CAPSTONE																															
Installation Cost		Prior Years	FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total		FY 2021		FY 2022		FY 2023		FY 2024		To Complete		Total								
		Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)								
Prior Years		1 / 1.534		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.000		1 / 1.534							
FY 2018		- / -		1 / 1.561		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.000		1 / 1.561							
FY 2019		- / -		- / -		0 / 0.227		1 / 1.387		0 / 0.000		1 / 1.387		- / -		- / -		- / -		- / -		0 / 0.000		1 / 1.614							
FY 2020		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -							
FY 2021		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -							
FY 2022		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -							
FY 2023		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -							
FY 2024		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -							
To Complete		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -							
Total		1 / 1.534		1 / 1.561		0 / 0.227		1 / 1.387		0 / 0.000		1 / 1.387		- / -		- / -		- / -		- / -		0 / 0.000		3 / 4.709							
Installation Schedule																															
	PYS	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				TC	Tot
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4		
In	1	-	-	-	1	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3
Out	1	-	-	-	1	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3

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Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019		
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 6					P-1 Line Item Number / Title: 0670 / Other Navigation Equipment					Modification Number / Title: 8 / GW060: NEXT GENERATION FATHOMETER		
ID Code (A=Service Ready, B=Not Service Ready) :							MDAP/MAIS Code:					
Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity (Units in Each)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost (\$ in Millions)	6.544	2.792	1.864	1.348	0.000	1.348	0.000	0.000	0.000	0.000	0.000	12.548
Less PY Advance Procurement (\$ in Millions)	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (\$ in Millions)	6.544	2.792	1.864	1.348	0.000	1.348	0.000	0.000	0.000	0.000	0.000	12.548
Plus CY Advance Procurement (\$ in Millions)	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority (\$ in Millions)	6.544	2.792	1.864	1.348	0.000	1.348	0.000	0.000	0.000	0.000	0.000	12.548
(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 procurement, installation, and NRE/ILS/support of Next Generation Fathometers to replace legacy AN/UQN-4/4A systems on amphibious, surface and carrier platforms.												

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Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019			
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 6					P-1 Line Item Number / Title: 0670 / Other Navigation Equipment					Modification Number / Title: 8 / GW060: NEXT GENERATION FATHOMETER			
ID Code (A=Service Ready, B=Not Service Ready) :								MDAP/MAIS Code:					
Models of Systems Affected: GW060: NEXT GENERATION FATHOMETER				Modification Type: NEXT GENERATION FATHOMETER				Related RDT&E PEs:					
Financial Plan	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total	
	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	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> GW060: NEXT GENERATION FATHOMETER													
B Kits													
Recurring													
1.1.1) AMPHIB NEXT GENERATION FATHOMETER - NonOrganic	13 / 1.324	11 / 1.010	6 / 0.562	4 / 0.382	- / -	4 / 0.382	- / -	- / -	- / -	- / -	- / -	34 / 3.278	
1.1.2) SURFACE NEXT GENERATION FATHOMETER - NonOrganic	29 / 2.917	12 / 1.102	8 / 0.749	3 / 0.287	- / -	3 / 0.287	- / -	- / -	- / -	- / -	- / -	52 / 5.055	
1.1.3) CARRIER NEXT GENERATION FATHOMETER - NonOrganic	1 / 0.108	3 / 0.281	3 / 0.287	5 / 0.487	- / -	5 / 0.487	- / -	- / -	- / -	- / -	- / -	12 / 1.163	
<i>Subtotal: Recurring</i>	- / 4.349	- / 2.393	- / 1.598	- / 1.156	- / -	- / 1.156	- / -	- / -	- / -	- / -	- / 0.000	- / 9.496	
<i>Subtotal: GW060: NEXT GENERATION FATHOMETER</i>	43 / 4.349	26 / 2.393	17 / 1.598	12 / 1.156	- / -	12 / 1.156	- / -	- / -	- / -	- / -	- / -	98 / 9.496	
<i>Subtotal: Procurement, All Modification Items</i>	- / 4.349	- / 2.393	- / 1.598	- / 1.156	- / -	- / 1.156	- / -	- / -	- / -	- / -	- / 0.000	- / 9.496	
Installation													
<i>Modification Item 1 of 1:</i> GW060: NEXT GENERATION FATHOMETER	- / 2.195	- / 0.399	- / 0.266	- / 0.192	- / 0.000	- / 0.192	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 3.052	
<i>Subtotal: Installation</i>	- / 2.195	- / 0.399	- / 0.266	- / 0.192	- / -	- / 0.192	- / -	- / -	- / -	- / -	- / 0.000	- / 3.052	
Total													
Total Cost (Procurement + Support + Installation)	6.544	2.792	1.864	1.348	0.000	1.348	0.000	0.000	0.000	0.000	0.000	12.548	

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Exhibit P-3a, Individual Modification: PB 2020 Navy								Date: March 2019				
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 6				P-1 Line Item Number / Title: 0670 / Other Navigation Equipment				Modification Number / Title: 8 / GW060: NEXT GENERATION FATHOMETER				
ID Code (A=Service Ready, B=Not Service Ready) :								MDAP/MAIS Code:				
Modification Item 1 of 1: GW060: NEXT GENERATION FATHOMETER												
Manufacturer Information												
Manufacturer Name: Knudsen (Amphib NGF)						Manufacturer Location: Ogdensburg, NY						
Administrative Leadtime (in Months): 3						Production Leadtime (in Months): 3						
Dates	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024					
Contract Dates	Dec 2017	Dec 2018	Dec 2019									
Delivery Dates	Mar 2018	Mar 2019	Mar 2020									
Manufacturer Name: Knudsen (Carrier NGF)						Manufacturer Location: Ogdensburg, NY						
Administrative Leadtime (in Months): 3						Production Leadtime (in Months): 3						
Dates	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024					
Contract Dates	Dec 2017	Dec 2018	Dec 2019									
Delivery Dates	Mar 2018	Mar 2019	Mar 2020									
Manufacturer Name: Knudsen (Surf NGF)						Manufacturer Location: Ogdensburg, NY						
Administrative Leadtime (in Months): 3						Production Leadtime (in Months): 3						
Dates	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024					
Contract Dates	Dec 2017	Dec 2018	Dec 2019									
Delivery Dates	Mar 2018	Mar 2019	Mar 2020									
Installation Information												
Method of Implementation: AIT:: Installation Name: AMPHIB NEXT GENERATION FATHOMETER												
Installation Cost	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)
Prior Years	13 / 0.689	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	13 / 0.689
FY 2018	- / -	11 / 0.168	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	11 / 0.168
FY 2019	- / -	- / -	6 / 0.094	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	6 / 0.094
FY 2020	- / -	- / -	- / -	4 / 0.064	0 / 0.000	4 / 0.064	- / -	- / -	- / -	- / -	0 / 0.000	4 / 0.064
FY 2021	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2022	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2023	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2024	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
To Complete	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
Total	13 / 0.689	11 / 0.168	6 / 0.094	4 / 0.064	0 / 0.000	4 / 0.064	- / -	- / -	- / -	- / -	0 / 0.000	34 / 1.015

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Exhibit P-3a, Individual Modification: PB 2020 Navy																								Date: March 2019							
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 6												P-1 Line Item Number / Title: 0670 / Other Navigation Equipment												Modification Number / Title: 8 / GW060: NEXT GENERATION FATHOMETER							
ID Code (A=Service Ready, B=Not Service Ready) :																		MDAP/MAIS Code:													
Modification Item 1 of 1: GW060: NEXT GENERATION FATHOMETER																															
Installation Information																															
Method of Implementation: AIT:: Installation Name: AMPHIB NEXT GENERATION FATHOMETER																															
Installation Schedule																															
	PYS	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				TC	Tot
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4		
In	13	-	-	6	5	-	-	3	3	-	-	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Out	13	-	-	6	5	-	-	3	3	-	-	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Method of Implementation: AIT:: Installation Name: SURFACE NEXT GENERATION FATHOMETER																															
Installation Cost		Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total																		
		<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>																	
Prior Years		29 / 1.306	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	29 / 1.306																		
FY 2018		- / -	12 / 0.184	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	12 / 0.184																		
FY 2019		- / -	- / -	8 / 0.125	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	8 / 0.125																		
FY 2020		- / -	- / -	- / -	3 / 0.048	0 / 0.000	3 / 0.048	- / -	- / -	- / -	- / -	0 / 0.000	3 / 0.048																		
FY 2021		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -																		
FY 2022		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -																		
FY 2023		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -																		
FY 2024		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -																		
To Complete		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -																		
Total		29 / 1.306	12 / 0.184	8 / 0.125	3 / 0.048	0 / 0.000	3 / 0.048	- / -	- / -	- / -	- / -	0 / 0.000	52 / 1.663																		
Installation Schedule																															
	PYS	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				TC	Tot
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4		
In	29	-	-	6	6	-	-	4	4	-	-	2	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Out	29	-	-	6	6	-	-	4	4	-	-	2	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

UNCLASSIFIED

Exhibit P-3a, Individual Modification: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 6	P-1 Line Item Number / Title: 0670 / Other Navigation Equipment	Modification Number / Title: 8 / GW060: NEXT GENERATION FATHOMETER

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

Modification Item 1 of 1: GW060: NEXT GENERATION FATHOMETER

Installation Information

Method of Implementation: AIT:: Installation Name: CARRIER NEXT GENERATION FATHOMETER

Installation Cost	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)
Prior Years	1 / 0.200	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	1 / 0.200
FY 2018	- / -	3 / 0.047	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	3 / 0.047
FY 2019	- / -	- / -	3 / 0.047	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	3 / 0.047
FY 2020	- / -	- / -	- / -	5 / 0.080	0 / 0.000	5 / 0.080	- / -	- / -	- / -	- / -	0 / 0.000	5 / 0.080
FY 2021	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2022	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2023	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2024	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
To Complete	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
Total	1 / 0.200	3 / 0.047	3 / 0.047	5 / 0.080	0 / 0.000	5 / 0.080	- / -	- / -	- / -	- / -	0 / 0.000	12 / 0.374

Installation Schedule

	PYS	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				TC	Tot
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4		
In	1	-	-	-	3	-	-	-	3	-	-	-	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12
Out	1	-	-	-	3	-	-	-	3	-	-	-	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12

UNCLASSIFIED

Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019		
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 6					P-1 Line Item Number / Title: 0670 / Other Navigation Equipment					Modification Number / Title: 9 / GW061: MK 27 REPLACEMENT		
ID Code (A=Service Ready, B=Not Service Ready) :							MDAP/MAIS Code:					
Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity (<i>Units in Each</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost (<i>\$ in Millions</i>)	4.663	1.355	1.480	0.870	0.000	0.870	0.510	0.100	0.000	0.000	0.000	8.978
Less PY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (<i>\$ in Millions</i>)	4.663	1.355	1.480	0.870	0.000	0.870	0.510	0.100	0.000	0.000	0.000	8.978
Plus CY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority (<i>\$ in Millions</i>)	4.663	1.355	1.480	0.870	0.000	0.870	0.510	0.100	0.000	0.000	0.000	8.978
<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: These funds are required for the procurement and installation of replacement for legacy MK27 Backup Heading Reference systems on amphibious, surface, and submarine platforms.												

UNCLASSIFIED

Exhibit P-3a, Individual Modification: PB 2020 Navy								Date: March 2019					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 6				P-1 Line Item Number / Title: 0670 / Other Navigation Equipment				Modification Number / Title: 9 / GW061: MK 27 REPLACEMENT					
ID Code (A=Service Ready, B=Not Service Ready) :							MDAP/MAIS Code:						
Models of Systems Affected: GW061: MK 27 REPLACEMENT			Modification Type: MK 27 REPLACEMENT					Related RDT&E PEs: 0204228N					
Financial Plan	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total	
	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	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: GW061: MK 27 REPLACEMENT													
B Kits													
Recurring													
1.1.1) AMPHIB AN/WSN-11 PROCUREMENT - NonOrganic ⁽²⁹⁾	12 / 1.494	- / -	- / -	1 / 0.125	- / -	1 / 0.125	- / -	- / -	- / -	- / -	- / -	13 / 1.619	
1.1.2) SURFACE AN/WSN-11 PROCUREMENT - NonOrganic ⁽³⁰⁾	15 / 1.775	- / -	2 / 0.250	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	17 / 2.025	
1.1.3) SUBMARINE AN/WSN-11 PROCUREMENT - NonOrganic ⁽³¹⁾	5 / 0.375	3 / 0.375	2 / 0.250	3 / 0.375	- / -	3 / 0.375	1 / 0.125	- / -	- / -	- / -	- / -	14 / 1.500	
Subtotal: Recurring	- / 3.644	- / 0.375	- / 0.500	- / 0.500	- / -	- / 0.500	- / 0.125	- / -	- / -	- / -	- / 0.000	- / 5.144	
Subtotal: GW061: MK 27 REPLACEMENT	32 / 3.644	3 / 0.375	4 / 0.500	4 / 0.500	- / -	4 / 0.500	1 / 0.125	- / -	- / -	- / -	- / -	44 / 5.144	
Subtotal: Procurement, All Modification Items	- / 3.644	- / 0.375	- / 0.500	- / 0.500	- / -	- / 0.500	- / 0.125	- / -	- / -	- / -	- / 0.000	- / 5.144	
Installation													
Modification Item 1 of 1: GW061: MK 27 REPLACEMENT	- / 1.019	- / 0.980	- / 0.980	- / 0.370	- / 0.000	- / 0.370	- / 0.385	- / 0.100	- / 0.000	- / 0.000	- / 0.000	- / 3.834	
Subtotal: Installation	- / 1.019	- / 0.980	- / 0.980	- / 0.370	- / -	- / 0.370	- / 0.385	- / 0.100	- / -	- / -	- / 0.000	- / 3.834	
Total													
Total Cost (Procurement + Support + Installation)	4.663	1.355	1.480	0.870	0.000	0.870	0.510	0.100	0.000	0.000	0.000	8.978	

UNCLASSIFIED

Exhibit P-3a, Individual Modification: PB 2020 Navy							Date: March 2019					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 6				P-1 Line Item Number / Title: 0670 / Other Navigation Equipment				Modification Number / Title: 9 / GW061: MK 27 REPLACEMENT				
ID Code (A=Service Ready, B=Not Service Ready) :							MDAP/MAIS Code:					
Modification Item 1 of 1: GW061: MK 27 REPLACEMENT												
Manufacturer Information												
Manufacturer Name: WR Systems (Amphib WSN-11)							Manufacturer Location: Norfolk, VA					
Administrative Leadtime (in Months): 3							Production Leadtime (in Months): 6					
Dates	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024					
Contract Dates			Mar 2020									
Delivery Dates			Sep 2020									
Manufacturer Name: WR Systems (Sub WSN-11)							Manufacturer Location: Norfolk, VA					
Administrative Leadtime (in Months): 3							Production Leadtime (in Months): 6					
Dates	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024					
Contract Dates	Dec 2017	Dec 2018	Dec 2019	Dec 2020								
Delivery Dates	Jun 2018	Jun 2019	Jun 2020	Jun 2021								
Manufacturer Name: WR Systems (Surf WSN-11)							Manufacturer Location: Norfolk, VA					
Administrative Leadtime (in Months): 3							Production Leadtime (in Months): 6					
Dates	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024					
Contract Dates		Mar 2019										
Delivery Dates		Sep 2019										
Installation Information												
Method of Implementation: AIT:: Installation Name: AMPHIB AN/WSN-11 PROCUREMENT												
Installation Cost	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)
Prior Years	5 / 0.375	4 / 0.340	3 / 0.255	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	12 / 0.970
FY 2018	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2019	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2020	- / -	- / -	- / -	- / -	- / -	- / -	1 / 0.085	- / -	- / -	- / -	0 / 0.000	1 / 0.085
FY 2021	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2022	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2023	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2024	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
To Complete	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
Total	5 / 0.375	4 / 0.340	3 / 0.255	- / -	- / -	- / -	1 / 0.085	- / -	- / -	- / -	0 / 0.000	13 / 1.055

UNCLASSIFIED

Exhibit P-3a, Individual Modification: PB 2020 Navy																							Date: March 2019								
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 6											P-1 Line Item Number / Title: 0670 / Other Navigation Equipment											Modification Number / Title: 9 / GW061: MK 27 REPLACEMENT									
ID Code (A=Service Ready, B=Not Service Ready) :																		MDAP/MAIS Code:													
Modification Item 1 of 1: GW061: MK 27 REPLACEMENT																															
Installation Information																															
Method of Implementation: AIT:: Installation Name: AMPHIB AN/WSN-11 PROCUREMENT																															
Installation Schedule																															
	PYS	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				TC	Tot
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4		
In	5	4	-	-	-	3	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Out	5	4	-	-	-	3	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Method of Implementation: AIT:: Installation Name: SURFACE AN/WSN-11 PROCUREMENT																															
Installation Cost		Prior Years		FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total		FY 2021		FY 2022		FY 2023		FY 2024		To Complete		Total							
		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)							
Prior Years		6 / 0.444		4 / 0.340		5 / 0.425		- / -		- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.000		15 / 1.209							
FY 2018		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -							
FY 2019		- / -		- / -		- / -		2 / 0.170		0 / 0.000		2 / 0.170		- / -		- / -		- / -		- / -		0 / 0.000		2 / 0.170							
FY 2020		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -							
FY 2021		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -							
FY 2022		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -							
FY 2023		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -							
FY 2024		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -							
To Complete		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -							
Total		6 / 0.444		4 / 0.340		5 / 0.425		2 / 0.170		0 / 0.000		2 / 0.170		- / -		- / -		- / -		- / -		0 / 0.000		17 / 1.379							
Installation Schedule																															
	PYS	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				TC	Tot
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4		
In	6	4	-	-	-	5	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Out	6	4	-	-	-	5	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Method of Implementation: AIT:: Installation Name: SUBMARINE AN/WSN-11 PROCUREMENT																															
Installation Cost		Prior Years		FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total		FY 2021		FY 2022		FY 2023		FY 2024		To Complete		Total							
		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)							
Prior Years		2 / 0.200		3 / 0.300		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.000		5 / 0.500							

UNCLASSIFIED

Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019																					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 6										P-1 Line Item Number / Title: 0670 / Other Navigation Equipment										Modification Number / Title: 9 / GW061: MK 27 REPLACEMENT											
ID Code (A=Service Ready, B=Not Service Ready) :															MDAP/MAIS Code:																
Modification Item 1 of 1: GW061: MK 27 REPLACEMENT																															
Installation Information																															
Method of Implementation: AIT:: Installation Name: SUBMARINE AN/WSN-11 PROCUREMENT																															
Installation Cost		Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total																		
		<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>																	
FY 2018		- / -	- / -	3 / 0.300	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	3 / 0.300																		
FY 2019		- / -	- / -	- / -	2 / 0.200	0 / 0.000	2 / 0.200	- / -	- / -	- / -	- / -	0 / 0.000	2 / 0.200																		
FY 2020		- / -	- / -	- / -	- / -	- / -	- / -	3 / 0.300	- / -	- / -	- / -	0 / 0.000	3 / 0.300																		
FY 2021		- / -	- / -	- / -	- / -	- / -	- / -	- / -	1 / 0.100	- / -	- / -	0 / 0.000	1 / 0.100																		
FY 2022		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -																		
FY 2023		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -																		
FY 2024		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -																		
To Complete		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -																		
Total		2 / 0.200	3 / 0.300	3 / 0.300	2 / 0.200	0 / 0.000	2 / 0.200	3 / 0.300	1 / 0.100	- / -	- / -	0 / 0.000	14 / 1.400																		
Installation Schedule																															
	PYS	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				TC	Tot
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4		
In	2	3	-	-	-	3	-	-	-	2	-	-	-	3	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	14
Out	2	3	-	-	-	3	-	-	-	2	-	-	-	3	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	14

Footnotes:

⁽²⁹⁾ AMPHIB AN/WSN-11 PROCUREMENT: Systems procured in prior years as Economic Ordering Quantities and to maintain shipboard configuration for installation through FY19.

⁽³⁰⁾ SURFACE AN/WSN-11 PROCUREMENT: Systems procured in prior years as Economic Ordering Quantities and to maintain shipboard configuration for installation through FY19.

⁽³¹⁾ SUBMARINE AN/WSN-11 PROCUREMENT: Prior year systems procured and funded under P40A Cost Element GW013.

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Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019		
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 6					P-1 Line Item Number / Title: 0670 / Other Navigation Equipment					Modification Number / Title: 10 / GW062: AN/WSN-7 MODERNIZATION		
ID Code (A=Service Ready, B=Not Service Ready) :							MDAP/MAIS Code:					
Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity (<i>Units in Each</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost (<i>\$ in Millions</i>)	5.737	8.811	9.784	8.593	0.000	8.593	7.471	7.182	5.103	4.585	Continuing	Continuing
Less PY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (<i>\$ in Millions</i>)	5.737	8.811	9.784	8.593	0.000	8.593	7.471	7.182	5.103	4.585	Continuing	Continuing
Plus CY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority (<i>\$ in Millions</i>)	5.737	8.811	9.784	8.593	0.000	8.593	7.471	7.182	5.103	4.585	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>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost (<i>\$ in Dollars</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Description: 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 Selective Availability Anti-Spoofing Module (SAASM) GPS Receivers, improved health monitoring, Bathymetric fixes, enhanced networked sensor interfaces, TI-14 IA compliance, and Submarine Warfare Federated Tactical System (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 Common Object Request Broker Architecture (CORBA) to Advanced Message Queuing Protocol (AMQP). Field Change 24: Technical Insertion (TI-18) Bathymetric Fix Update. Field Change 26: Technical Insertion (TI-20) to be defined in FY20. Field Change 28: Technical Insertion (TI-22) to be defined in FY22. Submarine Shipalt 4507: Mounting baseplate modification. Submarine ECI 14-006 VA: Enhanced Control Display Unit (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): To be defined in FY19. Submarine ECI (TI-20/APB-21): To be defined in FY21. Submarine TRID TBD (TI-22): To be defined in FY22. ECI installation costs may be combined with procurement costs.												

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Exhibit P-3a, Individual Modification: PB 2020 Navy								Date: March 2019					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 6				P-1 Line Item Number / Title: 0670 / Other Navigation Equipment				Modification Number / Title: 10 / GW062: AN/WSN-7 MODERNIZATION					
ID Code (A=Service Ready, B=Not Service Ready) :							MDAP/MAIS Code:						
Models of Systems Affected: GW062: AN/WSN-7 MODERNIZATION				Modification Type: AN/WSN-7 MODERNIZATION				Related RDT&E PEs:					
Financial Plan	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total	
	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	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 4: AMPHIB FIELD CHANGES													
B Kits													
Recurring													
1.1.1) AMPHIB AN/WSN-7 FIELD CHANGE 22 - NonOrganic	2 / 0.024	2 / 0.024	2 / 0.024	8 / 0.096	- / -	8 / 0.096	3 / 0.036	- / -	- / -	- / -	- / -	17 / 0.204	
1.1.2) AMPHIB AN/WSN-7 CONTROL DISPLAY UNIT (CDU) TECH REFRESH - NonOrganic ⁽³²⁾	- / -	4 / 0.560	7 / 0.980	4 / 0.560	- / -	4 / 0.560	1 / 0.140	4 / 0.560	3 / 0.428	3 / 0.437	Continuing	Continuing	
Subtotal: Recurring	- / 0.024	- / 0.584	- / 1.004	- / 0.656	- / -	- / 0.656	- / 0.176	- / 0.560	- / 0.428	- / 0.437	Continuing	Continuing	
Subtotal: AMPHIB FIELD CHANGES	2 / 0.024	6 / 0.584	9 / 1.004	12 / 0.656	- / -	12 / 0.656	4 / 0.176	4 / 0.560	3 / 0.428	3 / 0.437	Continuing	Continuing	
Modification Item 2 of 4: SURFACE FIELD CHANGES													
B Kits													
Recurring													
2.1.1) SURFACE AN/WSN-7 FIELD CHANGE 22 - NonOrganic	12 / 0.144	16 / 0.192	13 / 0.156	8 / 0.096	- / -	8 / 0.096	9 / 0.108	6 / 0.072	- / -	- / -	- / -	64 / 0.768	
2.1.2) SURFACE AN/WSN-7 CDU TECH REFRESH EQT - Organic ⁽³³⁾	- / 0.475	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / 0.475	
2.1.3) SURFACE AN/WSN-7 CDU TECH FRESH - NonOrganic ⁽³⁴⁾	15 / 2.123	16 / 2.240	13 / 1.820	15 / 2.100	- / -	15 / 2.100	14 / 1.960	9 / 1.350	9 / 1.377	9 / 1.405	Continuing	Continuing	
Subtotal: Recurring	- / 2.742	- / 2.432	- / 1.976	- / 2.196	- / -	- / 2.196	- / 2.068	- / 1.422	- / 1.377	- / 1.405	Continuing	Continuing	
Subtotal: SURFACE FIELD CHANGES	27 / 2.742	32 / 2.432	26 / 1.976	23 / 2.196	- / -	23 / 2.196	23 / 2.068	15 / 1.422	9 / 1.377	9 / 1.405	Continuing	Continuing	
Modification Item 3 of 4: SUBMARINE FIELD CHANGES													
B Kits													
Recurring													
3.1.1) SUBMARINE SHIPALT 4507 - NonOrganic	1 / 0.000	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	1 / 0.000	
3.1.2) SUBMARINE ECI 14-006-VA - NonOrganic ⁽³⁵⁾	1 / 0.005	2 / 0.010	1 / 0.005	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	4 / 0.020	
3.1.3) SUBMARINE ECI (TI-10/12/14) - NonOrganic ⁽³⁶⁾	27 / 0.675	13 / 0.325	4 / 0.100	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	44 / 1.100	
3.1.4) SUBMARINE AN/WSN-7 FIELD CHANGE 21 - NonOrganic	- / -	6 / 0.360	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	6 / 0.360	
3.1.5) SUBMARINE AN/WSN-7 FIELD CHANGE 22 - NonOrganic	- / -	6 / 0.360	- / -	- / -	- / -	- / -	1 / 0.060	- / -	- / -	- / -	- / -	7 / 0.420	

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Exhibit P-3a, Individual Modification: PB 2020 Navy								Date: March 2019				
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 6				P-1 Line Item Number / Title: 0670 / Other Navigation Equipment				Modification Number / Title: 10 / GW062: AN/WSN-7 MODERNIZATION				
ID Code (A=Service Ready, B=Not Service Ready) :						MDAP/MAIS Code:						
Models of Systems Affected: GW062: AN/WSN-7 MODERNIZATION			Modification Type: AN/WSN-7 MODERNIZATION				Related RDT&E PEs:					
Financial Plan	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)
3.1.6) SUBMARINE AN/WSN-7 FIELD CHANGE 23 - NonOrganic ⁽³⁷⁾	3 / 0.000	4 / 0.688	5 / 0.860	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	12 / 1.548
3.1.7) SUBMARINE AN/WSN-7 FIELD CHANGE 24 - NonOrganic	- / -	3 / 0.537	12 / 2.148	6 / 1.074	- / -	6 / 1.074	- / -	- / -	- / -	- / -	- / -	21 / 3.759
3.1.8) SUBMARINE AN/WSN-7 FIELD CHANGE 26 - NonOrganic	- / -	- / -	2 / 0.372	2 / 0.372	- / -	2 / 0.372	12 / 2.232	5 / 0.930	- / -	- / -	- / -	21 / 3.906
3.1.9) SUBMARINE AN/WSN-7 FIELD CHANGE 28 - NonOrganic	- / -	- / -	- / -	- / -	- / -	- / -	- / -	6 / 1.140	- / -	- / -	Continuing	Continuing
3.1.10) SUBMARINE AN/WSN-7 ECI (TI-16/APB-17) - NonOrganic ⁽³⁸⁾	- / -	2 / 0.070	6 / 0.210	2 / 0.070	- / -	2 / 0.070	2 / 0.070	- / -	- / -	- / -	- / -	12 / 0.420
3.1.11) SUBMARINE AN/WSN-7 ECI (TI-18/APB-19) - NonOrganic ⁽³⁹⁾	- / -	- / -	- / -	2 / 0.070	- / -	2 / 0.070	8 / 0.280	6 / 0.210	1 / 0.035	1 / 0.036	Continuing	Continuing
3.1.12) SUBMARINE AN/WSN-7 ECI (TI-20/APB-21) - NonOrganic ⁽⁴⁰⁾	- / -	- / -	- / -	- / -	- / -	- / -	- / -	4 / 0.160	2 / 0.080	2 / 0.082	Continuing	Continuing
3.1.13) SUBMARINE AN/WSN-7 TRID TBD (TI-22) - NonOrganic	- / -	- / -	- / -	- / -	- / -	- / -	- / -	3 / 0.600	7 / 1.400	7 / 1.428	Continuing	Continuing
Subtotal: Recurring	- / 0.680	- / 2.350	- / 3.695	- / 1.586	- / -	- / 1.586	- / 2.642	- / 3.040	- / 1.515	- / 1.546	Continuing	Continuing
Subtotal: SUBMARINE FIELD CHANGES	32 / 0.680	36 / 2.350	30 / 3.695	12 / 1.586	- / -	12 / 1.586	23 / 2.642	24 / 3.040	10 / 1.515	10 / 1.546	Continuing	Continuing
Modification Item 4 of 4: CARRIER FIELD CHANGES												
B Kits												
Recurring												
4.1.1) CARRIER AN/WSN-7 FIELD CHANGE 22 - NonOrganic	3 / 0.036	- / -	2 / 0.024	5 / 0.060	- / -	5 / 0.060	1 / 0.012	- / -	- / -	- / -	- / -	11 / 0.132
4.1.2) CARRIER AN/WSN-7 CDU TECH REFRESH - NonOrganic ⁽⁴¹⁾	4 / 0.000	3 / 0.420	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	7 / 0.420
Subtotal: Recurring	- / 0.036	- / 0.420	- / 0.024	- / 0.060	- / -	- / 0.060	- / 0.012	- / -	- / -	- / -	- / 0.000	- / 0.552
Subtotal: CARRIER FIELD CHANGES	7 / 0.036	3 / 0.420	2 / 0.024	5 / 0.060	- / -	5 / 0.060	1 / 0.012	- / -	- / -	- / -	- / -	18 / 0.552
Subtotal: Procurement, All Modification Items	- / 3.482	- / 5.786	- / 6.699	- / 4.498	- / -	- / 4.498	- / 4.898	- / 5.022	- / 3.320	- / 3.388	Continuing	Continuing
Installation												
Modification Item 1 of 4: AMPHIB FIELD CHANGES	- / 0.150	- / 0.150	- / 0.350	- / 0.950	- / 0.000	- / 0.950	- / 0.425	- / 0.050	- / 0.204	- / 0.157	Continuing	Continuing
Modification Item 2 of 4: SURFACE FIELD CHANGES	- / 1.700	- / 2.050	- / 1.875	- / 1.250	- / 0.000	- / 1.250	- / 1.425	- / 1.150	- / 0.459	- / 0.468	Continuing	Continuing
Modification Item 3 of 4: SUBMARINE FIELD CHANGES	- / 0.280	- / 0.525	- / 0.560	- / 1.520	- / 0.000	- / 1.520	- / 0.648	- / 0.960	- / 1.120	- / 0.572	Continuing	Continuing
Modification Item 4 of 4: CARRIER FIELD CHANGES	- / 0.125	- / 0.300	- / 0.300	- / 0.375	- / 0.000	- / 0.375	- / 0.075	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 1.175

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Exhibit P-3a, Individual Modification: PB 2020 Navy								Date: March 2019					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 6				P-1 Line Item Number / Title: 0670 / Other Navigation Equipment					Modification Number / Title: 10 / GW062: AN/WSN-7 MODERNIZATION				
ID Code (A=Service Ready, B=Not Service Ready) :							MDAP/MAIS Code:						
Models of Systems Affected: GW062: AN/WSN-7 MODERNIZATION				Modification Type: AN/WSN-7 MODERNIZATION				Related RDT&E PEs:					
Financial Plan	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total	
	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	
Subtotal: Installation	- / 2.255	- / 3.025	- / 3.085	- / 4.095	- / -	- / 4.095	- / 2.573	- / 2.160	- / 1.783	- / 1.197	Continuing	Continuing	
Total													
Total Cost (Procurement + Support + Installation)	5.737	8.811	9.784	8.593	0.000	8.593	7.471	7.182	5.103	4.585	Continuing	Continuing	

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Exhibit P-3a, Individual Modification: PB 2020 Navy								Date: March 2019				
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 6				P-1 Line Item Number / Title: 0670 / Other Navigation Equipment				Modification Number / Title: 10 / GW062: AN/WSN-7 MODERNIZATION				
ID Code (A=Service Ready, B=Not Service Ready) :						MDAP/MAIS Code:						
Modification Item 1 of 4: AMPHIB FIELD CHANGES												
Manufacturer Information												
Manufacturer Name: WR Systems (Amphib WSN-7 CDU Tech Ref)						Manufacturer Location: Norfolk, VA						
Administrative Leadtime (<i>in Months</i>): 3						Production Leadtime (<i>in Months</i>): 6						
Dates	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024					
Contract Dates	Mar 2018	Mar 2019	Mar 2020	Mar 2021	Mar 2022	Mar 2023	Mar 2024					
Delivery Dates	Sep 2018	Sep 2019	Sep 2020	Sep 2021	Sep 2022	Sep 2023	Sep 2024					
Manufacturer Name: NORTHROP GRUMMAN SYSTEMS CORP. (Amphib WSN-7 FC22)						Manufacturer Location: CHARLOTTESVILLE, VA						
Administrative Leadtime (<i>in Months</i>): 3						Production Leadtime (<i>in Months</i>): 6						
Dates	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024					
Contract Dates	Dec 2017	Dec 2018	Dec 2019	Dec 2020								
Delivery Dates	Jun 2018	Jun 2019	Jun 2020	Jun 2021								
Installation Information												
Method of Implementation: AIT:: Installation Name: AMPHIB AN/WSN-7 FIELD CHANGE 22												
Installation Cost	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>
Prior Years	2 / 0.150	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	2 / 0.150
FY 2018	- / -	2 / 0.150	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	2 / 0.150
FY 2019	- / -	- / -	2 / 0.150	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	2 / 0.150
FY 2020	- / -	- / -	- / -	8 / 0.600	0 / 0.000	8 / 0.600	- / -	- / -	- / -	- / -	0 / 0.000	8 / 0.600
FY 2021	- / -	- / -	- / -	- / -	- / -	- / -	3 / 0.225	- / -	- / -	- / -	0 / 0.000	3 / 0.225
FY 2022	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2023	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2024	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
To Complete	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
Total	2 / 0.150	2 / 0.150	2 / 0.150	8 / 0.600	0 / 0.000	8 / 0.600	3 / 0.225	- / -	- / -	- / -	0 / 0.000	17 / 1.275

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Exhibit P-3a, Individual Modification: PB 2020 Navy																							Date: March 2019								
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 6										P-1 Line Item Number / Title: 0670 / Other Navigation Equipment										Modification Number / Title: 10 / GW062: AN/WSN-7 MODERNIZATION											
ID Code (A=Service Ready, B=Not Service Ready) :																		MDAP/MAIS Code:													
Modification Item 1 of 4: AMPHIB FIELD CHANGES																															
Installation Information																															
Method of Implementation: AIT:: Installation Name: AMPHIB AN/WSN-7 FIELD CHANGE 22																															
Installation Schedule																															
	PYS	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				TC	Tot
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4		
In	2	-	-	-	2	-	-	-	2	-	-	-	8	-	-	-	3	-	-	-	-	-	-	-	-	-	-	-	-	-	17
Out	2	-	-	-	2	-	-	-	2	-	-	-	8	-	-	-	3	-	-	-	-	-	-	-	-	-	-	-	-	-	17
Method of Implementation: AIT:: Installation Name: AMPHIB AN/WSN-7 CONTROL DISPLAY UNIT (CDU) TECH REFRESH																															
Installation Cost		Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total																		
		<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>																	
Prior Years		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -																		
FY 2018		- / -	- / -	4 / 0.200	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	4 / 0.200																		
FY 2019		- / -	- / -	- / -	7 / 0.350	0 / 0.000	7 / 0.350	- / -	- / -	- / -	- / -	0 / 0.000	7 / 0.350																		
FY 2020		- / -	- / -	- / -	- / -	- / -	- / -	4 / 0.200	- / -	- / -	- / -	0 / 0.000	4 / 0.200																		
FY 2021		- / -	- / -	- / -	- / -	- / -	- / -	- / -	1 / 0.050	- / -	- / -	0 / 0.000	1 / 0.050																		
FY 2022		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	4 / 0.204	- / -	0 / 0.000	4 / 0.204																		
FY 2023		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	3 / 0.157	0 / 0.000	3 / 0.157																		
FY 2024		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	Continuing	Continuing																		
To Complete		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	Continuing	Continuing																		
Total		- / -	- / -	4 / 0.200	7 / 0.350	0 / 0.000	7 / 0.350	4 / 0.200	1 / 0.050	4 / 0.204	3 / 0.157	Continuing	Continuing																		
Installation Schedule																															
	PYS	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				TC	Tot
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4		
In	-	-	-	-	-	4	-	-	-	7	-	-	-	4	-	-	-	1	-	-	-	4	-	-	-	3	-	-	-	Cont.	Cont.
Out	-	-	-	-	-	4	-	-	-	7	-	-	-	4	-	-	-	1	-	-	-	4	-	-	-	3	-	-	-	Cont.	Cont.

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Exhibit P-3a, Individual Modification: PB 2020 Navy								Date: March 2019				
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 6				P-1 Line Item Number / Title: 0670 / Other Navigation Equipment				Modification Number / Title: 10 / GW062: AN/WSN-7 MODERNIZATION				
ID Code (A=Service Ready, B=Not Service Ready) :						MDAP/MAIS Code:						
Modification Item 2 of 4: SURFACE FIELD CHANGES												
Manufacturer Information												
Manufacturer Name: WR Systems (Surf WSN-7 CDU Tech Ref)						Manufacturer Location: Norfolk, VA						
Administrative Leadtime (in Months): 3						Production Leadtime (in Months): 6						
Dates	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024					
Contract Dates	Mar 2018	Mar 2019	Mar 2020	Mar 2021	Mar 2022	Mar 2023	Mar 2024					
Delivery Dates	Sep 2018	Sep 2019	Sep 2020	Sep 2021	Sep 2022	Sep 2023	Sep 2024					
Manufacturer Name: NORTHROP GRUMMAN SYSTEMS CORP. (Surf WSN-7 FC22)						Manufacturer Location: CHARLOTTESVILLE, VA						
Administrative Leadtime (in Months): 3						Production Leadtime (in Months): 6						
Dates	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024					
Contract Dates	Dec 2017	Dec 2018	Dec 2019	Dec 2020	Dec 2021							
Delivery Dates	Jun 2018	Jun 2019	Jun 2020	Jun 2021	Jun 2022							
Installation Information												
Method of Implementation: AIT:: Installation Name: SURFACE AN/WSN-7 FIELD CHANGE 22												
Installation Cost	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)
Prior Years	12 / 0.900	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	12 / 0.900
FY 2018	- / -	16 / 1.200	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	16 / 1.200
FY 2019	- / -	- / -	13 / 0.975	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	13 / 0.975
FY 2020	- / -	- / -	- / -	8 / 0.600	0 / 0.000	8 / 0.600	- / -	- / -	- / -	- / -	0 / 0.000	8 / 0.600
FY 2021	- / -	- / -	- / -	- / -	- / -	- / -	9 / 0.675	- / -	- / -	- / -	0 / 0.000	9 / 0.675
FY 2022	- / -	- / -	- / -	- / -	- / -	- / -	- / -	6 / 0.450	- / -	- / -	0 / 0.000	6 / 0.450
FY 2023	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2024	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
To Complete	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
Total	12 / 0.900	16 / 1.200	13 / 0.975	8 / 0.600	0 / 0.000	8 / 0.600	9 / 0.675	6 / 0.450	- / -	- / -	0 / 0.000	64 / 4.800

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Exhibit P-3a, Individual Modification: PB 2020 Navy																								Date: March 2019							
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 6												P-1 Line Item Number / Title: 0670 / Other Navigation Equipment												Modification Number / Title: 10 / GW062: AN/WSN-7 MODERNIZATION							
ID Code (A=Service Ready, B=Not Service Ready) :																		MDAP/MAIS Code:													
Modification Item 2 of 4: SURFACE FIELD CHANGES																															
Installation Information																															
Method of Implementation: AIT:: Installation Name: SURFACE AN/WSN-7 FIELD CHANGE 22																															
Installation Schedule																															
	PYS	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024					
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	TC	Tot
In	12	-	-	-	16	-	-	-	13	-	-	-	8	-	-	-	9	-	-	-	6	-	-	-	-	-	-	-	-	-	64
Out	12	-	-	-	16	-	-	-	13	-	-	-	8	-	-	-	9	-	-	-	6	-	-	-	-	-	-	-	-	-	64
Method of Implementation: AIT:: Installation Name: SURFACE AN/WSN-7 CDU TECH FRESH																															
Installation Cost		Prior Years		FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total		FY 2021		FY 2022		FY 2023		FY 2024		To Complete		Total							
		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)							
Prior Years		0 / 0.800		13 / 0.850		2 / 0.100		- / -		- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.000		15 / 1.750							
FY 2018		- / -		- / -		16 / 0.800		- / -		- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.000		16 / 0.800							
FY 2019		- / -		- / -		- / -		13 / 0.650		0 / 0.000		13 / 0.650		- / -		- / -		- / -		- / -		0 / 0.000		13 / 0.650							
FY 2020		- / -		- / -		- / -		- / -		- / -		- / -		15 / 0.750		- / -		- / -		- / -		0 / 0.000		15 / 0.750							
FY 2021		- / -		- / -		- / -		- / -		- / -		- / -		- / -		14 / 0.700		- / -		- / -		0 / 0.000		14 / 0.700							
FY 2022		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		9 / 0.459		- / -		0 / 0.000		9 / 0.459							
FY 2023		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		9 / 0.468		Continuing		Continuing					
FY 2024		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		Continuing		Continuing					
To Complete		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		Continuing		Continuing					
Total		0 / 0.800		13 / 0.850		18 / 0.900		13 / 0.650		0 / 0.000		13 / 0.650		15 / 0.750		14 / 0.700		9 / 0.459		9 / 0.468		Continuing		Continuing							
Installation Schedule																															
	PYS	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024					
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	TC	Tot
In	-	13	-	-	-	18	-	-	-	13	-	-	-	15	-	-	-	14	-	-	-	9	-	-	-	9	-	-	-	Cont.	Cont.
Out	-	13	-	-	-	18	-	-	-	13	-	-	-	15	-	-	-	14	-	-	-	9	-	-	-	9	-	-	-	Cont.	Cont.

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Exhibit P-3a, Individual Modification: PB 2020 Navy					Date: March 2019		
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 6			P-1 Line Item Number / Title: 0670 / Other Navigation Equipment			Modification Number / Title: 10 / GW062: AN/WSN-7 MODERNIZATION	
ID Code (A=Service Ready, B=Not Service Ready) :					MDAP/MAIS Code:		
Modification Item 3 of 4: SUBMARINE FIELD CHANGES							
Manufacturer Information							
Manufacturer Name: NORTHROP GRUMMAN SYSTEMS CORP. (Sub SHIPALT 4507)				Manufacturer Location: CHARLOTTESVILLE, VA			
Administrative Leadtime (<i>in Months</i>): 0				Production Leadtime (<i>in Months</i>): 0			
Dates	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024
Contract Dates							
Delivery Dates							
Manufacturer Name: NORTHROP GRUMMAN SYSTEMS CORP. (Sub ECI 14-006-VA)				Manufacturer Location: CHARLOTTESVILLE, VA			
Administrative Leadtime (<i>in Months</i>): 3				Production Leadtime (<i>in Months</i>): 6			
Dates	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024
Contract Dates	Dec 2017	Dec 2018					
Delivery Dates	Jun 2018	Jun 2019					
Manufacturer Name: NORTHROP GRUMMAN SYSTEMS CORP. (Sub ECI TI-10/12/14)				Manufacturer Location: CHARLOTTESVILLE, VA			
Administrative Leadtime (<i>in Months</i>): 3				Production Leadtime (<i>in Months</i>): 6			
Dates	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024
Contract Dates	Dec 2017	Dec 2018					
Delivery Dates	Jun 2018	Jun 2019					
Manufacturer Name: NORTHROP GRUMMAN SYSTEMS CORP. (Sub WSN-7 FC21)				Manufacturer Location: CHARLOTTESVILLE, VA			
Administrative Leadtime (<i>in Months</i>): 3				Production Leadtime (<i>in Months</i>): 6			
Dates	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024
Contract Dates	Dec 2017						
Delivery Dates	Jun 2018						
Manufacturer Name: NORTHROP GRUMMAN SYSTEMS CORP. (Sub WSN-7 FC22)				Manufacturer Location: CHARLOTTESVILLE, VA			
Administrative Leadtime (<i>in Months</i>): 3				Production Leadtime (<i>in Months</i>): 6			
Dates	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024
Contract Dates	Dec 2017			Dec 2020			
Delivery Dates	Jun 2018			Jun 2021			
Manufacturer Name: NORTHROP GRUMMAN SYSTEMS CORP. (Sub WSN-7 FC23)				Manufacturer Location: CHARLOTTESVILLE, VA			
Administrative Leadtime (<i>in Months</i>): 3				Production Leadtime (<i>in Months</i>): 9			
Dates	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024
Contract Dates	Dec 2017	Dec 2018					

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Exhibit P-3a, Individual Modification: PB 2020 Navy						Date: March 2019	
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 6			P-1 Line Item Number / Title: 0670 / Other Navigation Equipment			Modification Number / Title: 10 / GW062: AN/WSN-7 MODERNIZATION	
ID Code (A=Service Ready, B=Not Service Ready) :					MDAP/MAIS Code:		
Modification Item 3 of 4: SUBMARINE FIELD CHANGES							
Manufacturer Information							
Dates	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024
Delivery Dates	Sep 2018	Sep 2019					
Manufacturer Name: WR Systems (Sub WSN-7 ECI TI-16/APB-17)				Manufacturer Location: Norfolk, VA			
Administrative Leadtime (<i>in Months</i>): 3				Production Leadtime (<i>in Months</i>): 3			
Dates	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024
Contract Dates	Dec 2017	Dec 2018	Dec 2019	Dec 2020			
Delivery Dates	Mar 2018	Mar 2019	Mar 2020	Mar 2021			
Manufacturer Name: NORTHROP GRUMMAN SYSTEMS CORP. (Sub WSN-7 FC26)				Manufacturer Location: CHARLOTTESVILLE, VA			
Administrative Leadtime (<i>in Months</i>): 3				Production Leadtime (<i>in Months</i>): 9			
Dates	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024
Contract Dates		Dec 2018	Dec 2019	Dec 2020	Dec 2021		
Delivery Dates		Sep 2019	Sep 2020	Sep 2021	Sep 2022		
Manufacturer Name: NORTHROP GRUMMAN SYSTEMS CORP. (Sub WSN-7 FC28)				Manufacturer Location: CHARLOTTESVILLE, VA			
Administrative Leadtime (<i>in Months</i>): 3				Production Leadtime (<i>in Months</i>): 9			
Dates	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024
Contract Dates					Dec 2021		
Delivery Dates					Sep 2022		
Manufacturer Name: TBD (Sub WSN-7 ECI TI-18/APB-19)				Manufacturer Location: TBD			
Administrative Leadtime (<i>in Months</i>): 0				Production Leadtime (<i>in Months</i>): 0			
Dates	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024
Contract Dates							
Delivery Dates							
Manufacturer Name: TBD (Sub WSN-7 ECI TI-20/APB-21)				Manufacturer Location: TBD			
Administrative Leadtime (<i>in Months</i>): 0				Production Leadtime (<i>in Months</i>): 0			
Dates	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024
Contract Dates							
Delivery Dates							
Manufacturer Name: TBD (Sub WSN-7 TRID TBD)				Manufacturer Location: TBD			
Administrative Leadtime (<i>in Months</i>): 0				Production Leadtime (<i>in Months</i>): 0			

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Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019																					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 6										P-1 Line Item Number / Title: 0670 / Other Navigation Equipment										Modification Number / Title: 10 / GW062: AN/WSN-7 MODERNIZATION											
ID Code (A=Service Ready, B=Not Service Ready) :															MDAP/MAIS Code:																
Modification Item 3 of 4: SUBMARINE FIELD CHANGES																															
Manufacturer Information																															
Dates		FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024					
Contract Dates																															
Delivery Dates																															
Manufacturer Name: NORTHROP GRUMMAN SYSTEMS CORP. (Sub WSN-7 FC24)															Manufacturer Location: CHARLOTTESVILLE, VA																
Administrative Leadtime (in Months): 3															Production Leadtime (in Months): 9																
Dates		FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024					
Contract Dates		Dec 2017				Dec 2018				Dec 2019																					
Delivery Dates		Sep 2018				Sep 2019				Sep 2020																					
Installation Information																															
Method of Implementation: AIT:: Installation Name: SUBMARINE SHIPALT 4507																															
Installation Cost		Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total																		
		Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	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		1 / 0.040	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	1 / 0.040																		
FY 2018		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -																		
FY 2019		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -																		
FY 2020		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -																		
FY 2021		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -																		
FY 2022		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -																		
FY 2023		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -																		
FY 2024		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -																		
To Complete		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -																		
Total		1 / 0.040	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	1 / 0.040																		
Installation Schedule																															
	PYS	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				TC	Tot
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4		
In	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Out	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1

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Exhibit P-3a, Individual Modification: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 6	P-1 Line Item Number / Title: 0670 / Other Navigation Equipment	Modification Number / Title: 10 / GW062: AN/WSN-7 MODERNIZATION

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

Modification Item 3 of 4: SUBMARINE FIELD CHANGES

Installation Information

Method of Implementation: AIT:: Installation Name: SUBMARINE ECI 14-006-VA

Installation Cost	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)
Prior Years	1 / 0.000	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	1 / -
FY 2018	- / -	2 / 0.000	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	2 / -
FY 2019	- / -	- / -	1 / 0.000	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	1 / -
FY 2020	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2021	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2022	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2023	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2024	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
To Complete	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
Total	1 / 0.000	2 / 0.000	1 / 0.000	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	4 / -

Installation Schedule

	PYS	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				TC	Tot
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4		
In	1	-	-	-	2	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4
Out	1	-	-	-	2	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4

Method of Implementation: AIT:: Installation Name: SUBMARINE ECI (TI-10/12/14)

Installation Cost	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)
Prior Years	27 / 0.000	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	27 / -
FY 2018	- / -	13 / 0.000	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	13 / -
FY 2019	- / -	- / -	4 / 0.000	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	4 / -
FY 2020	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2021	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2022	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2023	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2024	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -

UNCLASSIFIED

Exhibit P-3a, Individual Modification: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 6	P-1 Line Item Number / Title: 0670 / Other Navigation Equipment	Modification Number / Title: 10 / GW062: AN/WSN-7 MODERNIZATION

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

Modification Item 3 of 4: SUBMARINE FIELD CHANGES

Installation Information

Method of Implementation: AIT:: Installation Name: SUBMARINE ECI (TI-10/12/14)

Installation Cost	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)
To Complete	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
Total	27 / 0.000	13 / 0.000	4 / 0.000	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	44 / -

Installation Schedule

	PYS	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				TC	Tot
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4		
In	27	-	-	-	13	-	-	-	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	44
Out	27	-	-	-	13	-	-	-	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	44

Method of Implementation: AIT:: Installation Name: SUBMARINE AN/WSN-7 FIELD CHANGE 21

Installation Cost	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)
Prior Years	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2018	- / -	6 / 0.480	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	6 / 0.480
FY 2019	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2020	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2021	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2022	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2023	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2024	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
To Complete	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
Total	- / -	6 / 0.480	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	6 / 0.480

UNCLASSIFIED

Exhibit P-3a, Individual Modification: PB 2020 Navy																							Date: March 2019								
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 6											P-1 Line Item Number / Title: 0670 / Other Navigation Equipment											Modification Number / Title: 10 / GW062: AN/WSN-7 MODERNIZATION									
ID Code (A=Service Ready, B=Not Service Ready) :																	MDAP/MAIS Code:														
Modification Item 3 of 4: SUBMARINE FIELD CHANGES																															
Installation Information																															
Method of Implementation: AIT:: Installation Name: SUBMARINE AN/WSN-7 FIELD CHANGE 21																															
Installation Schedule																															
	PYS	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				TC	Tot
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4		
In	-	-	-	-	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6
Out	-	-	-	-	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6
Method of Implementation: AIT:: Installation Name: SUBMARINE AN/WSN-7 FIELD CHANGE 22																															
Installation Cost		Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total																		
		Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)																		
Prior Years		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -																		
FY 2018		- / -	6 / 0.045	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	6 / 0.045																		
FY 2019		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -																		
FY 2020		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -																		
FY 2021		- / -	- / -	- / -	- / -	- / -	- / -	1 / 0.008	- / -	- / -	- / -	0 / 0.000	1 / 0.008																		
FY 2022		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -																		
FY 2023		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -																		
FY 2024		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -																		
To Complete		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -																		
Total		- / -	6 / 0.045	- / -	- / -	- / -	- / -	1 / 0.008	- / -	- / -	- / -	0 / 0.000	7 / 0.053																		
Installation Schedule																															
	PYS	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				TC	Tot
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4		
In	-	-	-	-	6	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	7
Out	-	-	-	-	6	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	7

UNCLASSIFIED

Exhibit P-3a, Individual Modification: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 6	P-1 Line Item Number / Title: 0670 / Other Navigation Equipment	Modification Number / Title: 10 / GW062: AN/WSN-7 MODERNIZATION
ID Code (A=Service Ready, B=Not Service Ready) :		MDAP/MAIS Code:

Modification Item 3 of 4: SUBMARINE FIELD CHANGES**Installation Information****Method of Implementation:** AIT:: Installation Name: SUBMARINE AN/WSN-7 FIELD CHANGE 23

Installation Cost	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)
Prior Years	3 / 0.240	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	3 / 0.240
FY 2018	- / -	- / -	4 / 0.320	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	4 / 0.320
FY 2019	- / -	- / -	- / -	5 / 0.400	0 / 0.000	5 / 0.400	- / -	- / -	- / -	- / -	0 / 0.000	5 / 0.400
FY 2020	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2021	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2022	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2023	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2024	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
To Complete	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
Total	3 / 0.240	- / -	4 / 0.320	5 / 0.400	0 / 0.000	5 / 0.400	- / -	- / -	- / -	- / -	0 / 0.000	12 / 0.960

Installation Schedule

	PYS	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				TC	Tot
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4		
In	3	-	-	-	-	4	-	-	-	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12
Out	3	-	-	-	-	4	-	-	-	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12

Method of Implementation: AIT:: Installation Name: SUBMARINE AN/WSN-7 FIELD CHANGE 24

Installation Cost	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)
Prior Years	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2018	- / -	- / -	3 / 0.240	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	3 / 0.240
FY 2019	- / -	- / -	- / -	12 / 0.960	0 / 0.000	12 / 0.960	- / -	- / -	- / -	- / -	0 / 0.000	12 / 0.960
FY 2020	- / -	- / -	- / -	- / -	- / -	- / -	6 / 0.480	- / -	- / -	- / -	0 / 0.000	6 / 0.480
FY 2021	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2022	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2023	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2024	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -

UNCLASSIFIED

Exhibit P-3a, Individual Modification: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 6	P-1 Line Item Number / Title: 0670 / Other Navigation Equipment	Modification Number / Title: 10 / GW062: AN/WSN-7 MODERNIZATION

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

Modification Item 3 of 4: SUBMARINE FIELD CHANGES

Installation Information

Method of Implementation: AIT:: Installation Name: SUBMARINE AN/WSN-7 FIELD CHANGE 24

Installation Cost	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)
To Complete	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
Total	- / -	- / -	3 / 0.240	12 / 0.960	0 / 0.000	12 / 0.960	6 / 0.480	- / -	- / -	- / -	0 / 0.000	21 / 1.680

Installation Schedule

	PYS	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				TC	Tot
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4		
In	-	-	-	-	-	3	-	-	-	12	-	-	-	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	21
Out	-	-	-	-	-	3	-	-	-	12	-	-	-	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	21

Method of Implementation: AIT:: Installation Name: SUBMARINE AN/WSN-7 FIELD CHANGE 26

Installation Cost	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)
Prior Years	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2018	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2019	- / -	- / -	- / -	2 / 0.160	0 / 0.000	2 / 0.160	- / -	- / -	- / -	- / -	0 / 0.000	2 / 0.160
FY 2020	- / -	- / -	- / -	- / -	- / -	- / -	2 / 0.160	- / -	- / -	- / -	0 / 0.000	2 / 0.160
FY 2021	- / -	- / -	- / -	- / -	- / -	- / -	- / -	12 / 0.960	- / -	- / -	0 / 0.000	12 / 0.960
FY 2022	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	5 / 0.400	- / -	0 / 0.000	5 / 0.400
FY 2023	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2024	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
To Complete	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
Total	- / -	- / -	- / -	2 / 0.160	0 / 0.000	2 / 0.160	2 / 0.160	12 / 0.960	5 / 0.400	- / -	0 / 0.000	21 / 1.680

UNCLASSIFIED

Exhibit P-3a, Individual Modification: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 6	P-1 Line Item Number / Title: 0670 / Other Navigation Equipment	Modification Number / Title: 10 / GW062: AN/WSN-7 MODERNIZATION

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

Modification Item 3 of 4: SUBMARINE FIELD CHANGES

Installation Information

Method of Implementation: AIT:: Installation Name: SUBMARINE AN/WSN-7 FIELD CHANGE 26

Installation Schedule

	PYS	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				TC	Tot
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4		
In	-	-	-	-	-	-	-	-	-	2	-	-	-	2	-	-	-	12	-	-	-	5	-	-	-	-	-	-	-	-	21
Out	-	-	-	-	-	-	-	-	-	2	-	-	-	2	-	-	-	12	-	-	-	5	-	-	-	-	-	-	-	-	21

Method of Implementation: AIT:: Installation Name: SUBMARINE AN/WSN-7 FIELD CHANGE 28

Installation Cost	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)
Prior Years	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2018	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2019	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2020	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2021	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2022	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	6 / 0.480	- / -	0 / 0.000	6 / 0.480
FY 2023	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2024	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
To Complete	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	Continuing	Continuing
Total	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	6 / 0.480	- / -	Continuing	Continuing

Installation Schedule

	PYS	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				TC	Tot
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4		
In	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6	-	-	-	-	-	-	-	Cont.	Cont.	
Out	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6	-	-	-	-	-	-	-	Cont.	Cont.	

UNCLASSIFIED

Exhibit P-3a, Individual Modification: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 6	P-1 Line Item Number / Title: 0670 / Other Navigation Equipment	Modification Number / Title: 10 / GW062: AN/WSN-7 MODERNIZATION

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

Modification Item 3 of 4: SUBMARINE FIELD CHANGES

Installation Information

Method of Implementation: AIT:: Installation Name: SUBMARINE AN/WSN-7 ECI (TI-16/APB-17)

Installation Cost	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)
Prior Years	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2018	- / -	2 / 0.000	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	2 / -
FY 2019	- / -	- / -	6 / 0.000	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	6 / -
FY 2020	- / -	- / -	- / -	2 / 0.000	0 / 0.000	2 / 0.000	- / -	- / -	- / -	- / -	0 / 0.000	2 / -
FY 2021	- / -	- / -	- / -	- / -	- / -	- / -	2 / 0.000	- / -	- / -	- / -	0 / 0.000	2 / -
FY 2022	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2023	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2024	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
To Complete	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
Total	- / -	2 / 0.000	6 / 0.000	2 / 0.000	0 / 0.000	2 / 0.000	2 / 0.000	- / -	- / -	- / -	0 / 0.000	12 / -

Installation Schedule

	PYS	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				TC	Tot
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4		
In	-	-	-	-	2	-	-	-	6	-	-	-	2	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	12
Out	-	-	-	-	2	-	-	-	6	-	-	-	2	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	12

Method of Implementation: AIT:: Installation Name: SUBMARINE AN/WSN-7 ECI (TI-18/APB-19)

Installation Cost	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)
Prior Years	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2018	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2019	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2020	- / -	- / -	- / -	2 / 0.000	0 / 0.000	2 / 0.000	- / -	- / -	- / -	- / -	0 / 0.000	2 / -
FY 2021	- / -	- / -	- / -	- / -	- / -	- / -	8 / 0.000	- / -	- / -	- / -	0 / 0.000	8 / -
FY 2022	- / -	- / -	- / -	- / -	- / -	- / -	- / -	6 / 0.000	- / -	- / -	0 / 0.000	6 / -
FY 2023	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	1 / 0.000	- / -	0 / 0.000	1 / -
FY 2024	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	1 / 0.000	0 / 0.000	1 / -

UNCLASSIFIED

Exhibit P-3a, Individual Modification: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 6	P-1 Line Item Number / Title: 0670 / Other Navigation Equipment	Modification Number / Title: 10 / GW062: AN/WSN-7 MODERNIZATION

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

Modification Item 3 of 4: SUBMARINE FIELD CHANGES

Installation Information

Method of Implementation: AIT:: Installation Name: SUBMARINE AN/WSN-7 ECI (TI-18/APB-19)

Installation Cost	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)
To Complete	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	Continuing	Continuing
Total	- / -	- / -	- / -	2 / 0.000	0 / 0.000	2 / 0.000	8 / 0.000	6 / 0.000	1 / 0.000	1 / 0.000	Continuing	Continuing

Installation Schedule

	PYS	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				TC	Tot
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4		
In	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-	8	-	-	-	6	-	-	-	1	-	-	-	1	Cont.	Cont.
Out	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-	8	-	-	-	6	-	-	-	1	-	-	-	1	Cont.	Cont.

Method of Implementation: AIT:: Installation Name: SUBMARINE AN/WSN-7 ECI (TI-20/APB-21)

Installation Cost	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)
Prior Years	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2018	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2019	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2020	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2021	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2022	- / -	- / -	- / -	- / -	- / -	- / -	- / -	4 / 0.000	- / -	- / -	0 / 0.000	4 / -
FY 2023	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	2 / 0.000	- / -	0 / 0.000	2 / -
FY 2024	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	2 / 0.000	0 / 0.000	2 / -
To Complete	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	Continuing	Continuing
Total	- / -	- / -	- / -	- / -	- / -	- / -	- / -	4 / 0.000	2 / 0.000	2 / 0.000	Continuing	Continuing

UNCLASSIFIED

Exhibit P-3a, Individual Modification: PB 2020 Navy																							Date: March 2019								
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 6											P-1 Line Item Number / Title: 0670 / Other Navigation Equipment											Modification Number / Title: 10 / GW062: AN/WSN-7 MODERNIZATION									
ID Code (A=Service Ready, B=Not Service Ready) :																	MDAP/MAIS Code:														
Modification Item 3 of 4: SUBMARINE FIELD CHANGES																															
Installation Information																															
Method of Implementation: AIT:: Installation Name: SUBMARINE AN/WSN-7 ECI (TI-20/APB-21)																															
Installation Schedule																															
	PYS	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				TC	Tot
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4		
In	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4	-	-	-	2	-	-	-	2	Cont.	Cont.
Out	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4	-	-	-	2	-	-	-	2	Cont.	Cont.
Method of Implementation: AIT:: Installation Name: SUBMARINE AN/WSN-7 TRID TBD (TI-22)																															
Installation Cost		Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total																		
		Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)																		
Prior Years		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -																		
FY 2018		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -																		
FY 2019		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -																		
FY 2020		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -																		
FY 2021		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -																		
FY 2022		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	3 / 0.240	- / -	0 / 0.000	3 / 0.240																	
FY 2023		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	7 / 0.572	0 / 0.000	7 / 0.572																		
FY 2024		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	Continuing	Continuing																		
To Complete		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	Continuing	Continuing																		
Total		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	3 / 0.240	7 / 0.572	Continuing	Continuing																	
Installation Schedule																															
	PYS	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				TC	Tot
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4		
In	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	-	-	-	7	-	-	-	Cont.	Cont.	
Out	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	-	-	-	7	-	-	-	Cont.	Cont.	

UNCLASSIFIED

Exhibit P-3a, Individual Modification: PB 2020 Navy								Date: March 2019				
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 6				P-1 Line Item Number / Title: 0670 / Other Navigation Equipment				Modification Number / Title: 10 / GW062: AN/WSN-7 MODERNIZATION				
ID Code (A=Service Ready, B=Not Service Ready) :						MDAP/MAIS Code:						
Modification Item 4 of 4: CARRIER FIELD CHANGES												
Manufacturer Information												
Manufacturer Name: NORTHROP GRUMMAN SYSTEMS CORP. (Carrier WSN-7 CDU Tech Ref)						Manufacturer Location: CHARLOTTESVILLE, VA						
Administrative Leadtime (in Months): 3						Production Leadtime (in Months): 6						
Dates	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024					
Contract Dates	Mar 2018											
Delivery Dates	Sep 2018											
Manufacturer Name: NORTHROP GRUMMAN SYSTEMS CORP. (Carrier WSN-7 FC22)						Manufacturer Location: CHARLOTTESVILLE, VA						
Administrative Leadtime (in Months): 3						Production Leadtime (in Months): 6						
Dates	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024					
Contract Dates		Dec 2018	Dec 2019	Dec 2020								
Delivery Dates		Jun 2019	Jun 2020	Jun 2021								
Installation Information												
Method of Implementation: AIT:: Installation Name: CARRIER AN/WSN-7 FIELD CHANGE 22												
Installation Cost	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)
Prior Years	1 / 0.075	2 / 0.150	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	3 / 0.225
FY 2018	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2019	- / -	- / -	2 / 0.150	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	2 / 0.150
FY 2020	- / -	- / -	- / -	5 / 0.375	0 / 0.000	5 / 0.375	- / -	- / -	- / -	- / -	0 / 0.000	5 / 0.375
FY 2021	- / -	- / -	- / -	- / -	- / -	- / -	1 / 0.075	- / -	- / -	- / -	0 / 0.000	1 / 0.075
FY 2022	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2023	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2024	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
To Complete	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
Total	1 / 0.075	2 / 0.150	2 / 0.150	5 / 0.375	0 / 0.000	5 / 0.375	1 / 0.075	- / -	- / -	- / -	0 / 0.000	11 / 0.825

UNCLASSIFIED

Exhibit P-3a, Individual Modification: PB 2020 Navy																							Date: March 2019								
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 6										P-1 Line Item Number / Title: 0670 / Other Navigation Equipment										Modification Number / Title: 10 / GW062: AN/WSN-7 MODERNIZATION											
ID Code (A=Service Ready, B=Not Service Ready) :															MDAP/MAIS Code:																
Modification Item 4 of 4: CARRIER FIELD CHANGES																															
Installation Information																															
Method of Implementation: AIT:: Installation Name: CARRIER AN/WSN-7 FIELD CHANGE 22																															
Installation Schedule																															
	PYS	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				TC	Tot
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4		
In	1	-	-	-	2	-	-	-	2	-	-	-	5	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	11
Out	1	-	-	-	2	-	-	-	2	-	-	-	5	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	11
Method of Implementation: AIT:: Installation Name: CARRIER AN/WSN-7 CDU TECH REFRESH																															
Installation Cost		Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total																		
		<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>																	
Prior Years		1 / 0.050	3 / 0.150	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	4 / 0.200																		
FY 2018		- / -	- / -	3 / 0.150	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	3 / 0.150																		
FY 2019		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -																		
FY 2020		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -																		
FY 2021		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -																		
FY 2022		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -																		
FY 2023		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -																		
FY 2024		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -																		
To Complete		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -																		
Total		1 / 0.050	3 / 0.150	3 / 0.150	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	7 / 0.350																		
Installation Schedule																															
	PYS	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				TC	Tot
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4		
In	1	-	-	-	3	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7
Out	1	-	-	-	3	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7
Footnotes:																															
⁽³²⁾ AMPHIB AN/WSN-7 CDU TECH REFRESH: Prior year systems procured and funded under P40A Cost Element GW029.																															
⁽³³⁾ 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-3a, Individual Modification: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 6	P-1 Line Item Number / Title: 0670 / Other Navigation Equipment	Modification Number / Title: 10 / GW062: AN/WSN-7 MODERNIZATION
ID Code (A=Service Ready, B=Not Service Ready) :		MDAP/MAIS Code:
(34) SURFACE AN/WSN-7 CDU TECH REFRESH: Systems procured in prior years as Economic Ordering Quantities and to maintain shipboard configuration for installation through FY19. (35) SUBMARINE ECI 14-006-VA: Installation costs included in procurement costs. (36) SUBMARINE ECI (TI-10/12/14): Installation costs included in procurement costs. (37) 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. (38) SUBMARINE AN/WSN-7 ECI (TI-16/APB-17): Installation costs included in procurement costs. (39) SUBMARINE AN/WSN-7 ECI (TI-18/APB-19): Installation costs included in procurement costs. (40) SUBMARINE AN/WSN-7 ECI (TI-20/APB-21): Installation costs included in procurement costs. (41) 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.		

UNCLASSIFIED

Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019		
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 6					P-1 Line Item Number / Title: 0670 / Other Navigation Equipment					Modification Number / Title: 11 / GW067: DIGITAL DEPTH DETECTOR		
ID Code (A=Service Ready, B=Not Service Ready) :							MDAP/MAIS Code:					
Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity (Units in Each)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost (\$ in Millions)	0.775	1.013	0.913	0.775	0.000	0.775	0.813	0.238	0.000	0.000	0.000	4.527
Less PY Advance Procurement (\$ in Millions)	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (\$ in Millions)	0.775	1.013	0.913	0.775	0.000	0.775	0.813	0.238	0.000	0.000	0.000	4.527
Plus CY Advance Procurement (\$ in Millions)	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority (\$ in Millions)	0.775	1.013	0.913	0.775	0.000	0.775	0.813	0.238	0.000	0.000	0.000	4.527
(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 procurement and installation of Digital Depth Detector to replace legacy depth detectors on submarine platforms.												

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Exhibit P-3a, Individual Modification: PB 2020 Navy								Date: March 2019					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 6				P-1 Line Item Number / Title: 0670 / Other Navigation Equipment				Modification Number / Title: 11 / GW067: DIGITAL DEPTH DETECTOR					
ID Code (A=Service Ready, B=Not Service Ready) :								MDAP/MAIS Code:					
Models of Systems Affected: GW067: DIGITAL DEPTH DETECTOR				Modification Type: DIGITAL DEPTH DETECTOR				Related RDT&E PEs:					
Financial Plan	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total	
	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	
Procurement													
<i>Modification Item 1 of 1:</i> GW067: DIGITAL DEPTH DETECTOR													
B Kits													
Recurring													
1.1.1) SUBMARINE DIGITAL DEPTH DETECTOR PROCUREMENT - NonOrganic ⁽⁴²⁾	5 / 0.300	3 / 0.300	2 / 0.200	3 / 0.300	- / -	3 / 0.300	1 / 0.100	- / -	- / -	- / -	- / -	14 / 1.200	
<i>Subtotal: Recurring</i>	- / 0.300	- / 0.300	- / 0.200	- / 0.300	- / -	- / 0.300	- / 0.100	- / -	- / -	- / -	- / 0.000	- / 1.200	
<i>Subtotal: GW067: DIGITAL DEPTH DETECTOR</i>	5 / 0.300	3 / 0.300	2 / 0.200	3 / 0.300	- / -	3 / 0.300	1 / 0.100	- / -	- / -	- / -	- / -	14 / 1.200	
<i>Subtotal: Procurement, All Modification Items</i>	- / 0.300	- / 0.300	- / 0.200	- / 0.300	- / -	- / 0.300	- / 0.100	- / -	- / -	- / -	- / 0.000	- / 1.200	
Installation													
<i>Modification Item 1 of 1:</i> GW067: DIGITAL DEPTH DETECTOR	- / 0.475	- / 0.713	- / 0.713	- / 0.475	- / 0.000	- / 0.475	- / 0.713	- / 0.238	- / 0.000	- / 0.000	- / 0.000	- / 3.327	
<i>Subtotal: Installation</i>	- / 0.475	- / 0.713	- / 0.713	- / 0.475	- / -	- / 0.475	- / 0.713	- / 0.238	- / -	- / -	- / 0.000	- / 3.327	
Total													
Total Cost (Procurement + Support + Installation)	0.775	1.013	0.913	0.775	0.000	0.775	0.813	0.238	0.000	0.000	0.000	4.527	

UNCLASSIFIED

Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019																					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 6										P-1 Line Item Number / Title: 0670 / Other Navigation Equipment										Modification Number / Title: 11 / GW067: DIGITAL DEPTH DETECTOR											
ID Code (A=Service Ready, B=Not Service Ready) :															MDAP/MAIS Code:																
Modification Item 1 of 1: GW067: DIGITAL DEPTH DETECTOR																															
Manufacturer Information																															
Manufacturer Name: WR Systems (Sub DDD)															Manufacturer Location: Norfolk, VA																
Administrative Leadtime (<i>in Months</i>): 3															Production Leadtime (<i>in Months</i>): 6																
Dates		FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024					
Contract Dates		Mar 2018				Mar 2019				Mar 2020				Mar 2021																	
Delivery Dates		Sep 2018				Sep 2019				Sep 2020				Sep 2021																	
Installation Information																															
Method of Implementation: AIT:: Installation Name: SUBMARINE DIGITAL DEPTH DETECTOR PROCUREMENT																															
Installation Cost		Prior Years		FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total		FY 2021		FY 2022		FY 2023		FY 2024		To Complete		Total							
		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)							
Prior Years		2 / 0.475		3 / 0.713		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.000		5 / 1.188					
FY 2018		- / -		- / -		3 / 0.713		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.000		3 / 0.713					
FY 2019		- / -		- / -		- / -		2 / 0.475		0 / 0.000		2 / 0.475		- / -		- / -		- / -		- / -		- / -		0 / 0.000		2 / 0.475					
FY 2020		- / -		- / -		- / -		- / -		- / -		- / -		3 / 0.713		- / -		- / -		- / -		- / -		0 / 0.000		3 / 0.713					
FY 2021		- / -		- / -		- / -		- / -		- / -		- / -		- / -		1 / 0.238		- / -		- / -		- / -		0 / 0.000		1 / 0.238					
FY 2022		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
FY 2023		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
FY 2024		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
To Complete		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
Total		2 / 0.475		3 / 0.713		3 / 0.713		2 / 0.475		0 / 0.000		2 / 0.475		3 / 0.713		1 / 0.238		- / -		- / -		- / -		0 / 0.000		14 / 3.327					
Installation Schedule																															
	PYS	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				TC	Tot
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4		
In	2	3	-	-	-	3	-	-	-	2	-	-	-	3	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-
Out	2	3	-	-	-	3	-	-	-	2	-	-	-	3	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-
Footnotes: ⁽⁴²⁾ SUBMARINE DIGITAL DEPTH DETECTOR: Prior year systems procured and funded under P40A Cost Element GW013.																															

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Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019		
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 6				P-1 Line Item Number / Title: 0670 / Other Navigation Equipment						Modification Number / Title: 12 / GW069: BOUNDARY DEFENSE CABINET		
ID Code (A=Service Ready, B=Not Service Ready) :							MDAP/MAIS Code:					
Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity (<i>Units in Each</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost (<i>\$ in Millions</i>)	0.000	0.000	0.000	8.626	0.000	8.626	12.569	6.410	6.538	0.000	Continuing	Continuing
Less PY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (<i>\$ in Millions</i>)	0.000	0.000	0.000	8.626	0.000	8.626	12.569	6.410	6.538	0.000	Continuing	Continuing
Plus CY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority (<i>\$ in Millions</i>)	0.000	0.000	0.000	8.626	0.000	8.626	12.569	6.410	6.538	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>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost (<i>\$ in Dollars</i>)	-	-	-	-	-	-	-	-	-	-	-	-

Description:
These funds are required for the procurement and installation of Boundary Defense Cabinets on surface platforms for cyber protection.

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Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019			
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 6					P-1 Line Item Number / Title: 0670 / Other Navigation Equipment					Modification Number / Title: 12 / GW069: BOUNDARY DEFENSE CABINET			
ID Code (A=Service Ready, B=Not Service Ready) :							MDAP/MAIS Code:						
Models of Systems Affected: GW069: BOUNDARY DEFENSE CABINET					Modification Type: BOUNDARY DEFENSE CABINET					Related RDT&E PEs: 0204228N			
Financial Plan	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total	
	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	
Procurement													
<i>Modification Item 1 of 1:</i> GW069: BOUNDARY DEFENSE CABINET													
B Kits													
Recurring													
1.1.1) SURFACE BOUNDARY DEFENSE CABINET - NonOrganic	- / -	- / -	- / -	7 / 4.177	- / -	7 / 4.177	10 / 6.087	5 / 3.104	5 / 3.166	- / -	Continuing	Continuing	
<i>Subtotal: Recurring</i>	- / 0.000	- / -	- / -	- / 4.177	- / -	- / 4.177	- / 6.087	- / 3.104	- / 3.166	- / -	Continuing	Continuing	
<i>Subtotal: GW069: BOUNDARY DEFENSE CABINET</i>	- / -	- / -	- / -	7 / 4.177	- / -	7 / 4.177	10 / 6.087	5 / 3.104	5 / 3.166	- / -	Continuing	Continuing	
<i>Subtotal: Procurement, All Modification Items</i>	- / 0.000	- / -	- / -	- / 4.177	- / -	- / 4.177	- / 6.087	- / 3.104	- / 3.166	- / -	Continuing	Continuing	
Installation													
<i>Modification Item 1 of 1:</i> GW069: BOUNDARY DEFENSE CABINET	- / 0.000	- / 0.000	- / 0.000	- / 4.449	- / 0.000	- / 4.449	- / 6.482	- / 3.306	- / 3.372	- / 0.000	Continuing	Continuing	
<i>Subtotal: Installation</i>	- / 0.000	- / -	- / -	- / 4.449	- / -	- / 4.449	- / 6.482	- / 3.306	- / 3.372	- / -	Continuing	Continuing	
Total													
Total Cost (Procurement + Support + Installation)	0.000	0.000	0.000	8.626	0.000	8.626	12.569	6.410	6.538	0.000	Continuing	Continuing	

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Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019																					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 6										P-1 Line Item Number / Title: 0670 / Other Navigation Equipment										Modification Number / Title: 12 / GW069: BOUNDARY DEFENSE CABINET											
ID Code (A=Service Ready, B=Not Service Ready) :															MDAP/MAIS Code:																
Modification Item 1 of 1: GW069: BOUNDARY DEFENSE CABINET																															
Manufacturer Information																															
Manufacturer Name: TBD (Boundary Defense Cabinet)															Manufacturer Location: TBD																
Administrative Leadtime (<i>in Months</i>): 3															Production Leadtime (<i>in Months</i>): 7																
Dates		FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024					
Contract Dates										Dec 2019				Dec 2020				Dec 2021				Dec 2022									
Delivery Dates										Jul 2020				Jul 2021				Jul 2022				Jul 2023									
Installation Information																															
Method of Implementation: AIT:: Installation Name: SURFACE BOUNDARY DEFENSE CABINET																															
Installation Cost		Prior Years		FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total		FY 2021		FY 2022		FY 2023		FY 2024		To Complete		Total							
		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)							
Prior Years		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
FY 2018		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
FY 2019		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
FY 2020		- / -		- / -		- / -		7 / 4.449		0 / 0.000		7 / 4.449		- / -		- / -		- / -		- / -		- / -		0 / 0.000		7 / 4.449					
FY 2021		- / -		- / -		- / -		- / -		- / -		- / -		10 / 6.482		- / -		- / -		- / -		- / -		0 / 0.000		10 / 6.482					
FY 2022		- / -		- / -		- / -		- / -		- / -		- / -		- / -		5 / 3.306		- / -		- / -		- / -		0 / 0.000		5 / 3.306					
FY 2023		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		5 / 3.372		- / -		- / -		0 / 0.000		5 / 3.372					
FY 2024		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
To Complete		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		Continuing		Continuing					
Total		- / -		- / -		- / -		7 / 4.449		0 / 0.000		7 / 4.449		10 / 6.482		5 / 3.306		5 / 3.372		- / -		- / -		Continuing		Continuing					
Installation Schedule																															
	PYS	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				TC	Tot
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4		
In	-	-	-	-	-	-	-	-	-	-	-	-	7	-	-	-	10	-	-	-	5	-	-	-	5	-	-	-	-	Cont.	Cont.
Out	-	-	-	-	-	-	-	-	-	-	-	-	7	-	-	-	10	-	-	-	5	-	-	-	5	-	-	-	-	Cont.	Cont.

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Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019		
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 6				P-1 Line Item Number / Title: 0670 / Other Navigation Equipment						Modification Number / Title: 13 / GW070: MILITARY GLOBAL POSITIONING SYSTEM (GPS) USER EQUIPMENT (MGUE)		
ID Code (A=Service Ready, B=Not Service Ready) :							MDAP/MAIS Code:					
Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity (<i>Units in Each</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost (<i>\$ in Millions</i>)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	2.000	2.040	Continuing	Continuing
Less PY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (<i>\$ in Millions</i>)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	2.000	2.040	Continuing	Continuing
Plus CY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority (<i>\$ in Millions</i>)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	2.000	2.040	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>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost (<i>\$ in Dollars</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Description: These funds are required for the procurement and installation of Military GPS User Equipment on submarine platforms.												

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Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019			
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 6					P-1 Line Item Number / Title: 0670 / Other Navigation Equipment					Modification Number / Title: 13 / GW070: MILITARY GLOBAL POSITIONING SYSTEM (GPS) USER EQUIPMENT (MGUE)			
ID Code (A=Service Ready, B=Not Service Ready) :							MDAP/MAIS Code:						
Models of Systems Affected: GW070: MILITARY GPS USER EQUIPMENT					Modification Type: MILITARY GPS USER EQUIPMENT					Related RDT&E PEs: 0204228N			
Financial Plan	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total	
	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	
Procurement													
Modification Item 1 of 1: GW070: MILITARY GLOBAL POSITIONING SYSTEM (GPS) USER EQUIPMENT (MGUE)													
B Kits													
Recurring													
1.1.1) SUBMARINE MGUE - NonOrganic													
	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	6 / 2.000	6 / 2.040	- / -	12 / 4.040	
Subtotal: Recurring													
	- / 0.000	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / 2.000	- / 2.040	- / 0.000	- / 4.040	
Subtotal: GW070: MILITARY GLOBAL POSITIONING SYSTEM (GPS) USER EQUIPMENT (MGUE)													
	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	6 / 2.000	6 / 2.040	- / -	12 / 4.040	
Subtotal: Procurement, All Modification Items													
	- / 0.000	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / 2.000	- / 2.040	- / 0.000	- / 4.040	
Installation													
Modification Item 1 of 1: GW070: MILITARY GLOBAL POSITIONING SYSTEM (GPS) USER EQUIPMENT (MGUE)													
	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	Continuing	Continuing	
Subtotal: Installation													
	- / 0.000	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	Continuing	Continuing	
Total													
Total Cost (Procurement + Support + Installation)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	2.000	2.040	Continuing	Continuing	

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Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019																					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 6										P-1 Line Item Number / Title: 0670 / Other Navigation Equipment										Modification Number / Title: 13 / GW070: MILITARY GLOBAL POSITIONING SYSTEM (GPS) USER EQUIPMENT (MGUE)											
ID Code (A=Service Ready, B=Not Service Ready) :															MDAP/MAIS Code:																
Modification Item 1 of 1: GW070: MILITARY GLOBAL POSITIONING SYSTEM (GPS) USER EQUIPMENT (MGUE)																															
Manufacturer Information																															
Manufacturer Name: TBD (Sub MGUE)															Manufacturer Location: TBD																
Administrative Leadtime (<i>in Months</i>): 3															Production Leadtime (<i>in Months</i>): 6																
Dates		FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024					
Contract Dates																						Jan 2023				Jan 2024					
Delivery Dates																						Jul 2023				Jul 2024					
Installation Information																															
Method of Implementation: AIT:: Installation Name: SUBMARINE MGUE																															
Installation Cost		Prior Years		FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total		FY 2021		FY 2022		FY 2023		FY 2024		To Complete		Total							
		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>)		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 2018		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
FY 2019		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
FY 2020		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
FY 2021		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
FY 2022		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
FY 2023		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		6 / 0.000		0 / 0.000		6 / -					
FY 2024		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		Continuing		Continuing					
To Complete		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
Total		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		6 / 0.000		Continuing		Continuing					
Installation Schedule																															
	PYS	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				TC	Tot
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4		
In	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6	6	12
Out	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6	6	12

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Exhibit P-40, Budget Line Item Justification: PB 2020 Navy										Date: March 2019		
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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity (<i>Units in Each</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost (<i>\$ in Millions</i>)	148.933	172.740	176.621	160.803	0.000	160.803	210.461	280.369	289.212	290.378	Continuing	Continuing
Less PY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (<i>\$ in Millions</i>)	148.933	172.740	176.621	160.803	0.000	160.803	210.461	280.369	289.212	290.378	Continuing	Continuing
Plus CY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority (<i>\$ in Millions</i>)	148.933	172.740	176.621	160.803	0.000	160.803	210.461	280.369	289.212	290.378	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>)	-	11.313	7.138	22.091	-	22.091	7.700	17.943	25.012	2.813	Continuing	Continuing
Flyaway Unit Cost (<i>\$ in Dollars</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost (<i>\$ in Dollars</i>)	-	-	-	-	-	-	-	-	-	-	-	-

Description:

The Submarine Periscope, Imaging, and Support Equipment program provides critical electromagnetic systems to all classes of submarine platforms. Systems include Imaging, Electronic Warfare (EW), and RADAR systems which provide navigation safety and collision avoidance, particularly in high intensity littoral operations so that surveillance and weapons systems can be effectively employed.

FY20 shifts EW to the Submarine Warfare Federated Tactical System (SWFTS) model consistent with other SWFTS subsystems (SSN Acoustic Equipment, SSN Combat Control Systems, and Imaging Systems). As a result, ML012 is a new cost code that provides greater visibility into planned procurement costs in alignment with SWFTS and differentiates the cost of the digital upgrades planned for TI-20 and beyond. Additionally, ML009 is established to procure the Electronic Warfare Tactical TEMPALT (EWTT) which fills the gap in Communications Acquisition and Direction Finding (CADF) capability in VA BLK IV in order to meet the EW Capability Development Document (CDD) requirements. A gap was created when the CADF production line closed at the end of VA BLK III production and the subsequent cancellation of TI-16/18 NGA contracts, which would have replaced ICADF.

The Submarine Periscopes and Imaging Equipment Program procures the Type 18 and Type 8 periscope upgrades; the Photonics Mast and its variants, including the Low Profile Photonics Mast (LPPM), Type 20 (previously named TOTIM), and Type 24 Mast; the Integrated Submarine Imaging System (ISIS); imaging upgrades for all submarine classes; and Photonics and LPPM land-based spares. 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, with an update to the CDD approved on 15 Mar 2018. The CDD is used to fully integrate the ISIS program of record into the submarine force's rapid technology insertion 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. Technology Insertion initiatives include 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, incorporation of LPPM, Type 20 Mast, Type 24 Mast, future sensors, and a fully SWFTS integrated system. 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.

PL010 - Imaging ISIS Technical Insertion

Continues procurement of Technical Insertion kits, Design Services Allocation (DSA) installation support, and spares to upgrade ISIS systems on LOS ANGELES, SEAWOLF, VIRGINIA and OHIO Class SSGN/SSBN platforms to allow for Capability Insertion and obsolescence avoidance. Starting with TI-16, funding includes the one time change for improved copper-fiber optic diploops and hull penetrators (Mast Compatibility) required to support advanced Imaging and Early Warning capabilities included in LPPM, Type 20, and Type 24 Masts.

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Exhibit P-40, Budget Line Item Justification: PB 2020 Navy		Date: March 2019
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 Upgrades: Type 8/Type 18 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 based on Fleet-endorsed requirements. PL012 - Periscope Special Support Equipment Procures replacements in support of Special Support Equipment (SSE) for each maintenance level to ensure imaging 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 - Periscope Interim Contractor Support Funding is for Interim Contract Support provided by the periscope manufacturer. The majority of the funding is for Type 18 service life extension, depot repair and upgrades for all configurations of Photonics Masts including LPPM and Type 20 masts. It also funds all levels of repairs for all types of tactical submarine imaging systems. PL016 - Periscope Training 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 - Low Profile Mast Funding is for the procurement, support and technical insertion of VIRGINIA Class low profile imaging masts (including LPPM, Type 20 Mast (previously named TOTIM), and Type 24) production modules 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 - Periscope Production Engineering 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. PL927 - Fleet Modernization Program Installs Funding is for the installation of Fleet Modernization Program Equipment. PL4M7 - Non-Fleet Modernization Program Installs Funding is for the installation of non-Fleet Modernization Program Equipment. The Submarine Support Equipment Program (SSEP) procures submarine Electronic Warfare (EW) systems: AN/BLQ-10, Submarine Launched Device (SLD), Multifunction Modular Masts (MMM), MMM Payloads, Communications Acquisition and Direction-Finding (CADF) systems, Electronic Warfare Tactical TEMPALT (EWTT), Field Change Kits, PATRIOT and BPS 15/16/17 RADARs. The SSEP also supports all ILS, production engineering, Cyber, sustainment, and installation requirements for EW systems. The Submarine EW Capability Development Document (CDD) 907-97-16 was approved on 27 September 2016 and provides all requirements for Submarine EW systems. FY20 introduces two new cost codes to SSEP funding. ML009 has been created to support funding required to procure and maintain the Fleet directed EWTT. ML012 provides funding for the AN/BLQ-10B, which is the advanced submarine system that achieves EW superiority through hardware and software updates to pace the threat and brings EW fully onto the SWFTS model. The Technical Insertion/Advanced Processing Build (TI/APB) SWFTS model modernizes and sustains approximately 8-12 SSNs/SSGNs per year through executing bi-annual software APBs and bi-annual hardware TIs. SWFTS related annual funding varies based on the number of modernizations funded. Both the EWTT and the AN/BLQ-10B are required to meet the Submarine EW CDD and are new systems not previously procured under existing cost codes. Procurement of the initial AN/BLQ-10 systems as replacement for WLR-8 on LOS ANGELES, SEAWOLF, VIRGINIA and SSGN Class submarines is complete and as a result ML015 is discontinued. Procurement of the EWTT fills the gap in CADF capability in VA BLK IV to meet the EW CDD requirements. A gap was created when the CADF production line closed at the end of VA BLK III production and the subsequent cancellation of TI-16/18 NGA contracts, which would have replaced ICADF.		

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Exhibit P-40, Budget Line Item Justification: PB 2020 Navy		Date: March 2019
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		
ML003 - SSEP Special Support Equipment 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 - CADF Procures the Communications Acquisition and Direction Finding (CADF) systems for installation on LOS ANGELES, SEAWOLF and VIRGINIA Class submarines. A gap was created when the CADF production line closed at the end of VA BLK III production and the subsequent cancellation of TI-16/18 NGA contracts which would have replaced ICADF. ML008 - MMM Procures the Multi-Function Modular Mast (MMM) Antenna and subsystems for installation on LOS ANGELES, SEAWOLF, and VIRGINIA Class submarines. The MMM provides the sensor to conduct direction finding in the communications radio frequency bands as well as a volume for payload integration. ML009 - EWTT Procures and refurbishes the Electronic Warfare Tactical TEMPALT (EWTT) filling the gap in CADF capability on VA Class BLK IV submarines necessary to meet EW CDD requirements. A gap was created when the CADF production line closed at the end of VA BLK III production and the subsequent cancellation of TI-16/18 NGA contracts, which would have replaced ICADF. ML010 - EW Technical Insertion Procures Technical Insertions (TI) up through and including TI-18 for installation on LOS ANGELES, SSGN, SEAWOLF, and VIRGINIA Class submarines that provide updates to the AN/BLQ-10A configuration baseline. The final TI-18 installations will end in FY21. Beginning with TI-20, all AN/BLQ-10 costs are captured in ML012 due to the significant changes associated with the AN/BLQ-10B upgrade. ML012 (P-40a) - SWFTS Supportability and Integration Tech Refresh provides for software and hardware updates to accommodate shifts in technology to the execution procurement years "current state-of-the-practice" hardware. Updates are necessary for signal and display processing hardware as software is introduced or as commercial support for the hardware is phased out. When EW systems are being upgraded to subsequent phases, signal processing and display hardware will be upgraded to accommodate common technology consistent with the APB being implemented in the year of introduction. In future years, requirements include additional equipment to prevent COTS hardware from becoming unsupportable/obsolete. Funding will be used to support non-recurring first article test efforts associated with changing COTS environment, as well as, procuring test equipment and simulators. Supports Government Furnished Information (GFI) management and coordination, monitoring of contractor cost, performance and schedule, cost analysis and estimation, contract specification development and monitoring of contract deliverables. Addresses the Cyber requirements associated with procuring, engineering and sustaining EW systems. Also supports EW system training requirements to include curriculum development, training materials, and initial factory training pilot course conduct, Navy Training Plans, instructor advisory services, and hardware/software upgrades for EW trainers. ML012 (P-3a) - AN/BLQ-10B Technical Insertion Procures the AN/BLQ-10B EW system for installation on LOS ANGELES, SEAWOLF, and VIRGINIA Class submarines beginning with TI-20. AN/BLQ-10B achieves EW superiority through hardware and software updates to pace the threat and brings EW fully onto the SWFTS model. Tech insertion procures the hardware necessary to upgrade and back-fit EW systems. This system will be fully aligned with SWFTS with the exception of SSBN Class and provides capabilities required by the EW Capability Development Document (CDD). ML014 - Legacy Submarine Surveillance Measures 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. ML017 - AN/BLQ-10 Field Change Kits Procures AN/BLQ-10 subsystem Product Improvement Field Change Kits including: emergent Engineering Changes, SWFTS associated Integrated Logistics Support (ILS) and technical data. Provides AN/BLQ-10 intermediate level repairs, changes and maintenance activities and associated materials that improve the overall Reliability, Maintainability and Availability of fielded EW systems. Procures sustainment		

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Exhibit P-40, Budget Line Item Justification: PB 2020 Navy		Date: March 2019
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		
efforts for AN/BLQ-10 active, deploying fleet assets. Provides funding for Submarine Launched Device Buoy to reduce risk of counter-detection for operating submarines. Provides funding for procurement of MMM Payload to support submarine Fleet required improved Unmanned Aerial System (UAS) communications and Electronic Attack (EA) capability.		
ML018 - VIRGINIA Class EW Modernization Funds procure EW Modernization upgrades to the VIRGINIA Class AN/BLQ-10 EW system including Photonics ES Product Improvement (PEPI-3), PATRIOT Phase B RADAR.		
ML020 - AN/BLQ-10 Funds procure AN/BLQ-10 Non-Recurring Engineering (NRE) and modernization kits for EW Modernization upgrades on all SSN/SSGN platforms. The AN/BLQ-10 efforts augment the current AN/BLQ-10 system for the rapid fielding of required capabilities to address changing and emerging threats in the Radio Frequency (RF) spectrum. This serves as a building block to future AN/BLQ-10 upgrades. In addition, each procurement aligns with hardware builds supporting platform level SWFTS. Beginning with TI-20, all AN/BLQ-10 costs are captured in ML012 due to the significant changes associated with the AN/BLQ-10B upgrade.		
ML021 - Submarine RADAR Submarine RADAR funds provide AN/BPS-15/16/17 Reliability, Maintainability and Availability (RMA), Field Change Kits and material procurements for obsolescence mitigation. Provides in-service and systems engineering, logistics, material, configuration management, quality assurance, installation and test certification support only for the Submarine Surface Navigation (AN/BPS-15/16/17) RADAR. Provides for interface with the conjoined Voyage Management System (VMS) and Electronic Chart & Display Information System - Navy (ECDIS-N). Funding addresses sustainability of PATRIOT Phase B RADAR including repair/refurbishment, in-service engineering, and modernization.		
ML830 - EW Production Engineering 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 EW Systems and upgrades.		
ML927 - Fleet Modernization Program Installs Provides for the Installation of Equipment including Fleet Modernization Program Installations for shipboard systems.		
ML4M7 - Non-Fleet Modernization Program Installs Provides for the Installation of non-Fleet Modernization Program Equipment.		

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Exhibit P-40, Budget Line Item Justification: PB 2020 Navy							Date: March 2019			
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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Exhibit Type	Title*	Subexhibits	ID CD	MDAP/MAIS Code	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)
P-40a	SUBMARINE PERISCOPES & IMAGING EQUIPMENT				- / 15.553	- / 15.848	- / 15.269	- / 16.502	- / -	- / 16.502
P-40a	SUBMARINE SUPPORT EQUIPMENT PROGRAM				- / 5.338	- / 5.232	- / 13.793	- / 41.757	- / -	- / 41.757
P-3a	1 / PL010 - IMAGING ISIS TECHNICAL INSERTION (SWFTS) (ORDALT)				- / 61.364	- / 56.528	- / 36.985	- / 22.398	- / 0.000	- / 22.398
P-3a	2 / PL011 IMAGING UPGRADES: TYPE 8/TYPE 18 (ORDALT)				- / 0.369	- / 0.376	- / 0.384	- / 0.391	- / 0.000	- / 0.391
P-3a	3 / PL025 LOW PROFILE IMAGING MAST (SHIPALT)				- / 0.000	- / 5.994	- / 18.047	- / 9.175	- / 0.000	- / 9.175
P-3a	4 / ML007 CADF (SHIPALT)				- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000
P-3a	5 / ML008 MMM ANTENNA (SHIPALT)				- / 1.159	- / 0.000	- / 8.852	- / 0.000	- / 0.000	- / 0.000
P-3a	6 / ML009- EWTT (TEMPALT)				- / 0.000	- / 0.000	- / 0.000	- / 10.534	- / 0.000	- / 10.534
P-3a	7 / ML010 TECHNICAL INSERTION (SWFTS) (SHIPALT)				- / 19.230	- / 28.043	- / 28.895	- / 17.942	- / 0.000	- / 17.942
P-3a	8 / ML012 - AN/BLQ-10B TECHNICAL INSERTION (SWFTS) (SHIPALT)				- / 0.000	- / 0.000	- / 0.000	- / 6.042	- / 0.000	- / 6.042
P-3a	9 / ML017 AN/BLQ-10 FIELD CHANGE KITS (ORDALT)				- / 7.404	- / 16.663	- / 23.092	- / 14.933	- / 0.000	- / 14.933
P-3a	10 / ML018 VA CLASS ES MODERNIZATION PATRIOT (SHIPALT)				- / 2.726	- / 2.955	- / 0.360	- / 0.367	- / 0.000	- / 0.367
P-3a	11 / ML020 AN/BLQ-10 (SWFTS) (SHIPALT)				- / 35.790	- / 41.101	- / 30.944	- / 20.762	- / 0.000	- / 20.762
P-40	Total Gross/Weapon System Cost				- / 148.933	- / 172.740	- / 176.621	- / 160.803	- / 0.000	- / 160.803
Exhibits Schedule					FY 2021	FY 2022	FY 2023	FY 2024	To Complete	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				- / -	- / -	- / -	- / -	- / -	- / -
P-40a	SUBMARINE SUPPORT EQUIPMENT PROGRAM				- / -	- / -	- / -	- / -	- / -	- / -
P-3a	1 / PL010 - IMAGING ISIS TECHNICAL INSERTION (SWFTS) (ORDALT)				- / 46.067	- / 42.128	- / 31.443	- / 48.171	Continuing	Continuing
P-3a	2 / PL011 IMAGING UPGRADES: TYPE 8/TYPE 18 (ORDALT)				- / 0.399	- / 0.407	- / 0.416	- / 0.425	Continuing	Continuing
P-3a	3 / PL025 LOW PROFILE IMAGING MAST (SHIPALT)				- / 9.359	- / 38.382	- / 67.172	- / 43.576	Continuing	Continuing
P-3a	4 / ML007 CADF (SHIPALT)				- / 0.000	- / 0.000	- / 0.000	- / 12.450	Continuing	Continuing
P-3a	5 / ML008 MMM ANTENNA (SHIPALT)				- / 2.506	- / 14.091	- / 0.000	- / 3.990	- / 0.000	- / 30.598
P-3a	6 / ML009- EWTT (TEMPALT)				- / 11.500	- / 11.730	- / 11.966	- / 0.804	- / 0.000	- / 46.534
P-3a	7 / ML010 TECHNICAL INSERTION (SWFTS) (SHIPALT)				- / 3.290	- / 0.000	- / 0.000	- / 0.000	- / 0.922	- / 98.322
P-3a	8 / ML012 - AN/BLQ-10B TECHNICAL INSERTION (SWFTS) (SHIPALT)				- / 51.356	- / 85.890	- / 94.017	- / 95.898	- / 24.438	- / 357.641
P-3a	9 / ML017 AN/BLQ-10 FIELD CHANGE KITS (ORDALT)				- / 21.275	- / 22.307	- / 22.753	- / 23.209	Continuing	Continuing
P-3a	10 / ML018 VA CLASS ES MODERNIZATION PATRIOT (SHIPALT)				- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 6.408
P-3a	11 / ML020 AN/BLQ-10 (SWFTS) (SHIPALT)				- / 1.722	- / 0.000	- / 0.000	- / 0.000	- / 0.472	- / 130.791

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Exhibit P-40, Budget Line Item Justification: PB 2020 Navy							Date: March 2019			
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					FY 2021	FY 2022	FY 2023	FY 2024	To Complete	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-40	Total Gross/Weapon System Cost				- / 210.461	- / 280.369	- / 289.212	- / 290.378	Continuing	Continuing
*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: IMAGING - FY 2020 procures TI-16 on (1) VA Class and TI-18 on (5) Los Angeles Class, (2) SSGN Class, and (3) SSBN Class submarines. Budget installs SWFTS modernizations on (6) Los Angeles Class, (2) SSGN Class, and (2) SSBN Class submarines. FY 2020 also reflects a decrease of (2) Type 20 Masts to fund other higher priority Navy requirements. FY 2019 procures TI-18 on (6) Los Angeles Class, (2) SSGN Class, and (2) SSBN Class submarines. Budget installs SWFTS modernizations on (3) VIRGINIA Class, (6) Los Angeles Class, and (1) SEAWOLF Class submarines. FY 2019 also procures (3) LPPM in order to meet PACFLT requirements for all deploying VIRGINIA Class submarines in the Pacific to be equipped with low profile imaging masts. EW - FY 2020 shifts EW to the SWFTS model based on PMS401 and PMS425 with Industry as the Prime Integrator following the offramp of the Next Generation Architecture program. This introduces ML012 as a new cost code to provide greater visibility into planned procurement costs in alignment with SWFTS and differentiates the cost of the digital upgrades planned for TI-20 and beyond. The cost of TI-20 has been updated to reflect the difference between the previous plan of government led procurement and integration to industry as a prime design and integration agent. Accordingly, NRE costs have been broken out from shipset costs in alignment with the other SWFTS subsystems (SSN Acoustic Equipment, SSN Combat Control Systems, and Imaging Systems) who use this model. Additionally, ML009 is established to procure the Electronic Warfare Tactical TEMPALT (EWTT) which fills the gap in Communications Acquisition and Direction Finding (CADF) capability in VA BLK IV necessary to meet Capability Development Document (CDD) requirements. A gap was created when the CADF production line closed at the end of VA BLK III production and the subsequent cancellation of TI-16/18 NGA contracts, which would have replaced ICADF. FY 2019 procures TI-18 on (6) Los Angeles Class and (2) SSGN Class submarines. FY 2019 installs SWFTS modernizations on (3) VIRGINIA Class, (6) Los Angeles Class, and (1) SEAWOLF Class submarines. FY 2019 also procures (2) Multifunction Modular Mast (MMM) antenna improvement subsystems to increase reliability and reduce operational and maintenance costs for VIRGINIA modernizations and increases obligation to address obsolescence issues faced by the BPS RADAR system to ensure reliable safety of ship navigation and PATRIOT RADAR system to maintain tactical awareness in littoral operations. Overall, there were no changes in FY19 from the PB19 position other than a \$1.8M reduction due to Congressional action. FY 2020 reflects a decrease of (2) TI-16 VA Class SWFTS shipsets compared to the PB19 position to fund other higher priority Navy requirements.										

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Exhibit P-40a, Budget Item Justification For Aggregated Items: PB 2020 Navy															Date: March 2019				
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 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 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	-	-	0.568	-	-	0.579	-	-	-	-	-	0.579
Subtotal: 1) PL012 PERISCOPE SPECIAL SUPPORT EQUIPMENT			-	-	0.546	-	-	0.556	-	-	0.568	-	-	0.579	-	-	-	-	-	0.579
2) PL015 PERISCOPE INTERIM CONTRACTOR SUPPORT																				
2.1) INTERIM CONTRACTOR SUPPORT ⁽¹⁾	A		-	-	11.179	-	-	11.392	-	-	10.722	-	-	11.864	-	-	-	-	-	11.864
Subtotal: 2) PL015 PERISCOPE INTERIM CONTRACTOR SUPPORT			-	-	11.179	-	-	11.392	-	-	10.722	-	-	11.864	-	-	-	-	-	11.864
3) PL016 PERISCOPE TRAINING																				
3.1) TRAINING	A		-	-	0.182	-	-	0.185	-	-	0.189	-	-	0.193	-	-	-	-	-	0.193
Subtotal: 3) PL016 PERISCOPE TRAINING			-	-	0.182	-	-	0.185	-	-	0.189	-	-	0.193	-	-	-	-	-	0.193
4) PL830 PERISCOPE PRODUCTION ENGINEERING																				
4.1) PRODUCTION ENGINEERING	A		-	-	3.646	-	-	3.715	-	-	3.790	-	-	3.866	-	-	-	-	-	3.866
Subtotal: 4) PL830 PERISCOPE PRODUCTION ENGINEERING			-	-	3.646	-	-	3.715	-	-	3.790	-	-	3.866	-	-	-	-	-	3.866
Total			-	-	15.553	-	-	15.848	-	-	15.269	-	-	16.502	-	-	-	-	-	16.502

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

Footnotes:

⁽¹⁾ FY19 reduction due to Congressional Action. FY20 and out restored to historical levels.

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Exhibit P-40a, Budget Item Justification For Aggregated Items: PB 2020 Navy																Date: March 2019					
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 SUPPORT EQUIPMENT PROGRAM					
Item Number / Title [DODIC]	ID CD	MDAP/MAIS Code	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 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	-	-	0.342	-	-	0.349	-	-	-	-	-	0.349	
Subtotal: 1) ML003 SSEP SPECIAL SUPPORT EQUIPMENT			-	-	0.329	-	-	0.335	-	-	0.342	-	-	0.349	-	-	-	-	-	0.349	
2) ML012 SWFTS SUPPORTABILITY AND INTEGRATION ⁽²⁾																					
2.1) COTS TECH REFRESH ⁽³⁾	A		-	-	-	-	-	-	-	-	-	-	-	23.479	-	-	-	-	-	23.479	
2.2) CYBER AND TRAINING SUPPORT ⁽⁴⁾	A		-	-	-	-	-	-	-	-	-	-	-	8.737	-	-	-	-	-	8.737	
Subtotal: 2) ML012 SWFTS SUPPORTABILITY AND INTEGRATION			-	-	0.000	-	-	-	-	-	-	-	-	32.216	-	-	-	-	-	32.216	
3) ML014 LEGACY SUBMARINE ELECTRONIC SURVEILLANCE MEASURES (SubESM)																					
3.1) LEGACY SubESM	A		-	-	0.480	-	-	0.400	-	-	0.360	-	-	0.340	-	-	-	-	-	0.340	
Subtotal: 3) ML014 LEGACY SUBMARINE ELECTRONIC SURVEILLANCE MEASURES (SubESM)			-	-	0.480	-	-	0.400	-	-	0.360	-	-	0.340	-	-	-	-	-	0.340	
4) ML021 SUBMARINE RADARs																					
4.1) SUBMARINE RADARs	A		-	-	1.186	-	-	1.090	-	-	9.616	-	-	5.307	-	-	-	-	-	5.307	
Subtotal: 4) ML021 SUBMARINE RADARs			-	-	1.186	-	-	1.090	-	-	9.616	-	-	5.307	-	-	-	-	-	5.307	
5) ML830 PRODUCTION ENGINEERING																					
5.1) PRODUCTION ENGINEERING	A		-	-	3.343	-	-	3.407	-	-	3.475	-	-	3.545	-	-	-	-	-	3.545	
Subtotal: 5) ML830 PRODUCTION ENGINEERING			-	-	3.343	-	-	3.407	-	-	3.475	-	-	3.545	-	-	-	-	-	3.545	
Total			-	-	5.338	-	-	5.232	-	-	13.793	-	-	41.757	-	-	-	-	-	41.757	

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

Footnotes:

⁽²⁾ Beginning FY20, net zero transfer from existing procurement lines provide ML012 funding required to continue SWFTS supportability and integration for submarine EW systems. This line is established to provide better fidelity of the support costs required to procure SWFTS EW Shipsets and separate the costs of quantified shipsets.

⁽³⁾ Tech Refresh provides for software and hardware updates to accommodate shifts in technology to the execution procurement years "current state-of-the-practice" hardware. Updates are necessary for signal and display processing hardware as software is introduced or as commercial support for the hardware is phased out. When EW systems are being upgraded to subsequent phases, signal processing and display hardware will be upgraded to accommodate common technology consistent with the APB being implemented in the year of introduction. In future years, requirements include additional equipment to prevent COTS hardware from becoming unsupported/obsolete. Funding will be used to

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Exhibit P-40a, Budget Item Justification For Aggregated Items: PB 2020 Navy		Date: March 2019
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 SUPPORT EQUIPMENT PROGRAM
support non-recurring first article test efforts associated with changing COTS environment, as well as, procuring test equipment and simulators. Supports Government Furnished Information (GFI) management and coordination, monitoring of contractor cost, performance and schedule, cost analysis and estimation, contract specification development and monitoring of contract deliverables. Addresses the Cyber requirements associated with procuring, engineering and sustaining EW systems. Also supports EW system training requirements to include curriculum development, training materials, and initial factory training pilot course conduct, Navy Training Plans, instructor advisory services, and hardware/software upgrades for EW trainers. ⁽⁴⁾ Cyber and Training Support funding supports the Cyber requirements associated with procuring, engineering and sustaining EW systems. Also supports EW system training requirements to include curriculum development, training materials, and initial factory training pilot course conduct, Navy Training Plans, instructor advisory services, and hardware/software upgrades for EW trainers.		

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Exhibit P-3a, Individual Modification: PB 2020 Navy									Date: March 2019			
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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity <i>(Units in Each)</i>	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost <i>(\$ in Millions)</i>	61.364	56.528	36.985	22.398	0.000	22.398	46.067	42.128	31.443	48.171	Continuing	Continuing
Less PY Advance Procurement <i>(\$ in Millions)</i>	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) <i>(\$ in Millions)</i>	61.364	56.528	36.985	22.398	0.000	22.398	46.067	42.128	31.443	48.171	Continuing	Continuing
Plus CY Advance Procurement <i>(\$ in Millions)</i>	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority <i>(\$ in Millions)</i>	61.364	56.528	36.985	22.398	0.000	22.398	46.067	42.128	31.443	48.171	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>	-	-	-	-	-	-	-	-	-	-	-	-
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. Unit costs for ISIS kits procurement and installation costs vary based on platform as certain platforms have a limited set of outboard masts which reduces the complexity of the ISIS kits while other boats utilize technically advanced masts which require more sophisticated ISIS hardware and software kits to support them. VIRGINIA Tech Insertion unit costs reflect copper/fiber diplooms and hull penetrators (Mast Compatibility) needed to field Low Profile Photonics Mast (LPPM), Type 20, and Type 24 Masts on these modernization hulls. 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. Non-recurring engineering (NRE) is decreased due to transfer of NRE that has been funded in prior years under OPN BLI 0840 to RDTE Proj 0253. The portion that is transferred is more appropriate for RDTE investment and reflects the maturity profile of the NRE effort. This NRE funds the development of the Technical Insertion (TI) kit (software and hardware) baseline for each class of submarine.												

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Exhibit P-3a, Individual Modification: PB 2020 Navy								Date: March 2019				
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: 0604777N				
Financial Plan	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	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	14 / 1.018	7 / 7.262	6 / 6.348	5 / 5.395	- / -	5 / 5.395	- / -	6 / 6.738	11 / 12.595	3 / 3.504	Continuing	Continuing
1.1.2) VA TECHNICAL INSERTION with MAST COMPATIBILITY (SWFTS) - NonOrganic ⁽⁵⁾	5 / 24.387	5 / 24.850	- / -	- / -	- / -	- / -	3 / 17.349	1 / 5.899	- / -	1 / 6.137	Continuing	Continuing
1.1.3) VA TECHNICAL INSERTION without MAST COMPATIBILITY (SWFTS) - NonOrganic ⁽⁶⁾	- / -	- / -	- / -	1 / 3.449	- / -	1 / 3.449	5 / 17.590	4 / 14.352	- / -	7 / 26.131	- / -	17 / 61.522
1.1.4) SSGN TECHNICAL INSERTION (SWFTS) - NonOrganic	- / -	- / -	2 / 2.776	2 / 2.832	- / -	2 / 2.832	- / -	- / -	- / -	- / -	- / -	4 / 5.608
1.1.5) VA ISIS BACKFIT (SWFTS) - NonOrganic	4 / 14.243	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	4 / 14.243
1.1.6) SSBN BACKFIT (SWFTS) - NonOrganic	5 / 0.580	3 / 0.591	2 / 0.402	3 / 0.615	- / -	3 / 0.615	1 / 0.209	4 / 0.852	4 / 0.868	2 / 0.442	Continuing	Continuing
1.1.7) ISIS CCM - Organic ⁽⁷⁾	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	1 / 3.660	- / -	- / -	1 / 3.660
Subtotal: Recurring	- / 40.228	- / 32.703	- / 9.526	- / 12.291	- / -	- / 12.291	- / 35.148	- / 27.841	- / 17.123	- / 36.214	Continuing	Continuing
Subtotal: PL010 - IMAGING ISIS TECHNICAL INSERTION (SWFTS)	28 / 40.228	15 / 32.703	10 / 9.526	11 / 12.291	- / -	11 / 12.291	9 / 35.148	15 / 27.841	16 / 17.123	13 / 36.214	Continuing	Continuing
Subtotal: Procurement, All Modification Items	- / 40.228	- / 32.703	- / 9.526	- / 12.291	- / -	- / 12.291	- / 35.148	- / 27.841	- / 17.123	- / 36.214	Continuing	Continuing
Support (All Modification Items)												
2.1) ISIS TECHNICAL INSERTION NRE ⁽⁸⁾	- / 17.015	- / 17.087	- / 22.197	- / 6.923	- / -	- / 6.923	- / 7.061	- / 7.202	- / 7.346	- / 7.493	Continuing	Continuing
Subtotal: Support	- / 17.015	- / 17.087	- / 22.197	- / 6.923	- / -	- / 6.923	- / 7.061	- / 7.202	- / 7.346	- / 7.493	Continuing	Continuing
Installation												
Modification Item 1 of 1: PL010 - IMAGING ISIS TECHNICAL INSERTION (SWFTS)	- / 4.121	- / 6.738	- / 5.262	- / 3.184	- / 0.000	- / 3.184	- / 3.858	- / 7.085	- / 6.974	- / 4.464	- / 10.296	- / 51.982
Subtotal: Installation	- / 4.121	- / 6.738	- / 5.262	- / 3.184	- / -	- / 3.184	- / 3.858	- / 7.085	- / 6.974	- / 4.464	- / 10.296	- / 51.982
Total												
Total Cost (Procurement + Support + Installation)	61.364	56.528	36.985	22.398	0.000	22.398	46.067	42.128	31.443	48.171	Continuing	Continuing

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Exhibit P-3a, Individual Modification: PB 2020 Navy												Date: March 2019																			
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 (<i>in Months</i>): 6														Production Leadtime (<i>in Months</i>): 12																	
Dates		FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024					
Contract Dates		Mar 2018				Mar 2019				Mar 2020				Mar 2021				Mar 2022				Mar 2023				Mar 2024					
Delivery Dates		Mar 2019				Mar 2020				Mar 2021				Mar 2022				Mar 2023				Mar 2024				Mar 2025					
Installation Information																															
Method of Implementation: AIT:: Installation Name: 688/21 TECHNICAL INSERTION (SWFTS)																															
Installation Cost		Prior Years		FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total		FY 2021		FY 2022		FY 2023		FY 2024		To Complete		Total							
		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)							
Prior Years		13 / 2.170		1 / 0.316		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.000		14 / 2.486							
FY 2018		- / -		- / -		7 / 2.254		- / -		- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.000		7 / 2.254							
FY 2019		- / -		- / -		- / -		6 / 1.968		0 / 0.000		6 / 1.968		- / -		- / -		- / -		- / -		0 / 0.000		6 / 1.968							
FY 2020		- / -		- / -		- / -		- / -		- / -		- / -		5 / 1.675		- / -		- / -		- / -		0 / 0.000		5 / 1.675							
FY 2021		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -							
FY 2022		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		6 / 2.094		- / -		0 / 0.000		6 / 2.094							
FY 2023		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		11 / 3.916		0 / 0.000							
FY 2024		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		3 / 1.089		3 / 1.089							
To Complete		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -							
Total		13 / 2.170		1 / 0.316		7 / 2.254		6 / 1.968		0 / 0.000		6 / 1.968		5 / 1.675		- / -		6 / 2.094		11 / 3.916		3 / 1.089		52 / 15.482							
Installation Schedule																															
	PYS	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				TC	Tot
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4		
In	13	-	1	-	-	-	3	2	2	-	2	2	2	-	2	2	1	-	-	-	-	-	2	2	2	-	4	4	3		
Out	13	-	1	-	-	-	3	2	2	-	2	2	2	-	2	2	1	-	-	-	-	-	2	2	2	-	4	4	3		

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Exhibit P-3a, Individual Modification: PB 2020 Navy		Date: March 2019
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 with MAST COMPATIBILITY (SWFTS)

Installation Cost	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)
Prior Years	- / -	5 / 4.313	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	5 / 4.313
FY 2018	- / -	- / -	3 / 2.639	- / -	- / -	- / -	- / -	- / -	- / -	- / -	2 / 1.760	5 / 4.399
FY 2019	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2020	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2021	- / -	- / -	- / -	- / -	- / -	- / -	- / -	3 / 2.799	- / -	- / -	0 / 0.000	3 / 2.799
FY 2022	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	1 / 0.952	- / -	0 / 0.000	1 / 0.952
FY 2023	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2024	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	1 / 0.991	1 / 0.991
To Complete	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
Total	- / -	5 / 4.313	3 / 2.639	- / -	- / -	- / -	- / -	3 / 2.799	1 / 0.952	- / -	3 / 2.751	15 / 13.454

Installation Schedule

	PYS	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				TC	Tot
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4		
In	-	1	2	2	-	-	1	1	1	-	-	-	-	-	-	-	-	1	1	1	-	1	-	-	-	-	-	-	3	15	
Out	-	-	1	2	2	-	1	1	1	-	-	-	-	-	-	-	-	1	1	1	-	1	-	-	-	-	-	-	3	15	

Method of Implementation: AIT:: Installation Name: VA TECHNICAL INSERTION without MAST COMPATIBILITY (SWFTS)

Installation Cost	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)
Prior Years	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2018	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2019	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2020	- / -	- / -	- / -	- / -	- / -	- / -	1 / 0.815	- / -	- / -	- / -	0 / 0.000	1 / 0.815
FY 2021	- / -	- / -	- / -	- / -	- / -	- / -	- / -	5 / 4.155	- / -	- / -	0 / 0.000	5 / 4.155
FY 2022	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	4 / 3.392	- / -	0 / 0.000	4 / 3.392
FY 2023	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2024	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	7 / 6.176	7 / 6.176

UNCLASSIFIED

Exhibit P-3a, Individual Modification: PB 2020 Navy		Date: March 2019
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 without MAST COMPATIBILITY (SWFTS)

Installation Cost	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)
To Complete	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
Total	- / -	- / -	- / -	- / -	- / -	- / -	1 / 0.815	5 / 4.155	4 / 3.392	- / -	7 / 6.176	17 / 14.538

Installation Schedule

	PYS	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				TC	Tot
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4		
In	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	2	2	1	-	2	1	1	-	-	-	-	7	17
Out	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	2	2	1	-	2	1	1	-	-	-	-	7	17

Method of Implementation: AIT:: Installation Name: SSGN TECHNICAL INSERTION (SWFTS)

Installation Cost	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)
Prior Years	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2018	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2019	- / -	- / -	- / -	2 / 0.966	0 / 0.000	2 / 0.966	- / -	- / -	- / -	- / -	0 / 0.000	2 / 0.966
FY 2020	- / -	- / -	- / -	- / -	- / -	- / -	2 / 0.984	- / -	- / -	- / -	0 / 0.000	2 / 0.984
FY 2021	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2022	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2023	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2024	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
To Complete	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
Total	- / -	- / -	- / -	2 / 0.966	0 / 0.000	2 / 0.966	2 / 0.984	- / -	- / -	- / -	0 / 0.000	4 / 1.950

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Exhibit P-3a, Individual Modification: PB 2020 Navy																								Date: March 2019							
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: SSGN TECHNICAL INSERTION (SWFTS)																															
Installation Schedule																															
	PYS	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				TC	Tot
In	-	-	-	-	-	-	-	-	-	-	1	1	-	-	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	4	
Out	-	-	-	-	-	-	-	-	-	-	1	1	-	-	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	4	
Method of Implementation: AIT:: Installation Name: VA ISIS BACKFIT (SWFTS)																															
Installation Cost		Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total																		
		Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)																		
Prior Years		2 / 1.715	2 / 1.748	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	4 / 3.463																		
FY 2018		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -																		
FY 2019		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -																		
FY 2020		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -																		
FY 2021		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -																		
FY 2022		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -																		
FY 2023		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -																		
FY 2024		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -																		
To Complete		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -																		
Total		2 / 1.715	2 / 1.748	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	4 / 3.463																		
Installation Schedule																															
	PYS	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				TC	Tot
In	2	-	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4		
Out	2	-	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4		

UNCLASSIFIED

Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019																													
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 Cost		Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total																										
		Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)																										
Prior Years		2 / 0.236	3 / 0.361	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	5 / 0.597																										
FY 2018		- / -	- / -	3 / 0.369	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	3 / 0.369																										
FY 2019		- / -	- / -	- / -	2 / 0.250	0 / 0.000	2 / 0.250	- / -	- / -	- / -	- / -	0 / 0.000	2 / 0.250																										
FY 2020		- / -	- / -	- / -	- / -	- / -	- / -	3 / 0.384	- / -	- / -	- / -	0 / 0.000	3 / 0.384																										
FY 2021		- / -	- / -	- / -	- / -	- / -	- / -	- / -	1 / 0.131	- / -	- / -	0 / 0.000	1 / 0.131																										
FY 2022		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	4 / 0.536	- / -	0 / 0.000	4 / 0.536																										
FY 2023		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	4 / 0.548	0 / 0.000	4 / 0.548																										
FY 2024		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	2 / 0.280	2 / 0.280																										
To Complete		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -																										
Total		2 / 0.236	3 / 0.361	3 / 0.369	2 / 0.250	0 / 0.000	2 / 0.250	3 / 0.384	1 / 0.131	4 / 0.536	4 / 0.548	2 / 0.280	24 / 3.095																										
Installation Schedule																																							
	PYS	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				TC	Tot								
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4										
In	2	-	1	1	1	-	1	1	1	-	1	1	-	-	1	1	1	-	1	-	-	-	2	1	1	-	2	1	1	2	24								
Out	2	-	1	1	1	-	1	1	1	-	1	1	-	-	1	1	1	-	1	-	-	-	2	1	1	-	2	1	1	2	24								
Method of Implementation (Organic): ISIS CCM - Not Installed																														Installation Quantity: 1									
Footnotes:																																							
⁽⁵⁾ Beginning in FY21, the unit cost for TI-20 includes additional hardware to integrate with the Type 20 Mast. Mast Compatibility documented in 1.1.2 includes funding for the procurement of the Common Electrical Hull Penetrator and Common Dip Loop which is required for TI-16 and beyond installations. The Common Electrical Hull Penetrator and Common Dip Loop provides the required interface for current photonics masts, including the LPPM and supports all future mast types. FY 2020 reflects a decrease of (2) TI-16 VA Class SWFTS shipsets compared to the PB19 position to fund other higher priority Navy requirements. The two additional Virginia Class (VA) SWFTS shipsets procured in FY18 by congressional direction, will be installed in FY19 with funds obtained via below threshold reprogramming. ⁽⁶⁾ VA Technical Insertion without Mast Compatibility, documented in 1.1.3 procures hardware required for TI installations on platforms which have already received the Common Electrical Hull Penetrator and Common Dip Loop (see 1.1.2 footnote 4) during a prior modernization or during new construction. ⁽⁷⁾ Configuration Control Model (CCM) is a unique laboratory version of the ISIS kit that is used by support staff. It allows technical experts to replicate issues identified in fielded systems, test resolutions to issues identified by fleet representatives, and conduct required testing for cyber security certification.																																							

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Exhibit P-3a, Individual Modification: PB 2020 Navy		Date: March 2019
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:
⁽⁸⁾ TI/APB NRE funding levels are adjusted annually in response to the change in the complexity of each new capability being incorporated into the inboard imaging software. FY20 NRE reduction is funded through corresponding increase in FY20 RDT&E PE 0604777N Project 0253 funding to support NRE activities.		

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Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019		
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: 2 / PL011 IMAGING UPGRADES: TYPE 8/TYPE 18		
ID Code (A=Service Ready, B=Not Service Ready) :							MDAP/MAIS Code:					
Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity (<i>Units in Each</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost (<i>\$ in Millions</i>)	0.369	0.376	0.384	0.391	0.000	0.391	0.399	0.407	0.416	0.425	Continuing	Continuing
Less PY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (<i>\$ in Millions</i>)	0.369	0.376	0.384	0.391	0.000	0.391	0.399	0.407	0.416	0.425	Continuing	Continuing
Plus CY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority (<i>\$ in Millions</i>)	0.369	0.376	0.384	0.391	0.000	0.391	0.399	0.407	0.416	0.425	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>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost (<i>\$ in Dollars</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Description: Provides obsolescence related upgrades for Submarine Periscopes. One (1) set is procured in each fiscal year that includes variable quantities and types based on Fleet-endorsed requirements.												

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Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019			
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: 2 / PL011 IMAGING UPGRADES: TYPE 8/TYPE 18			
ID Code (A=Service Ready, B=Not Service Ready) :								MDAP/MAIS Code:					
Models of Systems Affected: TYPE 8/TYPE 18				Modification Type: ORDALT				Related RDT&E PEs: 0604777N					
Financial Plan	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total	
	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	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: PL011 IMAGING UPGRADES: TYPE 8/TYPE 18													
B Kits													
Recurring													
1.1.1) TYPE 8/TYPE 18 - NonOrganic	68 / 0.251	1 / 0.256	1 / 0.261	1 / 0.266	- / -	1 / 0.266	1 / 0.271	1 / 0.276	1 / 0.282	1 / 0.288	Continuing	Continuing	
Subtotal: Recurring	- / 0.251	- / 0.256	- / 0.261	- / 0.266	- / -	- / 0.266	- / 0.271	- / 0.276	- / 0.282	- / 0.288	Continuing	Continuing	
Subtotal: PL011 IMAGING UPGRADES: TYPE 8/TYPE 18	68 / 0.251	1 / 0.256	1 / 0.261	1 / 0.266	- / -	1 / 0.266	1 / 0.271	1 / 0.276	1 / 0.282	1 / 0.288	Continuing	Continuing	
Subtotal: Procurement, All Modification Items	- / 0.251	- / 0.256	- / 0.261	- / 0.266	- / -	- / 0.266	- / 0.271	- / 0.276	- / 0.282	- / 0.288	Continuing	Continuing	
Installation													
Modification Item 1 of 1: PL011 IMAGING UPGRADES: TYPE 8/TYPE 18	- / 0.118	- / 0.120	- / 0.123	- / 0.125	- / 0.000	- / 0.125	- / 0.128	- / 0.131	- / 0.134	- / 0.137	- / 0.140	- / 1.156	
Subtotal: Installation	- / 0.118	- / 0.120	- / 0.123	- / 0.125	- / -	- / 0.125	- / 0.128	- / 0.131	- / 0.134	- / 0.137	- / 0.140	- / 1.156	
Total													
Total Cost (Procurement + Support + Installation)	0.369	0.376	0.384	0.391	0.000	0.391	0.399	0.407	0.416	0.425	Continuing	Continuing	

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Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019																						
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: 2 / PL011 IMAGING UPGRADES: TYPE 8/TYPE 18												
ID Code (A=Service Ready, B=Not Service Ready) :															MDAP/MAIS Code:																	
Modification Item 1 of 1: PL011 IMAGING UPGRADES: TYPE 8/TYPE 18																																
Manufacturer Information																																
Manufacturer Name: Multiple Vendors															Manufacturer Location: Various																	
Administrative Leadtime (<i>in Months</i>): 6															Production Leadtime (<i>in Months</i>): 14																	
Dates		FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024						
Contract Dates		Mar 2018				Mar 2019				Mar 2020				Mar 2021				Mar 2022				Mar 2023				Mar 2024						
Delivery Dates		May 2019				May 2020				May 2021				May 2022				May 2023				May 2024				May 2025						
Installation Information																																
Method of Implementation: AIT:: Installation Name: TYPE 8/TYPE 18																																
Installation Cost		Prior Years		FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total		FY 2021		FY 2022		FY 2023		FY 2024		To Complete		Total								
		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)								
Prior Years		67 / 0.118		1 / 0.120		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.000		68 / 0.238						
FY 2018		- / -		- / -		1 / 0.123		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.000		1 / 0.123						
FY 2019		- / -		- / -		- / -		1 / 0.125		0 / 0.000		1 / 0.125		- / -		- / -		- / -		- / -		- / -		0 / 0.000		1 / 0.125						
FY 2020		- / -		- / -		- / -		- / -		- / -		- / -		1 / 0.128		- / -		- / -		- / -		- / -		0 / 0.000		1 / 0.128						
FY 2021		- / -		- / -		- / -		- / -		- / -		- / -		- / -		1 / 0.131		- / -		- / -		- / -		0 / 0.000		1 / 0.131						
FY 2022		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		1 / 0.134		- / -		- / -		0 / 0.000		1 / 0.134						
FY 2023		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		1 / 0.137		0 / 0.000		1 / 0.137						
FY 2024		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		1 / 0.140		1 / 0.140						
To Complete		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -						
Total		67 / 0.118		1 / 0.120		1 / 0.123		1 / 0.125		0 / 0.000		1 / 0.125		1 / 0.128		1 / 0.131		1 / 0.134		1 / 0.137		1 / 0.140		1 / 0.140		75 / 1.156						
Installation Schedule																																
	PYS	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				TC	Tot	
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4			
In	67	-	-	1	-	-	-	-	1	-	-	-	-	1	-	-	-	-	1	-	-	-	-	1	-	-	-	-	1	-	1	75
Out	67	-	-	1	-	-	-	-	1	-	-	-	-	1	-	-	-	-	1	-	-	-	-	1	-	-	-	-	1	-	1	75

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Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019		
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: 3 / PL025 LOW PROFILE IMAGING MAST		
ID Code (A=Service Ready, B=Not Service Ready) :							MDAP/MAIS Code:					
Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity (<i>Units in Each</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost (<i>\$ in Millions</i>)	0.000	5.994	18.047	9.175	0.000	9.175	9.359	38.382	67.172	43.576	Continuing	Continuing
Less PY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (<i>\$ in Millions</i>)	0.000	5.994	18.047	9.175	0.000	9.175	9.359	38.382	67.172	43.576	Continuing	Continuing
Plus CY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority (<i>\$ in Millions</i>)	0.000	5.994	18.047	9.175	0.000	9.175	9.359	38.382	67.172	43.576	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>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost (<i>\$ in Dollars</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Description: VA Class advanced low profile imaging masts including Low Profile Photonics Mast (LPPM), Type 20 Mast (previously named TOTIM), and Type 24 Masts. Procures initial modernization assets as well as spare masts later in FYDP to maintain overall spares ratio for photonics masts as quantity of VA Class submarines increase. Maintaining sufficient quantities of installed and spare low profile imaging masts is essential to meet PACFLT requirements for all deploying VA class submarines in the Pacific to be equipped with low profile imaging masts. Similarly, there is a strong push from SUBLANT that all deploying units have a low profile mast which will significantly increase the number of required units. With development commencing in FY18 and procurement beginning in FY20, the Type 20 Mast will provide increased capability, reduced maintenance costs, and increased development flexibility for new mast sensors. The higher unit cost for Type 20 Mast compared to LPPM provides increased capability, reduced maintenance costs, and increased development flexibility for new mast sensors. FY 2020 reflects a decrease of (2) TYPE 20 masts compared to the PB19 position to fund other higher priority Navy requirements.												

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Exhibit P-3a, Individual Modification: PB 2020 Navy								Date: March 2019					
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: 3 / PL025 LOW PROFILE IMAGING MAST					
ID Code (A=Service Ready, B=Not Service Ready) :							MDAP/MAIS Code:						
Models of Systems Affected: Photonics Mast				Modification Type: SHIPALT				Related RDT&E PEs: 0604777N					
Financial Plan	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total	
	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	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: PL025 LOW PROFILE IMAGING MAST													
B Kits													
Recurring													
1.1.1) LPPM - NonOrganic	3 / 0.000	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	3 / 0.000	
1.1.2) LPPM SPARE - Organic ⁽⁹⁾	- / -	1 / 5.879	3 / 17.988	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	4 / 23.867	
1.1.3) TYPE 20 MAST - NonOrganic ⁽¹⁰⁾	- / -	- / -	- / -	1 / 9.175	- / -	1 / 9.175	1 / 9.359	4 / 38.184	5 / 48.685	- / -	- / -	11 / 105.403	
1.1.4) TYPE 20 CCM - Organic ⁽¹¹⁾	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	1 / 9.736	- / -	- / -	1 / 9.736	
1.1.5) MAST CAPABILITY ENHANCEMENT - NonOrganic	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	6 / 2.670	6 / 2.724	Continuing	Continuing	
1.1.6) TYPE 24 MAST - NonOrganic	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	4 / 39.728	- / -	4 / 39.728	
Subtotal: Recurring	- / 0.000	- / 5.879	- / 17.988	- / 9.175	- / -	- / 9.175	- / 9.359	- / 38.184	- / 61.091	- / 42.452	Continuing	Continuing	
Subtotal: PL025 LOW PROFILE IMAGING MAST	3 / 0.000	1 / 5.879	3 / 17.988	1 / 9.175	- / -	1 / 9.175	1 / 9.359	4 / 38.184	12 / 61.091	10 / 42.452	Continuing	Continuing	
Subtotal: Procurement, All Modification Items	- / 0.000	- / 5.879	- / 17.988	- / 9.175	- / -	- / 9.175	- / 9.359	- / 38.184	- / 61.091	- / 42.452	Continuing	Continuing	
Support (All Modification Items)													
2.1) TYPE 20 I-Level Support	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / 5.879	- / -	- / -	- / 5.879	
Subtotal: Support	- / 0.000	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / 5.879	- / -	- / 0.000	- / 5.879	
Installation													
Modification Item 1 of 1: PL025 LOW PROFILE IMAGING MAST	- / 0.000	- / 0.115	- / 0.059	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.198	- / 0.202	- / 1.124	- / 2.213	- / 3.911	
Subtotal: Installation	- / 0.000	- / 0.115	- / 0.059	- / -	- / -	- / -	- / -	- / 0.198	- / 0.202	- / 1.124	- / 2.213	- / 3.911	
Total													
Total Cost (Procurement + Support + Installation)	0.000	5.994	18.047	9.175	0.000	9.175	9.359	38.382	67.172	43.576	Continuing	Continuing	

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Exhibit P-3a, Individual Modification: PB 2020 Navy								Date: March 2019				
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: 3 / PL025 LOW PROFILE IMAGING MAST				
ID Code (A=Service Ready, B=Not Service Ready) :						MDAP/MAIS Code:						
Modification Item 1 of 1: PL025 LOW PROFILE IMAGING MAST												
Manufacturer Information												
Manufacturer Name: L3 KEO						Manufacturer Location: Northhampton, MA						
Administrative Leadtime <i>(in Months)</i> : 6						Production Leadtime <i>(in Months)</i> : 24						
Dates	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024					
Contract Dates	Apr 2018	Apr 2019										
Delivery Dates	Apr 2020	Apr 2021										
Manufacturer Name: TBD (Competitive Procurement)						Manufacturer Location: TBD (Competitive Procurement)						
Administrative Leadtime <i>(in Months)</i> : 6						Production Leadtime <i>(in Months)</i> : 24						
Dates	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024					
Contract Dates			Mar 2020	Mar 2021	Mar 2022	Mar 2023	Mar 2024					
Delivery Dates			Mar 2022	Mar 2023	Mar 2024	Mar 2025	Mar 2026					
Installation Information												
Method of Implementation: AIT:: Installation Name: LPPM												
Installation Cost	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>
Prior Years	- / -	2 / 0.115	1 / 0.059	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	3 / 0.174
FY 2018	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2019	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2020	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2021	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2022	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2023	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2024	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
To Complete	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
Total	- / -	2 / 0.115	1 / 0.059	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	3 / 0.174

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Exhibit P-3a, Individual Modification: PB 2020 Navy																							Date: March 2019								
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: 3 / PL025 LOW PROFILE IMAGING MAST									
ID Code (A=Service Ready, B=Not Service Ready) :																	MDAP/MAIS Code:														
Modification Item 1 of 1: PL025 LOW PROFILE IMAGING MAST																															
Installation Information																															
Method of Implementation: AIT:: Installation Name: LPPM																															
Installation Schedule																															
	PYS	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				TC	Tot
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4		
In	-	-	-	2	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3
Out	-	-	-	2	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3
Method of Implementation: AIT:: Installation Name: TYPE 20 MAST																															
Installation Cost		Prior Years		FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total		FY 2021		FY 2022		FY 2023		FY 2024		To Complete		Total							
		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)							
Prior Years		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
FY 2018		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
FY 2019		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
FY 2020		- / -		- / -		- / -		- / -		- / -		- / -		- / -		1 / 0.198		- / -		- / -		0 / 0.000		1 / 0.198							
FY 2021		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		1 / 0.202		- / -		0 / 0.000		1 / 0.202							
FY 2022		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		4 / 0.824		0 / 0.000		4 / 0.824							
FY 2023		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		5 / 1.050		5 / 1.050					
FY 2024		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
To Complete		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
Total		- / -		- / -		- / -		- / -		- / -		- / -		- / -		1 / 0.198		1 / 0.202		4 / 0.824		5 / 1.050		11 / 2.274							
Installation Schedule																															
	PYS	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				TC	Tot
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4		
In	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	1	-	-	-	2	1	1	5	11
Out	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	1	-	-	-	2	1	1	5	11

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Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019																					
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: 3 / PL025 LOW PROFILE IMAGING MAST																
ID Code (A=Service Ready, B=Not Service Ready) :										MDAP/MAIS Code:																					
Modification Item 1 of 1: PL025 LOW PROFILE IMAGING MAST																															
Installation Information																															
Method of Implementation: [none specified]:: Installation Name: MAST CAPABILITY ENHANCEMENT																															
Installation Cost		Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total																		
		<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>																	
Prior Years		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -																		
FY 2018		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -																		
FY 2019		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -																		
FY 2020		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -																		
FY 2021		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -																		
FY 2022		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -																		
FY 2023		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	6 / 0.300	0 / 0.000	6 / 0.300																		
FY 2024		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	6 / 0.306	6 / 0.306																		
To Complete		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -																		
Total		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	6 / 0.300	6 / 0.306	12 / 0.606																		
Installation Schedule																															
	PYS	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				TC	Tot
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4		
In	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	6	12
Out	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	6	12
Method of Implementation: [none specified]:: Installation Name: TYPE 24 MAST																															
Installation Cost		Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total																		
		<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>																	
Prior Years		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -																		
FY 2018		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -																		
FY 2019		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -																		
FY 2020		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -																		
FY 2021		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -																		
FY 2022		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -																		
FY 2023		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -																		
FY 2024		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	4 / 0.857	4 / 0.857																		

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Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019																													
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: 3 / PL025 LOW PROFILE IMAGING MAST																			
ID Code (A=Service Ready, B=Not Service Ready) :															MDAP/MAIS Code:																								
Modification Item 1 of 1: PL025 LOW PROFILE IMAGING MAST																																							
Installation Information																																							
Method of Implementation: [none specified]:: Installation Name: TYPE 24 MAST																																							
Installation Cost		Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total																										
		<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>																								
To Complete		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -																									
Total		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	4 / 0.857	4 / 0.857																									
Installation Schedule																																							
	PYS	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				TC	Tot								
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4										
In	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4	4								
Out	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4	4								
Method of Implementation (Organic): LPPM SPARE																														Installation Quantity: 4									
Method of Implementation (Organic): TYPE 20 CCM - Not Installed																														Installation Quantity: 1									
Footnotes: ⁽⁹⁾ Installations are funded by TYCOMs as necessary to meet operational requirements and are mission specific. ⁽¹⁰⁾ The higher unit cost for Type 20 Mast compared to LPPM provides increased capability, reduced maintenance costs, and increased development flexibility for new mast sensors. FY 2020 reflects a decrease of (2) TYPE 20 masts compared to the PB19 position to fund other higher priority Navy requirements. ⁽¹¹⁾ Configuration Control Model (CCM) is a unique laboratory version of the Type 20 used by subject matter experts to support the integration of the Type 20 Mast with the ISIS hardware and software.																																							

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Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019		
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: 4 / ML007 CADF		
ID Code (A=Service Ready, B=Not Service Ready) :							MDAP/MAIS Code:					
Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity (<i>Units in Each</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost (<i>\$ in Millions</i>)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	12.450	Continuing	Continuing
Less PY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (<i>\$ in Millions</i>)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	12.450	Continuing	Continuing
Plus CY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority (<i>\$ in Millions</i>)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	12.450	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>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost (<i>\$ in Dollars</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Description: Provides advanced low-band Direction Finding (DF) capability compatible with the AN/BLQ-10 EW system. The ICADF system is experiencing increasing failures and obsolescence issues shown in Operation Availability and Reliability, Maintainability, Availability analyses. Beginning in FY24 with TI-24, the ICADF system will be replaced by a new CADF solution integrated with the AN/BLQ-10B system. Note, ML009 delivers CADF capability to VA Class BLK IV in advance of Program of Record TI-24.												

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Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019			
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: 4 / ML007 CADF			
ID Code (A=Service Ready, B=Not Service Ready) :								MDAP/MAIS Code:					
Models of Systems Affected: CADF				Modification Type: SHIPALT				Related RDT&E PEs: 0604503N					
Financial Plan	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total	
	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	
Procurement													
<i>Modification Item 1 of 1:</i> ML007 CADF													
B Kits													
Recurring													
1.1.1) CADF - NonOrganic	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	5 / 12.450	Continuing	Continuing
<i>Subtotal: Recurring</i>	- / 0.000	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / 12.450	Continuing	Continuing
<i>Subtotal: ML007 CADF</i>	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	5 / 12.450	Continuing	Continuing
<i>Subtotal: Procurement, All Modification Items</i>	- / 0.000	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / 12.450	Continuing	Continuing
Installation													
<i>Modification Item 1 of 1:</i> ML007 CADF	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 10.853	- / 10.853	
<i>Subtotal: Installation</i>	- / 0.000	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / 10.853	- / 10.853	
Total													
Total Cost (Procurement + Support + Installation)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	12.450	Continuing	Continuing

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Exhibit P-3a, Individual Modification: PB 2020 Navy											Date: March 2019																				
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: 4 / ML007 CADF											
ID Code (A=Service Ready, B=Not Service Ready) :															MDAP/MAIS Code:																
Modification Item 1 of 1: ML007 CADF																															
Manufacturer Information																															
Manufacturer Name: TBD (Competitive Procurement)														Manufacturer Location: TBD (Competitive Procurement)																	
Administrative Leadtime <i>(in Months)</i> : 6														Production Leadtime <i>(in Months)</i> : 12																	
Dates		FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024					
Contract Dates																						Mar 2024									
Delivery Dates																						Mar 2025									
Installation Information																															
Method of Implementation: [none specified]:: Installation Name: CADF																															
Installation Cost		Prior Years		FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total		FY 2021		FY 2022		FY 2023		FY 2024		To Complete		Total							
		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)							
Prior Years		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
FY 2018		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
FY 2019		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
FY 2020		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
FY 2021		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
FY 2022		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
FY 2023		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
FY 2024		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		8 / 10.853		8 / 10.853					
To Complete		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
Total		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		8 / 10.853		8 / 10.853					
Installation Schedule																															
	PYS	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				TC	Tot
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4		
In	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8	8
Out	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8	8

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Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019		
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: 5 / ML008 MMM ANTENNA		
ID Code (A=Service Ready, B=Not Service Ready) :							MDAP/MAIS Code:					
Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity <i>(Units in Each)</i>	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost <i>(\$ in Millions)</i>	1.159	0.000	8.852	0.000	0.000	0.000	2.506	14.091	0.000	3.990	0.000	30.598
Less PY Advance Procurement <i>(\$ in Millions)</i>	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) <i>(\$ in Millions)</i>	1.159	0.000	8.852	0.000	0.000	0.000	2.506	14.091	0.000	3.990	0.000	30.598
Plus CY Advance Procurement <i>(\$ in Millions)</i>	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority <i>(\$ in Millions)</i>	1.159	0.000	8.852	0.000	0.000	0.000	2.506	14.091	0.000	3.990	0.000	30.598
<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: Synchronizes improved low-band direction finding sensor with coordinated N77/CNSG CLASSIC TROLL procurement. Replaces obsolete AN/BRD-7 antenna equipment and Improved ESM Mast (IEM) with modern, open-architecture system compliant with Maritime Cryptologic Architecture. The Multi-function Modular Mast (MMM) is the standard Communications Direction Finding mast on 688i and VA BLK III and following. It improves the submarine's capability to conduct the CADF mission, as well as, provides a configurable volume for payloads that can enhance submarine capabilities in areas of Unmanned Aerial Systems, Electronic Attack, and Low Probability of Detection Communications. FY22 procures the MMM for SEAWOLF Class submarines.												

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Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019			
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: 5 / ML008 MMM ANTENNA			
ID Code (A=Service Ready, B=Not Service Ready) :								MDAP/MAIS Code:					
Models of Systems Affected: MULTI FUNCTION MODULAR MAST				Modification Type: SHIPALT				Related RDT&E PEs: 0604503N					
Financial Plan	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total	
	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	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: ML008 MMM ANTENNA													
B Kits													
Recurring													
1.1.1) Multi Functional Modular Mast - NonOrganic	18 / 0.000	- / -	2 / 8.852	- / -	- / -	- / -	- / -	3 / 14.091	- / -	- / -	- / -	23 / 22.943	
Subtotal: Recurring	- / 0.000	- / -	- / 8.852	- / -	- / -	- / -	- / -	- / 14.091	- / -	- / -	- / 0.000	- / 22.943	
Subtotal: ML008 MMM ANTENNA	18 / 0.000	- / -	2 / 8.852	- / -	- / -	- / -	- / -	3 / 14.091	- / -	- / -	- / -	23 / 22.943	
Subtotal: Procurement, All Modification Items	- / 0.000	- / -	- / 8.852	- / -	- / -	- / -	- / -	- / 14.091	- / -	- / -	- / 0.000	- / 22.943	
Installation													
Modification Item 1 of 1: ML008 MMM ANTENNA	- / 1.159	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 2.506	- / 0.000	- / 0.000	- / 3.990	- / 0.000	- / 7.655	
Subtotal: Installation	- / 1.159	- / -	- / -	- / -	- / -	- / -	- / 2.506	- / -	- / -	- / 3.990	- / 0.000	- / 7.655	
Total													
Total Cost (Procurement + Support + Installation)	1.159	0.000	8.852	0.000	0.000	0.000	2.506	14.091	0.000	3.990	0.000	30.598	

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Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019																					
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: 5 / ML008 MMM ANTENNA											
ID Code (A=Service Ready, B=Not Service Ready) :															MDAP/MAIS Code:																
Modification Item 1 of 1: ML008 MMM ANTENNA																															
Manufacturer Information																															
Manufacturer Name: LOCKHEED MARTIN														Manufacturer Location: SYRACUSE, NY																	
Administrative Leadtime (in Months): 6														Production Leadtime (in Months): 20																	
Dates		FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024					
Contract Dates						Mar 2019																									
Delivery Dates						Nov 2020																									
Manufacturer Name: TBD (Competitive Procurement)														Manufacturer Location: TBD (Competitive Procurement)																	
Administrative Leadtime (in Months): 6														Production Leadtime (in Months): 20																	
Dates		FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024					
Contract Dates																		Mar 2022													
Delivery Dates																		Nov 2023													
Installation Information																															
Method of Implementation: AIT:: Installation Name: Multi Functional Modular Mast																															
Installation Cost		Prior Years	FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total		FY 2021		FY 2022		FY 2023		FY 2024		To Complete		Total								
		Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)								
Prior Years		18 / 1.159		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.000		18 / 1.159							
FY 2018		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -							
FY 2019		- / -		- / -		- / -		- / -		- / -		- / -		2 / 2.506		- / -		- / -		- / -		0 / 0.000		2 / 2.506							
FY 2020		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -							
FY 2021		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -							
FY 2022		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		3 / 3.990		0 / 0.000		3 / 3.990							
FY 2023		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -							
FY 2024		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -							
To Complete		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -							
Total		18 / 1.159		- / -		- / -		- / -		- / -		- / -		- / -		2 / 2.506		- / -		- / -		3 / 3.990		0 / 0.000		23 / 7.655					
Installation Schedule																															
	PYS	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				TC	Tot
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4		
In	18	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	-	-	-	-	-	-	-	-	-	1	1	1	-	-	23
Out	18	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	-	-	-	-	-	-	-	-	-	1	1	1	-	-	23

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Exhibit P-3a, Individual Modification: PB 2020 Navy							Date: March 2019				
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 / ML009- EWTT			

ID Code (A=Service Ready, B=Not Service Ready) :						MDAP/MAIS Code:						
Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity (<i>Units in Each</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost (<i>\$ in Millions</i>)	0.000	0.000	0.000	10.534	0.000	10.534	11.500	11.730	11.966	0.804	0.000	46.534
Less PY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (<i>\$ in Millions</i>)	0.000	0.000	0.000	10.534	0.000	10.534	11.500	11.730	11.966	0.804	0.000	46.534
Plus CY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority (<i>\$ in Millions</i>)	0.000	0.000	0.000	10.534	0.000	10.534	11.500	11.730	11.966	0.804	0.000	46.534
<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 and refurbishes the Electronic Warfare Tactical TEMPALT (EWTT) filling the gap in Communications Acquisition and Direction Finding (CADF) capability on VA Class BLK IV submarines necessary to meet EW Capability Development Document (CDD) requirements. A gap was created when the CADF production line closed at the end of VA BLK III production and the subsequent cancellation of TI-16/18 NGA contracts, which would have replaced ICADF. This system is required to meet the EW CDD 907-97-16 dtd 27 September 2016. The EWTT is a Fleet directed system designed to accelerate newer technology integration and capabilities into VA Class submarines prior to AN/BLQ-10B upgrades. These systems are targeted for installation on BLK IV VA Class boats which will not be upgraded to AN/BLQ-10B until mid to late 2020's. Installation of the EWTT mitigates the BLK IV VA Class' exposure to rapidly changing threats by providing the ability to detect threat signals and other signals of interest.

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Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019			
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 / ML009- EWTT			
ID Code (A=Service Ready, B=Not Service Ready) :								MDAP/MAIS Code:					
Models of Systems Affected: EWTT				Modification Type: TEMPALT				Related RDT&E PEs: 0604503N					
Financial Plan	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total	
	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	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: ML009- EWTT													
A Kits													
Recurring													
1.1.1) EWTT - NonOrganic	- / -	- / -	- / -	2 / 10.534	- / -	2 / 10.534	2 / 10.744	2 / 10.958	2 / 11.178	- / -	- / -	8 / 43.414	
Subtotal: Recurring	- / 0.000	- / -	- / -	- / 10.534	- / -	- / 10.534	- / 10.744	- / 10.958	- / 11.178	- / -	- / 0.000	- / 43.414	
Subtotal: ML009- EWTT	- / -	- / -	- / -	2 / 10.534	- / -	2 / 10.534	2 / 10.744	2 / 10.958	2 / 11.178	- / -	- / -	8 / 43.414	
Subtotal: Procurement, All Modification Items	- / 0.000	- / -	- / -	- / 10.534	- / -	- / 10.534	- / 10.744	- / 10.958	- / 11.178	- / -	- / 0.000	- / 43.414	
Installation													
Modification Item 1 of 1: ML009- EWTT													
Subtotal: Installation	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.756	- / 0.772	- / 0.788	- / 0.804	- / 0.000	- / 3.120	
Total													
Total Cost (Procurement + Support + Installation)	0.000	0.000	0.000	10.534	0.000	10.534	11.500	11.730	11.966	0.804	0.000	46.534	

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Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019																					
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 / ML009- EWTT											
ID Code (A=Service Ready, B=Not Service Ready) :															MDAP/MAIS Code:																
Modification Item 1 of 1: ML009- EWTT																															
Manufacturer Information																															
Manufacturer Name: Progeny Systems															Manufacturer Location: Manassas , VA																
Administrative Leadtime (in Months): 6															Production Leadtime (in Months): 12																
Dates		FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024					
Contract Dates										Mar 2020				Mar 2021				Mar 2022				Mar 2023									
Delivery Dates										Mar 2021				Mar 2022				Mar 2023				Mar 2024									
Installation Information																															
Method of Implementation: TEMPALT:: Installation Name: EWTT																															
Installation Cost		Prior Years	FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total		FY 2021		FY 2022		FY 2023		FY 2024		To Complete		Total								
		Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)								
Prior Years		- / -	- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -								
FY 2018		- / -	- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -								
FY 2019		- / -	- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -								
FY 2020		- / -	- / -		- / -		- / -		- / -		- / -		2 / 0.756		- / -		- / -		- / -		0 / 0.000		2 / 0.756								
FY 2021		- / -	- / -		- / -		- / -		- / -		- / -		- / -		2 / 0.772		- / -		- / -		0 / 0.000		2 / 0.772								
FY 2022		- / -	- / -		- / -		- / -		- / -		- / -		- / -		- / -		2 / 0.788		- / -		0 / 0.000		2 / 0.788								
FY 2023		- / -	- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		2 / 0.804		0 / 0.000		2 / 0.804								
FY 2024		- / -	- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -								
To Complete		- / -	- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -								
Total		- / -	- / -		- / -		- / -		- / -		- / -		2 / 0.756		2 / 0.772		2 / 0.788		2 / 0.804		0 / 0.000		8 / 3.120								
Installation Schedule																															
	PYS	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				TC	Tot
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4		
In	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	-	-	1	1	-	-	1	1	-	-	1	1	-	-	8
Out	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	-	-	1	1	-	-	1	1	-	-	1	1	-	-	8

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Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019		
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: 7 / ML010 TECHNICAL INSERTION (SWFTS)		
ID Code (A=Service Ready, B=Not Service Ready) :							MDAP/MAIS Code:					
Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity (<i>Units in Each</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost (<i>\$ in Millions</i>)	19.230	28.043	28.895	17.942	0.000	17.942	3.290	0.000	0.000	0.000	0.922	98.322
Less PY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (<i>\$ in Millions</i>)	19.230	28.043	28.895	17.942	0.000	17.942	3.290	0.000	0.000	0.000	0.922	98.322
Plus CY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority (<i>\$ in Millions</i>)	19.230	28.043	28.895	17.942	0.000	17.942	3.290	0.000	0.000	0.000	0.922	98.322
<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 Technical Insertions (TI) up through and including TI-18 for installation on LOS ANGELES, SSGN, SEAWOLF, and VIRGINIA Class submarines that provide updates to the AN/BLQ-10A configuration baseline. The final TI-18 installations will end in FY21. Beginning with TI-20, all AN/BLQ-10 costs are captured in ML012 due to the significant changes associated with the AN/BLQ-10B upgrade. 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-10A 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-10A 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 eventually synchronize with SWFTS TI/APB process and model.												

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Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019			
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: 7 / 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: 0604503N					
Financial Plan	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total	
	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	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-16/18 VA/688/21 Class - NonOrganic ⁽¹²⁾	35 / 13.781	12 / 22.049	6 / 11.034	5 / 9.380	- / -	5 / 9.380	- / -	- / -	- / -	- / -	- / -	58 / 56.244	
1.1.2) TI-18 SSGN CLASS - NonOrganic	- / -	- / -	2 / 4.780	2 / 4.874	- / -	2 / 4.874	- / -	- / -	- / -	- / -	- / -	4 / 9.654	
<i>Subtotal: Recurring</i>	- / 13.781	- / 22.049	- / 15.814	- / 14.254	- / -	- / 14.254	- / -	- / -	- / -	- / -	- / 0.000	- / 65.898	
<i>Subtotal: ML010 TECHNICAL INSERTION (SWFTS)</i>	35 / 13.781	12 / 22.049	8 / 15.814	7 / 14.254	- / -	7 / 14.254	- / -	- / -	- / -	- / -	- / -	62 / 65.898	
<i>Subtotal: Procurement, All Modification Items</i>	- / 13.781	- / 22.049	- / 15.814	- / 14.254	- / -	- / 14.254	- / -	- / -	- / -	- / -	- / 0.000	- / 65.898	
Support (All Modification Items)													
2.1) TI/APB NRE	- / 2.405	- / 2.449	- / 8.566	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / 13.420	
<i>Subtotal: Support</i>	- / 2.405	- / 2.449	- / 8.566	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / 0.000	- / 13.420	
Installation													
<i>Modification Item 1 of 1:</i> ML010 TECHNICAL INSERTION (SWFTS)	- / 3.044	- / 3.545	- / 4.515	- / 3.688	- / 0.000	- / 3.688	- / 3.290	- / 0.000	- / 0.000	- / 0.000	- / 0.922	- / 19.004	
<i>Subtotal: Installation</i>	- / 3.044	- / 3.545	- / 4.515	- / 3.688	- / -	- / 3.688	- / 3.290	- / -	- / -	- / -	- / 0.922	- / 19.004	
Total													
Total Cost (Procurement + Support + Installation)	19.230	28.043	28.895	17.942	0.000	17.942	3.290	0.000	0.000	0.000	0.922	98.322	

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Exhibit P-3a, Individual Modification: PB 2020 Navy											Date: March 2019																				
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: 7 / 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 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024					
Contract Dates		Mar 2018				Mar 2019				Mar 2020																					
Delivery Dates		Mar 2019				Mar 2020				Mar 2021																					
Installation Information																															
Method of Implementation: ALT:: Installation Name: TI-16/18 VA/688/21 Class																															
Installation Cost		Prior Years		FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total		FY 2021		FY 2022		FY 2023		FY 2024		To Complete		Total							
		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)							
Prior Years		27 / 3.044		8 / 3.545		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.000		35 / 6.589							
FY 2018		- / -		- / -		10 / 4.515		- / -		- / -		- / -		- / -		- / -		- / -		- / -		2 / 0.922		12 / 5.437							
FY 2019		- / -		- / -		- / -		6 / 2.766		0 / 0.000		6 / 2.766		- / -		- / -		- / -		- / -		0 / 0.000		6 / 2.766							
FY 2020		- / -		- / -		- / -		- / -		- / -		- / -		5 / 2.350		- / -		- / -		- / -		0 / 0.000		5 / 2.350							
FY 2021		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -							
FY 2022		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -							
FY 2023		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -							
FY 2024		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -							
To Complete		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -							
Total		27 / 3.044		8 / 3.545		10 / 4.515		6 / 2.766		0 / 0.000		6 / 2.766		5 / 2.350		- / -		- / -		- / -		2 / 0.922		58 / 17.142							
Installation Schedule																															
	PYS	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				TC	Tot
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4		
In	27	1	3	2	2	-	4	3	3	-	2	2	2	-	2	2	1	-	-	-	-	-	-	-	-	-	-	-	-	2	58
Out	27	-	3	3	2	-	4	3	3	-	2	2	2	-	2	2	1	-	-	-	-	-	-	-	-	-	-	-	-	2	58

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Exhibit P-3a, Individual Modification: PB 2020 Navy		Date: March 2019
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: 7 / 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)

Installation Information

Method of Implementation: AIT:: Installation Name: TI-18 SSGN CLASS

Installation Cost	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)
Prior Years	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2018	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2019	- / -	- / -	- / -	2 / 0.922	0 / 0.000	2 / 0.922	- / -	- / -	- / -	- / -	0 / 0.000	2 / 0.922
FY 2020	- / -	- / -	- / -	- / -	- / -	- / -	2 / 0.940	- / -	- / -	- / -	0 / 0.000	2 / 0.940
FY 2021	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2022	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2023	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2024	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
To Complete	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
Total	- / -	- / -	- / -	2 / 0.922	0 / 0.000	2 / 0.922	2 / 0.940	- / -	- / -	- / -	0 / 0.000	4 / 1.862

Installation Schedule

	PYS	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				TC	Tot
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4		
In	-	-	-	-	-	-	-	-	-	-	1	1	-	-	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4
Out	-	-	-	-	-	-	-	-	-	-	1	1	-	-	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4

Footnotes:
⁽¹²⁾ The two additional Virginia Class (VA) SWFTS shipsets procured in FY18 by congressional direction, will be installed in FY19 with funds obtained via below threshold reprogramming.

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Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019		
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 / ML012 - AN/BLQ-10B TECHNICAL INSERTION (SWFTS)		
ID Code (A=Service Ready, B=Not Service Ready) :							MDAP/MAIS Code:					
Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity (<i>Units in Each</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost (<i>\$ in Millions</i>)	0.000	0.000	0.000	6.042	0.000	6.042	51.356	85.890	94.017	95.898	24.438	357.641
Less PY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (<i>\$ in Millions</i>)	0.000	0.000	0.000	6.042	0.000	6.042	51.356	85.890	94.017	95.898	24.438	357.641
Plus CY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority (<i>\$ in Millions</i>)	0.000	0.000	0.000	6.042	0.000	6.042	51.356	85.890	94.017	95.898	24.438	357.641
<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/BLQ-10B EW system for installation on LOS ANGELES, SEAWOLF, and VIRGINIA Class submarines beginning with TI-20. AN/BLQ-10B achieves EW superiority through hardware and software updates to pace the threat and brings EW fully onto the SWFTS model. Tech insertion procures the hardware necessary to upgrade and back-fit EW systems. This system will be fully aligned with SWFTS with the exception of SSBN Class and provides capabilities required by the EW Capability Development Document (CDD). The AN/BLQ-10B is a more complex design over the AN/BLQ-10A resulting in a higher unit cost. NRE costs have been broken out from shipset costs consistent with the other SWFTS subsystems (SSN Acoustic Equipment, SSN Combat Control Systems, and Imaging Systems) who use the SWFTS model.												

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Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019			
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 / ML012 - AN/BLQ-10B 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: 0604503N					
Financial Plan	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total	
	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	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: ML012 - AN/BLQ-10B TECHNICAL INSERTION (SWFTS)													
A Kits													
Recurring													
1.1.1) TI-20 VA CLASS - NonOrganic	- / -	- / -	- / -	1 / 6.042	- / -	1 / 6.042	8 / 49.304	5 / 31.430	- / -	- / -	- / -	14 / 86.776	
1.1.2) TI-22 688/21 - NonOrganic	- / -	- / -	- / -	- / -	- / -	- / -	- / -	6 / 37.716	11 / 70.532	3 / 19.620	- / -	20 / 127.868	
1.1.3) TI-24 VA - NonOrganic	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	8 / 52.320	- / -	8 / 52.320	
Subtotal: Recurring	- / 0.000	- / -	- / -	- / 6.042	- / -	- / 6.042	- / 49.304	- / 69.146	- / 70.532	- / 71.940	- / 0.000	- / 266.964	
Subtotal: ML012 - AN/BLQ-10B TECHNICAL INSERTION (SWFTS)	- / -	- / -	- / -	1 / 6.042	- / -	1 / 6.042	8 / 49.304	11 / 69.146	11 / 70.532	11 / 71.940	- / -	42 / 266.964	
Subtotal: Procurement, All Modification Items	- / 0.000	- / -	- / -	- / 6.042	- / -	- / 6.042	- / 49.304	- / 69.146	- / 70.532	- / 71.940	- / 0.000	- / 266.964	
Installation													
Modification Item 1 of 1: ML012 - AN/BLQ-10B TECHNICAL INSERTION (SWFTS)	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 2.052	- / 16.744	- / 23.485	- / 23.958	- / 24.438	- / 90.677	
Subtotal: Installation	- / 0.000	- / -	- / -	- / -	- / -	- / -	- / 2.052	- / 16.744	- / 23.485	- / 23.958	- / 24.438	- / 90.677	
Total													
Total Cost (Procurement + Support + Installation)	0.000	0.000	0.000	6.042	0.000	6.042	51.356	85.890	94.017	95.898	24.438	357.641	

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Exhibit P-3a, Individual Modification: PB 2020 Navy											Date: March 2019																				
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 / ML012 - AN/BLQ-10B TECHNICAL INSERTION (SWFTS)											
ID Code (A=Service Ready, B=Not Service Ready) :															MDAP/MAIS Code:																
Modification Item 1 of 1: ML012 - AN/BLQ-10B TECHNICAL INSERTION (SWFTS)																															
Manufacturer Information																															
Manufacturer Name: TBD (Competitive Procurement)														Manufacturer Location: TBD (Competitive Procurement)																	
Administrative Leadtime (<i>in Months</i>): 6														Production Leadtime (<i>in Months</i>): 12																	
Dates		FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024					
Contract Dates										Mar 2020				Mar 2021				Mar 2022				Mar 2023				Mar 2024					
Delivery Dates										Mar 2021				Mar 2022				Mar 2023				Mar 2024				Mar 2025					
Installation Information																															
Method of Implementation: AIT:: Installation Name: TI-20 VA CLASS																															
Installation Cost		Prior Years		FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total		FY 2021		FY 2022		FY 2023		FY 2024		To Complete		Total							
		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)							
Prior Years		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
FY 2018		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
FY 2019		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
FY 2020		- / -		- / -		- / -		- / -		- / -		- / -		- / -		1 / 2.052		- / -		- / -		- / -		0 / 0.000		1 / 2.052					
FY 2021		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		8 / 16.744		- / -		- / -		0 / 0.000		8 / 16.744					
FY 2022		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		5 / 10.675		- / -		0 / 0.000		5 / 10.675					
FY 2023		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
FY 2024		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
To Complete		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
Total		- / -		- / -		- / -		- / -		- / -		- / -		- / -		1 / 2.052		8 / 16.744		5 / 10.675		- / -		0 / 0.000		14 / 29.471					
Installation Schedule																															
	PYS	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				TC	Tot
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4		
In	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	3	3	2	-	2	2	1	-	-	-	-	-	14
Out	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	3	3	2	-	2	2	1	-	-	-	-	-	14

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Exhibit P-3a, Individual Modification: PB 2020 Navy		Date: March 2019
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 / ML012 - AN/BLQ-10B TECHNICAL INSERTION (SWFTS)

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

Modification Item 1 of 1: ML012 - AN/BLQ-10B TECHNICAL INSERTION (SWFTS)

Installation Information

Method of Implementation: AIT:: Installation Name: TI-22 688/21

Installation Cost	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)
Prior Years	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2018	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2019	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2020	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2021	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2022	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	6 / 12.810	- / -	0 / 0.000	6 / 12.810
FY 2023	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	11 / 23.958	0 / 0.000	11 / 23.958
FY 2024	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	3 / 6.665	3 / 6.665
To Complete	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
Total	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	6 / 12.810	11 / 23.958	3 / 6.665	20 / 43.433

Installation Schedule

	PYS	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				TC	Tot
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4		
In	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	-	4	4	3	3	20	
Out	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	-	4	4	3	3	20	

Method of Implementation: AIT:: Installation Name: TI-24 VA

Installation Cost	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)
Prior Years	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2018	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2019	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2020	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2021	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2022	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2023	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2024	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	8 / 17.773	8 / 17.773

UNCLASSIFIED

Exhibit P-3a, Individual Modification: PB 2020 Navy		Date: March 2019
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 / ML012 - AN/BLQ-10B TECHNICAL INSERTION (SWFTS)
ID Code (A=Service Ready, B=Not Service Ready) :		MDAP/MAIS Code:
Modification Item 1 of 1: ML012 - AN/BLQ-10B TECHNICAL INSERTION (SWFTS)		
Installation Information		

Method of Implementation: AIT:: Installation Name: TI-24 VA

Installation Cost	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)
To Complete	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
Total	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	8 / 17.773	8 / 17.773

Installation Schedule

	PYS	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				TC	Tot
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4		
In	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8	8
Out	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8	8

UNCLASSIFIED

Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019		
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: 9 / ML017 AN/BLQ-10 FIELD CHANGE KITS		
ID Code (A=Service Ready, B=Not Service Ready) :							MDAP/MAIS Code:					
Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity (<i>Units in Each</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost (<i>\$ in Millions</i>)	7.404	16.663	23.092	14.933	0.000	14.933	21.275	22.307	22.753	23.209	Continuing	Continuing
Less PY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (<i>\$ in Millions</i>)	7.404	16.663	23.092	14.933	0.000	14.933	21.275	22.307	22.753	23.209	Continuing	Continuing
Plus CY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority (<i>\$ in Millions</i>)	7.404	16.663	23.092	14.933	0.000	14.933	21.275	22.307	22.753	23.209	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>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost (<i>\$ in Dollars</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Description: Procures AN/BLQ-10 and subsystem Product Improvement Field Change Kits (FCK). One (1) set of AN/BLQ-10 FCKs is procured in each fiscal year that includes variable quantities and types, procured from a variety of vendors. Procures Submarine Launched Device (SLD) Buoy to reduce risk of counter-detection for operating submarines. FY20 reflects a reduction to the PB19 position in order to fund other higher priority requirements. Procures MMM Payload Module antennas to support submarine Fleet required improved Unmanned Aerial System (UAS) communications and Electronic Warfare (EW) capability to meet emerging threats and provide new capabilities required by the Fleet. FY20 reflects a reduction to the PB19 position in order to fund other higher priority requirements.												

UNCLASSIFIED

Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019			
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: 9 / ML017 AN/BLQ-10 FIELD CHANGE KITS			
ID Code (A=Service Ready, B=Not Service Ready) :								MDAP/MAIS Code:					
Models of Systems Affected: AN/BLQ-10				Modification Type: ORDALT				Related RDT&E PEs: 0604503N					
Financial Plan	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total	
	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	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> ML017 AN/BLQ-10 FIELD CHANGE KITS													
B Kits													
Recurring													
1.1.1) AN/BLQ-10 FCKs - NonOrganic ⁽¹³⁾	6 / 6.781	1 / 15.879	1 / 10.851	1 / 11.068	- / -	1 / 11.068	1 / 11.289	1 / 11.516	1 / 11.746	1 / 11.981	Continuing	Continuing	
1.1.2) Submarine Launch Device (SLD) - NonOrganic ⁽¹⁴⁾	- / -	- / -	18 / 3.333	4 / 1.149	- / -	4 / 1.149	5 / 2.019	5 / 2.041	5 / 2.082	5 / 2.124	Continuing	Continuing	
1.1.3) MMM Payloads - NonOrganic ⁽¹⁵⁾	- / -	- / -	6 / 7.344	1 / 1.129	- / -	1 / 1.129	6 / 6.908	6 / 7.044	6 / 7.188	6 / 7.332	Continuing	Continuing	
<i>Subtotal: Recurring</i>	- / 6.781	- / 15.879	- / 21.528	- / 13.346	- / -	- / 13.346	- / 20.216	- / 20.601	- / 21.016	- / 21.437	Continuing	Continuing	
<i>Subtotal: ML017 AN/BLQ-10 FIELD CHANGE KITS</i>	6 / 6.781	1 / 15.879	25 / 21.528	6 / 13.346	- / -	6 / 13.346	12 / 20.216	12 / 20.601	12 / 21.016	12 / 21.437	Continuing	Continuing	
<i>Subtotal: Procurement, All Modification Items</i>	- / 6.781	- / 15.879	- / 21.528	- / 13.346	- / -	- / 13.346	- / 20.216	- / 20.601	- / 21.016	- / 21.437	Continuing	Continuing	
Installation													
<i>Modification Item 1 of 1:</i> ML017 AN/BLQ-10 FIELD CHANGE KITS	- / 0.623	- / 0.784	- / 1.564	- / 1.587	- / 0.000	- / 1.587	- / 1.059	- / 1.706	- / 1.737	- / 1.772	- / 0.793	- / 11.625	
<i>Subtotal: Installation</i>	- / 0.623	- / 0.784	- / 1.564	- / 1.587	- / -	- / 1.587	- / 1.059	- / 1.706	- / 1.737	- / 1.772	- / 0.793	- / 11.625	
Total													
Total Cost (Procurement + Support + Installation)	7.404	16.663	23.092	14.933	0.000	14.933	21.275	22.307	22.753	23.209	Continuing	Continuing	

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Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019																					
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: 9 / ML017 AN/BLQ-10 FIELD CHANGE KITS											
ID Code (A=Service Ready, B=Not Service Ready) :															MDAP/MAIS Code:																
Modification Item 1 of 1: ML017 AN/BLQ-10 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 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024					
Contract Dates		Dec 2017				Dec 2018				Dec 2019				Dec 2020				Dec 2021				Dec 2022				Dec 2023					
Delivery Dates		Jun 2018				Jun 2019				Jun 2020				Jun 2021				Jun 2022				Jun 2023				Jun 2024					
Installation Information																															
Method of Implementation: AIT:: Installation Name: AN/BLQ-10 FCKs																															
Installation Cost		Prior Years	FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total		FY 2021		FY 2022		FY 2023		FY 2024		To Complete		Total								
		Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)								
Prior Years		6 / 0.623		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.000		6 / 0.623							
FY 2018		- / -		1 / 0.784		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.000		1 / 0.784							
FY 2019		- / -		- / -		1 / 0.646		- / -		- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.000		1 / 0.646							
FY 2020		- / -		- / -		- / -		1 / 0.659		0 / 0.000		1 / 0.659		- / -		- / -		- / -		- / -		0 / 0.000		1 / 0.659							
FY 2021		- / -		- / -		- / -		- / -		- / -		- / -		1 / 0.672		- / -		- / -		- / -		0 / 0.000		1 / 0.672							
FY 2022		- / -		- / -		- / -		- / -		- / -		- / -		- / -		1 / 0.685		- / -		- / -		0 / 0.000		1 / 0.685							
FY 2023		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		1 / 0.699		- / -		0 / 0.000		1 / 0.699							
FY 2024		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		1 / 0.713		0 / 0.000		1 / 0.713							
To Complete		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -							
Total		6 / 0.623		1 / 0.784		1 / 0.646		1 / 0.659		0 / 0.000		1 / 0.659		1 / 0.672		1 / 0.685		1 / 0.699		1 / 0.713		0 / 0.000		13 / 5.481							
Installation Schedule																															
	PYS	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				TC	Tot
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4		
In	6	-	-	1	-	-	-	-	1	-	-	-	-	1	-	-	-	-	1	-	-	-	-	1	-	-	-	-	1	-	
Out	6	-	-	1	-	-	-	-	1	-	-	-	-	1	-	-	-	-	1	-	-	-	-	1	-	-	-	-	1	-	

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Exhibit P-3a, Individual Modification: PB 2020 Navy		Date: March 2019
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: 9 / ML017 AN/BLQ-10 FIELD CHANGE KITS

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

Modification Item 1 of 1: ML017 AN/BLQ-10 FIELD CHANGE KITS

Installation Information

Method of Implementation: AIT:: Installation Name: Submarine Launch Device (SLD)

Installation Cost	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)
Prior Years	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2018	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2019	- / -	- / -	18 / 0.918	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	18 / 0.918
FY 2020	- / -	- / -	- / -	4 / 0.208	0 / 0.000	4 / 0.208	- / -	- / -	- / -	- / -	0 / 0.000	4 / 0.208
FY 2021	- / -	- / -	- / -	- / -	- / -	- / -	5 / 0.265	- / -	- / -	- / -	0 / 0.000	5 / 0.265
FY 2022	- / -	- / -	- / -	- / -	- / -	- / -	- / -	5 / 0.271	- / -	- / -	0 / 0.000	5 / 0.271
FY 2023	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	5 / 0.276	- / -	0 / 0.000	5 / 0.276
FY 2024	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	5 / 0.282	0 / 0.000	5 / 0.282
To Complete	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
Total	- / -	- / -	18 / 0.918	4 / 0.208	0 / 0.000	4 / 0.208	5 / 0.265	5 / 0.271	5 / 0.276	5 / 0.282	0 / 0.000	42 / 2.220

Installation Schedule

	PYS	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				TC	Tot
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4		
In	-	-	-	-	-	-	-	5	13	-	-	4	-	-	-	5	-	-	-	5	-	-	-	5	-	-	-	5	-	-	42
Out	-	-	-	-	-	-	-	5	13	-	-	4	-	-	-	5	-	-	-	5	-	-	-	5	-	-	-	5	-	-	42

Method of Implementation: AIT:: Installation Name: MMM Payloads

Installation Cost	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)
Prior Years	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2018	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2019	- / -	- / -	- / -	6 / 0.720	0 / 0.000	6 / 0.720	- / -	- / -	- / -	- / -	0 / 0.000	6 / 0.720
FY 2020	- / -	- / -	- / -	- / -	- / -	- / -	1 / 0.122	- / -	- / -	- / -	0 / 0.000	1 / 0.122
FY 2021	- / -	- / -	- / -	- / -	- / -	- / -	- / -	6 / 0.750	- / -	- / -	0 / 0.000	6 / 0.750
FY 2022	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	6 / 0.762	- / -	0 / 0.000	6 / 0.762
FY 2023	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	6 / 0.777	0 / 0.000	6 / 0.777
FY 2024	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	6 / 0.793	6 / 0.793

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Exhibit P-3a, Individual Modification: PB 2020 Navy		Date: March 2019
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: 9 / ML017 AN/BLQ-10 FIELD CHANGE KITS
ID Code (A=Service Ready, B=Not Service Ready) :		MDAP/MAIS Code:

Modification Item 1 of 1: ML017 AN/BLQ-10 FIELD CHANGE KITS

Installation Information

Method of Implementation: AIT:: Installation Name: MMM Payloads

Installation Cost	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)
To Complete	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
Total	- / -	- / -	- / -	6 / 0.720	0 / 0.000	6 / 0.720	1 / 0.122	6 / 0.750	6 / 0.762	6 / 0.777	6 / 0.793	31 / 3.924

Installation Schedule

	PYS	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				TC	Tot
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4		
In	-	-	-	-	-	-	-	-	-	-	2	2	2	-	1	-	-	-	2	2	2	-	2	2	2	-	2	2	2	6	31
Out	-	-	-	-	-	-	-	-	-	-	2	2	2	-	1	-	-	-	2	2	2	-	2	2	2	-	2	2	2	6	31

Footnotes:

⁽¹³⁾ AN/BLQ-10 FCKs are procured in variable quantities and types, and are bought from a variety of vendors each fiscal year. FY18 decrease of \$1M from the PB19 position reflects congressional mark for ANBLQ-10(V) field change kits unit cost growth.

⁽¹⁴⁾ The number of buoys vary from year to year and as a result the quantity reflects the number of controllers with corresponding installs only. FY20 and FY21 unit costs are perceived to be greater than inflation due to the fluctuation of both controller and buoy quantities included in the total cost. FY20 reflects a reduction to the PB19 position in order to fund other higher priority requirements.

⁽¹⁵⁾ FY20 reflects a reduction to the PB19 position in order to fund other higher priority requirements.

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Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019		
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 / ML018 VA CLASS ES MODERNIZATION PATRIOT		
ID Code (A=Service Ready, B=Not Service Ready) :							MDAP/MAIS Code:					
Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity (Units in Each)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost (\$ in Millions)	2.726	2.955	0.360	0.367	0.000	0.367	0.000	0.000	0.000	0.000	0.000	6.408
Less PY Advance Procurement (\$ in Millions)	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (\$ in Millions)	2.726	2.955	0.360	0.367	0.000	0.367	0.000	0.000	0.000	0.000	0.000	6.408
Plus CY Advance Procurement (\$ in Millions)	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority (\$ in Millions)	2.726	2.955	0.360	0.367	0.000	0.367	0.000	0.000	0.000	0.000	0.000	6.408
(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 EW 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: PB 2020 Navy										Date: March 2019			
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 / ML018 VA CLASS ES MODERNIZATION PATRIOT			
ID Code (A=Service Ready, B=Not Service Ready) :								MDAP/MAIS Code:					
Models of Systems Affected: VA PATRIOT				Modification Type: SHIPALT				Related RDT&E PEs: 0604503N					
Financial Plan	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total	
	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	
Procurement													
Modification Item 1 of 1: ML018 VA CLASS ES MODERNIZATION PATRIOT													
B Kits													
Recurring													
1.1.1) VA PATRIOT - NonOrganic	16 / 2.379	2 / 2.424	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	18 / 4.803	
<i>Subtotal: Recurring</i>	- / 2.379	- / 2.424	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / 0.000	- / 4.803	
<i>Subtotal: ML018 VA CLASS ES MODERNIZATION PATRIOT</i>	16 / 2.379	2 / 2.424	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	18 / 4.803	
<i>Subtotal: Procurement, All Modification Items</i>	- / 2.379	- / 2.424	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / 0.000	- / 4.803	
Installation													
Modification Item 1 of 1: ML018 VA CLASS ES MODERNIZATION PATRIOT	- / 0.347	- / 0.531	- / 0.360	- / 0.367	- / 0.000	- / 0.367	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 1.605	
<i>Subtotal: Installation</i>	- / 0.347	- / 0.531	- / 0.360	- / 0.367	- / -	- / 0.367	- / -	- / -	- / -	- / -	- / 0.000	- / 1.605	
Total													
Total Cost (Procurement + Support + Installation)	2.726	2.955	0.360	0.367	0.000	0.367	0.000	0.000	0.000	0.000	0.000	6.408	

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Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019																					
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 / ML018 VA CLASS ES MODERNIZATION PATRIOT											
ID Code (A=Service Ready, B=Not Service Ready) :															MDAP/MAIS Code:																
Modification Item 1 of 1: ML018 VA CLASS ES MODERNIZATION PATRIOT																															
Manufacturer Information																															
Manufacturer Name: VARIOUS															Manufacturer Location: VARIOUS																
Administrative Leadtime (in Months): 6															Production Leadtime (in Months): 19																
Dates		FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024					
Contract Dates		Mar 2018																													
Delivery Dates		Oct 2019																													
Installation Information																															
Method of Implementation: AIT:: Installation Name: VA PATRIOT																															
Installation Cost		Prior Years		FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total		FY 2021		FY 2022		FY 2023		FY 2024		To Complete		Total							
		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)							
Prior Years		11 / 0.347		3 / 0.531		2 / 0.360		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.000		16 / 1.238					
FY 2018		- / -		- / -		- / -		2 / 0.367		0 / 0.000		2 / 0.367		- / -		- / -		- / -		- / -		- / -		0 / 0.000		2 / 0.367					
FY 2019		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
FY 2020		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
FY 2021		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
FY 2022		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
FY 2023		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
FY 2024		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
To Complete		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
Total		11 / 0.347		3 / 0.531		2 / 0.360		2 / 0.367		0 / 0.000		2 / 0.367		- / -		- / -		- / -		- / -		- / -		0 / 0.000		18 / 1.605					
Installation Schedule																															
	PYS	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				TC	Tot
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4		
In	11	3	-	-	-	2	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	18
Out	11	3	-	-	-	2	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	18

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Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019		
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: 11 / ML020 AN/BLQ-10 (SWFTS)		
ID Code (A=Service Ready, B=Not Service Ready) :							MDAP/MAIS Code:					
Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity <i>(Units in Each)</i>	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost <i>(\$ in Millions)</i>	35.790	41.101	30.944	20.762	0.000	20.762	1.722	0.000	0.000	0.000	0.472	130.791
Less PY Advance Procurement <i>(\$ in Millions)</i>	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) <i>(\$ in Millions)</i>	35.790	41.101	30.944	20.762	0.000	20.762	1.722	0.000	0.000	0.000	0.472	130.791
Plus CY Advance Procurement <i>(\$ in Millions)</i>	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority <i>(\$ in Millions)</i>	35.790	41.101	30.944	20.762	0.000	20.762	1.722	0.000	0.000	0.000	0.472	130.791
<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-10 NRE and modernization kits for EW 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. All funding for digital upgrades in ML020 for TI-20 and greater is combined into the ML012 line starting in FY20.												

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Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019			
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: 11 / ML020 AN/BLQ-10 (SWFTS)			
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: 0604503N					
Financial Plan	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total	
	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	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-10 (SWFTS)													
B Kits													
Recurring													
1.1.1) AN/BLQ-10 Backfit Kits - NonOrganic ⁽¹⁶⁾	14 / 20.299	12 / 31.033	8 / 21.104	7 / 18.837	- / -	7 / 18.837	- / -	- / -	- / -	- / -	- / -	41 / 91.273	
Subtotal: Recurring	- / 20.299	- / 31.033	- / 21.104	- / 18.837	- / -	- / 18.837	- / -	- / -	- / -	- / -	- / 0.000	- / 91.273	
Subtotal: ML020 AN/BLQ-10 (SWFTS)	14 / 20.299	12 / 31.033	8 / 21.104	7 / 18.837	- / -	7 / 18.837	- / -	- / -	- / -	- / -	- / -	41 / 91.273	
Subtotal: Procurement, All Modification Items	- / 20.299	- / 31.033	- / 21.104	- / 18.837	- / -	- / 18.837	- / -	- / -	- / -	- / -	- / 0.000	- / 91.273	
Support (All Modification Items)													
2.1) NRE ⁽¹⁷⁾	- / 14.134	- / 8.212	- / 7.476	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / 29.822	
Subtotal: Support	- / 14.134	- / 8.212	- / 7.476	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / 0.000	- / 29.822	
Installation													
Modification Item 1 of 1: ML020 AN/BLQ-10 (SWFTS)	- / 1.357	- / 1.856	- / 2.364	- / 1.925	- / 0.000	- / 1.925	- / 1.722	- / 0.000	- / 0.000	- / 0.000	- / 0.472	- / 9.696	
Subtotal: Installation	- / 1.357	- / 1.856	- / 2.364	- / 1.925	- / -	- / 1.925	- / 1.722	- / -	- / -	- / -	- / 0.472	- / 9.696	
Total													
Total Cost (Procurement + Support + Installation)	35.790	41.101	30.944	20.762	0.000	20.762	1.722	0.000	0.000	0.000	0.472	130.791	

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Exhibit P-3a, Individual Modification: PB 2020 Navy											Date: March 2019																					
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: 11 / ML020 AN/BLQ-10 (SWFTS)										
ID Code (A=Service Ready, B=Not Service Ready) :											MDAP/MAIS Code:																					
Modification Item 1 of 1: ML020 AN/BLQ-10 (SWFTS)																																
Manufacturer Information																																
Manufacturer Name: VARIOUS											Manufacturer Location: TBD																					
Administrative Leadtime <i>(in Months)</i> : 6											Production Leadtime <i>(in Months)</i> : 12																					
Dates	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024							
Contract Dates	Mar 2018				Mar 2019				Mar 2020																							
Delivery Dates	Mar 2019				Mar 2020				Mar 2021																							
Installation Information																																
Method of Implementation: AIT:: Installation Name: AN/BLQ-10 Backfit Kits																																
Installation Cost		Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total																			
		Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)																			
Prior Years		6 / 1.357	8 / 1.856	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	14 / 3.213																			
FY 2018		- / -	- / -	10 / 2.364	- / -	- / -	- / -	- / -	- / -	- / -	- / -	2 / 0.472	12 / 2.836																			
FY 2019		- / -	- / -	- / -	8 / 1.925	0 / 0.000	8 / 1.925	- / -	- / -	- / -	- / -	0 / 0.000	8 / 1.925																			
FY 2020		- / -	- / -	- / -	- / -	- / -	- / -	7 / 1.722	- / -	- / -	- / -	0 / 0.000	7 / 1.722																			
FY 2021		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -																			
FY 2022		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -																			
FY 2023		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -																			
FY 2024		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -																			
To Complete		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -																			
Total		6 / 1.357	8 / 1.856	10 / 2.364	8 / 1.925	0 / 0.000	8 / 1.925	7 / 1.722	- / -	- / -	- / -	2 / 0.472	41 / 9.696																			
Installation Schedule																																
	PYS	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				TC	Tot	
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4			
In	6	1	3	2	2	-	4	3	3	-	3	3	2	-	3	3	1	-	-	-	-	-	-	-	-	-	-	-	-	2	41	
Out	6	-	3	3	2	-	4	3	3	-	3	3	2	-	3	3	1	-	-	-	-	-	-	-	-	-	-	-	-	2	41	
Footnotes:																																
⁽¹⁶⁾ The two additional Virginia Class (VA) SWFTS shipsets procured in FY18 by congressional direction, will be installed in FY19 with funds obtained via below threshold reprogramming.																																
⁽¹⁷⁾ FY19 reduced due to Congressional Action.																																

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Exhibit P-40, Budget Line Item Justification: PB 2020 Navy									Date: March 2019			
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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity (Units in Each)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost (\$ in Millions)	2,690.816	592.644	462.908	566.140	0.000	566.140	555.525	812.338	1,042.482	1,107.075	2,558.665	10,388.593
Less PY Advance Procurement (\$ in Millions)	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (\$ in Millions)	2,690.816	592.644	462.908	566.140	0.000	566.140	555.525	812.338	1,042.482	1,107.075	2,558.665	10,388.593
Plus CY Advance Procurement (\$ in Millions)	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority (\$ in Millions)	2,690.816	592.644	462.908	566.140	0.000	566.140	555.525	812.338	1,042.482	1,107.075	2,558.665	10,388.593
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)												
Initial Spares (\$ in Millions)	-	15.672	0.813	4.844	-	4.844	4.274	4.114	3.841	4.432	Continuing	Continuing
Flyaway Unit Cost (\$ in Dollars)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost (\$ in Dollars)	-	-	-	-	-	-	-	-	-	-	-	-
Description: The FY 2020 funding request was reduced by \$22.000 million to account for the availability of prior year execution balances. 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: 6-5-4-3-4-4-4 Combat System: 2-2-3-2-3-3-4. 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 / HELO HANGER DOOR (HHD)]: Helo Hanger Door (HHD)- FLTIIA ships have documented HHD reliability issues. This update installs several new reliability improvements that are planned for DDG113 AF.												

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Exhibit P-40, Budget Line Item Justification: PB 2020 Navy			Date: March 2019
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			
[P40A / OFFICER OF THE DECK SCREEN (OOD)]: Officer Of The Deck Screen (OOD)- Replaces the Interior Communication/Standard Module alarm panels in the 3 OOD stations and Combat Systems Maintenance Center with Agimet Multi Function Color Repeaters for standardization of BF components and commonality with DDG105 AF design. [P40A / AWS VIDEO DISTRIBUTION SYSTEM & CIRCUIT 3 TV]: This Ship Change replaces obsolete and unsupported legacy topside surveillance camera CKT-3TV Systems on NON-AMOD DDGs(including sensors, pan/tilt, unit, controllers and other HW) with shock and environmentally qualified COTS Camera System. [P40A / DIGITAL VOLTAGE REGULATOR (DVR)]: Digital Voltage Regulator (DVR)- Replaces the obsolete legacy Excitation Control Panel (EXCOP) for each generator consistent with DDG 113AF. [P40A / DM6IN - INSTALLATION]: Funds are for installation of DDG Modernization equipment in support of the Fleet Modernization Program. [P40A / SOLID STATE RADAR]: Backfit a new gallium nitride antenna array and a multi-mission signal processor (MMSP). [P40A / AEGIS MODERNIZATION TESTING (AMT)]: Provide on-site engineering and technical support of the planning and execution DDG Modernization availabilities. Provide engineering support in planning availability milestones, execute system and element testing requirements from AEGIS Light Off (ALO) to end of availability, support Combat Systems Alignment and Verification, provide crew training for maintaining newly installed AEGIS and legacy AEGIS equipment, and serve as the combat system engineering agent technical point of contact for combat system DDG Modernization matters. AMT is a two-part event: Planning and Execution. Planning consists of AMT test plan building, AMT schedule development and planning; AMT Execution consists of availability, support Combat Systems Alignment and Verification, provide crew training for maintaining newly installed AEGIS and legacy AEGIS equipment, and serve as the combat system engineering agent technical point of contract for combat system DDG Modernization matters. AMT costs are dependent on the number, scope and complexity of AMT planned per Fiscal Year (FY) with funding spread over two years: AMT Planning is executed during the year of installation (~\$5M) and AMT Execution is the year following (~\$5M). FY 2019 and FY 2020 costs are broken down as follows: - FY 2019 AMT Planning: (\$5M) to plan for two (2) AMT (FLT IIA combined HM&E and combat systems modernization). Due to the FY19 \$9.5M Congressional reduction, the two AMTs being planned were severely de-scoped. - FY 2019 AMT Execution: (\$5M) to execute two (2) AMT (FLT IIA combined HM&E and combat systems modernization). Due to the FY19 Congressional reduction, the two AMTs being executed were severely de-scoped. Due to a schedule change in execution, one of the two AMTs initially planned is now able to be fully executed. - FY 2020 CSSQT Planning: (\$15M) to plan three (3) AMTs (FLT IIA combined HM&E and combat systems modernization). - FY 2020 CSSQT Execution: (\$10M) to execute two (2) AMTs (FLT IIA combined HM&E and combat systems modernization). [P40A / COMBAT SYSTEM SHIP QUALIFICATION TRIALS (CSSQT)]: CSSQTs are required per Naval Sea Systems Instruction 90963.1C for all ships undergoing significant conversion/modernization availabilities. CSSQTs are a two-part event: Planning and Execution. Planning consists of CSSQT complex scenario building, CSSQT schedule development and planning; CSSQT Execution consists of a series of at-sea exercises and tests to verify/certify the newly installed DDG Modernization combat weapon systems have been installed properly and can be operated and maintained safely and effectively. This is accomplished by assisting ship's force in achieving (1) a sustainable level of combat/weapon system operational readiness and (2) a maintainable level of material readiness. CSSQT consists of real-life threats utilizing aircraft flight services, Air Warfare/Surface Warfare/Under Sea Warfare range services and support, scenario data recording and data analysis. CSSQT costs are dependent on the number, scope and complexity of CSSQTs planned per Fiscal Year (FY) with funding spread over two years: CSSQT Planning is executed during the year of installation (~\$1.5M) and CSSQT Execution is the year following (~\$7.5M). FY 2019 and FY 2020 costs are broken down as follows: - FY 2019 CSSQT Planning: (\$0M) the two (2) CSSQTs to be planned were cancelled due to the FY19 \$9.0M Congressional reduction.			

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Exhibit P-40, Budget Line Item Justification: PB 2020 Navy		Date: March 2019
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		
- FY 2019 CSSQT Execution: (\$9M) to execute two (2) CSSQTs (FLT IIA combined HM&E and combat systems modernization). Due to the FY19 Congressional reduction, the two CSSQTs being executed were severely de-scoped. Due to a schedule change in execution, one of two CSSQTs initially planned will be able to be fully executed. - FY 2020 CSSQT Planning: (\$4.5M) to plan three (3) CSSQTs (FLT IIA combined HM&E and combat systems modernization). - FY 2020 CSSQT Execution: (\$15.3M) to execute two (2) CSSQTs (FLT IIA combined HM&E and combat systems modernization). [P40A / 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. [P40A / 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. Flight IIA DDGs have previously received CEC installation. [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. [P3A - 3 / 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. [P3A - 4 / 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. [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 Aegis Weapon System (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 - 9 / 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. [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.		

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Exhibit P-40, Budget Line Item Justification: PB 2020 Navy		Date: March 2019
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 - 11 / 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. [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 - 13 / DM011 - AN/SQQ-89 A(V15)]: Procures improved AN/SQQ-89(V)15 with Multi-Function 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: PB 2020 Navy								Date: March 2019		
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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Exhibit Type	Title*	Subexhibits	ID CD	MDAP/MAIS Code	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)
P-40a	DDG Mod				- / 891.745	- / 123.902	- / 96.716	- / 112.470	- / -	- / 112.470
P-3a	1 / DM001 - DDG MODERNIZATION HME (GEDMS) (TBD)				- / 212.274	- / 45.348	- / 34.847	- / 33.856	- / 0.000	- / 33.856
P-3a	2 / DM001 - DDG MODERNIZATION HME (MCS/DCS) (TBD)				- / 356.979	- / 88.412	- / 66.742	- / 66.495	- / 0.000	- / 66.495
P-3a	3 / DM001 - DDG MODERNIZATION HME (DVSS) (TBD)				- / 27.321	- / 8.356	- / 5.970	- / 6.035	- / 0.000	- / 6.035
P-3a	4 / DM001 - DDG MODERNIZATION HME (WIRELESS COMMUNICATIONS) (TBD)				- / 15.059	- / 2.382	- / 1.912	- / 1.329	- / 0.000	- / 1.329
P-3a	5 / DM001 - DDG MODERNIZATION HME (IBNS) (TBD)				- / 162.562	- / 33.560	- / 25.452	- / 27.628	- / 0.000	- / 27.628
P-3a	6 / DM003 - MK 160 MOD 15 GWS (TBD)				- / 56.923	- / 15.229	- / 12.020	- / 16.343	- / 0.000	- / 16.343
P-3a	7 / DM004 - AWS UPGRADE (TBD)				- / 412.177	- / 112.648	- / 93.860	- / 132.552	- / 0.000	- / 132.552
P-3a	8 / DM005 - MULTI-MISSION SIGPRO (TBD)				- / 228.851	- / 59.572	- / 44.301	- / 64.077	- / 0.000	- / 64.077
P-3a	9 / DM006 - MULTI-MISSION SSA/CWI MICROWAVE TUBES (TBD)				- / 11.925	- / 3.199	- / 2.171	- / 3.315	- / 0.000	- / 3.315
P-3a	10 / DM007 - SPY-1D TRANSMITTER UPGRADES (TBD)				- / 57.508	- / 15.634	- / 10.836	- / 11.031	- / 0.000	- / 11.031
P-3a	11 / DM008 - MULTI-MISSION BMD CAPABILITY (TBD)				- / 20.422	- / 5.317	- / 3.608	- / 5.510	- / 0.000	- / 5.510
P-3a	12 / DM009 - VLS UPGRADES (TBD)				- / 103.535	- / 25.990	- / 20.723	- / 27.581	- / 0.000	- / 27.581
P-3a	13 / DM011 - AN/SQQ-89 A(V15) (TBD)				- / 133.535	- / 10.859	- / 5.908	- / 11.384	- / 0.000	- / 11.384
P-3a	14 / DM013 - (1 MC/DIAS UPGRADE) (TBD)				- / 0.000	- / 15.075	- / 12.975	- / 12.039	- / 0.000	- / 12.039
P-3a	15 / DM013 - (MORIAH WIND SYSTEM) (TBD)				- / 0.000	- / 6.374	- / 5.304	- / 5.180	- / 0.000	- / 5.180
P-3a	16 / DM013 - (IVCS UPGRADE) (TBD)				- / 0.000	- / 17.341	- / 16.656	- / 25.010	- / 0.000	- / 25.010
P-3a	17 / DM013 - Slewing Arm Davit (SLAD) (TBD)				- / 0.000	- / 2.298	- / 1.799	- / 2.628	- / 0.000	- / 2.628
P-3a	18 / DM013 - AN/SPA-25H (TBD)				- / 0.000	- / 1.148	- / 1.108	- / 1.677	- / 0.000	- / 1.677
P-40	Total Gross/Weapon System Cost				- / 2,690.816	- / 592.644	- / 462.908	- / 566.140	- / 0.000	- / 566.140
Exhibits Schedule					FY 2021	FY 2022	FY 2023	FY 2024	To Complete	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				- / -	- / -	- / -	- / -	- / -	- / -
P-3a	1 / DM001 - DDG MODERNIZATION HME (GEDMS) (TBD)				- / 33.254	- / 36.155	- / 34.295	- / 36.816	- / 138.654	- / 605.499
P-3a	2 / DM001 - DDG MODERNIZATION HME (MCS/DCS) (TBD)				- / 67.403	- / 73.607	- / 69.557	- / 75.254	- / 244.738	- / 1,109.187
P-3a	3 / DM001 - DDG MODERNIZATION HME (DVSS) (TBD)				- / 5.867	- / 6.668	- / 5.987	- / 6.859	- / 14.037	- / 87.100
P-3a	4 / DM001 - DDG MODERNIZATION HME (WIRELESS COMMUNICATIONS) (TBD)				- / 1.544	- / 1.042	- / 0.603	- / 0.000	- / 0.000	- / 23.871
P-3a	5 / DM001 - DDG MODERNIZATION HME (IBNS) (TBD)				- / 27.975	- / 30.164	- / 26.674	- / 30.706	- / 88.361	- / 453.082
P-3a	6 / DM003 - MK 160 MOD 15 GWS (TBD)				- / 16.106	- / 20.853	- / 17.677	- / 22.933	- / 66.534	- / 244.618
P-3a	7 / DM004 - AWS UPGRADE (TBD)				- / 122.625	- / 162.625	- / 146.629	- / 195.027	- / 556.391	- / 1,934.534
P-3a	8 / DM005 - MULTI-MISSION SIGPRO (TBD)				- / 63.370	- / 84.717	- / 68.601	- / 91.943	- / 243.592	- / 949.024

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Exhibit P-40, Budget Line Item Justification: PB 2020 Navy		Date: March 2019
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					FY 2021	FY 2022	FY 2023	FY 2024	To Complete	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-3a	9 / DM006 - MULTI-MISSION SSA/CWI MICROWAVE TUBES (TBD)				- / 3.375	- / 4.581	- / 3.498	- / 4.748	- / 11.660	- / 48.472
P-3a	10 / DM007 - SPY-1D TRANSMITTER UPGRADES (TBD)				- / 0.903	- / 0.919	- / 0.936	- / 0.953	- / 4.938	- / 103.658
P-3a	11 / DM008 - MULTI-MISSION BMD CAPABILITY (TBD)				- / 5.609	- / 7.613	- / 5.813	- / 7.890	- / 19.375	- / 81.157
P-3a	12 / DM009 - VLS UPGRADES (TBD)				- / 27.219	- / 34.723	- / 29.667	- / 38.061	- / 115.222	- / 422.721
P-3a	13 / DM011 - AN/SQQ-89 A(V15) (TBD)				- / 12.751	- / 8.152	- / 7.091	- / 2.901	- / 16.709	- / 209.290
P-3a	14 / DM013 - (1 MC/DIAS UPGRADE) (TBD)				- / 11.800	- / 13.770	- / 13.117	- / 14.043	- / 42.141	- / 134.960
P-3a	15 / DM013 - (MORIAH WIND SYSTEM) (TBD)				- / 5.514	- / 5.893	- / 5.356	- / 3.974	- / 2.249	- / 39.844
P-3a	16 / DM013 - (IVCS UPGRADE) (TBD)				- / 22.630	- / 30.048	- / 28.033	- / 37.825	- / 108.568	- / 286.111
P-3a	17 / DM013 - Slewing Arm Davit (SLAD) (TBD)				- / 2.522	- / 3.422	- / 2.802	- / 3.835	- / 10.098	- / 29.404
P-3a	18 / DM013 - AN/SPA-25H (TBD)				- / 2.097	- / 2.270	- / 2.824	- / 2.609	- / 7.772	- / 21.505
P-40	Total Gross/Weapon System Cost				- / 555.525	- / 812.338	- / 1,042.482	- / 1,107.075	- / 2,558.665	- / 10,388.593

*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: PB 2020 Navy															Date: March 2019					
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 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 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		-	-	189.232	-	-	10.718	-	-	8.838	-	-	8.097	-	-	-	-	-	8.097
Subtotal: 1) DM002 - LAND BASED ENGINEERING SITES			-	-	189.232	-	-	10.718	-	-	8.838	-	-	8.097	-	-	-	-	-	8.097
2) DM013 - CONJUNCTIVE ALTERATION DEFINITION AND INTEGRATION																				
2.1) DM013 - CONJUNCTIVE ALTERATION DEFINITION AND INTEGRATION	A		-	-	102.540	-	-	7.765	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: 2) DM013 - CONJUNCTIVE ALTERATION DEFINITION AND INTEGRATION			-	-	102.540	-	-	7.765	-	-	-	-	-	-	-	-	-	-	-	-
3) HELO HANGER DOOR (HHD)																				
3.1) HELO HANGER DOOR (HHD) EQUIPMENT	A		-	-	-	-	-	-	1,867K	2	3.734	1,901K	3	5.702	-	-	-	1,901K	3	5.702
Subtotal: 3) HELO HANGER DOOR (HHD)			-	-	0.000	-	-	-	-	-	3.734	-	-	5.702	-	-	-	-	-	5.702
4) OFFICER OF THE DECK SCREEN (OOD)																				
4.1) OFFICER OF THE DECK SCREEN (OOD) EQUIPMENT	A		-	-	-	-	-	-	146,000.00	2	0.292	148,000.00	3	0.444	-	-	-	148,000.00	3	0.444
Subtotal: 4) OFFICER OF THE DECK SCREEN (OOD)			-	-	0.000	-	-	-	-	-	0.292	-	-	0.444	-	-	-	-	-	0.444
5) AWS VIDEO DISTRIBUTION SYSTEM & CIRCUIT 3 TV																				
5.1) AWS VDS & CK3TV EQUIPMENT	A		-	-	-	-	-	-	692,000.00	1	0.692	704,000.00	1	0.704	-	-	-	704,000.00	1	0.704
Subtotal: 5) AWS VIDEO DISTRIBUTION SYSTEM & CIRCUIT 3 TV			-	-	0.000	-	-	-	-	-	0.692	-	-	0.704	-	-	-	-	-	0.704
6) DIGITAL VOLTAGE REGULATOR (DVR)																				
6.1) DIGITAL VOLTAGE REGULATOR EQUIPMENT	A		-	-	-	-	-	-	1,384K	3	4.152	1,409K	4	5.636	-	-	-	1,409K	4	5.636
6.2) CONJUNCTIVE ALTERATION ENGINEERING	A		-	-	-	-	-	-	-	-	0.557	-	-	0.567	-	-	-	-	-	0.567
Subtotal: 6) DIGITAL VOLTAGE REGULATOR (DVR)			-	-	0.000	-	-	-	-	-	4.709	-	-	6.203	-	-	-	-	-	6.203
7) DMCA1 - DDG-51 MODERNIZATION PROGRAM CONGRESSIONAL ADD																				

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Exhibit P-40a, Budget Item Justification For Aggregated Items: PB 2020 Navy																Date: March 2019				
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 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 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) DMCA1 - DDG-51 MODERNIZATION	A		-	-	5.000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7.2) SQQ-89A (V) W/ MFTA	A		-	-	25.000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: 7) DMCA1 - DDG-51 MODERNIZATION PROGRAM CONGRESSIONAL ADD			-	-	30.000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
8) DMCA3 - COMMUNICATIONS UPGRADE FOR DDG MOD CONGRESSIONAL ADD																				
8.1) DMCA3 - COMMUNICATIONS UPGRADE	A		-	-	3.120	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: 8) DMCA3 - COMMUNICATIONS UPGRADE FOR DDG MOD CONGRESSIONAL ADD			-	-	3.120	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
9) DMCA4 - SMART VALVE AUTOMATIC FIRE SUPPRESSION SYSTEM CONGRESSIONAL ADD																				
9.1) SMART VALVE EQUIPMENT	A		-	-	2.480	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: 9) DMCA4 - SMART VALVE AUTOMATIC FIRE SUPPRESSION SYSTEM CONGRESSIONAL ADD			-	-	2.480	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10) DSA FOR FY14 AVAILABILITY																				
10.1) DSA FOR FY14 AVAILABILITY	A		-	-	39.067	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: 10) DSA FOR FY14 AVAILABILITY			-	-	39.067	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11) DM6IN - INSTALLATION																				
11.1) AIT & CONJUNCTIVE ALTS INSTALLATION	A		-	-	453.320	-	-	102.419	-	-	59.428	-	-	46.625	-	-	-	-	-	46.625
Subtotal: 11) DM6IN - INSTALLATION			-	-	453.320	-	-	102.419	-	-	59.428	-	-	46.625	-	-	-	-	-	46.625
12) MRG Procurement																				
12.1) MRG Equipment	A		15,000K	1	15.000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: 12) MRG Procurement			-	-	15.000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
14) AEGIS MODERNIZATION TESTING (AMT) ⁽²⁾																				
14.1) AEGIS MODERNIZATION TESTING (AMT)	A		-	-	-	-	-	-	-	-	10.023	-	-	24.844	-	-	-	-	-	24.844
Subtotal: 14) AEGIS MODERNIZATION TESTING (AMT)			-	-	0.000	-	-	-	-	-	10.023	-	-	24.844	-	-	-	-	-	24.844
15) COMBAT SYSTEM SHIP QUALIFICATION TRIALS (CSSQT) ⁽³⁾																				
15.1) COMBAT SYSTEM SHIP	A		-	-	-	-	-	-	-	-	9.000	-	-	19.851	-	-	-	-	-	19.851

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Exhibit P-40a, Budget Item Justification For Aggregated Items: PB 2020 Navy															Date: March 2019				
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 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 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)
QUALIFICATION TRIALS (CSSQT)																				
Subtotal: 15) COMBAT SYSTEM SHIP QUALIFICATION TRIALS (CSSQT)			-	-	0.000	-	-	-	-	-	9.000	-	-	19.851	-	-	-	-	-	19.851
16) DMCA5-BROMINE-FREE WATER PURIFICATION SYSTEM CONGRESSIONAL ADD ⁽⁴⁾																				
16.1) DMCA5-BROMINE-FREE WATER PURIFICATION SYSTEM	A		-	-	-	-	-	3.000	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: 16) DMCA5-BROMINE-FREE WATER PURIFICATION SYSTEM CONGRESSIONAL ADD			-	-	0.000	-	-	3.000	-	-	-	-	-	-	-	-	-	-	-	-
17) DM010 - FCS STAMO ⁽⁵⁾																				
17.1) FCS STAMO EQUIPMENT	A		14,843K	1	14.843	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: 17) DM010 - FCS STAMO			-	-	14.843	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
18) DM012 - CEC ⁽⁶⁾																				
18.1) CEC EQUIPMENT	A		-	-	42.143	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: 18) DM012 - CEC			-	-	42.143	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total			-	-	891.745	-	-	123.902	-	-	96.716	-	-	112.470	-	-	-	-	-	112.470

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.

(2) Provide on-site engineering and technical support of the planning and execution DDG Modernization availabilities. Provide engineering support in planning availability milestones, execute system and element testing requirements from AEGIS Light Off (ALO) to end of availability, support Combat Systems Alignment and Verification, provide crew training for maintaining newly installed AEGIS and legacy AEGIS equipment, and serve as the combat system engineering agent technical point of contact for combat system DDG Modernization matters. AMT is a two-part event: Planning and Execution. Planning consists of AMT test plan building, AMT schedule development and planning; AMT Execution consists of availability, support Combat Systems Alignment and Verification, provide crew training for maintaining newly installed AEGIS and legacy AEGIS equipment, and serve as the combat system engineering agent technical point of contract for combat system DDG Modernization matters. AMT costs are dependent on the number, scope and complexity of AMT planned per Fiscal Year (FY) with funding spread over two years: AMT Planning is executed during the year of installation (~\$5M) and AMT Execution is the year following (~\$5M). FY 2019 and FY 2020 costs are broken down as follows: - FY 2019 AMT Planning: (\$5M) to plan for two (2) AMT (FLT IIA combined HM&E and combat systems modernization). Due to the FY19 \$9.5M Congressional reduction, the two AMTs being planned were severely de-scoped. - FY 2019 AMT Execution: (\$5M) to execute two AMT (FLT IIA combined HM&E and combat systems modernization). Due to the FY19 Congressional reduction, the two (2) AMTs being executed were severely de-scoped. Due to a schedule change in execution, one of the two AMTs initially planned is now able to be fully executed. - FY 2020 CSSQT Planning: (\$15M) to plan three (3) AMTs (FLT IIA combined HM&E and combat systems modernization). - FY 2020 CSSQT Execution: (\$10M) to execute two (2) AMTs (FLT IIA combined HM&E and combat systems modernization).

(3) CSSQTs are required per Naval Sea Systems Instruction 90963.1C for all ships undergoing significant conversion/modernization availabilities. CSSQTs are a two-part event: Planning and Execution. Planning consists of CSSQT complex scenario building, CSSQT schedule development and planning; CSSQT Execution consists of a series of at-sea exercises and tests to verify/certify the newly installed DDG Modernization combat weapon systems have been installed properly and can be operated and maintained safely and effectively. This is accomplished by assisting ship's force in achieving (1) a sustainable level of combat/weapon system operational readiness and (2) a maintainable level of material readiness. CSSQT consists of real-life threats utilizing aircraft flight services, Air Warfare/Surface Warfare/Under Sea Warfare range services and support, scenario data recording and data analysis. CSSQT costs are dependent on the number, scope and complexity of CSSQTs planned per Fiscal Year with funding spread over two years: CSSQT Planning is executed during the year of installation (~\$1.5M) and CSSQT Execution is the year following (~\$7.5M). FY 2019 and FY 2020 costs are broken down as follows: - FY 2019 CSSQT Planning: (\$0M) the two (2) CSSQTs to be planned were cancelled due to the FY19 \$9.0M Congressional reduction. - FY 2019 CSSQT Execution: (\$9M) to execute two (2) CSSQTs (FLT IIA combined HM&E and combat systems modernization). Due to the FY19 Congressional reduction, the two CSSQTs being executed were severely de-scoped. Due to a schedule change in execution, one of two CSSQTs initially planned

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Exhibit P-40a, Budget Item Justification For Aggregated Items: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	P-1 Line Item Number / Title: 0900 / DDG Mod	Aggregated Items Title: DDG Mod
will be able to be fully executed. - FY 2020 CSSQT Planning: (\$4.5M) to plan three (3) CSSQTs (FLT IIA combined HM&E and combat systems modernization). - FY 2020 CSSQT Execution: (\$15.3M) to execute two (2) CSSQTs (FLT IIA combined HM&E and combat systems modernization). ⁽⁴⁾ Congressional Add for-Bromine-free Water Purification Systems. Until recently, most onboard ship water purification systems used bromine as an antimicrobial. However, bromine is toxic and requires special hazardous material [HAZMAT] handling which is time consuming and expensive. While the Navy has placed bromine-free systems on most of the large-deck surface ship classes, it has not yet removed bromine systems from the Littoral Combat Ship, Ticonderoga class cruisers, destroyers or frigates. ⁽⁵⁾ 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. ⁽⁶⁾ 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.		

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Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019		
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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity (<i>Units in Each</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost (<i>\$ in Millions</i>)	212.274	45.348	34.847	33.856	0.000	33.856	33.254	36.155	34.295	36.816	138.654	605.499
Less PY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (<i>\$ in Millions</i>)	212.274	45.348	34.847	33.856	0.000	33.856	33.254	36.155	34.295	36.816	138.654	605.499
Plus CY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority (<i>\$ in Millions</i>)	212.274	45.348	34.847	33.856	0.000	33.856	33.254	36.155	34.295	36.816	138.654	605.499
<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: PB 2020 Navy										Date: March 2019			
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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	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)	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 ⁽⁷⁾	24 / 86.955	1 / 2.823	1 / 2.492	1 / 2.700	- / -	1 / 2.700	1 / 2.749	- / -	- / -	- / -	- / -	28 / 97.719	
1.1.2) GEDMS EQUIPMENT FLIGHT IIA - NonOrganic (8)	5 / 6.564	3 / 4.065	2 / 2.758	3 / 4.390	- / -	3 / 4.390	3 / 4.468	4 / 6.065	3 / 4.631	4 / 6.285	6 / 14.818	33 / 54.044	
Subtotal: Recurring	- / 93.519	- / 6.888	- / 5.250	- / 7.090	- / -	- / 7.090	- / 7.217	- / 6.065	- / 4.631	- / 6.285	- / 14.818	- / 151.763	
Subtotal: DM001 - DDG MODERNIZATION HME (GEDMS)	29 / 93.519	4 / 6.888	3 / 5.250	4 / 7.090	- / -	4 / 7.090	4 / 7.217	4 / 6.065	3 / 4.631	4 / 6.285	6 / 14.818	61 / 151.763	
Subtotal: Procurement, All Modification Items	- / 93.519	- / 6.888	- / 5.250	- / 7.090	- / -	- / 7.090	- / 7.217	- / 6.065	- / 4.631	- / 6.285	- / 14.818	- / 151.763	
Support (All Modification Items)													
2.1) GEDMS ENGINEERING SERVICES	- / 31.219	- / 4.950	- / 4.535	- / 4.617	- / -	- / 4.617	- / 4.700	- / 4.785	- / 4.871	- / 4.958	- / 25.700	- / 90.335	
Subtotal: Support	- / 31.219	- / 4.950	- / 4.535	- / 4.617	- / -	- / 4.617	- / 4.700	- / 4.785	- / 4.871	- / 4.958	- / 25.700	- / 90.335	
Installation													
Modification Item 1 of 1: DM001 - DDG MODERNIZATION HME (GEDMS)	- / 87.536	- / 33.510	- / 25.062	- / 22.149	- / 0.000	- / 22.149	- / 21.337	- / 25.305	- / 24.793	- / 25.573	- / 98.136	- / 363.401	
Subtotal: Installation	- / 87.536	- / 33.510	- / 25.062	- / 22.149	- / -	- / 22.149	- / 21.337	- / 25.305	- / 24.793	- / 25.573	- / 98.136	- / 363.401	
Total													
Total Cost (Procurement + Support + Installation)	212.274	45.348	34.847	33.856	0.000	33.856	33.254	36.155	34.295	36.816	138.654	605.499	

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Exhibit P-3a, Individual Modification: PB 2020 Navy												Date: March 2019																			
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 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024						
Contract Dates	Jul 2018				Jul 2019				Jul 2020				Jul 2021				May 2022				Jul 2023				Jun 2024						
Delivery Dates	Nov 2019				Nov 2020				Nov 2021				Nov 2022				Sep 2023				Nov 2024				Oct 2025						
Installation Information																															
Method of Implementation: SHIPYARD:: Installation Name: GEDMS Equipment																															
Installation Cost		Prior Years	FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total		FY 2021		FY 2022		FY 2023		FY 2024		To Complete		Total								
		Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)								
Prior Years		17 / 78.076		4 / 20.636		3 / 10.022		- / -		- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.000		24 / 108.734							
FY 2018		- / -		0 / 0.306		0 / 1.160		1 / 3.419		0 / 0.000		1 / 3.419		- / -		- / -		- / -		- / -		0 / 0.000		1 / 4.885							
FY 2019		- / -		- / -		0 / 0.313		0 / 1.752		0 / 0.000		0 / 1.752		1 / 4.822		- / -		- / -		- / -		0 / 0.000		1 / 6.887							
FY 2020		- / -		- / -		- / -		0 / 0.320		0 / 0.000		0 / 0.320		0 / 1.787		1 / 4.906		- / -		- / -		0 / 0.000		1 / 7.013							
FY 2021		- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.326		0 / 1.823		1 / 4.991		- / -		0 / 0.000		1 / 7.140							
FY 2022		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -							
FY 2023		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -							
FY 2024		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -							
To Complete		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -							
Total		17 / 78.076		4 / 20.942		3 / 11.495		1 / 5.491		0 / 0.000		1 / 5.491		1 / 6.935		1 / 6.729		1 / 4.991		- / -		0 / 0.000		28 / 134.659							
Installation Schedule																															
	PYS	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				TC	Tot
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4		
In	17	-	1	2	1	-	2	-	1	-	-	-	1	-	-	1	-	-	1	-	-	1	-	-	-	-	-	-	-	-	28
Out	16	-	-	1	-	1	-	2	1	-	1	1	1	-	-	1	-	-	-	1	-	-	1	-	-	1	-	-	-	-	28

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Exhibit P-3a, Individual Modification: PB 2020 Navy		Date: March 2019
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 Cost	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)
Prior Years	1 / 9.460	2 / 11.768	2 / 8.520	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	5 / 29.748
FY 2018	- / -	0 / 0.800	0 / 4.468	3 / 12.602	0 / 0.000	3 / 12.602	- / -	- / -	- / -	- / -	0 / 0.000	3 / 17.870
FY 2019	- / -	- / -	0 / 0.579	0 / 3.214	0 / 0.000	0 / 3.214	2 / 8.955	- / -	- / -	- / -	0 / 0.000	2 / 12.748
FY 2020	- / -	- / -	- / -	0 / 0.842	0 / 0.000	0 / 0.842	0 / 4.704	3 / 13.155	- / -	- / -	0 / 0.000	3 / 18.701
FY 2021	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.743	0 / 4.157	3 / 11.851	- / -	0 / 0.000	3 / 16.751
FY 2022	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 1.264	0 / 7.068	4 / 19.434	0 / 19.416	4 / 47.182
FY 2023	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.883	0 / 4.938	3 / 13.709	3 / 19.530
FY 2024	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 1.201	4 / 25.304	4 / 26.505
To Complete	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	6 / 39.707	6 / 39.707
Total	1 / 9.460	2 / 12.568	2 / 13.567	3 / 16.658	0 / 0.000	3 / 16.658	2 / 14.402	3 / 18.576	3 / 19.802	4 / 25.573	13 / 98.136	33 / 228.742

Installation Schedule

	PYS	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				TC	Tot
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4		
In	1	-	2	-	-	-	2	-	-	-	1	-	2	-	1	1	-	2	1	-	-	1	1	-	1	-	2	1	1	13	33
Out	-	-	-	-	1	-	-	2	-	-	-	2	-	-	-	1	-	-	2	1	2	-	2	-	-	-	1	1	-	18	33

Footnotes:

(7) Engineering Services line includes both Flight I/II and Flight IIA ships. Installation costs across the FYDP vary depending on current port rates - avails not designated with a specific execution port (TBD) have a generic rate for budgeting, and install costs will be updated once an execution port is assigned. Port rates are updated every year by CNRMC 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. Installation funding for a ship is divided over a three-year period. Installation execution funding in the year of availability, and Design Service Allocation (DSA) two years prior to availability, and DSA in the year prior to the availability. This includes ship checks, ship installation drawing (SID) development, logistic document development and long lead time material procurements (LLTM).

(8) 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.

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Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019		
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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity (<i>Units in Each</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost (<i>\$ in Millions</i>)	356.979	88.412	66.742	66.495	0.000	66.495	67.403	73.607	69.557	75.254	244.738	1,109.187
Less PY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (<i>\$ in Millions</i>)	356.979	88.412	66.742	66.495	0.000	66.495	67.403	73.607	69.557	75.254	244.738	1,109.187
Plus CY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority (<i>\$ in Millions</i>)	356.979	88.412	66.742	66.495	0.000	66.495	67.403	73.607	69.557	75.254	244.738	1,109.187
<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: PB 2020 Navy								Date: March 2019					
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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	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)	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 FL II/IIA - NonOrganic ⁽⁹⁾	29 / 115.717	4 / 17.864	3 / 12.462	4 / 17.400	- / -	4 / 17.400	4 / 17.543	4 / 17.859	3 / 13.635	4 / 18.507	6 / 48.480	61 / 279.467	
Subtotal: Recurring	- / 115.717	- / 17.864	- / 12.462	- / 17.400	- / -	- / 17.400	- / 17.543	- / 17.859	- / 13.635	- / 18.507	- / 48.480	- / 279.467	
Non-Recurring													
1.2.1) MCS/DCS 1ST ARTICLE & NRE - Organic	- / 8.643	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / 8.643	
Subtotal: Non-Recurring	- / 8.643	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / 0.000	- / 8.643	
Subtotal: DM001 - DDG MODERNIZATION HME (MCS/ DCS)	29 / 124.360	4 / 17.864	3 / 12.462	4 / 17.400	- / -	4 / 17.400	4 / 17.543	4 / 17.859	3 / 13.635	4 / 18.507	6 / 48.480	61 / 288.110	
Subtotal: Procurement, All Modification Items	- / 124.360	- / 17.864	- / 12.462	- / 17.400	- / -	- / 17.400	- / 17.543	- / 17.859	- / 13.635	- / 18.507	- / 48.480	- / 288.110	
Support (All Modification Items)													
2.1) MCS/DCS ENGINEERING SERVICES	- / 69.729	- / 11.472	- / 10.511	- / 10.700	- / -	- / 10.700	- / 10.892	- / 11.089	- / 11.288	- / 11.492	- / 59.563	- / 206.736	
Subtotal: Support	- / 69.729	- / 11.472	- / 10.511	- / 10.700	- / -	- / 10.700	- / 10.892	- / 11.089	- / 11.288	- / 11.492	- / 59.563	- / 206.736	
Installation													
Modification Item 1 of 1: DM001 - DDG MODERNIZATION HME (MCS/DCS)	- / 162.890	- / 59.076	- / 43.769	- / 38.395	- / 0.000	- / 38.395	- / 38.968	- / 44.659	- / 44.634	- / 45.255	- / 136.695	- / 614.341	
Subtotal: Installation	- / 162.890	- / 59.076	- / 43.769	- / 38.395	- / -	- / 38.395	- / 38.968	- / 44.659	- / 44.634	- / 45.255	- / 136.695	- / 614.341	
Total													
Total Cost (Procurement + Support + Installation)	356.979	88.412	66.742	66.495	0.000	66.495	67.403	73.607	69.557	75.254	244.738	1,109.187	

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Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019																					
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 (in Months): 6															Production Leadtime (in Months): 16																
Dates		FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024					
Contract Dates		Jul 2018				Jul 2019				Jul 2020				Jul 2021				May 2022				Jul 2023				Jun 2024					
Delivery Dates		Nov 2019				Nov 2020				Nov 2021				Nov 2022				Sep 2023				Nov 2024				Nov 2025					
Installation Information																															
Method of Implementation: [none specified]:: Installation Name: MCS/DCS EQUIPMENT FL II/IIA																															
Installation Cost		Prior Years		FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total		FY 2021		FY 2022		FY 2023		FY 2024		To Complete		Total							
		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)							
Prior Years		18 / 162.890		6 / 56.904		5 / 29.608		- / -		- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.000		29 / 249.402							
FY 2018		- / -		0 / 2.172		0 / 12.409		4 / 25.334		0 / 0.000		4 / 25.334		- / -		- / -		- / -		- / -		0 / 0.000		4 / 39.915							
FY 2019		- / -		- / -		0 / 1.752		0 / 10.826		0 / 0.000		0 / 10.826		3 / 22.728		- / -		- / -		- / -		0 / 0.000		3 / 35.306							
FY 2020		- / -		- / -		- / -		0 / 2.235		0 / 0.000		0 / 2.235		0 / 14.143		4 / 29.018		- / -		- / -		0 / 0.000		4 / 45.396							
FY 2021		- / -		- / -		- / -		- / -		- / -		- / -		0 / 2.097		0 / 13.162		4 / 27.378		- / -		0 / 0.000		4 / 42.637							
FY 2022		- / -		- / -		- / -		- / -		- / -		- / -		- / -		0 / 2.479		0 / 15.558		4 / 32.204		0 / 0.000		4 / 50.241							
FY 2023		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		0 / 1.698		0 / 10.743		3 / 22.014		3 / 34.455							
FY 2024		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		0 / 2.308		4 / 44.525		4 / 46.833							
To Complete		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		6 / 70.156		6 / 70.156							
Total		18 / 162.890		6 / 59.076		5 / 43.769		4 / 38.395		0 / 0.000		4 / 38.395		3 / 38.968		4 / 44.659		4 / 44.634		4 / 45.255		13 / 136.695		61 / 614.341							
Installation Schedule																															
	PYS	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				TC	Tot
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4		
In	18	-	3	2	1	-	4	-	1	-	2	-	2	-	1	1	1	2	2	-	-	2	1	-	1	-	2	1	1	13	61
Out	16	-	-	1	1	1	-	4	1	1	1	2	1	-	-	2	1	-	1	1	2	-	4	-	-	1	1	1	1	17	61
Footnotes:																															
⁽⁹⁾ Installation costs across the FYDP vary depending on current port rates - avails not designated with a specific execution port (TBD) have a generic rate for budgeting, and install costs will be updated once an execution port is assigned. Port rates are updated every year by CNRMC 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. Installation funding for a ship																															

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Exhibit P-3a, Individual Modification: PB 2020 Navy		Date: March 2019
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:
is divided over a three-year period. Installation execution funding in the year of availability, and Design Service Allocation (DSA) two years prior to availability, and DSA in the year prior to the availability. This includes ship checks, ship installation drawing (SID) development, logistic document development and long lead time material procurements (LLTM).		

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Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019		
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9				P-1 Line Item Number / Title: 0900 / DDG Mod						Modification Number / Title: 3 / DM001 - DDG MODERNIZATION HME (DVSS)		
ID Code (A=Service Ready, B=Not Service Ready) :							MDAP/MAIS Code:					
Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity (Units in Each)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost (\$ in Millions)	27.321	8.356	5.970	6.035	0.000	6.035	5.867	6.668	5.987	6.859	14.037	87.100
Less PY Advance Procurement (\$ in Millions)	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (\$ in Millions)	27.321	8.356	5.970	6.035	0.000	6.035	5.867	6.668	5.987	6.859	14.037	87.100
Plus CY Advance Procurement (\$ in Millions)	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority (\$ in Millions)	27.321	8.356	5.970	6.035	0.000	6.035	5.867	6.668	5.987	6.859	14.037	87.100
(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: 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.												

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Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019			
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9					P-1 Line Item Number / Title: 0900 / DDG Mod					Modification Number / Title: 3 / DM001 - DDG MODERNIZATION HME (DVSS)			
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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total	
	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	
Procurement													
<i>Modification Item 1 of 1:</i> DM001 - DDG MODERNIZATION HME (DVSS)													
B Kits													
Recurring													
1.1.1) DVSS Equipment - NonOrganic ⁽¹⁰⁾	29 / 11.524	4 / 2.085	3 / 1.592	4 / 2.160	- / -	4 / 2.160	4 / 2.200	4 / 2.239	3 / 1.710	4 / 2.320	4 / 2.362	59 / 28.192	
<i>Subtotal: Recurring</i>	- / 11.524	- / 2.085	- / 1.592	- / 2.160	- / -	- / 2.160	- / 2.200	- / 2.239	- / 1.710	- / 2.320	- / 2.362	- / 28.192	
Non-Recurring													
1.2.1) DVSS 1st Article & NRE - Organic	- / 0.477	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / 0.477	
<i>Subtotal: Non-Recurring</i>	- / 0.477	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / 0.000	- / 0.477	
<i>Subtotal: DM001 - DDG MODERNIZATION HME (DVSS)</i>	29 / 12.001	4 / 2.085	3 / 1.592	4 / 2.160	- / -	4 / 2.160	4 / 2.200	4 / 2.239	3 / 1.710	4 / 2.320	4 / 2.362	59 / 28.669	
<i>Subtotal: Procurement, All Modification Items</i>	- / 12.001	- / 2.085	- / 1.592	- / 2.160	- / -	- / 2.160	- / 2.200	- / 2.239	- / 1.710	- / 2.320	- / 2.362	- / 28.669	
Installation													
<i>Modification Item 1 of 1:</i> DM001 - DDG MODERNIZATION HME (DVSS)	- / 15.320	- / 6.271	- / 4.378	- / 3.875	- / 0.000	- / 3.875	- / 3.667	- / 4.429	- / 4.277	- / 4.539	- / 11.675	- / 58.431	
<i>Subtotal: Installation</i>	- / 15.320	- / 6.271	- / 4.378	- / 3.875	- / -	- / 3.875	- / 3.667	- / 4.429	- / 4.277	- / 4.539	- / 11.675	- / 58.431	
Total													
Total Cost (Procurement + Support + Installation)	27.321	8.356	5.970	6.035	0.000	6.035	5.867	6.668	5.987	6.859	14.037	87.100	

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Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019																					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9										P-1 Line Item Number / Title: 0900 / DDG Mod										Modification Number / Title: 3 / DM001 - DDG MODERNIZATION HME (DVSS)											
ID Code (A=Service Ready, B=Not Service Ready) :															MDAP/MAIS Code:																
Modification Item 1 of 1: DM001 - DDG MODERNIZATION HME (DVSS)																															
Manufacturer Information																															
Manufacturer Name: NSWC SSES															Manufacturer Location: Philadelphia, PA																
Administrative Leadtime <i>(in Months)</i> : 6															Production Leadtime <i>(in Months)</i> : 16																
Dates		FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024					
Contract Dates		Jul 2018				Jul 2019				Jul 2020				Jul 2021				May 2022				Jul 2023				Jul 2024					
Delivery Dates		Nov 2019				Nov 2020				Nov 2021				Nov 2022				Sep 2023				Nov 2024				Nov 2025					
Installation Information																															
Method of Implementation: [none specified]:: Installation Name: DVSS Equipment																															
Installation Cost		Prior Years		FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total		FY 2021		FY 2022		FY 2023		FY 2024		To Complete		Total							
		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>		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		18 / 15.320		6 / 5.689		5 / 3.440		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.000		29 / 24.449					
FY 2018		- / -		0 / 0.582		0 / 0.781		4 / 2.982		0 / 0.000		4 / 2.982		- / -		- / -		- / -		- / -		- / -		0 / 0.000		4 / 4.345					
FY 2019		- / -		- / -		0 / 0.157		0 / 0.688		0 / 0.000		0 / 0.688		3 / 2.578		- / -		- / -		- / -		- / -		0 / 0.000		3 / 3.423					
FY 2020		- / -		- / -		- / -		0 / 0.205		0 / 0.000		0 / 0.205		0 / 0.900		4 / 3.377		- / -		- / -		- / -		0 / 0.000		4 / 4.482					
FY 2021		- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.189		0 / 0.829		4 / 3.141		- / -		- / -		0 / 0.000		4 / 4.159					
FY 2022		- / -		- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.223		0 / 0.980		4 / 3.643		0 / 0.000		4 / 4.846							
FY 2023		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.156		0 / 0.684		3 / 2.564		3 / 3.404							
FY 2024		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.212		4 / 4.410		4 / 4.622							
To Complete		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		4 / 4.701		4 / 4.701					
Total		18 / 15.320		6 / 6.271		5 / 4.378		4 / 3.875		0 / 0.000		4 / 3.875		3 / 3.667		4 / 4.429		4 / 4.277		4 / 4.539		11 / 11.675		59 / 58.431							
Installation Schedule																															
	PYS	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				TC	Tot
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4		
In	18	-	3	2	1	-	4	-	1	-	2	-	2	-	1	1	1	2	2	-	-	2	1	-	1	-	2	1	1	11	59
Out	16	-	-	1	1	1	-	4	1	1	1	2	1	-	-	2	1	-	2	1	2	-	3	-	-	1	1	1	1	15	59
Footnotes: ⁽¹⁰⁾ Installation costs across the FYDP vary depending on current port rates - avails not designated with a specific execution port (TBD) have a generic rate for budgeting, and install costs will be updated once an execution port is assigned. Port rates are updated every year by CNRMC 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. Installation funding for a ship																															

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Exhibit P-3a, Individual Modification: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	P-1 Line Item Number / Title: 0900 / DDG Mod	Modification Number / Title: 3 / DM001 - DDG MODERNIZATION HME (DVSS)
ID Code (A=Service Ready, B=Not Service Ready) :		MDAP/MAIS Code:
is divided over a three-year period. Installation execution funding in the year of availability, and Design Service Allocation (DSA) two years prior to availability, and DSA in the year prior to the availability. This includes ship checks, ship installation drawing (SID) development, logistic document development and long lead time material procurements (LLTM).		

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Exhibit P-3a, Individual Modification: PB 2020 Navy						Date: March 2019					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9				P-1 Line Item Number / Title: 0900 / DDG Mod				Modification Number / Title: 4 / DM001 - DDG MODERNIZATION HME (WIRELESS COMMUNICATIONS)			

ID Code (A=Service Ready, B=Not Service Ready) :						MDAP/MAIS Code:						
Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity (Units in Each)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost (\$ in Millions)	15.059	2.382	1.912	1.329	0.000	1.329	1.544	1.042	0.603	0.000	0.000	23.871
Less PY Advance Procurement (\$ in Millions)	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (\$ in Millions)	15.059	2.382	1.912	1.329	0.000	1.329	1.544	1.042	0.603	0.000	0.000	23.871
Plus CY Advance Procurement (\$ in Millions)	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority (\$ in Millions)	15.059	2.382	1.912	1.329	0.000	1.329	1.544	1.042	0.603	0.000	0.000	23.871
(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:

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.

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Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019			
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9					P-1 Line Item Number / Title: 0900 / DDG Mod					Modification Number / Title: 4 / DM001 - DDG MODERNIZATION HME (WIRELESS COMMUNICATIONS)			
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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	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)	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 (WIRELESS COMMUNICATIONS)													
B Kits													
Recurring													
1.1.1) Wireless Communications Equipment - NonOrganic ⁽¹¹⁾	18 / 7.014	- / -	1 / 0.449	1 / 0.457	- / -	1 / 0.457	1 / 0.466	- / -	- / -	- / -	- / -	21 / 8.386	
<i>Subtotal: Recurring</i>	- / 7.014	- / -	- / 0.449	- / 0.457	- / -	- / 0.457	- / 0.466	- / -	- / -	- / -	- / 0.000	- / 8.386	
<i>Subtotal: DM001 - DDG MODERNIZATION HME (WIRELESS COMMUNICATIONS)</i>	18 / 7.014	- / -	1 / 0.449	1 / 0.457	- / -	1 / 0.457	1 / 0.466	- / -	- / -	- / -	- / -	21 / 8.386	
<i>Subtotal: Procurement, All Modification Items</i>	- / 7.014	- / -	- / 0.449	- / 0.457	- / -	- / 0.457	- / 0.466	- / -	- / -	- / -	- / 0.000	- / 8.386	
Installation													
Modification Item 1 of 1: DM001 - DDG MODERNIZATION HME (WIRELESS COMMUNICATIONS)	- / 8.045	- / 2.382	- / 1.463	- / 0.872	- / 0.000	- / 0.872	- / 1.078	- / 1.042	- / 0.603	- / 0.000	- / 0.000	- / 15.485	
<i>Subtotal: Installation</i>	- / 8.045	- / 2.382	- / 1.463	- / 0.872	- / -	- / 0.872	- / 1.078	- / 1.042	- / 0.603	- / -	- / 0.000	- / 15.485	
Total													
Total Cost (Procurement + Support + Installation)	15.059	2.382	1.912	1.329	0.000	1.329	1.544	1.042	0.603	0.000	0.000	23.871	

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Exhibit P-3a, Individual Modification: PB 2020 Navy												Date: March 2019																			
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9								P-1 Line Item Number / Title: 0900 / DDG Mod								Modification Number / Title: 4 / DM001 - DDG MODERNIZATION HME (WIRELESS COMMUNICATIONS)															
ID Code (A=Service Ready, B=Not Service Ready) :												MDAP/MAIS Code:																			
Modification Item 1 of 1: DM001 - DDG MODERNIZATION HME (WIRELESS COMMUNICATIONS)																															
Manufacturer Information																															
Manufacturer Name: Spawar Systems Center Atlantic												Manufacturer Location: Charleston, SC																			
Administrative Leadtime (in Months): 6												Production Leadtime (in Months): 16																			
Dates		FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024					
Contract Dates						Jul 2019				Jul 2020				Jul 2021																	
Delivery Dates						Nov 2020				Nov 2021				Nov 2022																	
Installation Information																															
Method of Implementation: [none specified]:: Installation Name: Wireless Communications Equipment																															
Installation Cost		Prior Years		FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total		FY 2021		FY 2022		FY 2023		FY 2024		To Complete		Total							
		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)							
Prior Years		12 / 8.045		3 / 2.382		3 / 1.410		0 / 0.385		0 / 0.000		0 / 0.385		- / -		- / -		- / -		- / -		0 / 0.000		18 / 12.222							
FY 2018		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -							
FY 2019		- / -		- / -		0 / 0.053		0 / 0.433		0 / 0.000		0 / 0.433		1 / 0.580		- / -		- / -		- / -		0 / 0.000		1 / 1.066							
FY 2020		- / -		- / -		- / -		0 / 0.054		0 / 0.000		0 / 0.054		0 / 0.442		1 / 0.591		- / -		- / -		0 / 0.000		1 / 1.087							
FY 2021		- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.056		0 / 0.451		1 / 0.603		- / -		0 / 0.000		1 / 1.110							
FY 2022		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -							
FY 2023		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -							
FY 2024		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -							
To Complete		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -							
Total		12 / 8.045		3 / 2.382		3 / 1.463		0 / 0.872		0 / 0.000		0 / 0.872		1 / 1.078		1 / 1.042		1 / 0.603		- / -		0 / 0.000		21 / 15.485							
Installation Schedule																															
	PYS	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				TC	Tot
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4		
In	12	-	1	1	1	-	2	-	1	-	-	-	-	-	-	1	-	-	1	-	-	1	-	-	-	-	-	-	-	-	21
Out	12	-	-	-	-	1	-	1	1	1	1	-	1	-	-	-	-	-	-	1	-	-	1	-	-	1	-	-	-	-	21
Footnotes:																															
(11) 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 vary depending on current port rates - avails not designated with a specific execution port (TBD) have a generic rate for budgeting, and install costs will be updated once an execution port is assigned. Port rates are updated every year by CNRMC 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																															

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Exhibit P-3a, Individual Modification: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	P-1 Line Item Number / Title: 0900 / DDG Mod	Modification Number / Title: 4 / DM001 - DDG MODERNIZATION HME (WIRELESS COMMUNICATIONS)
ID Code (A=Service Ready, B=Not Service Ready) :		MDAP/MAIS Code:
availability durations vary dependent upon the integration of ship's maintenance and modernization work packages. Installation funding for a ship is divided over a three-year period. Installation execution funding in the year of availability, and Design Service Allocation (DSA) two years prior to availability, and DSA in the year prior to the availability. This includes ship checks, ship installation drawing (SID) development, logistic document development and long lead time material procurements (LLTM).		

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Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019		
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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity <i>(Units in Each)</i>	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost <i>(\$ in Millions)</i>	162.562	33.560	25.452	27.628	0.000	27.628	27.975	30.164	26.674	30.706	88.361	453.082
Less PY Advance Procurement <i>(\$ in Millions)</i>	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) <i>(\$ in Millions)</i>	162.562	33.560	25.452	27.628	0.000	27.628	27.975	30.164	26.674	30.706	88.361	453.082
Plus CY Advance Procurement <i>(\$ in Millions)</i>	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority <i>(\$ in Millions)</i>	162.562	33.560	25.452	27.628	0.000	27.628	27.975	30.164	26.674	30.706	88.361	453.082
<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: PB 2020 Navy								Date: March 2019					
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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	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)	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> DM001 - DDG MODERNIZATION HME (IBNS)													
B Kits													
Recurring													
1.1.1) IBNS Equipment - NonOrganic ⁽¹²⁾	29 / 91.162	4 / 13.340	3 / 10.185	4 / 13.824	- / -	4 / 13.824	4 / 14.073	4 / 14.327	3 / 10.939	4 / 14.847	6 / 36.463	61 / 219.160	
1.1.2) IBNS 1st Article & NRE - Organic	- / 4.186	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / 4.186	
<i>Subtotal: Recurring</i>	- / 95.348	- / 13.340	- / 10.185	- / 13.824	- / -	- / 13.824	- / 14.073	- / 14.327	- / 10.939	- / 14.847	- / 36.463	- / 223.346	
<i>Subtotal: DM001 - DDG MODERNIZATION HME (IBNS)</i>	29 / 95.348	4 / 13.340	3 / 10.185	4 / 13.824	- / -	4 / 13.824	4 / 14.073	4 / 14.327	3 / 10.939	4 / 14.847	6 / 36.463	61 / 223.346	
<i>Subtotal: Procurement, All Modification Items</i>	- / 95.348	- / 13.340	- / 10.185	- / 13.824	- / -	- / 13.824	- / 14.073	- / 14.327	- / 10.939	- / 14.847	- / 36.463	- / 223.346	
Support (All Modification Items)													
2.1) IBNS ENGINEERING SERVICES	- / 8.393	- / 1.468	- / 1.345	- / 1.369	- / -	- / 1.369	- / 1.394	- / 1.419	- / 1.444	- / 1.470	- / 7.622	- / 25.924	
<i>Subtotal: Support</i>	- / 8.393	- / 1.468	- / 1.345	- / 1.369	- / -	- / 1.369	- / 1.394	- / 1.419	- / 1.444	- / 1.470	- / 7.622	- / 25.924	
Installation													
<i>Modification Item 1 of 1:</i> DM001 - DDG MODERNIZATION HME (IBNS)	- / 58.821	- / 18.752	- / 13.922	- / 12.435	- / 0.000	- / 12.435	- / 12.508	- / 14.418	- / 14.291	- / 14.389	- / 44.276	- / 203.812	
<i>Subtotal: Installation</i>	- / 58.821	- / 18.752	- / 13.922	- / 12.435	- / -	- / 12.435	- / 12.508	- / 14.418	- / 14.291	- / 14.389	- / 44.276	- / 203.812	
Total													
Total Cost (Procurement + Support + Installation)	162.562	33.560	25.452	27.628	0.000	27.628	27.975	30.164	26.674	30.706	88.361	453.082	

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Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019																					
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 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024					
Contract Dates		Jul 2018				Jul 2019				Jul 2020				Jul 2021				May 2022				Jul 2023				Jul 2024					
Delivery Dates		Nov 2019				Nov 2020				Nov 2021				Nov 2022				Sep 2023				Nov 2024				Nov 2025					
Installation Information																															
Method of Implementation: [none specified]:: Installation Name: IBNS Equipment																															
Installation Cost		Prior Years		FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total		FY 2021		FY 2022		FY 2023		FY 2024		To Complete		Total							
		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)							
Prior Years		18 / 58.821		6 / 18.066		5 / 9.191		- / -		- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.000		29 / 86.078							
FY 2018		- / -		0 / 0.686		0 / 4.178		4 / 8.031		0 / 0.000		4 / 8.031		- / -		- / -		- / -		- / -		0 / 0.000		4 / 12.895							
FY 2019		- / -		- / -		0 / 0.553		0 / 3.682		0 / 0.000		0 / 3.682		3 / 7.030		- / -		- / -		- / -		0 / 0.000		3 / 11.265							
FY 2020		- / -		- / -		- / -		0 / 0.722		0 / 0.000		0 / 0.722		0 / 4.813		3 / 9.197		- / -		- / -		0 / 0.000		3 / 14.732							
FY 2021		- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.665		0 / 4.434		4 / 8.500		- / -		0 / 0.000		4 / 13.599							
FY 2022		- / -		- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.787		0 / 5.241		4 / 9.981		0 / 0.000		4 / 16.009							
FY 2023		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.550		0 / 3.661		3 / 6.991		3 / 11.202							
FY 2024		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.747		4 / 14.477		4 / 15.224							
To Complete		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		6 / 22.808		6 / 22.808							
Total		18 / 58.821		6 / 18.752		5 / 13.922		4 / 12.435		0 / 0.000		4 / 12.435		3 / 12.508		3 / 14.418		4 / 14.291		4 / 14.389		13 / 44.276		60 / 203.812							
Installation Schedule																															
	PYS	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				TC	Tot
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4		
In	18	-	3	2	1	-	4	-	1	-	2	-	2	-	1	1	1	1	2	-	-	2	1	-	1	-	2	1	1	13	60
Out	16	-	-	1	1	1	-	4	1	1	1	2	1	-	-	2	1	-	1	1	2	-	3	-	-	1	1	1	1	17	60
Footnotes:																															
(12) Installation costs across the FYDP vary depending on current port rates - avails not designated with a specific execution port (TBD) have a generic rate for budgeting, and install costs will be updated once an execution port is assigned. Port rates are updated every year by CNRMC 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. Installation funding for a ship																															

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Exhibit P-3a, Individual Modification: PB 2020 Navy		Date: March 2019
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:
is divided over a three-year period. Installation execution funding in the year of availability, and Design Service Allocation (DSA) two years prior to availability, and DSA in the year prior to the availability. This includes ship checks, ship installation drawing (SID) development, logistic document development and long lead time material procurements (LLTM).		

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Exhibit P-3a, Individual Modification: PB 2020 Navy		Date: March 2019
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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity (Units in Each)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost (\$ in Millions)	56.923	15.229	12.020	16.343	0.000	16.343	16.106	20.853	17.677	22.933	66.534	244.618
Less PY Advance Procurement (\$ in Millions)	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (\$ in Millions)	56.923	15.229	12.020	16.343	0.000	16.343	16.106	20.853	17.677	22.933	66.534	244.618
Plus CY Advance Procurement (\$ in Millions)	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority (\$ in Millions)	56.923	15.229	12.020	16.343	0.000	16.343	16.106	20.853	17.677	22.933	66.534	244.618
(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 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: PB 2020 Navy										Date: March 2019			
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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	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)	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 ⁽¹³⁾	11 / 34.159	3 / 10.167	2 / 6.900	3 / 10.536	- / -	3 / 10.536	3 / 10.725	4 / 14.559	3 / 11.115	4 / 15.088	6 / 37.050	39 / 150.299	
Subtotal: Recurring	- / 34.159	- / 10.167	- / 6.900	- / 10.536	- / -	- / 10.536	- / 10.725	- / 14.559	- / 11.115	- / 15.088	- / 37.050	- / 150.299	
Subtotal: DM003 - MK 160 MOD 15 GWS	11 / 34.159	3 / 10.167	2 / 6.900	3 / 10.536	- / -	3 / 10.536	3 / 10.725	4 / 14.559	3 / 11.115	4 / 15.088	6 / 37.050	39 / 150.299	
Subtotal: Procurement, All Modification Items	- / 34.159	- / 10.167	- / 6.900	- / 10.536	- / -	- / 10.536	- / 10.725	- / 14.559	- / 11.115	- / 15.088	- / 37.050	- / 150.299	
Support (All Modification Items)													
2.1) ENGINEERING SERVICES	- / 14.518	- / 2.549	- / 2.335	- / 2.377	- / -	- / 2.377	- / 2.420	- / 2.464	- / 2.508	- / 2.553	- / 13.234	- / 44.958	
Subtotal: Support	- / 14.518	- / 2.549	- / 2.335	- / 2.377	- / -	- / 2.377	- / 2.420	- / 2.464	- / 2.508	- / 2.553	- / 13.234	- / 44.958	
Installation													
Modification Item 1 of 1: DM003 - MK 160 MOD 15 GWS	- / 8.246	- / 2.513	- / 2.785	- / 3.430	- / 0.000	- / 3.430	- / 2.961	- / 3.830	- / 4.054	- / 5.292	- / 16.250	- / 49.361	
Subtotal: Installation	- / 8.246	- / 2.513	- / 2.785	- / 3.430	- / -	- / 3.430	- / 2.961	- / 3.830	- / 4.054	- / 5.292	- / 16.250	- / 49.361	
Total													
Total Cost (Procurement + Support + Installation)	56.923	15.229	12.020	16.343	0.000	16.343	16.106	20.853	17.677	22.933	66.534	244.618	

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Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019																					
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 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024					
Contract Dates		Jul 2018				Jul 2019				Jun 2020				Jun 2021				Mar 2022				May 2023				Mar 2024					
Delivery Dates		Jan 2020				Jan 2021				Dec 2021				Dec 2022				Sep 2023				Oct 2024				May 2025					
Installation Information																															
Method of Implementation: [none specified]:: Installation Name: MK 160 MOD 15 GWS EQUIPMENT																															
Installation Cost		Prior Years		FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total		FY 2021		FY 2022		FY 2023		FY 2024		To Complete		Total							
		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)							
Prior Years		7 / 8.246		2 / 2.344		2 / 1.762		- / -		- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.000		11 / 12.352							
FY 2018		- / -		0 / 0.169		0 / 0.901		3 / 2.604		0 / 0.000		3 / 2.604		- / -		- / -		- / -		- / -		0 / 0.000		3 / 3.674							
FY 2019		- / -		- / -		0 / 0.122		0 / 0.648		0 / 0.000		0 / 0.648		2 / 1.856		- / -		- / -		- / -		0 / 0.000		2 / 2.626							
FY 2020		- / -		- / -		- / -		0 / 0.178		0 / 0.000		0 / 0.178		0 / 0.948		3 / 2.725		- / -		- / -		0 / 0.000		3 / 3.851							
FY 2021		- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.157		0 / 0.838		3 / 2.442		- / -		0 / 0.000		3 / 3.437							
FY 2022		- / -		- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.267		0 / 1.425		4 / 4.043		0 / 0.000		4 / 5.735							
FY 2023		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.187		0 / 0.995		3 / 2.845		3 / 4.027							
FY 2024		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.254		4 / 5.214		4 / 5.468							
To Complete		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		6 / 8.191		6 / 8.191							
Total		7 / 8.246		2 / 2.513		2 / 2.785		3 / 3.430		0 / 0.000		3 / 3.430		2 / 2.961		3 / 3.830		3 / 4.054		4 / 5.292		13 / 16.250		39 / 49.361							
Installation Schedule																															
	PYS	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				TC	Tot
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4		
In	7	-	2	-	-	-	2	-	-	-	2	-	1	-	1	-	1	2	1	-	-	1	1	-	1	-	2	1	1	13	39
Out	6	-	-	-	1	-	-	2	-	-	-	2	-	-	-	1	1	1	-	1	1	-	3	-	-	-	1	1	1	17	39
Footnotes: ⁽¹³⁾ Installation costs across the FYDP vary depending on current port rates - avails not designated with a specific execution port (TBD) have a generic rate for budgeting, and install costs will be updated once an execution port is assigned. Port rates are updated every year by CNRMC 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. Installation funding for a ship																															

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Exhibit P-3a, Individual Modification: PB 2020 Navy		Date: March 2019
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:
is divided over a three-year period. Installation execution funding in the year of availability, and Design Service Allocation (DSA) two years prior to availability, and DSA in the year prior to the availability. This includes ship checks, ship installation drawing (SID) development, logistic document development and long lead time material procurements (LLTM).		

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Exhibit P-3a, Individual Modification: PB 2020 Navy							Date: March 2019				
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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity <i>(Units in Each)</i>	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost <i>(\$ in Millions)</i>	412.177	112.648	93.860	132.552	0.000	132.552	122.625	162.625	146.629	195.027	556.391	1,934.534
Less PY Advance Procurement <i>(\$ in Millions)</i>	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) <i>(\$ in Millions)</i>	412.177	112.648	93.860	132.552	0.000	132.552	122.625	162.625	146.629	195.027	556.391	1,934.534
Plus CY Advance Procurement <i>(\$ in Millions)</i>	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority <i>(\$ in Millions)</i>	412.177	112.648	93.860	132.552	0.000	132.552	122.625	162.625	146.629	195.027	556.391	1,934.534
<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: PB 2020 Navy										Date: March 2019			
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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	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)	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: DM004 - AWS UPGRADE													
B Kits													
Recurring													
1.1.1) AWS EQUIPMENT - NonOrganic ⁽¹⁴⁾	11 / 229.943	3 / 58.266	2 / 38.884	3 / 59.376	- / -	3 / 59.376	3 / 60.445	4 / 82.044	3 / 62.640	4 / 85.024	6 / 208.800	39 / 885.422	
<i>Subtotal: Recurring</i>	- / 229.943	- / 58.266	- / 38.884	- / 59.376	- / -	- / 59.376	- / 60.445	- / 82.044	- / 62.640	- / 85.024	- / 208.800	- / 885.422	
<i>Subtotal: DM004 - AWS UPGRADE</i>	11 / 229.943	3 / 58.266	2 / 38.884	3 / 59.376	- / -	3 / 59.376	3 / 60.445	4 / 82.044	3 / 62.640	4 / 85.024	6 / 208.800	39 / 885.422	
<i>Subtotal: Procurement, All Modification Items</i>	- / 229.943	- / 58.266	- / 38.884	- / 59.376	- / -	- / 59.376	- / 60.445	- / 82.044	- / 62.640	- / 85.024	- / 208.800	- / 885.422	
Support (All Modification Items)													
2.1) ENGINEERING SERVICES	- / 18.698	- / 4.272	- / 3.914	- / 3.984	- / -	- / 3.984	- / 4.056	- / 4.129	- / 4.204	- / 4.279	- / 22.180	- / 69.716	
<i>Subtotal: Support</i>	- / 18.698	- / 4.272	- / 3.914	- / 3.984	- / -	- / 3.984	- / 4.056	- / 4.129	- / 4.204	- / 4.279	- / 22.180	- / 69.716	
Installation													
Modification Item 1 of 1: DM004 - AWS UPGRADE	- / 163.536	- / 50.110	- / 51.062	- / 69.192	- / 0.000	- / 69.192	- / 58.124	- / 76.452	- / 79.785	- / 105.724	- / 325.411	- / 979.396	
<i>Subtotal: Installation</i>	- / 163.536	- / 50.110	- / 51.062	- / 69.192	- / -	- / 69.192	- / 58.124	- / 76.452	- / 79.785	- / 105.724	- / 325.411	- / 979.396	
Total													
Total Cost (Procurement + Support + Installation)	412.177	112.648	93.860	132.552	0.000	132.552	122.625	162.625	146.629	195.027	556.391	1,934.534	

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Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019																					
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 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024					
Contract Dates		May 2018				May 2019				Apr 2020				Apr 2021				Jan 2022				Mar 2023				Mar 2024					
Delivery Dates		Jan 2020				Jan 2021				Dec 2021				Dec 2022				Sep 2023				Oct 2024				Oct 2025					
Installation Information																															
Method of Implementation: [none specified]:: Installation Name: AWS EQUIPMENT																															
Installation Cost		Prior Years		FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total		FY 2021		FY 2022		FY 2023		FY 2024		To Complete		Total							
		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)							
Prior Years		7 / 163.536		2 / 46.976		2 / 36.883		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.000		11 / 247.395					
FY 2018		- / -		0 / 3.134		0 / 11.896		3 / 54.591		0 / 0.000		3 / 54.591		- / -		- / -		- / -		- / -		- / -		0 / 0.000		3 / 69.621					
FY 2019		- / -		- / -		0 / 2.283		0 / 11.285		0 / 0.000		0 / 11.285		2 / 38.681		- / -		- / -		- / -		- / -		0 / 0.000		2 / 52.249					
FY 2020		- / -		- / -		- / -		0 / 3.316		0 / 0.000		0 / 3.316		0 / 16.514		3 / 56.876		- / -		- / -		- / -		0 / 0.000		3 / 76.706					
FY 2021		- / -		- / -		- / -		- / -		- / -		- / -		0 / 2.929		0 / 14.594		3 / 51.489		- / -		- / -		0 / 0.000		3 / 69.012					
FY 2022		- / -		- / -		- / -		- / -		- / -		- / -		- / -		0 / 4.982		0 / 24.816		4 / 83.655		0 / 0.000		4 / 113.453							
FY 2023		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		0 / 3.480		0 / 17.336		3 / 59.164		3 / 79.980							
FY 2024		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		0 / 4.733		4 / 103.744		4 / 108.477							
To Complete		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		6 / 162.503		6 / 162.503					
Total		7 / 163.536		2 / 50.110		2 / 51.062		3 / 69.192		0 / 0.000		3 / 69.192		2 / 58.124		3 / 76.452		3 / 79.785		4 / 105.724		13 / 325.411		39 / 979.396							
Installation Schedule																															
	PYS	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				TC	Tot
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4		
In	7	-	2	-	-	-	2	-	-	-	2	-	1	-	1	-	1	2	1	-	-	1	1	-	1	-	2	1	1	13	39
Out	6	-	-	-	1	-	-	2	-	-	-	2	-	-	-	1	1	-	1	-	2	-	3	-	-	-	1	1	1	17	39
Footnotes: ⁽¹⁴⁾ Installation costs across the FYDP vary depending on current port rates - avails not designated with a specific execution port (TBD) have a generic rate for budgeting, and install costs will be updated once an execution port is assigned. Port rates are updated every year by CNRMC 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. Installation funding for a ship																															

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Exhibit P-3a, Individual Modification: PB 2020 Navy		Date: March 2019
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:
is divided over a three-year period. Installation execution funding in the year of availability, and Design Service Allocation (DSA) two years prior to availability, and DSA in the year prior to the availability. This includes ship checks, ship installation drawing (SID) development, logistic document development and long lead time material procurements (LLTM).		

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Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019		
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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity <i>(Units in Each)</i>	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost <i>(\$ in Millions)</i>	228.851	59.572	44.301	64.077	0.000	64.077	63.370	84.717	68.601	91.943	243.592	949.024
Less PY Advance Procurement <i>(\$ in Millions)</i>	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) <i>(\$ in Millions)</i>	228.851	59.572	44.301	64.077	0.000	64.077	63.370	84.717	68.601	91.943	243.592	949.024
Plus CY Advance Procurement <i>(\$ in Millions)</i>	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority <i>(\$ in Millions)</i>	228.851	59.572	44.301	64.077	0.000	64.077	63.370	84.717	68.601	91.943	243.592	949.024
<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:
 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: PB 2020 Navy										Date: March 2019			
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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	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)	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 ⁽¹⁵⁾	12 / 185.950	3 / 49.014	2 / 33.264	3 / 50.794	- / -	3 / 50.794	3 / 51.709	4 / 70.186	3 / 53.587	4 / 72.736	6 / 178.623	40 / 745.863	
<i>Subtotal: Recurring</i>	- / 185.950	- / 49.014	- / 33.264	- / 50.794	- / -	- / 50.794	- / 51.709	- / 70.186	- / 53.587	- / 72.736	- / 178.623	- / 745.863	
<i>Subtotal: DM005 - MULTI-MISSION SIGPRO</i>	12 / 185.950	3 / 49.014	2 / 33.264	3 / 50.794	- / -	3 / 50.794	3 / 51.709	4 / 70.186	3 / 53.587	4 / 72.736	6 / 178.623	40 / 745.863	
<i>Subtotal: Procurement, All Modification Items</i>	- / 185.950	- / 49.014	- / 33.264	- / 50.794	- / -	- / 50.794	- / 51.709	- / 70.186	- / 53.587	- / 72.736	- / 178.623	- / 745.863	
Support (All Modification Items)													
2.1) ENGINEERING SERVICES	- / 17.256	- / 2.865	- / 2.625	- / 2.672	- / -	- / 2.672	- / 2.720	- / 2.769	- / 2.819	- / 2.870	- / 14.875	- / 51.471	
<i>Subtotal: Support</i>	- / 17.256	- / 2.865	- / 2.625	- / 2.672	- / -	- / 2.672	- / 2.720	- / 2.769	- / 2.819	- / 2.870	- / 14.875	- / 51.471	
Installation													
<i>Modification Item 1 of 1:</i> DM005 - MULTI-MISSION SIGPRO	- / 25.645	- / 7.693	- / 8.412	- / 10.611	- / 0.000	- / 10.611	- / 8.941	- / 11.762	- / 12.195	- / 16.337	- / 50.094	- / 151.690	
<i>Subtotal: Installation</i>	- / 25.645	- / 7.693	- / 8.412	- / 10.611	- / -	- / 10.611	- / 8.941	- / 11.762	- / 12.195	- / 16.337	- / 50.094	- / 151.690	
Total													
Total Cost (Procurement + Support + Installation)	228.851	59.572	44.301	64.077	0.000	64.077	63.370	84.717	68.601	91.943	243.592	949.024	

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Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019																					
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 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024					
Contract Dates		Jul 2018				Jul 2019				Jun 2020				Jun 2021				Mar 2022				May 2023				Mar 2024					
Delivery Dates		Jan 2020				Jan 2021				Dec 2021				Dec 2022				Sep 2023				Nov 2024				Sep 2025					
Installation Information																															
Method of Implementation: [none specified]:: Installation Name: MULTI-MISSION SIGPRO EQUIPMENT																															
Installation Cost		Prior Years		FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total		FY 2021		FY 2022		FY 2023		FY 2024		To Complete		Total							
		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)							
Prior Years		8 / 25.645		2 / 7.184		2 / 5.647		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.000		12 / 38.476					
FY 2018		- / -		0 / 0.509		0 / 2.399		3 / 8.351		0 / 0.000		3 / 8.351		- / -		- / -		- / -		- / -		- / -		0 / 0.000		3 / 11.259					
FY 2019		- / -		- / -		0 / 0.366		0 / 1.724		0 / 0.000		0 / 1.724		2 / 5.944		- / -		- / -		- / -		- / -		0 / 0.000		2 / 8.034					
FY 2020		- / -		- / -		- / -		0 / 0.536		0 / 0.000		0 / 0.536		0 / 2.524		3 / 8.727		- / -		- / -		- / -		0 / 0.000		3 / 11.787					
FY 2021		- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.473		0 / 2.230		3 / 7.841		- / -		- / -		0 / 0.000		3 / 10.544					
FY 2022		- / -		- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.805		0 / 3.792		4 / 12.923		0 / 0.000		4 / 17.520							
FY 2023		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.562		0 / 2.649		3 / 9.103		3 / 12.314							
FY 2024		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.765		4 / 15.952		4 / 16.717							
To Complete		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		6 / 25.039		6 / 25.039					
Total		8 / 25.645		2 / 7.693		2 / 8.412		3 / 10.611		0 / 0.000		3 / 10.611		2 / 8.941		3 / 11.762		3 / 12.195		4 / 16.337		13 / 50.094		40 / 151.690							
Installation Schedule																															
	PYS	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				TC	Tot
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4		
In	8	-	2	-	-	-	2	-	-	-	2	-	1	-	1	-	1	2	1	-	-	1	1	-	1	-	2	1	1	13	40
Out	7	-	-	-	1	-	-	2	-	-	-	2	-	-	-	1	1	-	1	-	2	-	3	-	-	-	1	1	1	17	40
Footnotes: ⁽¹⁵⁾ Installation costs across the FYDP vary depending on current port rates - avails not designated with a specific execution port (TBD) have a generic rate for budgeting, and install costs will be updated once an execution port is assigned. Port rates are updated every year by CNRMC 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. Installation funding for a ship																															

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Exhibit P-3a, Individual Modification: PB 2020 Navy		Date: March 2019
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:
is divided over a three-year period. Installation execution funding in the year of availability, and Design Service Allocation (DSA) two years prior to availability, and DSA in the year prior to the availability. This includes ship checks, ship installation drawing (SID) development, logistic document development and long lead time material procurements (LLTM).		

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Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019		
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9				P-1 Line Item Number / Title: 0900 / DDG Mod						Modification Number / Title: 9 / DM006 - MULTI-MISSION SSA/CWI MICROWAVE TUBES		
ID Code (A=Service Ready, B=Not Service Ready) :							MDAP/MAIS Code:					
Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity (Units in Each)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost (\$ in Millions)	11.925	3.199	2.171	3.315	0.000	3.315	3.375	4.581	3.498	4.748	11.660	48.472
Less PY Advance Procurement (\$ in Millions)	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (\$ in Millions)	11.925	3.199	2.171	3.315	0.000	3.315	3.375	4.581	3.498	4.748	11.660	48.472
Plus CY Advance Procurement (\$ in Millions)	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority (\$ in Millions)	11.925	3.199	2.171	3.315	0.000	3.315	3.375	4.581	3.498	4.748	11.660	48.472
(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 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.												

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Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019			
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9					P-1 Line Item Number / Title: 0900 / DDG Mod					Modification Number / Title: 9 / DM006 - MULTI-MISSION SSA/CWI MICROWAVE TUBES			
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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	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)	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: DM006 - MULTI-MISSION SSA/CWI MICROWAVE TUBES													
B Kits													
Recurring													
1.1.1) MULTI-MISSION SSA/CWI MICROWAVE TUBES EQUIPMENT - Organic ⁽¹⁶⁾	12 / 11.925	3 / 3.199	2 / 2.171	3 / 3.315	- / -	3 / 3.315	3 / 3.375	4 / 4.581	3 / 3.498	4 / 4.748	10 / 11.660	44 / 48.472	
<i>Subtotal: Recurring</i>	- / 11.925	- / 3.199	- / 2.171	- / 3.315	- / -	- / 3.315	- / 3.375	- / 4.581	- / 3.498	- / 4.748	- / 11.660	- / 48.472	
<i>Subtotal: DM006 - MULTI-MISSION SSA/CWI MICROWAVE TUBES</i>	12 / 11.925	3 / 3.199	2 / 2.171	3 / 3.315	- / -	3 / 3.315	3 / 3.375	4 / 4.581	3 / 3.498	4 / 4.748	10 / 11.660	44 / 48.472	
<i>Subtotal: Procurement, All Modification Items</i>	- / 11.925	- / 3.199	- / 2.171	- / 3.315	- / -	- / 3.315	- / 3.375	- / 4.581	- / 3.498	- / 4.748	- / 11.660	- / 48.472	
Installation													
<i>Subtotal: Installation</i>	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	
Total													
Total Cost (Procurement + Support + Installation)	11.925	3.199	2.171	3.315	0.000	3.315	3.375	4.581	3.498	4.748	11.660	48.472	

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Exhibit P-3a, Individual Modification: PB 2020 Navy				Date: March 2019			
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9		P-1 Line Item Number / Title: 0900 / DDG Mod			Modification Number / Title: 9 / DM006 - MULTI-MISSION SSA/CWI MICROWAVE TUBES		
ID Code (A=Service Ready, B=Not Service Ready) :				MDAP/MAIS Code:			
Modification Item 1 of 1: DM006 - MULTI-MISSION SSA/CWI MICROWAVE TUBES							
Manufacturer Information							
Manufacturer Name: VARIOUS				Manufacturer Location: VARIOUS			
Administrative Leadtime (in Months): 6				Production Leadtime (in Months): 18			
Dates	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024
Contract Dates	Jul 2018	Jul 2019	Jun 2020	Jun 2021	Mar 2022	May 2023	Mar 2024
Delivery Dates	Jan 2020	Jan 2021	Dec 2021	Dec 2022	Sep 2023	Oct 2024	Sep 2025

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

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Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019		
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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity (<i>Units in Each</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost (<i>\$ in Millions</i>)	57.508	15.634	10.836	11.031	0.000	11.031	0.903	0.919	0.936	0.953	4.938	103.658
Less PY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (<i>\$ in Millions</i>)	57.508	15.634	10.836	11.031	0.000	11.031	0.903	0.919	0.936	0.953	4.938	103.658
Plus CY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority (<i>\$ in Millions</i>)	57.508	15.634	10.836	11.031	0.000	11.031	0.903	0.919	0.936	0.953	4.938	103.658
<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: PB 2020 Navy										Date: March 2019			
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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total	
	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	
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 ⁽¹⁷⁾	12 / 53.801	3 / 14.683	2 / 9.965	2 / 10.144	- / -	2 / 10.144	- / -	- / -	- / -	- / -	- / -	19 / 88.593	
<i>Subtotal: Recurring</i>	- / 53.801	- / 14.683	- / 9.965	- / 10.144	- / -	- / 10.144	- / -	- / -	- / -	- / -	- / 0.000	- / 88.593	
<i>Subtotal: DM007 - SPY-1D TRANSMITTER UPGRADES</i>	12 / 53.801	3 / 14.683	2 / 9.965	2 / 10.144	- / -	2 / 10.144	- / -	- / -	- / -	- / -	- / -	19 / 88.593	
<i>Subtotal: Procurement, All Modification Items</i>	- / 53.801	- / 14.683	- / 9.965	- / 10.144	- / -	- / 10.144	- / -	- / -	- / -	- / -	- / 0.000	- / 88.593	
Support (All Modification Items)													
2.1) ENGINEERING SERVICES	- / 3.707	- / 0.951	- / 0.871	- / 0.887	- / -	- / 0.887	- / 0.903	- / 0.919	- / 0.936	- / 0.953	- / 4.938	- / 15.065	
<i>Subtotal: Support</i>	- / 3.707	- / 0.951	- / 0.871	- / 0.887	- / -	- / 0.887	- / 0.903	- / 0.919	- / 0.936	- / 0.953	- / 4.938	- / 15.065	
Installation													
<i>Subtotal: Installation</i>	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	
Total													
Total Cost (Procurement + Support + Installation)	57.508	15.634	10.836	11.031	0.000	11.031	0.903	0.919	0.936	0.953	4.938	103.658	

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Exhibit P-3a, Individual Modification: PB 2020 Navy					Date: March 2019		
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 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024
Contract Dates	Jul 2018	Jul 2019	Jun 2020	Jun 2021			
Delivery Dates	Jan 2020	Jan 2021	Dec 2022	Dec 2023			

Footnotes:

⁽¹⁷⁾ SPY-1D Transmitter Upgrades aren't required for DDG 91 and follow. Installation costs for this equipment are captured in P40A/DM6IN-Installation. Installation funding for a ship is divided over a three-year period. Installation execution funding in the year of availability, and Design Service Allocation (DSA) two years prior to availability, and DSA in the year prior to the availability. This includes ship checks, ship installation drawing (SID) development, logistic document development and long lead time material procurements (LLTM).

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Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019		
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9					P-1 Line Item Number / Title: 0900 / DDG Mod					Modification Number / Title: 11 / DM008 - MULTI-MISSION BMD CAPABILITY		
ID Code (A=Service Ready, B=Not Service Ready) :							MDAP/MAIS Code:					
Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity (Units in Each)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost (\$ in Millions)	20.422	5.317	3.608	5.510	0.000	5.510	5.609	7.613	5.813	7.890	19.375	81.157
Less PY Advance Procurement (\$ in Millions)	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (\$ in Millions)	20.422	5.317	3.608	5.510	0.000	5.510	5.609	7.613	5.813	7.890	19.375	81.157
Plus CY Advance Procurement (\$ in Millions)	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority (\$ in Millions)	20.422	5.317	3.608	5.510	0.000	5.510	5.609	7.613	5.813	7.890	19.375	81.157
(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 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.												

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Exhibit P-3a, Individual Modification: PB 2020 Navy				Date: March 2019			
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9		P-1 Line Item Number / Title: 0900 / DDG Mod			Modification Number / Title: 11 / DM008 - MULTI-MISSION BMD CAPABILITY		
ID Code (A=Service Ready, B=Not Service Ready) :				MDAP/MAIS Code:			
Modification Item 1 of 1: DM008 - MULTI-MISSION BMD CAPABILITY							
Manufacturer Information							
Manufacturer Name: LOCKHEED MARTIN				Manufacturer Location: MOORESTOWN, NJ			
Administrative Leadtime (in Months): 6				Production Leadtime (in Months): 18			
Dates	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024
Contract Dates	Jul 2018	Jul 2019	Jun 2020	Jun 2021	Mar 2022	May 2023	Mar 2024
Delivery Dates	Jan 2020	Jan 2021	Dec 2021	Dec 2022	Sep 2023	Oct 2024	Sep 2025

Footnotes:
(18) Installation costs for this equipment are captured in P40A/DM6IN-Installation. Installation funding for a ship is divided over a three-year period. Installation execution funding in the year of availability, and Design Service Allocation (DSA) two years prior to availability, and DSA in the year prior to the availability. This includes ship checks, ship installation drawing (SID) development, logistic document development and long lead time material procurements (LLTM).

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Exhibit P-3a, Individual Modification: PB 2020 Navy								Date: March 2019				
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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity (Units in Each)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost (\$ in Millions)	103.535	25.990	20.723	27.581	0.000	27.581	27.219	34.723	29.667	38.061	115.222	422.721
Less PY Advance Procurement (\$ in Millions)	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (\$ in Millions)	103.535	25.990	20.723	27.581	0.000	27.581	27.219	34.723	29.667	38.061	115.222	422.721
Plus CY Advance Procurement (\$ in Millions)	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority (\$ in Millions)	103.535	25.990	20.723	27.581	0.000	27.581	27.219	34.723	29.667	38.061	115.222	422.721
(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 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: PB 2020 Navy								Date: March 2019					
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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	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)	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⁾		11 / 64.198	3 / 15.989	2 / 10.851	3 / 16.570	- / -	3 / 16.570	3 / 16.868	4 / 22.896	3 / 17.481	4 / 23.728	6 / 58.270	39 / 246.851
Subtotal: Recurring		- / 64.198	- / 15.989	- / 10.851	- / 16.570	- / -	- / 16.570	- / 16.868	- / 22.896	- / 17.481	- / 23.728	- / 58.270	- / 246.851
Subtotal: DM009 - VLS UPGRADES		11 / 64.198	3 / 15.989	2 / 10.851	3 / 16.570	- / -	3 / 16.570	3 / 16.868	4 / 22.896	3 / 17.481	4 / 23.728	6 / 58.270	39 / 246.851
Subtotal: Procurement, All Modification Items		- / 64.198	- / 15.989	- / 10.851	- / 16.570	- / -	- / 16.570	- / 16.868	- / 22.896	- / 17.481	- / 23.728	- / 58.270	- / 246.851
Support (All Modification Items)													
2.1) ENGINEERING SERVICES		- / 26.345	- / 6.158	- / 5.642	- / 5.743	- / -	- / 5.743	- / 5.847	- / 5.952	- / 6.059	- / 6.168	- / 31.971	- / 99.885
Subtotal: Support		- / 26.345	- / 6.158	- / 5.642	- / 5.743	- / -	- / 5.743	- / 5.847	- / 5.952	- / 6.059	- / 6.168	- / 31.971	- / 99.885
Installation													
Modification Item 1 of 1: DM009 - VLS UPGRADES		- / 12.992	- / 3.843	- / 4.230	- / 5.268	- / 0.000	- / 5.268	- / 4.504	- / 5.875	- / 6.127	- / 8.165	- / 24.981	- / 75.985
Subtotal: Installation		- / 12.992	- / 3.843	- / 4.230	- / 5.268	- / -	- / 5.268	- / 4.504	- / 5.875	- / 6.127	- / 8.165	- / 24.981	- / 75.985
Total													
Total Cost (Procurement + Support + Installation)		103.535	25.990	20.723	27.581	0.000	27.581	27.219	34.723	29.667	38.061	115.222	422.721

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Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019																					
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 (<i>in Months</i>): 6															Production Leadtime (<i>in Months</i>): 18																
Dates		FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024					
Contract Dates		Jul 2018				Jul 2019				Jul 2020				Mar 2021				Mar 2022				May 2023				Mar 2024					
Delivery Dates		Jan 2020				Jan 2021				Dec 2021				Sep 2022				Sep 2023				Oct 2024				Oct 2025					
Installation Information																															
Method of Implementation: [none specified]:: Installation Name: VLS EQUIPMENT																															
Installation Cost		Prior Years		FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total		FY 2021		FY 2022		FY 2023		FY 2024		To Complete		Total							
		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)							
Prior Years		7 / 12.992		2 / 3.577		2 / 2.752		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.000		11 / 19.321					
FY 2018		- / -		0 / 0.266		0 / 1.287		3 / 4.063		0 / 0.000		3 / 4.063		- / -		- / -		- / -		- / -		- / -		0 / 0.000		3 / 5.616					
FY 2019		- / -		- / -		0 / 0.191		0 / 0.925		0 / 0.000		0 / 0.925		2 / 2.904		- / -		- / -		- / -		- / -		0 / 0.000		2 / 4.020					
FY 2020		- / -		- / -		- / -		0 / 0.280		0 / 0.000		0 / 0.280		0 / 1.353		3 / 4.258		- / -		- / -		- / -		0 / 0.000		3 / 5.891					
FY 2021		- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.247		0 / 1.196		3 / 3.799		- / -		- / -		0 / 0.000		3 / 5.242					
FY 2022		- / -		- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.421		0 / 2.034		4 / 6.344		0 / 0.000		4 / 8.799							
FY 2023		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.294		0 / 1.421		3 / 4.453		3 / 6.168							
FY 2024		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.400		4 / 7.979		4 / 8.379							
To Complete		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		6 / 12.549		6 / 12.549							
Total		7 / 12.992		2 / 3.843		2 / 4.230		3 / 5.268		0 / 0.000		3 / 5.268		2 / 4.504		3 / 5.875		3 / 6.127		4 / 8.165		13 / 24.981		39 / 75.985							
Installation Schedule																															
	PYS	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				TC	Tot
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4		
In	7	-	2	-	-	-	2	-	-	-	2	-	1	-	1	-	1	2	1	-	-	1	1	-	1	-	2	1	1	13	39
Out	6	-	-	-	1	-	-	2	-	-	-	2	-	-	-	1	1	-	1	-	2	-	3	-	-	-	1	1	1	17	39
Footnotes: ⁽¹⁹⁾ Installation costs across the FYDP vary depending on current port rates - avails not designated with a specific execution port (TBD) have a generic rate for budgeting, and install costs will be updated once an execution port is assigned. Port rates are updated every year by CNRMC 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. Installation funding for a ship																															

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Exhibit P-3a, Individual Modification: PB 2020 Navy		Date: March 2019
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:
is divided over a three-year period. Installation execution funding in the year of availability, and Design Service Allocation (DSA) two years prior to availability, and DSA in the year prior to the availability. This includes ship checks, ship installation drawing (SID) development, logistic document development and long lead time material procurements (LLTM).		

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Exhibit P-3a, Individual Modification: PB 2020 Navy						Date: March 2019					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9				P-1 Line Item Number / Title: 0900 / DDG Mod				Modification Number / Title: 13 / DM011 - AN/SQQ-89 A(V15)			

ID Code (A=Service Ready, B=Not Service Ready) :						MDAP/MAIS Code:						
Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity <i>(Units in Each)</i>	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost <i>(\$ in Millions)</i>	133.535	10.859	5.908	11.384	0.000	11.384	12.751	8.152	7.091	2.901	16.709	209.290
Less PY Advance Procurement <i>(\$ in Millions)</i>	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) <i>(\$ in Millions)</i>	133.535	10.859	5.908	11.384	0.000	11.384	12.751	8.152	7.091	2.901	16.709	209.290
Plus CY Advance Procurement <i>(\$ in Millions)</i>	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority <i>(\$ in Millions)</i>	133.535	10.859	5.908	11.384	0.000	11.384	12.751	8.152	7.091	2.901	16.709	209.290
(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>	-	-	-	-	-	-	-	-	-	-	-	-

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: PB 2020 Navy										Date: March 2019			
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9					P-1 Line Item Number / Title: 0900 / DDG Mod					Modification Number / Title: 13 / 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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	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)	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: DM011 - AN/SQQ-89 A(V15)													
B Kits													
Recurring													
1.1.1) AN/SQQ-89 EQUIPMENT A(V15) - NonOrganic (20)	10 / 77.095	- / -	- / -	1 / 8.424	- / -	1 / 8.424	1 / 8.576	- / -	- / -	- / -	- / -	12 / 94.095	
Subtotal: Recurring	- / 77.095	- / -	- / -	- / 8.424	- / -	- / 8.424	- / 8.576	- / -	- / -	- / -	- / 0.000	- / 94.095	
Subtotal: DM011 - AN/SQQ-89 A(V15)	10 / 77.095	- / -	- / -	1 / 8.424	- / -	1 / 8.424	1 / 8.576	- / -	- / -	- / -	- / -	12 / 94.095	
Subtotal: Procurement, All Modification Items	- / 77.095	- / -	- / -	- / 8.424	- / -	- / 8.424	- / 8.576	- / -	- / -	- / -	- / 0.000	- / 94.095	
Support (All Modification Items)													
2.1) ENGINEERING SERVICES	- / 21.776	- / 2.896	- / 2.654	- / 2.702	- / -	- / 2.702	- / 2.750	- / 2.800	- / 2.850	- / 2.901	- / 16.709	- / 58.038	
Subtotal: Support	- / 21.776	- / 2.896	- / 2.654	- / 2.702	- / -	- / 2.702	- / 2.750	- / 2.800	- / 2.850	- / 2.901	- / 16.709	- / 58.038	
Installation													
Modification Item 1 of 1: DM011 - AN/SQQ-89 A(V15)	- / 34.664	- / 7.963	- / 3.254	- / 0.258	- / 0.000	- / 0.258	- / 1.425	- / 5.352	- / 4.241	- / 0.000	- / 0.000	- / 57.157	
Subtotal: Installation	- / 34.664	- / 7.963	- / 3.254	- / 0.258	- / -	- / 0.258	- / 1.425	- / 5.352	- / 4.241	- / -	- / 0.000	- / 57.157	
Total													
Total Cost (Procurement + Support + Installation)	133.535	10.859	5.908	11.384	0.000	11.384	12.751	8.152	7.091	2.901	16.709	209.290	

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Exhibit P-3a, Individual Modification: PB 2020 Navy											Date: March 2019																					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9											P-1 Line Item Number / Title: 0900 / DDG Mod											Modification Number / Title: 13 / 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 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024						
Contract Dates										Jul 2020				Jun 2021																		
Delivery Dates										Jan 2022				Dec 2022																		
Installation Information																																
Method of Implementation: [none specified]:: Installation Name: AN/SQQ-89 EQUIPMENT A(V15)																																
Installation Cost		Prior Years		FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total		FY 2021		FY 2022		FY 2023		FY 2024		To Complete		Total								
		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>)		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		7 / 34.664		2 / 7.963		1 / 3.254		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.000		10 / 45.881						
FY 2018		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -						
FY 2019		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -						
FY 2020		- / -		- / -		- / -		0 / 0.258		0 / 0.000		0 / 0.258		0 / 1.162		1 / 4.166		- / -		- / -		0 / 0.000		1 / 5.586								
FY 2021		- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.263		0 / 1.186		1 / 4.241		- / -		0 / 0.000		1 / 5.690								
FY 2022		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -								
FY 2023		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -								
FY 2024		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -								
To Complete		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -								
Total		7 / 34.664		2 / 7.963		1 / 3.254		0 / 0.258		0 / 0.000		0 / 0.258		0 / 1.425		1 / 5.352		1 / 4.241		- / -		0 / 0.000		12 / 57.157								
Installation Schedule																																
	PYS	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				TC	Tot	
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4			
In	7	-	-	1	1	-	-	-	1	-	-	-	-	-	-	-	-	-	1	-	-	1	-	-	-	-	-	-	-			
Out	7	-	-	-	-	-	-	1	1	-	-	-	1	-	-	-	-	-	-	-	-	-	1	-	-	1	-	-	-			
Footnotes: ⁽²⁰⁾ Flight IIA DDGs have previously received an SQQ-89(A)V15 installation. Installation costs across the FYDP vary depending on current port rates - avails not designated with a specific execution port (TBD) have a generic rate for budgeting, and install costs will be updated once an execution port is assigned. Port rates are updated every year by CNRMC 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. Installation funding for a ship is divided over a three-year period. Installation execution funding in the year of availability, and Design Service Allocation (DSA)																																

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Exhibit P-3a, Individual Modification: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	P-1 Line Item Number / Title: 0900 / DDG Mod	Modification Number / Title: 13 / DM011 - AN/SQQ-89 A(V15)
ID Code (A=Service Ready, B=Not Service Ready) :		MDAP/MAIS Code:
two years prior to availability, and DSA in the year prior to the availability. This includes ship checks, ship installation drawing (SID) development, logistic document development and long lead time material procurements (LLTM).		

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Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019		
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9					P-1 Line Item Number / Title: 0900 / DDG Mod					Modification Number / Title: 14 / DM013 - (1 MC/DIAS UPGRADE)		
ID Code (A=Service Ready, B=Not Service Ready) :							MDAP/MAIS Code:					
Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity <i>(Units in Each)</i>	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost <i>(\$ in Millions)</i>	0.000	15.075	12.975	12.039	0.000	12.039	11.800	13.770	13.117	14.043	42.141	134.960
Less PY Advance Procurement <i>(\$ in Millions)</i>	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) <i>(\$ in Millions)</i>	0.000	15.075	12.975	12.039	0.000	12.039	11.800	13.770	13.117	14.043	42.141	134.960
Plus CY Advance Procurement <i>(\$ in Millions)</i>	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority <i>(\$ in Millions)</i>	0.000	15.075	12.975	12.039	0.000	12.039	11.800	13.770	13.117	14.043	42.141	134.960
<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: PB 2020 Navy									Date: March 2019				
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9				P-1 Line Item Number / Title: 0900 / DDG Mod					Modification Number / Title: 14 / 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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total	
	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	
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⁾	11 / 0.000	4 / 1.168	3 / 0.892	4 / 1.217	- / -	4 / 1.217	4 / 1.238	4 / 1.254	3 / 0.958	4 / 1.300	6 / 3.193	43 / 11.220	
<i>Subtotal: Recurring</i>	- / 0.000	- / 1.168	- / 0.892	- / 1.217	- / -	- / 1.217	- / 1.238	- / 1.254	- / 0.958	- / 1.300	- / 3.193	- / 11.220	
<i>Subtotal: DM013 - (1 MC/DIAS UPGRADE)</i>	11 / 0.000	4 / 1.168	3 / 0.892	4 / 1.217	- / -	4 / 1.217	4 / 1.238	4 / 1.254	3 / 0.958	4 / 1.300	6 / 3.193	43 / 11.220	
<i>Subtotal: Procurement, All Modification Items</i>	- / 0.000	- / 1.168	- / 0.892	- / 1.217	- / -	- / 1.217	- / 1.238	- / 1.254	- / 0.958	- / 1.300	- / 3.193	- / 11.220	
Installation													
<i>Modification Item 1 of 1:</i> DM013 - (1 MC/DIAS UPGRADE)													
	- / 0.000	- / 13.907	- / 12.083	- / 10.822	- / 0.000	- / 10.822	- / 10.562	- / 12.516	- / 12.159	- / 12.743	- / 38.948	- / 123.740	
<i>Subtotal: Installation</i>	- / 0.000	- / 13.907	- / 12.083	- / 10.822	- / -	- / 10.822	- / 10.562	- / 12.516	- / 12.159	- / 12.743	- / 38.948	- / 123.740	
Total													
Total Cost (Procurement + Support + Installation)	0.000	15.075	12.975	12.039	0.000	12.039	11.800	13.770	13.117	14.043	42.141	134.960	

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Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019																					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9					P-1 Line Item Number / Title: 0900 / DDG Mod					Modification Number / Title: 14 / 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 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024																								
Contract Dates	Jul 2018	Jul 2019	Jul 2020	Jul 2021	Jul 2022	Jul 2023	Jul 2024																								
Delivery Dates	Nov 2019	Nov 2020	Nov 2021	Nov 2022	Nov 2023	Nov 2024	Nov 2025																								
Installation Information																															
Method of Implementation: [none specified]:: Installation Name: 1 MC/DIAS EQUIPMENT																															
Installation Cost		Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total																		
		Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	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 / 13.424	5 / 8.854	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	11 / 22.278																		
FY 2018		- / -	0 / 0.483	0 / 2.751	4 / 7.773	0 / 0.000	4 / 7.773	- / -	- / -	- / -	- / -	0 / 0.000	4 / 11.007																		
FY 2019		- / -	- / -	0 / 0.478	0 / 2.424	0 / 0.000	0 / 2.424	3 / 6.818	- / -	- / -	- / -	0 / 0.000	3 / 9.720																		
FY 2020		- / -	- / -	- / -	0 / 0.625	0 / 0.000	0 / 0.625	0 / 3.169	4 / 8.917	- / -	- / -	0 / 0.000	4 / 12.711																		
FY 2021		- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.575	0 / 2.919	4 / 8.233	- / -	0 / 0.000	4 / 11.727																		
FY 2022		- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.680	0 / 3.451	4 / 9.687	0 / 0.000	4 / 13.818																		
FY 2023		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.475	0 / 2.410	3 / 6.779	3 / 9.664																		
FY 2024		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.646	4 / 12.491	4 / 13.137																		
To Complete		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	6 / 19.678	6 / 19.678																		
Total		- / -	6 / 13.907	5 / 12.083	4 / 10.822	0 / 0.000	4 / 10.822	3 / 10.562	4 / 12.516	4 / 12.159	4 / 12.743	13 / 38.948	43 / 123.740																		
Installation Schedule																															
	PYS	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				TC	Tot
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4		
In	-	-	3	2	1	-	4	-	1	-	2	-	2	-	1	1	1	2	2	-	-	2	1	-	1	-	2	1	1	13	43
Out	-	-	-	-	-	1	-	4	1	1	1	2	1	-	-	2	1	-	1	1	2	1	3	-	-	1	1	1	-	18	43
Footnotes:																															
⁽²¹⁾ Installation costs across the FYDP vary depending on current port rates - avails not designated with a specific execution port (TBD) have a generic rate for budgeting, and install costs will be updated once an execution port is assigned. Port rates are updated every year by CNRMC 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. All cost from FY 18 and follows will be captured in this P3-A exhibit. Installation funding for a ship is divided over a three-year period. Installation execution funding in the year of availability, and Design Service Allocation (DSA) two years																															

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Exhibit P-3a, Individual Modification: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	P-1 Line Item Number / Title: 0900 / DDG Mod	Modification Number / Title: 14 / DM013 - (1 MC/DIAS UPGRADE)
ID Code (A=Service Ready, B=Not Service Ready) :		MDAP/MAIS Code:
prior to availability, and DSA in the year prior to the availability. This includes ship checks, ship installation drawing (SID) development, logistic document development and long lead time material procurements (LLTM).		

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Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019		
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9				P-1 Line Item Number / Title: 0900 / DDG Mod						Modification Number / Title: 15 / DM013 - (MORIAH WIND SYSTEM)		
ID Code (A=Service Ready, B=Not Service Ready) :							MDAP/MAIS Code:					
Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity (<i>Units in Each</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost (<i>\$ in Millions</i>)	0.000	6.374	5.304	5.180	0.000	5.180	5.514	5.893	5.356	3.974	2.249	39.844
Less PY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (<i>\$ in Millions</i>)	0.000	6.374	5.304	5.180	0.000	5.180	5.514	5.893	5.356	3.974	2.249	39.844
Plus CY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority (<i>\$ in Millions</i>)	0.000	6.374	5.304	5.180	0.000	5.180	5.514	5.893	5.356	3.974	2.249	39.844
(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>)	-	-	-	-	-	-	-	-	-	-	-	-

Description:
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.

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Exhibit P-3a, Individual Modification: PB 2020 Navy									Date: March 2019				
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9				P-1 Line Item Number / Title: 0900 / DDG Mod					Modification Number / Title: 15 / DM013 - (MORIAH WIND SYSTEM)				
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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total	
	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	
Procurement													
<i>Modification Item 1 of 1:</i> DM013 - (MORIAH WIND SYSTEM)													
B Kits													
Recurring													
1.1.1) MORIAH WIND SYSTEM EQUIPMENT - NonOrganic ⁽²²⁾	11 / 0.000	4 / 1.211	3 / 0.924	4 / 1.255	- / -	4 / 1.255	4 / 1.277	4 / 1.300	2 / 0.662	1 / 0.337	- / -	33 / 6.966	
<i>Subtotal: Recurring</i>	- / 0.000	- / 1.211	- / 0.924	- / 1.255	- / -	- / 1.255	- / 1.277	- / 1.300	- / 0.662	- / 0.337	- / 0.000	- / 6.966	
<i>Subtotal: DM013 - (MORIAH WIND SYSTEM)</i>	11 / 0.000	4 / 1.211	3 / 0.924	4 / 1.255	- / -	4 / 1.255	4 / 1.277	4 / 1.300	2 / 0.662	1 / 0.337	- / -	33 / 6.966	
<i>Subtotal: Procurement, All Modification Items</i>	- / 0.000	- / 1.211	- / 0.924	- / 1.255	- / -	- / 1.255	- / 1.277	- / 1.300	- / 0.662	- / 0.337	- / 0.000	- / 6.966	
Installation													
<i>Modification Item 1 of 1:</i> DM013 - (MORIAH WIND SYSTEM)	- / 0.000	- / 5.163	- / 4.380	- / 3.925	- / 0.000	- / 3.925	- / 4.237	- / 4.593	- / 4.694	- / 3.637	- / 2.249	- / 32.878	
<i>Subtotal: Installation</i>	- / 0.000	- / 5.163	- / 4.380	- / 3.925	- / -	- / 3.925	- / 4.237	- / 4.593	- / 4.694	- / 3.637	- / 2.249	- / 32.878	
Total													
Total Cost (Procurement + Support + Installation)	0.000	6.374	5.304	5.180	0.000	5.180	5.514	5.893	5.356	3.974	2.249	39.844	

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Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019																					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9										P-1 Line Item Number / Title: 0900 / DDG Mod										Modification Number / Title: 15 / DM013 - (MORIAH WIND SYSTEM)											
ID Code (A=Service Ready, B=Not Service Ready) :															MDAP/MAIS Code:																
Modification Item 1 of 1: DM013 - (MORIAH WIND SYSTEM)																															
Manufacturer Information																															
Manufacturer Name: NAWCAD LAKEHURST															Manufacturer Location: LAKEHURST, NEW JERSEY																
Administrative Leadtime (in Months): 6															Production Leadtime (in Months): 16																
Dates		FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024					
Contract Dates		Jul 2018				Jul 2019				Jul 2020				Jul 2021				May 2022				Jul 2023				Jul 2024					
Delivery Dates		Nov 2019				Nov 2020				Nov 2021				Nov 2022				Sep 2023				Nov 2024				Nov 2025					
Installation Information																															
Method of Implementation: [none specified]:: Installation Name: MORIAH WIND SYSTEM EQUIPMENT																															
Installation Cost		Prior Years		FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total		FY 2021		FY 2022		FY 2023		FY 2024		To Complete		Total							
		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)							
Prior Years		- / -		6 / 4.978		5 / 2.131		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.000		11 / 7.109					
FY 2018		- / -		0 / 0.185		0 / 2.067		4 / 1.865		0 / 0.000		4 / 1.865		- / -		- / -		- / -		- / -		- / -		0 / 0.000		4 / 4.117					
FY 2019		- / -		- / -		0 / 0.182		0 / 1.822		0 / 0.000		0 / 1.822		3 / 1.636		- / -		- / -		- / -		- / -		0 / 0.000		3 / 3.640					
FY 2020		- / -		- / -		- / -		0 / 0.238		0 / 0.000		0 / 0.238		0 / 2.381		4 / 2.140		- / -		- / -		- / -		0 / 0.000		4 / 4.759					
FY 2021		- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.220		0 / 2.193		4 / 1.975		- / -		- / -		0 / 0.000		4 / 4.388					
FY 2022		- / -		- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.260		0 / 2.593		4 / 2.325		0 / 0.000		4 / 5.178							
FY 2023		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.126		0 / 1.253		2 / 1.125		2 / 2.504							
FY 2024		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.059		1 / 1.124		1 / 1.183							
To Complete		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -							
Total		- / -		6 / 5.163		5 / 4.380		4 / 3.925		0 / 0.000		4 / 3.925		3 / 4.237		4 / 4.593		4 / 4.694		4 / 3.637		3 / 2.249		33 / 32.878							
Installation Schedule																															
	PYS	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				TC	Tot
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4		
In	-	-	3	2	1	-	4	-	1	-	2	-	2	-	1	1	1	2	2	-	-	2	1	-	1	-	2	1	1	3	33
Out	-	-	-	-	-	1	-	4	1	1	1	2	1	-	-	2	1	-	2	-	2	-	3	1	-	1	1	1	1	7	33
Footnotes: ⁽²²⁾ Installation costs across the FYDP vary depending on current port rates - avails not designated with a specific execution port (TBD) have a generic rate for budgeting, and install costs will be updated once an execution port is assigned. Port rates are updated every year by CNRMC 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. All costs from FY18 and out will																															

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Exhibit P-3a, Individual Modification: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	P-1 Line Item Number / Title: 0900 / DDG Mod	Modification Number / Title: 15 / DM013 - (MORIAH WIND SYSTEM)
ID Code (A=Service Ready, B=Not Service Ready) :		MDAP/MAIS Code:
be captured in this P3A exhibit. Installation funding for a ship is divided over a three-year period. Installation execution funding in the year of availability, and Design Service Allocation (DSA) two years prior to availability, and DSA in the year prior to the availability. This includes ship checks, ship installation drawing (SID) development, logistic document development and long lead time material procurements (LLTM).		

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Exhibit P-3a, Individual Modification: PB 2020 Navy						Date: March 2019					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9				P-1 Line Item Number / Title: 0900 / DDG Mod				Modification Number / Title: 16 / DM013 - (IVCS UPGRADE)			

ID Code (A=Service Ready, B=Not Service Ready) :						MDAP/MAIS Code:						
Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity (Units in Each)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost (\$ in Millions)	0.000	17.341	16.656	25.010	0.000	25.010	22.630	30.048	28.033	37.825	108.568	286.111
Less PY Advance Procurement (\$ in Millions)	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (\$ in Millions)	0.000	17.341	16.656	25.010	0.000	25.010	22.630	30.048	28.033	37.825	108.568	286.111
Plus CY Advance Procurement (\$ in Millions)	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority (\$ in Millions)	0.000	17.341	16.656	25.010	0.000	25.010	22.630	30.048	28.033	37.825	108.568	286.111
(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 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: PB 2020 Navy								Date: March 2019					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9				P-1 Line Item Number / Title: 0900 / DDG Mod				Modification Number / Title: 16 / 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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	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)	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 ⁽²³⁾	4 / 0.000	3 / 7.567	2 / 5.363	3 / 8.189	- / -	3 / 8.189	3 / 8.336	4 / 11.315	3 / 8.639	4 / 11.726	6 / 28.798	32 / 89.933	
<i>Subtotal: Recurring</i>	- / 0.000	- / 7.567	- / 5.363	- / 8.189	- / -	- / 8.189	- / 8.336	- / 11.315	- / 8.639	- / 11.726	- / 28.798	- / 89.933	
<i>Subtotal: DM013 - (IVCS UPGRADE)</i>	4 / 0.000	3 / 7.567	2 / 5.363	3 / 8.189	- / -	3 / 8.189	3 / 8.336	4 / 11.315	3 / 8.639	4 / 11.726	6 / 28.798	32 / 89.933	
<i>Subtotal: Procurement, All Modification Items</i>	- / 0.000	- / 7.567	- / 5.363	- / 8.189	- / -	- / 8.189	- / 8.336	- / 11.315	- / 8.639	- / 11.726	- / 28.798	- / 89.933	
Installation													
Modification Item 1 of 1: DM013 - (IVCS UPGRADE)	- / 0.000	- / 9.774	- / 11.293	- / 16.821	- / 0.000	- / 16.821	- / 14.294	- / 18.733	- / 19.394	- / 26.099	- / 79.770	- / 196.178	
<i>Subtotal: Installation</i>	- / 0.000	- / 9.774	- / 11.293	- / 16.821	- / -	- / 16.821	- / 14.294	- / 18.733	- / 19.394	- / 26.099	- / 79.770	- / 196.178	
Total													
Total Cost (Procurement + Support + Installation)	0.000	17.341	16.656	25.010	0.000	25.010	22.630	30.048	28.033	37.825	108.568	286.111	

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Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019																					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9										P-1 Line Item Number / Title: 0900 / DDG Mod										Modification Number / Title: 16 / 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 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024					
Contract Dates		Jul 2018				Jul 2019				Jun 2020				Jun 2021				Mar 2022				May 2023				May 2024					
Delivery Dates		Jan 2020				Jan 2021				Dec 2021				Dec 2022				Sep 2023				Oct 2024				Oct 2025					
Installation Information																															
Method of Implementation: [none specified]:: Installation Name: IVCS EQUIPMENT																															
Installation Cost		Prior Years	FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total		FY 2021		FY 2022		FY 2023		FY 2024		To Complete		Total								
		Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)								
Prior Years		- / -	2 / 8.992		2 / 8.870		- / -		- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.000		4 / 17.862								
FY 2018		- / -	0 / 0.782		0 / 1.811		3 / 13.100		0 / 0.000		3 / 13.100		- / -		- / -		- / -		- / -		0 / 0.000		3 / 15.693								
FY 2019		- / -	- / -		0 / 0.612		0 / 2.826		0 / 0.000		0 / 2.826		2 / 9.367		- / -		- / -		- / -		0 / 0.000		2 / 12.805								
FY 2020		- / -	- / -		- / -		0 / 0.895		0 / 0.000		0 / 0.895		0 / 4.136		3 / 13.733		- / -		- / -		0 / 0.000		3 / 18.764								
FY 2021		- / -	- / -		- / -		- / -		- / -		- / -		0 / 0.791		0 / 3.655		3 / 12.240		- / -		0 / 0.000		3 / 16.686								
FY 2022		- / -	- / -		- / -		- / -		- / -		- / -		- / -		0 / 1.345		0 / 6.215		4 / 20.480		0 / 0.000		4 / 28.040								
FY 2023		- / -	- / -		- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.939		0 / 4.342		3 / 14.368		3 / 19.649								
FY 2024		- / -	- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		0 / 1.277		4 / 25.418		4 / 26.695								
To Complete		- / -	- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		6 / 39.984		6 / 39.984								
Total		- / -	2 / 9.774		2 / 11.293		3 / 16.821		0 / 0.000		3 / 16.821		2 / 14.294		3 / 18.733		3 / 19.394		4 / 26.099		13 / 79.770		32 / 196.178								
Installation Schedule																															
	PYS	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				TC	Tot
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4		
In	-	-	2	-	-	-	2	-	-	-	2	-	1	-	-	1	1	2	1	-	-	1	1	1	-	-	2	1	1	13	32
Out	-	-	-	-	-	-	-	4	-	-	-	-	-	-	-	1	1	1	-	1	1	1	2	-	-	-	1	1	1	17	32
Footnotes: ⁽²³⁾ Installation costs across the FYDP vary depending on current port rates - avails not designated with a specific execution port (TBD) have a generic rate for budgeting, and install costs will be updated once an execution port is assigned. Port rates are updated every year by CNRMC 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. All costs from FY18 and out will																															

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Exhibit P-3a, Individual Modification: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	P-1 Line Item Number / Title: 0900 / DDG Mod	Modification Number / Title: 16 / DM013 - (IVCS UPGRADE)
ID Code (A=Service Ready, B=Not Service Ready) :		MDAP/MAIS Code:
be captured in this P3A exhibit. Installation funding for a ship is divided over a three-year period. Installation execution funding in the year of availability, and Design Service Allocation (DSA) two years prior to availability, and DSA in the year prior to the availability. This includes ship checks, ship installation drawing (SID) development, logistic document development and long lead time material procurements (LLTM).		

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Exhibit P-3a, Individual Modification: PB 2020 Navy									Date: March 2019			
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9				P-1 Line Item Number / Title: 0900 / DDG Mod					Modification Number / Title: 17 / DM013 - Slewing Arm Davit (SLAD)			
ID Code (A=Service Ready, B=Not Service Ready) :							MDAP/MAIS Code:					
Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity (<i>Units in Each</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost (<i>\$ in Millions</i>)	0.000	2.298	1.799	2.628	0.000	2.628	2.522	3.422	2.802	3.835	10.098	29.404
Less PY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (<i>\$ in Millions</i>)	0.000	2.298	1.799	2.628	0.000	2.628	2.522	3.422	2.802	3.835	10.098	29.404
Plus CY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority (<i>\$ in Millions</i>)	0.000	2.298	1.799	2.628	0.000	2.628	2.522	3.422	2.802	3.835	10.098	29.404
(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>)	-	-	-	-	-	-	-	-	-	-	-	-

Description:
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.

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Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019			
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9					P-1 Line Item Number / Title: 0900 / DDG Mod					Modification Number / Title: 17 / DM013 - Slewing Arm Davit (SLAD)			
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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total	
	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	
Procurement													
<i>Modification Item 1 of 1:</i> DM013 - Slewing Arm Davit (SLAD)													
B Kits													
Recurring													
1.1.1) SLAD EQUIPMENT - NonOrganic ⁽²⁴⁾	4 / 0.000	3 / 1.832	2 / 1.244	3 / 1.899	- / -	3 / 1.899	3 / 1.933	4 / 2.624	3 / 2.003	4 / 2.719	6 / 6.678	32 / 20.932	
<i>Subtotal: Recurring</i>	- / 0.000	- / 1.832	- / 1.244	- / 1.899	- / -	- / 1.899	- / 1.933	- / 2.624	- / 2.003	- / 2.719	- / 6.678	- / 20.932	
<i>Subtotal: DM013 - Slewing Arm Davit (SLAD)</i>	4 / 0.000	3 / 1.832	2 / 1.244	3 / 1.899	- / -	3 / 1.899	3 / 1.933	4 / 2.624	3 / 2.003	4 / 2.719	6 / 6.678	32 / 20.932	
<i>Subtotal: Procurement, All Modification Items</i>	- / 0.000	- / 1.832	- / 1.244	- / 1.899	- / -	- / 1.899	- / 1.933	- / 2.624	- / 2.003	- / 2.719	- / 6.678	- / 20.932	
Installation													
<i>Modification Item 1 of 1:</i> DM013 - Slewing Arm Davit (SLAD)	- / 0.000	- / 0.466	- / 0.555	- / 0.729	- / 0.000	- / 0.729	- / 0.589	- / 0.798	- / 0.799	- / 1.116	- / 3.420	- / 8.472	
<i>Subtotal: Installation</i>	- / 0.000	- / 0.466	- / 0.555	- / 0.729	- / -	- / 0.729	- / 0.589	- / 0.798	- / 0.799	- / 1.116	- / 3.420	- / 8.472	
Total													
Total Cost (Procurement + Support + Installation)	0.000	2.298	1.799	2.628	0.000	2.628	2.522	3.422	2.802	3.835	10.098	29.404	

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Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019																					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9										P-1 Line Item Number / Title: 0900 / DDG Mod										Modification Number / Title: 17 / DM013 - Slewing Arm Davit (SLAD)											
ID Code (A=Service Ready, B=Not Service Ready) :															MDAP/MAIS Code:																
Modification Item 1 of 1: DM013 - Slewing Arm Davit (SLAD)																															
Manufacturer Information																															
Manufacturer Name: NSWC SSES															Manufacturer Location: Philadelphia, PA																
Administrative Leadtime (<i>in Months</i>): 6															Production Leadtime (<i>in Months</i>): 16																
Dates		FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024					
Contract Dates		Jul 2018				Jul 2019				Jul 2020				Jul 2020				May 2022				Jul 2023				May 2024					
Delivery Dates		Nov 2019				Nov 2020				Nov 2021				Nov 2022				Sep 2023				Nov 2024				Sep 2025					
Installation Information																															
Method of Implementation: [none specified]:: Installation Name: SLAD EQUIPMENT																															
Installation Cost		Prior Years		FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total		FY 2021		FY 2022		FY 2023		FY 2024		To Complete		Total							
		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)							
Prior Years		- / -		2 / 0.437		2 / 0.410		- / -		- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.000		4 / 0.847							
FY 2018		- / -		0 / 0.029		0 / 0.121		3 / 0.607		0 / 0.000		3 / 0.607		- / -		- / -		- / -		- / -		0 / 0.000		3 / 0.757							
FY 2019		- / -		- / -		0 / 0.024		0 / 0.087		0 / 0.000		0 / 0.087		2 / 0.431		- / -		- / -		- / -		0 / 0.000		2 / 0.542							
FY 2020		- / -		- / -		- / -		0 / 0.035		0 / 0.000		0 / 0.035		0 / 0.127		3 / 0.634		- / -		- / -		0 / 0.000		3 / 0.796							
FY 2021		- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.031		0 / 0.112		3 / 0.572		- / -		0 / 0.000		3 / 0.715							
FY 2022		- / -		- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.052		0 / 0.191		4 / 0.934		0 / 0.000		4 / 1.177							
FY 2023		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.036		0 / 0.133		3 / 0.660		3 / 0.829							
FY 2024		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.049		4 / 1.075		4 / 1.124							
To Complete		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		6 / 1.685		6 / 1.685							
Total		- / -		2 / 0.466		2 / 0.555		3 / 0.729		0 / 0.000		3 / 0.729		2 / 0.589		3 / 0.798		3 / 0.799		4 / 1.116		13 / 3.420		32 / 8.472							
Installation Schedule																															
	PYS	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				TC	Tot
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4		
In	-	-	2	-	-	-	2	-	-	-	2	-	1	-	-	1	1	2	1	-	-	1	1	-	1	-	2	1	1	13	32
Out	-	-	-	-	-	-	-	2	-	-	-	2	-	-	-	1	1	-	1	-	2	-	3	-	-	-	1	1	1	17	32
Footnotes: ⁽²⁴⁾ Installation costs across the FYDP vary depending on current port rates - avails not designated with a specific execution port (TBD) have a generic rate for budgeting, and install costs will be updated once an execution port is assigned. Port rates are updated every year by CNRMC 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. SLAD is upgraded on Flight IIA's only due to a design change in previous SLAD onboard Flight I and Flight II DDG's. Individual ship's availability durations vary dependent upon the integration of ship's maintenance and modernization work packages. All cost from FY 18 and follows will be captured in this P3-A exhibit. Installation funding for a ship is divided over																															

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Exhibit P-3a, Individual Modification: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	P-1 Line Item Number / Title: 0900 / DDG Mod	Modification Number / Title: 17 / DM013 - Slewing Arm Davit (SLAD)
ID Code (A=Service Ready, B=Not Service Ready) :		MDAP/MAIS Code:
a three-year period. Installation execution funding in the year of availability, and Design Service Allocation (DSA) two years prior to availability, and DSA in the year prior to the availability. This includes ship checks, ship installation drawing (SID) development, logistic document development and long lead time material procurements (LLTM).		

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Modification Number / Title:
18 / DM013 - AN/SPA-25H

[illegible]

Procures AN/SPA-25H Radar Indicator Group that replaces the legacy AN/SPA-25G

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Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019			
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9					P-1 Line Item Number / Title: 0900 / DDG Mod					Modification Number / Title: 18 / DM013 - AN/SPA-25H			
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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total	
	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	
Procurement													
<i>Modification Item 1 of 1: DM013 - AN/SPA-25H</i>													
B Kits													
Recurring													
1.1.1) AN/SPA-25H EQUIPMENT - NonOrganic ⁽²⁵⁾	4 / 0.000	3 / 0.561	2 / 0.380	3 / 0.581	- / -	3 / 0.581	3 / 0.592	4 / 0.803	3 / 0.613	4 / 0.832	6 / 2.045	32 / 6.407	
<i>Subtotal: Recurring</i>	- / 0.000	- / 0.561	- / 0.380	- / 0.581	- / -	- / 0.581	- / 0.592	- / 0.803	- / 0.613	- / 0.832	- / 2.045	- / 6.407	
<i>Subtotal: DM013 - AN/SPA-25H</i>	4 / 0.000	3 / 0.561	2 / 0.380	3 / 0.581	- / -	3 / 0.581	3 / 0.592	4 / 0.803	3 / 0.613	4 / 0.832	6 / 2.045	32 / 6.407	
<i>Subtotal: Procurement, All Modification Items</i>	- / 0.000	- / 0.561	- / 0.380	- / 0.581	- / -	- / 0.581	- / 0.592	- / 0.803	- / 0.613	- / 0.832	- / 2.045	- / 6.407	
Installation													
<i>Modification Item 1 of 1: DM013 - AN/SPA-25H</i>	- / 0.000	- / 0.587	- / 0.728	- / 1.096	- / 0.000	- / 1.096	- / 1.505	- / 1.467	- / 2.211	- / 1.777	- / 5.727	- / 15.098	
<i>Subtotal: Installation</i>	- / 0.000	- / 0.587	- / 0.728	- / 1.096	- / -	- / 1.096	- / 1.505	- / 1.467	- / 2.211	- / 1.777	- / 5.727	- / 15.098	
Total													
Total Cost (Procurement + Support + Installation)	0.000	1.148	1.108	1.677	0.000	1.677	2.097	2.270	2.824	2.609	7.772	21.505	

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Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019																					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9										P-1 Line Item Number / Title: 0900 / DDG Mod										Modification Number / Title: 18 / DM013 - AN/SPA-25H											
ID Code (A=Service Ready, B=Not Service Ready) :															MDAP/MAIS Code:																
Modification Item 1 of 1: DM013 - AN/SPA-25H																															
Manufacturer Information																															
Manufacturer Name: CDSA DAM NECK															Manufacturer Location: DAM NECK, VA																
Administrative Leadtime <i>(in Months)</i> : 6															Production Leadtime <i>(in Months)</i> : 16																
Dates		FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024					
Contract Dates		Jul 2018				Jul 2019				Jun 2020				Jun 2021				Mar 2022				May 2023				May 2024					
Delivery Dates		Jan 2020				Jan 2021				Dec 2021				Dec 2022				Sep 2023				Oct 2024				Oct 2025					
Installation Information																															
Method of Implementation: [none specified]:: Installation Name: AN/SPA-25H EQUIPMENT																															
Installation Cost		Prior Years		FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total		FY 2021		FY 2022		FY 2023		FY 2024		To Complete		Total							
		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)							
Prior Years		- / -		2 / 0.521		2 / 0.120		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.000		4 / 0.641					
FY 2018		- / -		0 / 0.066		0 / 0.554		3 / 0.131		0 / 0.000		3 / 0.131		- / -		- / -		- / -		- / -		- / -		0 / 0.000		3 / 0.751					
FY 2019		- / -		- / -		0 / 0.054		0 / 0.886		0 / 0.000		0 / 0.886		2 / 0.138		- / -		- / -		- / -		- / -		0 / 0.000		2 / 1.078					
FY 2020		- / -		- / -		- / -		0 / 0.079		0 / 0.000		0 / 0.079		0 / 1.297		3 / 0.202		- / -		- / -		- / -		0 / 0.000		3 / 1.578					
FY 2021		- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.070		0 / 1.146		3 / 0.179		- / -		- / -		0 / 0.000		3 / 1.395					
FY 2022		- / -		- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.119		0 / 1.949		4 / 0.302		0 / 0.000		4 / 2.370							
FY 2023		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.083		0 / 1.362		3 / 0.211		3 / 1.656							
FY 2024		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.113		4 / 2.139		4 / 2.252							
To Complete		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		6 / 3.377		6 / 3.377					
Total		- / -		2 / 0.587		2 / 0.728		3 / 1.096		0 / 0.000		3 / 1.096		2 / 1.505		3 / 1.467		3 / 2.211		4 / 1.777		13 / 5.727		32 / 15.098							
Installation Schedule																															
	PYS	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				TC	Tot
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4		
In	-	-	2	-	-	-	2	-	-	-	2	-	1	-	1	-	1	2	1	-	-	1	1	-	1	-	2	1	1	13	32
Out	-	-	-	-	-	-	-	4	-	-	-	-	-	-	-	1	1	-	1	-	2	1	2	-	-	-	1	1	1	17	32
Footnotes: ⁽²⁵⁾ Installation costs across the FYDP vary depending on current port rates - avails not designated with a specific execution port (TBD) have a generic rate for budgeting, and install costs will be updated once an execution port is assigned. Port rates are updated every year by CNRMC 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. All cost from FY 18 and follows will be captured in this P3-A exhibit. Installation funding for a ship is divided over a three-year period. Installation execution funding in the year of availability, and Design Service Allocation (DSA) two years																															

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Exhibit P-3a, Individual Modification: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	P-1 Line Item Number / Title: 0900 / DDG Mod	Modification Number / Title: 18 / DM013 - AN/SPA-25H
ID Code (A=Service Ready, B=Not Service Ready) :		MDAP/MAIS Code:
prior to availability, and DSA in the year prior to the availability. This includes ship checks, ship installation drawing (SID) development, logistic document development and long lead time material procurements (LLTM).		

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Exhibit P-40, Budget Line Item Justification: PB 2020 Navy										Date: March 2019		
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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity (<i>Units in Each</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost (<i>\$ in Millions</i>)	102.551	15.887	28.143	18.223	0.000	18.223	18.436	18.663	17.683	18.034	362.328	599.948
Less PY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (<i>\$ in Millions</i>)	102.551	15.887	28.143	18.223	0.000	18.223	18.436	18.663	17.683	18.034	362.328	599.948
Plus CY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority (<i>\$ in Millions</i>)	102.551	15.887	28.143	18.223	0.000	18.223	18.436	18.663	17.683	18.034	362.328	599.948
<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 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: PB 2020 Navy		Date: March 2019
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: PB 2020 Navy				Date: March 2019	
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					

Exhibits Schedule					Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Exhibit Type	Title*	Subexhibits	ID CD	MDAP/MAIS Code	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)
P-40a	Firefighting Equipment	P-5a, P-21			- / 50.280	- / 2.976	- / 3.012	- / 1.002	- / -	- / 1.002
P-3a	1 / HB002 - MAGAZINE SPRINKLING IMPROVEMENT (FDAS/MOPV Installation)				- / 1.792	- / 2.105	- / 5.581	- / 3.527	- / 0.000	- / 3.527
P-3a	2 / HB007 - SOPV REPLACEMENT (SOPV REPLACEMENT)				- / 3.137	- / 0.449	- / 6.555	- / 5.820	- / 0.000	- / 5.820
P-3a	3 / HB008 - SCBA REPLACEMENT (SCBA REPLACEMENT)				- / 39.660	- / 9.757	- / 12.995	- / 7.874	- / 0.000	- / 7.874
P-3a	4 / HB009 - FIREFIGHTER ACCESS (FES/LSS Installation)				- / 7.682	- / 0.600	- / 0.000	- / 0.000	- / 0.000	- / 0.000
P-40	Total Gross/Weapon System Cost				- / 102.551	- / 15.887	- / 28.143	- / 18.223	- / 0.000	- / 18.223

Exhibits Schedule					FY 2021	FY 2022	FY 2023	FY 2024	To Complete	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	Firefighting Equipment	P-5a, P-21			- / -	- / -	- / -	- / -	- / -	- / -
P-3a	1 / HB002 - MAGAZINE SPRINKLING IMPROVEMENT (FDAS/MOPV Installation)				- / 3.651	- / 7.270	- / 8.121	- / 8.319	- / 247.735	- / 288.101
P-3a	2 / HB007 - SOPV REPLACEMENT (SOPV REPLACEMENT)				- / 4.855	- / 3.666	- / 7.692	- / 8.837	- / 97.307	- / 138.318
P-3a	3 / HB008 - SCBA REPLACEMENT (SCBA REPLACEMENT)				- / 5.722	- / 6.095	- / 0.000	- / 0.000	- / 4.064	- / 86.167
P-3a	4 / HB009 - FIREFIGHTER ACCESS (FES/LSS Installation)				- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 8.282
P-40	Total Gross/Weapon System Cost				- / 18.436	- / 18.663	- / 17.683	- / 18.034	- / 362.328	- / 599.948

*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: PB 2020 Navy															Date: March 2019					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9							P-1 Line Item Number / Title: 0910 / Firefighting Equipment							Aggregated Items Title: Firefighting Equipment						
Item Number / Title [DODIC]	ID CD	MDAP/MAIS Code	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 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) HB003 - EMERGENCY ESCAPE BREATHING DEVICE (EEBD) ⁽¹⁾																				
1.1) EEBD REPLACEMENT ^(†)		A		288,247.62	105	30.266	164,727.27	11	1.812	339,750.00	4	1.359	-	-	-	-	-	-	-	-
Subtotal: 1) HB003 - EMERGENCY ESCAPE BREATHING DEVICE (EEBD)				-	-	30.266	-	-	1.812	-	-	1.359	-	-	-	-	-	-	-	-
2) HB830 - PRODUCTION ENGINEERING (PE)																				
2.1) PRODUCTION ENGINEERING ⁽²⁾		A		-	-	20.014	-	-	1.164	-	-	1.653	-	-	1.002	-	-	-	-	1.002
Subtotal: 2) HB830 - PRODUCTION ENGINEERING (PE)				-	-	20.014	-	-	1.164	-	-	1.653	-	-	1.002	-	-	-	-	1.002
Total				-	-	50.280	-	-	2.976	-	-	3.012	-	-	1.002	-	-	-	-	1.002

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

^(†) indicates the presence of a P-5a

Footnotes:

⁽¹⁾ The P40 unit costs are identified as costs per ship for EEBD. Unit costs can vary based on the distribution of ship classes planned during each FY, quantities per ship class, and the ship port location. Requirement is for CG-47, DDG-51 (Flight I,II,IIA), LCS-1, LCS-2, LHD-1, LSD-41, LSD-49, MCM-1, and PC-1 ship classes. PROCUREMENT: Funding includes the breathing apparatus, shipping, and distribution to ships. FY19 procurement is for one (1) CG 0047 class ship (\$0.185M), one (1) DDG 0051 Flight IIA class ship (\$0.185M), and (2) LPD-17 class ships (\$0.989M total) for a program total of \$1.359M. There are no EEBD procurements scheduled for FY20.

⁽²⁾ PE costs are calculated for each FY based on the fielding plan distribution and installation level of effort for each FY across the FYDP.

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Exhibit P-5a, Procurement History and Planning: PB 2020 Navy									Date: March 2019			
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9				P-1 Line Item Number / Title: 0910 / Firefighting Equipment					Aggregated Items: Firefighting Equipment			
Item Number / Title [DODIC]	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) HB003 - EMERGENCY ESCAPE BREATHING DEVICE (EEBD)												
1.1) EEBD REPLACEMENT ^(†)		2018	OCENCO / PLEASANT PRAIRIE, WI	C / FP	NSWC, PCD	Jan 2018	Apr 2018	11	164,727.27	Y		
1.1) EEBD REPLACEMENT ^(†)		2019	OCENCO / PLEASANT PRAIRIE, WI	C / FP	NSWC, PCD	Jan 2019	Apr 2019	4	339,750.00	Y		

^(†) indicates the presence of a P-21

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Exhibit P-21, Production Schedule: PB 2020 Navy																				Date: March 2019											
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9										P-1 Line Item Number / Title: 0910 / Firefighting Equipment										Aggregated Items: Firefighting Equipment											
Items <i>(Units in Each)</i>							Fiscal Year 2018										Fiscal Year 2019										BALANCE				
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) HB003 - EMERGENCY ESCAPE BREATHING DEVICE (EEBD)																															
1.1) EEBD REPLACEMENT																															
Prior Years Deliveries: 105																															
	1	2018	NAVY	11	0	11	A - - - 11																				0				
	1	2019	NAVY	4	0	4											A - - - 4														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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Exhibit P-21, Production Schedule: PB 2020 Navy									Date: March 2019				
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9					P-1 Line Item Number / Title: 0910 / Firefighting Equipment					Aggregated Items: Firefighting Equipment			
MFR Ref #	Manufacturer Name - Location	Production Rates (Each / Year)			Procurement Leadtime (Months)								
		MSR For 2020	1-8-5 For 2020	MAX For 2020	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	OCENCO - PLEASANT PRAIRIE, WI			TBD	0	0	0	0	0	0	0	0	
"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-3a, Individual Modification: PB 2020 Navy									Date: March 2019			
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9				P-1 Line Item Number / Title: 0910 / Firefighting Equipment					Modification Number / Title: 1 / HB002 - MAGAZINE SPRINKLING IMPROVEMENT			
ID Code (A=Service Ready, B=Not Service Ready) :							MDAP/MAIS Code:					
Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity <i>(Units in Each)</i>	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost <i>(\$ in Millions)</i>	1.792	2.105	5.581	3.527	0.000	3.527	3.651	7.270	8.121	8.319	247.735	288.101
Less PY Advance Procurement <i>(\$ in Millions)</i>	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) <i>(\$ in Millions)</i>	1.792	2.105	5.581	3.527	0.000	3.527	3.651	7.270	8.121	8.319	247.735	288.101
Plus CY Advance Procurement <i>(\$ in Millions)</i>	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority <i>(\$ in Millions)</i>	1.792	2.105	5.581	3.527	0.000	3.527	3.651	7.270	8.121	8.319	247.735	288.101
(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>	-	-	-	-	-	-	-	-	-	-	-	-
Description:												
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.												
Procurement costs shown are based on new hardware contract award estimates (HB002/HB007) and actual installation costs from prior years . Installation costs shown are weighted and will vary based on ship class, ship port location, and installation availability.												
Quantities are number of ships.												
Requirement is for all CG 0047, DDG 0051, LHA 0006, LHD 0001, LPD 0017, LSD 0041/0049 ship classes.												
PROCUREMENT: Procurement costs include FDAS and MOPV equipment, shipping, and distribution to ship. FDAS/MOPV procurement costs can vary significantly by ship class, and quantity and/or size of the magazines. DDG-51 ships already have smoke detectors.												
INSTALLATION (HB5IN/HB6IN): Funding includes all costs associated with the Fleet Modernization Program Magazine Sprinkling Improvement Design Support Allocation (DSA) and equipment installations onboard ships. DSA costs are budgeted in the FY prior to equipment procurement. FDAS/MOPV installation costs can vary significantly by ship class, ship port location, and ship installation availability.												
FY 2019 procurement costs are for (1) DDG 0051 (Flight I) class ship (\$0.214M), (1) DDG 0051 (Flight II) class ship (\$0.214M), and (3) DDG 0051 (Flight IIA) class ships (average \$0.322M) for a total of \$1.394M.												
FY 2019 installation costs are for the (5) FY 2019 procurement hulls (\$3.537M) and (3) DSA for FY 2020 planned installations (\$0.650M) for a total of \$4.187M.												
FY 2020 procurement costs are for one (1) DDG 0051 (Flight II) class ship and (2) DDG 0051 (Flight IIA) class ships for a total of \$0.599M.												
FY 2020 installation costs are for the (3) FY 2020 procurement hulls (\$2.324M) and (3) DSA for FY 2021 planned installations (\$0.604M) for a total of \$2.928M.												

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Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019			
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9					P-1 Line Item Number / Title: 0910 / Firefighting Equipment					Modification Number / Title: 1 / HB002 - MAGAZINE SPRINKLING IMPROVEMENT			
ID Code (A=Service Ready, B=Not Service Ready) :							MDAP/MAIS Code:						
Models of Systems Affected: N/A				Modification Type: FDAS/MOPV Installation				Related RDT&E PEs:					
Financial Plan	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total	
	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	
Procurement													
<i>Modification Item 1 of 1:</i> HB002 - MAGAZINE SPRINKLING IMPROVEMENT													
B Kits													
Recurring													
1.1.1) MAGAZINE SPRINKLING IMPROVEMENT HW - NonOrganic ⁽³⁾	3 / 0.553	2 / 0.362	5 / 1.394	3 / 0.599	- / -	3 / 0.599	3 / 0.499	5 / 1.075	7 / 1.170	5 / 1.036	95 / 38.979	128 / 45.667	
<i>Subtotal: Recurring</i>	- / 0.553	- / 0.362	- / 1.394	- / 0.599	- / -	- / 0.599	- / 0.499	- / 1.075	- / 1.170	- / 1.036	- / 38.979	- / 45.667	
<i>Subtotal: HB002 - MAGAZINE SPRINKLING IMPROVEMENT</i>	3 / 0.553	2 / 0.362	5 / 1.394	3 / 0.599	- / -	3 / 0.599	3 / 0.499	5 / 1.075	7 / 1.170	5 / 1.036	95 / 38.979	128 / 45.667	
<i>Subtotal: Procurement, All Modification Items</i>	- / 0.553	- / 0.362	- / 1.394	- / 0.599	- / -	- / 0.599	- / 0.499	- / 1.075	- / 1.170	- / 1.036	- / 38.979	- / 45.667	
Installation													
<i>Modification Item 1 of 1:</i> HB002 - MAGAZINE SPRINKLING IMPROVEMENT	- / 1.239	- / 1.743	- / 4.187	- / 2.928	- / 0.000	- / 2.928	- / 3.152	- / 6.195	- / 6.951	- / 7.283	- / 208.756	- / 242.434	
<i>Subtotal: Installation</i>	- / 1.239	- / 1.743	- / 4.187	- / 2.928	- / -	- / 2.928	- / 3.152	- / 6.195	- / 6.951	- / 7.283	- / 208.756	- / 242.434	
Total													
Total Cost (Procurement + Support + Installation)	1.792	2.105	5.581	3.527	0.000	3.527	3.651	7.270	8.121	8.319	247.735	288.101	

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Exhibit P-3a, Individual Modification: PB 2020 Navy							Date: March 2019					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9				P-1 Line Item Number / Title: 0910 / Firefighting Equipment			Modification Number / Title: 1 / HB002 - MAGAZINE SPRINKLING IMPROVEMENT					
ID Code (A=Service Ready, B=Not Service Ready) :						MDAP/MAIS Code:						
Modification Item 1 of 1: HB002 - MAGAZINE SPRINKLING IMPROVEMENT												
Manufacturer Information												
Manufacturer Name: NAG Marine ⁽⁴⁾						Manufacturer Location: Norfolk, VA						
Administrative Leadtime <i>(in Months)</i> : 2						Production Leadtime <i>(in Months)</i> : 4						
Dates	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024					
Contract Dates	Jan 2018	Jan 2019	Jan 2020	Jan 2021	Jan 2022	Jan 2023	Jan 2024					
Delivery Dates	May 2018	May 2019	May 2020	May 2021	May 2022	May 2023	May 2024					
Manufacturer Name: Dynalec Corp						Manufacturer Location: Montville, NJ						
Administrative Leadtime <i>(in Months)</i> : 2						Production Leadtime <i>(in Months)</i> : 6						
Dates	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024					
Contract Dates	Jan 2018	Jan 2019	Jan 2020	Jan 2021	Jan 2022	Jan 2023	Jan 2024					
Delivery Dates	Jul 2018	Jul 2019	Jul 2020	Jul 2021	Jul 2022	Jul 2023	Jul 2024					
Installation Information												
Method of Implementation: SHIPALT/DSA:: Installation Name: MAGAZINE SPRINKLING IMPROVEMENT HW												
Installation Cost	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>
Prior Years	3 / 1.239	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	3 / 1.239
FY 2018	- / -	2 / 1.743	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	2 / 1.743
FY 2019	- / -	- / -	5 / 4.187	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	5 / 4.187
FY 2020	- / -	- / -	- / -	3 / 2.928	0 / 0.000	3 / 2.928	- / -	- / -	- / -	- / -	0 / 0.000	3 / 2.928
FY 2021	- / -	- / -	- / -	- / -	- / -	- / -	3 / 3.152	- / -	- / -	- / -	0 / 0.000	3 / 3.152
FY 2022	- / -	- / -	- / -	- / -	- / -	- / -	- / -	5 / 6.195	- / -	- / -	0 / 0.000	5 / 6.195
FY 2023	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	7 / 6.951	- / -	0 / 0.000	7 / 6.951
FY 2024	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	5 / 7.283	0 / 0.000	5 / 7.283
To Complete	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	95 / 208.756	95 / 208.756
Total	3 / 1.239	2 / 1.743	5 / 4.187	3 / 2.928	0 / 0.000	3 / 2.928	3 / 3.152	5 / 6.195	7 / 6.951	5 / 7.283	95 / 208.756	128 / 242.434

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Exhibit P-3a, Individual Modification: PB 2020 Navy																							Date: March 2019								
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9										P-1 Line Item Number / Title: 0910 / Firefighting Equipment													Modification Number / Title: 1 / HB002 - MAGAZINE SPRINKLING IMPROVEMENT								
ID Code (A=Service Ready, B=Not Service Ready) :																	MDAP/MAIS Code:														
Modification Item 1 of 1: HB002 - MAGAZINE SPRINKLING IMPROVEMENT																															
Installation Information																															
Method of Implementation: SHIPALT/DSA:: Installation Name: MAGAZINE SPRINKLING IMPROVEMENT HW																															
Installation Schedule																															
	PYS	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				TC	Tot
In	3	-	-	1	1	-	-	5	-	-	-	3	-	-	-	3	-	-	-	5	-	-	-	7	-	-	-	5	-	95	128
Out	2	-	-	-	-	-	1	2	2	2	1	-	2	1	-	-	2	1	-	-	2	2	1	-	2	2	2	1	2	98	128

Footnotes:

(3) Installation quantities reflect number of SHIPALTS to be performed during each FY. DSA quantities are not shown.

(4) Same contract for HB007 requirements

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Exhibit P-3a, Individual Modification: PB 2020 Navy									Date: March 2019			
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9				P-1 Line Item Number / Title: 0910 / Firefighting Equipment					Modification Number / Title: 2 / HB007 - SOPV REPLACEMENT			
ID Code (A=Service Ready, B=Not Service Ready) :							MDAP/MAIS Code:					
Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity <i>(Units in Each)</i>	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost <i>(\$ in Millions)</i>	3.137	0.449	6.555	5.820	0.000	5.820	4.855	3.666	7.692	8.837	97.307	138.318
Less PY Advance Procurement <i>(\$ in Millions)</i>	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) <i>(\$ in Millions)</i>	3.137	0.449	6.555	5.820	0.000	5.820	4.855	3.666	7.692	8.837	97.307	138.318
Plus CY Advance Procurement <i>(\$ in Millions)</i>	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority <i>(\$ in Millions)</i>	3.137	0.449	6.555	5.820	0.000	5.820	4.855	3.666	7.692	8.837	97.307	138.318
(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>	-	-	-	-	-	-	-	-	-	-	-	-
Description: 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. Procurement costs shown are based on new hardware contract award estimates (HB002/HB007) and actual installation costs from prior years. Installation costs shown are weighted and will vary based on ship class, ship port location, and installation availability. Quantities are number of ships. Requirement is for CG 0047, DDG 0051, LHA 0006, LHD 0001, LPD 0017, LSD 0041/0049 ship classes. PROCUREMENT: Costs include SOPV equipment, shipping, and distribution to ship. SOPV procurement costs vary significantly based on ship class. FY18 First Article Testing is for new hardware contract award. INSTALLATION (HB5IN/HB6IN): Funding includes all costs associated with the Fleet Modernization Program SOPV replacement Design Support Allocation (DSA) and equipment installations onboard ships. DSA costs are budgeted in the FY prior to equipment procurement. SOPV installation costs vary significantly based on ship class, ship port location, and ship installation availability type. FY 2019 procurement costs are for (3) DDG 0051 (Flight I) class ships (average \$0.188M), (1) DDG 0051 (Flight II) class ship (\$0.217M), and (7) DDG 0051 (Flight IIA) class ships (average \$0.222M) for a total of \$2.335M. FY 2019 installation costs are for the (11) FY 2019 procurement hulls (\$3.727M) and (9) DSA (\$0.493M) in support of the FY 2020 planned installations for a total of \$4.220M. FY 2020 procurement costs are for (1) DDG 0051 (Flight I) class ship, (2) DDG 0051 (Flight II) class ships, and (6) DDG 0051 (Flight IIA) class ships for a total of \$1.622M. FY 2020 installation costs are for the (9) FY 2020 procurement hulls (\$3.771M) and (7) DSA (\$0.427M) in support of the FY21 planned installations for a total of \$4.198M.												

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Exhibit P-3a, Individual Modification: PB 2020 Navy								Date: March 2019				
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9				P-1 Line Item Number / Title: 0910 / Firefighting Equipment				Modification Number / Title: 2 / HB007 - SOPV REPLACEMENT				
ID Code (A=Service Ready, B=Not Service Ready) :							MDAP/MAIS Code:					
Models of Systems Affected: N/A				Modification Type: SOPV REPLACEMENT				Related RDT&E PEs:				
Financial Plan	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	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: HB007 - SOPV REPLACEMENT												
B Kits												
Recurring												
1.1.1) HB007 - SOPV REPLACEMENT HW - NonOrganic ⁽⁵⁾	8 / 0.685	- / -	11 / 2.335	9 / 1.622	- / -	9 / 1.622	7 / 1.381	5 / 0.920	8 / 1.950	8 / 2.351	72 / 26.546	128 / 37.790
1.1.2) SOPV REPLACEMENT FIRST ARTICLES/ TESTING - Organic	- / 0.240	- / 0.327	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / 0.567
Subtotal: Recurring	- / 0.925	- / 0.327	- / 2.335	- / 1.622	- / -	- / 1.622	- / 1.381	- / 0.920	- / 1.950	- / 2.351	- / 26.546	- / 38.357
Subtotal: HB007 - SOPV REPLACEMENT	8 / 0.925	- / 0.327	11 / 2.335	9 / 1.622	- / -	9 / 1.622	7 / 1.381	5 / 0.920	8 / 1.950	8 / 2.351	72 / 26.546	128 / 38.357
Subtotal: Procurement, All Modification Items	- / 0.925	- / 0.327	- / 2.335	- / 1.622	- / -	- / 1.622	- / 1.381	- / 0.920	- / 1.950	- / 2.351	- / 26.546	- / 38.357
Installation												
Modification Item 1 of 1: HB007 - SOPV REPLACEMENT	- / 2.212	- / 0.122	- / 4.220	- / 4.198	- / 0.000	- / 4.198	- / 3.474	- / 2.746	- / 5.742	- / 6.486	- / 70.761	- / 99.961
Subtotal: Installation	- / 2.212	- / 0.122	- / 4.220	- / 4.198	- / -	- / 4.198	- / 3.474	- / 2.746	- / 5.742	- / 6.486	- / 70.761	- / 99.961
Total												
Total Cost (Procurement + Support + Installation)	3.137	0.449	6.555	5.820	0.000	5.820	4.855	3.666	7.692	8.837	97.307	138.318

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Exhibit P-3a, Individual Modification: PB 2020 Navy												Date: March 2019																			
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9										P-1 Line Item Number / Title: 0910 / Firefighting Equipment										Modification Number / Title: 2 / HB007 - SOPV REPLACEMENT											
ID Code (A=Service Ready, B=Not Service Ready) :														MDAP/MAIS Code:																	
Modification Item 1 of 1: HB007 - SOPV REPLACEMENT																															
Manufacturer Information																															
Manufacturer Name: NAG Marine ⁽⁶⁾														Manufacturer Location: Norfolk, VA																	
Administrative Leadtime <i>(in Months)</i> : 2														Production Leadtime <i>(in Months)</i> : 4																	
Dates		FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024					
Contract Dates		Jan 2018				Jan 2019				Jan 2020				Jan 2021				Jan 2022				Jan 2023				Jan 2024					
Delivery Dates		May 2018				May 2019				May 2020				May 2021				May 2022				May 2023				May 2024					
Installation Information																															
Method of Implementation: SHIPALT/DSA:: Installation Name: HB007 - SOPV REPLACEMENT HW																															
Installation Cost		Prior Years	FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total		FY 2021		FY 2022		FY 2023		FY 2024		To Complete		Total								
		Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)								
Prior Years		8 / 2.212		0 / 0.122		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.000		8 / 2.334							
FY 2018		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -							
FY 2019		- / -		- / -		11 / 4.220		- / -		- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.000		11 / 4.220							
FY 2020		- / -		- / -		- / -		9 / 4.198		0 / 0.000		9 / 4.198		- / -		- / -		- / -		- / -		0 / 0.000		9 / 4.198							
FY 2021		- / -		- / -		- / -		- / -		- / -		- / -		7 / 3.474		- / -		- / -		- / -		0 / 0.000		7 / 3.474							
FY 2022		- / -		- / -		- / -		- / -		- / -		- / -		- / -		5 / 2.746		- / -		- / -		0 / 0.000		5 / 2.746							
FY 2023		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		8 / 5.742		- / -		0 / 0.000		8 / 5.742							
FY 2024		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		8 / 6.486		0 / 0.000		8 / 6.486							
To Complete		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		72 / 70.761		72 / 70.761							
Total		8 / 2.212		0 / 0.122		11 / 4.220		9 / 4.198		0 / 0.000		9 / 4.198		7 / 3.474		5 / 2.746		8 / 5.742		8 / 6.486		72 / 70.761		128 / 99.961							
Installation Schedule																															
	PYS	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				TC	Tot
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4		
In	8	-	-	-	-	-	-	11	-	-	-	-	9	-	-	-	7	-	-	-	5	-	-	-	8	-	-	-	8		
Out	7	-	-	-	-	-	1	-	4	4	3	-	4	4	1	-	4	3	-	-	4	1	-	-	4	4	-	-	4		
Footnotes: ⁽⁵⁾ Installation quantities reflect number of SHIPALTS to be performed during each FY. DSA quantities are not shown. ⁽⁶⁾ Same contract provides motor-operated pilot valve requirements under HB002																															

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Exhibit P-3a, Individual Modification: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	P-1 Line Item Number / Title: 0910 / Firefighting Equipment	Modification Number / Title: 3 / HB008 - SCBA REPLACEMENT

ID Code (A=Service Ready, B=Not Service Ready) :						MDAP/MAIS Code:						
Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity <i>(Units in Each)</i>	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost <i>(\$ in Millions)</i>	39.660	9.757	12.995	7.874	0.000	7.874	5.722	6.095	0.000	0.000	4.064	86.167
Less PY Advance Procurement <i>(\$ in Millions)</i>	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) <i>(\$ in Millions)</i>	39.660	9.757	12.995	7.874	0.000	7.874	5.722	6.095	0.000	0.000	4.064	86.167
Plus CY Advance Procurement <i>(\$ in Millions)</i>	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority <i>(\$ in Millions)</i>	39.660	9.757	12.995	7.874	0.000	7.874	5.722	6.095	0.000	0.000	4.064	86.167
<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:

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.

Quantities are number of ships.

Requirement: AFDL 0001, AFDM 0001, CG 0047, DDG 0051 (Flight I,II,IIA), LCC 0019, LCU, LHD 0001, LPD 0017, LSD 0041, LSD 0049, MCM 0001, and PC 0001 ship classes.

PROCUREMENT: Funding includes the breathing apparatus, 45-minute air cylinders, and 30-minute air cylinders, shipping, distribution to, and modifying stowage on ships. SCBA procurement costs can vary significantly based on ship class.

INSTALLATION HBINS (HB5IN/HB6IN): Funding includes all costs associated with the Fleet Modernization Program SCBA equipment installations onboard ships. SCBA installation costs can vary significantly based on ship class, ship port location and ship installation availability.

FY 2019 procurement costs are for (1) CG 0047 class ship (\$0.296M), (5) DDG 0051 (Flight IIA) class ships (average \$0.378M), (3) LHD 0001 class ships (average \$1.109M), one (1) LPD 0017 class ship (\$0.905M), (5) LSD 0041/0049 class ships (average \$0.506M), (3) MCM 0001 class ships (average \$0.149M), and (2) PC 0001 class ships (\$0.52M) for a total of \$9.499M.

FY 2019 installation costs are for the (20) FY 19 procurement hulls for a total of \$3.496M.

FY 2020 procurement costs are for (1) AFDL 0001 class ship, (1) ARDM 0001 class ship, (2) CG 0047 class ships, (1) LCC 0019 class ship, (1) LHD 0001 class ship, (1) LPD 0017 class ship, (2) LSD 0041 class ships, (5) MCM 0001 class ships, and (6) PC 0001 class ships for a total of \$5.294M.

FY 2020 installation costs are for the (20) FY 2020 procurement hulls for a total of \$2.580M.

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Exhibit P-3a, Individual Modification: PB 2020 Navy								Date: March 2019					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9				P-1 Line Item Number / Title: 0910 / Firefighting Equipment				Modification Number / Title: 3 / HB008 - SCBA REPLACEMENT					
ID Code (A=Service Ready, B=Not Service Ready) :								MDAP/MAIS Code:					
Models of Systems Affected: N/A				Modification Type: SCBA REPLACEMENT				Related RDT&E PEs:					
Financial Plan	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total	
	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	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: HB008 - SCBA REPLACEMENT													
B Kits													
Recurring													
1.1.1) HB008 - SCBA REPLACEMENT HW - NonOrganic	81 / 36.120	28 / 6.804	20 / 9.499	20 / 5.294	- / -	20 / 5.294	17 / 3.990	7 / 4.423	- / -	- / -	3 / 3.062	176 / 69.192	
Subtotal: Recurring	- / 36.120	- / 6.804	- / 9.499	- / 5.294	- / -	- / 5.294	- / 3.990	- / 4.423	- / -	- / -	- / 3.062	- / 69.192	
Subtotal: HB008 - SCBA REPLACEMENT	81 / 36.120	28 / 6.804	20 / 9.499	20 / 5.294	- / -	20 / 5.294	17 / 3.990	7 / 4.423	- / -	- / -	3 / 3.062	176 / 69.192	
Subtotal: Procurement, All Modification Items	- / 36.120	- / 6.804	- / 9.499	- / 5.294	- / -	- / 5.294	- / 3.990	- / 4.423	- / -	- / -	- / 3.062	- / 69.192	
Installation													
Modification Item 1 of 1: HB008 - SCBA REPLACEMENT	- / 3.540	- / 2.953	- / 3.496	- / 2.580	- / 0.000	- / 2.580	- / 1.732	- / 1.672	- / 0.000	- / 0.000	- / 1.002	- / 16.975	
Subtotal: Installation	- / 3.540	- / 2.953	- / 3.496	- / 2.580	- / -	- / 2.580	- / 1.732	- / 1.672	- / -	- / -	- / 1.002	- / 16.975	
Total													
Total Cost (Procurement + Support + Installation)	39.660	9.757	12.995	7.874	0.000	7.874	5.722	6.095	0.000	0.000	4.064	86.167	

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Exhibit P-3a, Individual Modification: PB 2020 Navy											Date: March 2019																								
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9											P-1 Line Item Number / Title: 0910 / Firefighting Equipment											Modification Number / Title: 3 / HB008 - SCBA REPLACEMENT													
ID Code (A=Service Ready, B=Not Service Ready) :											MDAP/MAIS Code:																								
Modification Item 1 of 1: HB008 - SCBA REPLACEMENT																																			
Manufacturer Information																																			
Manufacturer Name: SCOTT HEALTH & SAFETY													Manufacturer Location: MONROE, NC																						
Administrative Leadtime <i>(in Months)</i> : 3													Production Leadtime <i>(in Months)</i> : 3																						
Dates	FY 2018					FY 2019					FY 2020					FY 2021					FY 2022					FY 2023					FY 2024				
Contract Dates	Jan 2018					Jan 2019					Jan 2020					Jan 2021					Jan 2022					Jan 2023					Jan 2024				
Delivery Dates	Apr 2018					Apr 2019					Apr 2020					Apr 2021					Apr 2022					Apr 2023					Apr 2024				
Installation Information																																			
Method of Implementation: SHIPALT:: Installation Name: HB008 - SCBA REPLACEMENT HW																																			
Installation Cost		Prior Years	FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total		FY 2021		FY 2022		FY 2023		FY 2024		To Complete		Total												
		Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)												
Prior Years		81 / 3.540	- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.000		81 / 3.540												
FY 2018		- / -	28 / 2.953		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.000		28 / 2.953												
FY 2019		- / -	- / -		20 / 3.496		- / -		- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.000		20 / 3.496												
FY 2020		- / -	- / -		- / -		20 / 2.580		0 / 0.000		20 / 2.580		- / -		- / -		- / -		- / -		0 / 0.000		20 / 2.580												
FY 2021		- / -	- / -		- / -		- / -		- / -		- / -		17 / 1.732		- / -		- / -		- / -		0 / 0.000		17 / 1.732												
FY 2022		- / -	- / -		- / -		- / -		- / -		- / -		- / -		7 / 1.672		- / -		- / -		0 / 0.000		7 / 1.672												
FY 2023		- / -	- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -												
FY 2024		- / -	- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -												
To Complete		- / -	- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		3 / 1.002		3 / 1.002												
Total		81 / 3.540	28 / 2.953		20 / 3.496		20 / 2.580		0 / 0.000		20 / 2.580		17 / 1.732		7 / 1.672		- / -		- / -		3 / 1.002		176 / 16.975												
Installation Schedule																																			
	PYS	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				TC	Tot				
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4						
In	81	-	-	28	-	-	-	20	-	-	-	20	-	-	-	17	-	-	-	7	-	-	-	-	-	-	-	-	-	3	176				
Out	81	-	-	-	7	7	7	7	5	5	5	5	5	5	5	5	5	5	5	2	2	2	2	1	-	-	-	-	-	3	176				

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Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019		
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9					P-1 Line Item Number / Title: 0910 / Firefighting Equipment					Modification Number / Title: 4 / HB009 - FIREFIGHTER ACCESS		
ID Code (A=Service Ready, B=Not Service Ready) :							MDAP/MAIS Code:					
Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity <i>(Units in Each)</i>	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost <i>(\$ in Millions)</i>	7.682	0.600	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	8.282
Less PY Advance Procurement <i>(\$ in Millions)</i>	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) <i>(\$ in Millions)</i>	7.682	0.600	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	8.282
Plus CY Advance Procurement <i>(\$ in Millions)</i>	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority <i>(\$ in Millions)</i>	7.682	0.600	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	8.282
<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 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. Quantities are number of ships. Requirement is for DDG 0051, LSD 0041, LSD 0049 and LPD 0017 ship classes. PROCUREMENT: Funding includes the hardware for the FES and LSS, shipping, and distribution to ships. FES/LSS procurement costs will vary significantly based on ship class. INSTALLATION HBINS (HB5IN/HB6IN): Funding includes all costs associated with the Fleet Modernization Program FES/LSS equipment installations of the escape trunk ladder safety rails used in conjunction with safety belts and lifting pad-eyes installed at the top of the escape trunks onboard ships. FES/LSS installation costs will vary significantly based on ship class, ship port location, and availability type. FY18 installation costs are for (2) LSD 0041 class ships (\$0.300M average) for a total of \$0.600M.												

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Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019			
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9					P-1 Line Item Number / Title: 0910 / Firefighting Equipment					Modification Number / Title: 4 / HB009 - FIREFIGHTER ACCESS			
ID Code (A=Service Ready, B=Not Service Ready) :								MDAP/MAIS Code:					
Models of Systems Affected: N/A				Modification Type: FES/LSS Installation				Related RDT&E PEs:					
Financial Plan	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total	
	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	
Procurement													
<i>Modification Item 1 of 1:</i> HB009 - FIREFIGHTER ACCESS													
B Kits													
Recurring													
1.1.1) FIREFIGHTER ACCESS HW - NonOrganic	53 / 3.151	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	53 / 3.151	
<i>Subtotal: Recurring</i>	- / 3.151	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / 0.000	- / 3.151	
<i>Subtotal: HB009 - FIREFIGHTER ACCESS</i>	53 / 3.151	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	53 / 3.151	
<i>Subtotal: Procurement, All Modification Items</i>	- / 3.151	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / 0.000	- / 3.151	
Installation													
<i>Modification Item 1 of 1:</i> HB009 - FIREFIGHTER ACCESS													
<i>Subtotal: Installation</i>	- / 4.531	- / 0.600	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 5.131	
Total													
Total Cost (Procurement + Support + Installation)	7.682	0.600	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	8.282	

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Exhibit P-3a, Individual Modification: PB 2020 Navy											Date: March 2019																				
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9										P-1 Line Item Number / Title: 0910 / Firefighting Equipment										Modification Number / Title: 4 / HB009 - FIREFIGHTER ACCESS											
ID Code (A=Service Ready, B=Not Service Ready) :															MDAP/MAIS Code:																
Modification Item 1 of 1: HB009 - FIREFIGHTER ACCESS																															
Manufacturer Information																															
Manufacturer Name: SELSTROM MAN														Manufacturer Location: PALATINE, IL																	
Administrative Leadtime (in Months): 0														Production Leadtime (in Months): 3																	
Dates		FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024					
Contract Dates																															
Delivery Dates																															
Installation Information																															
Method of Implementation: SHIPALT:: Installation Name: FIREFIGHTER ACCESS HW																															
Installation Cost		Prior Years		FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total		FY 2021		FY 2022		FY 2023		FY 2024		To Complete		Total							
		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)							
Prior Years		53 / 4.531		0 / 0.600		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.000		53 / 5.131					
FY 2018		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
FY 2019		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
FY 2020		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
FY 2021		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
FY 2022		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
FY 2023		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
FY 2024		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
To Complete		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
Total		53 / 4.531		0 / 0.600		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.000		53 / 5.131					
Installation Schedule																															
	PYS	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				TC	Tot
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4		
In	53	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	53
Out	51	-	-	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	53

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Exhibit P-40, Budget Line Item Justification: PB 2020 Navy										Date: March 2019		
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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity (<i>Units in Each</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost (<i>\$ in Millions</i>)	71.376	2.240	2.248	2.086	0.000	2.086	2.372	2.384	2.369	2.417	-	87.492
Less PY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (<i>\$ in Millions</i>)	71.376	2.240	2.248	2.086	0.000	2.086	2.372	2.384	2.369	2.417	-	87.492
Plus CY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority (<i>\$ in Millions</i>)	71.376	2.240	2.248	2.086	0.000	2.086	2.372	2.384	2.369	2.417	-	87.492
<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 FY 2020 funding request was reduced by \$0.144 million to account for the availability of prior year execution balances.

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

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

Exhibits Schedule					Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Exhibit Type	Title*	Subexhibits	ID CD	MDAP/MAIS Code	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)
P-40a	COMMAND AND CONTROL SWITCHBOARD				- / 21.686	- / 1.680	- / 1.674	- / 1.472	- / -	- / 1.472
P-3a	1 / COMMAND AND CONTROL ORDALT/FIELD CHANGE KITS (TBD)				- / 49.690	- / 0.560	- / 0.574	- / 0.614	- / 0.000	- / 0.614
P-40	Total Gross/Weapon System Cost				- / 71.376	- / 2.240	- / 2.248	- / 2.086	- / 0.000	- / 2.086

Exhibits Schedule					FY 2021	FY 2022	FY 2023	FY 2024	To Complete	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	COMMAND AND CONTROL SWITCHBOARD				- / -	- / -	- / -	- / -	- / -	- / -
P-3a	1 / COMMAND AND CONTROL ORDALT/FIELD CHANGE KITS (TBD)				- / 0.649	- / 0.646	- / 0.661	- / 0.677	- / 0.000	- / 54.071
P-40	Total Gross/Weapon System Cost				- / 2.372	- / 2.384	- / 2.369	- / 2.417	- / -	- / 87.492

*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: PB 2020 Navy															Date: March 2019					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9								P-1 Line Item Number / Title: 0925 / Command and Control Switchboard							Aggregated Items Title: COMMAND AND CONTROL SWITCHBOARD					
Item Number / Title [DODIC]	ID CD	MDAP/MAIS Code	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 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) GE003 ENG UPGRADES/MODS TO EQUIPMENT & TECH DOCUMENTATION																				
1.1) ENGINEERING UPGRADES/MODS TO EQUIPMENT & TECHNICAL DOCUMENTATION	A		-	-	21.686	-	-	1.680	-	-	1.674	-	-	1.472	-	-	-	-	-	1.472
Subtotal: 1) GE003 ENG UPGRADES/MODS TO EQUIPMENT & TECH DOCUMENTATION			-	-	21.686	-	-	1.680	-	-	1.674	-	-	1.472	-	-	-	-	-	1.472
Total			-	-	21.686	-	-	1.680	-	-	1.674	-	-	1.472	-	-	-	-	-	1.472

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-3a, Individual Modification: PB 2020 Navy										Date: March 2019		
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9					P-1 Line Item Number / Title: 0925 / Command and Control Switchboard					Modification Number / Title: 1 / COMMAND AND CONTROL ORDALT/FIELD CHANGE KITS		
ID Code (A=Service Ready, B=Not Service Ready) :							MDAP/MAIS Code:					
Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity (<i>Units in Each</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost (<i>\$ in Millions</i>)	49.690	0.560	0.574	0.614	0.000	0.614	0.649	0.646	0.661	0.677	0.000	54.071
Less PY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (<i>\$ in Millions</i>)	49.690	0.560	0.574	0.614	0.000	0.614	0.649	0.646	0.661	0.677	0.000	54.071
Plus CY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority (<i>\$ in Millions</i>)	49.690	0.560	0.574	0.614	0.000	0.614	0.649	0.646	0.661	0.677	0.000	54.071
<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: 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-3a, Individual Modification: PB 2020 Navy										Date: March 2019			
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9					P-1 Line Item Number / Title: 0925 / Command and Control Switchboard					Modification Number / Title: 1 / COMMAND AND CONTROL ORDALT/FIELD CHANGE KITS			
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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	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)	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> COMMAND AND CONTROL ORDALT/FIELD CHANGE KITS													
B Kits													
Recurring													
1.1.1) Ordalt/Field Change Kits - NonOrganic ⁽¹⁾	151 / 49.690	14 / 0.560	14 / 0.574	14 / 0.614	- / -	14 / 0.614	14 / 0.649	14 / 0.646	14 / 0.661	14 / 0.677	- / -	249 / 54.071	
<i>Subtotal: Recurring</i>	- / 49.690	- / 0.560	- / 0.574	- / 0.614	- / -	- / 0.614	- / 0.649	- / 0.646	- / 0.661	- / 0.677	- / 0.000	- / 54.071	
<i>Subtotal: COMMAND AND CONTROL ORDALT/FIELD CHANGE KITS</i>	151 / 49.690	14 / 0.560	14 / 0.574	14 / 0.614	- / -	14 / 0.614	14 / 0.649	14 / 0.646	14 / 0.661	14 / 0.677	- / -	249 / 54.071	
<i>Subtotal: Procurement, All Modification Items</i>	- / 49.690	- / 0.560	- / 0.574	- / 0.614	- / -	- / 0.614	- / 0.649	- / 0.646	- / 0.661	- / 0.677	- / 0.000	- / 54.071	
Installation													
<i>Modification Item 1 of 1:</i> COMMAND AND CONTROL ORDALT/FIELD CHANGE KITS	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	
<i>Subtotal: Installation</i>	- / 0.000	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / 0.000	
Total													
Total Cost (Procurement + Support + Installation)	49.690	0.560	0.574	0.614	0.000	0.614	0.649	0.646	0.661	0.677	0.000	54.071	

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Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019																					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9										P-1 Line Item Number / Title: 0925 / Command and Control Switchboard										Modification Number / Title: 1 / COMMAND AND CONTROL ORDALT/FIELD CHANGE KITS											
ID Code (A=Service Ready, B=Not Service Ready) :															MDAP/MAIS Code:																
Modification Item 1 of 1: COMMAND AND CONTROL ORDALT/FIELD CHANGE KITS																															
Manufacturer Information																															
Manufacturer Name: Valkyrie															Manufacturer Location: Oxnard, CA																
Administrative Leadtime <i>(in Months)</i> : 0															Production Leadtime <i>(in Months)</i> : 1																
Dates		FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024					
Contract Dates		Nov 2017				Nov 2018				Nov 2019				Nov 2020				Nov 2021				Nov 2022				Nov 2023					
Delivery Dates		Dec 2017				Dec 2018				Dec 2019				Dec 2020				Jan 2022				Jan 2023				Jan 2024					
Installation Information																															
Method of Implementation: ALT:: Installation Name: Ordalt/Field Change Kits																															
Installation Cost		Prior Years	FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total		FY 2021		FY 2022		FY 2023		FY 2024		To Complete		Total								
		Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)								
Prior Years		151 / 0.000		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.000		151 / -							
FY 2018		- / -		14 / 0.000		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.000		14 / -							
FY 2019		- / -		- / -		14 / 0.000		- / -		- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.000		14 / -							
FY 2020		- / -		- / -		- / -		14 / 0.000		0 / 0.000		14 / 0.000		- / -		- / -		- / -		- / -		0 / 0.000		14 / -							
FY 2021		- / -		- / -		- / -		- / -		- / -		- / -		14 / 0.000		- / -		- / -		- / -		0 / 0.000		14 / -							
FY 2022		- / -		- / -		- / -		- / -		- / -		- / -		- / -		14 / 0.000		- / -		- / -		0 / 0.000		14 / -							
FY 2023		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		14 / 0.000		- / -		0 / 0.000		14 / -							
FY 2024		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		14 / 0.000		0 / 0.000		14 / -							
To Complete		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -							
Total		151 / 0.000		14 / 0.000		14 / 0.000		14 / 0.000		0 / 0.000		14 / 0.000		14 / 0.000		14 / 0.000		14 / 0.000		14 / 0.000		0 / 0.000		249 / -							
Installation Schedule																															
	PYS	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				TC	Tot
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4		
In	151	-	4	3	7	8	1	3	2	6	3	3	2	6	3	3	2	2	4	6	2	2	4	6	2	2	4	6	2	-	249
Out	151	-	4	3	7	8	1	3	2	6	3	3	2	6	3	3	2	2	4	6	2	2	4	6	2	2	4	6	2	-	249
Footnotes:																															
(1) Installation costs are included in procurement costs. FY 2018 funding is for the procurement of 14 units to be installed on the following ship classes: 1 CG-Class (3 units), 2 DDG-Class (4 units), 2 LSD-Class (4 units), 1 MCM-Class (1 unit), and 1 LHD-Class (2 units). FY 2019 funding is for the procurement of 14 units to be installed on the following ship classes: 3 CG-Class (6 units), 4 DDG-Class (4 units), 2 LSD-																															

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Exhibit P-3a, Individual Modification: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	P-1 Line Item Number / Title: 0925 / Command and Control Switchboard	Modification Number / Title: 1 / COMMAND AND CONTROL ORDALT/FIELD CHANGE KITS
ID Code (A=Service Ready, B=Not Service Ready) :		MDAP/MAIS Code:
Class (2 units), and 1 LHD-Class (2 units). FY 2020 funding is for the procurement of 14 units to be installed on the following ship classes: 2 CG-Class (2 units), 6 DDG-Class (6 units), 2 LSD-Class (2 units), and 3 LHD-Class (3 units), 1 MCM-Class (1 unit).		

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

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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity (<i>Units in Each</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost (<i>\$ in Millions</i>)	56.801	4.767	32.353	95.651	0.000	95.651	81.007	138.772	109.716	118.763	155.467	793.297
Less PY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (<i>\$ in Millions</i>)	56.801	4.767	32.353	95.651	0.000	95.651	81.007	138.772	109.716	118.763	155.467	793.297
Plus CY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority (<i>\$ in Millions</i>)	56.801	4.767	32.353	95.651	0.000	95.651	81.007	138.772	109.716	118.763	155.467	793.297
<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 the LHD and LHA class Amphibious Assault Ships. Some major modernization efforts include the procurement and installation of Brushless Generators for the PMP, main feed pump replacement; and Shipboard Air Traffic Control Communications (SATCC), Propulsion and Auxiliary Control System (PACS), and Ballast and DC Console.

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. Propulsion and Auxiliary Control System (PACS) provides a network infrastructure for HM&E systems.

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Exhibit P-40, Budget Line Item Justification: PB 2020 Navy							Date: March 2019			
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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Exhibit Type	Title*	Subexhibits	ID CD	MDAP/MAIS Code	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)
P-40a	LHA/LHD Midlife				- / 12.407	- / 0.480	- / 8.237	- / 12.892	- / -	- / 12.892
P-3a	1 / LH001 - LHD Midlife, Brushless Generator for PMP (TBD)				- / 38.415	- / 0.000	- / 0.000	- / 0.820	- / 0.000	- / 0.820
P-3a	2 / LH001 - Main Feed Pump (TBD)				- / 1.643	- / 0.000	- / 0.000	- / 2.618	- / 0.000	- / 2.618
P-3a	3 / LH001-Shipboard Air Traffic Control Communication (SATCC) (TBD)				- / 1.820	- / 0.000	- / 0.360	- / 3.150	- / 0.000	- / 3.150
P-3a	4 / LH001- Navigation Critical Data Distribution (NavCrit) (TBD)				- / 2.516	- / 4.287	- / 1.577	- / 1.772	- / 0.000	- / 1.772
P-3a	5 / LH001 Propulsion and Auxiliary Control System (PACS) (TBD)				- / 0.000	- / 0.000	- / 2.708	- / 21.199	- / 0.000	- / 21.199
P-3a	6 / LH001 - Power Management Platform (Electric Plant Control) (TBD)				- / 0.000	- / 0.000	- / 0.000	- / 10.710	- / 0.000	- / 10.710
P-3a	7 / LH001 - HYDRA (TBD)				- / 0.000	- / 0.000	- / 3.217	- / 7.777	- / 0.000	- / 7.777
P-3a	8 / LH001 - BALLAST AND DC CONSOLE (TBD)				- / 0.000	- / 0.000	- / 2.632	- / 4.952	- / 0.000	- / 4.952
P-3a	9 / LH001 - SCS- GOV (TBD)				- / 0.000	- / 0.000	- / 1.770	- / 5.497	- / 0.000	- / 5.497
P-3a	10 / LH001 - AMPLIFIED ANNOUNCING SYSTEM (TBD)				- / 0.000	- / 0.000	- / 2.755	- / 6.044	- / 0.000	- / 6.044
P-3a	11 / LH001 - DCSS UPGRADE (TBD)				- / 0.000	- / 0.000	- / 1.092	- / 0.242	- / 0.000	- / 0.242
P-3a	12 / LH001 - ICT UPGRADE (TBD)				- / 0.000	- / 0.000	- / 3.061	- / 3.340	- / 0.000	- / 3.340
P-3a	13 / LH001 - IVN UPGRADE (TBD)				- / 0.000	- / 0.000	- / 0.000	- / 4.127	- / 0.000	- / 4.127
P-3a	14 / LH001 - IVCN Tech Refresh (TBD)				- / 0.000	- / 0.000	- / 4.944	- / 0.242	- / 0.000	- / 0.242
P-3a	15 / LH001 - MACHINERY CONTROL SYSTEM (MCS) (TBD)				- / 0.000	- / 0.000	- / 0.000	- / 10.269	- / 0.000	- / 10.269
P-40	Total Gross/Weapon System Cost				- / 56.801	- / 4.767	- / 32.353	- / 95.651	- / 0.000	- / 95.651
Exhibits Schedule					FY 2021	FY 2022	FY 2023	FY 2024	To Complete	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				- / -	- / -	- / -	- / -	- / -	- / -
P-3a	1 / LH001 - LHD Midlife, Brushless Generator for PMP (TBD)				- / 9.321	- / 19.446	- / 21.292	- / 19.349	- / 24.518	- / 133.161
P-3a	2 / LH001 - Main Feed Pump (TBD)				- / 1.487	- / 3.949	- / 1.315	- / 4.103	- / 12.495	- / 27.610
P-3a	3 / LH001-Shipboard Air Traffic Control Communication (SATCC) (TBD)				- / 2.730	- / 1.599	- / 0.000	- / 0.000	- / 0.000	- / 9.659
P-3a	4 / LH001- Navigation Critical Data Distribution (NavCrit) (TBD)				- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 10.000	- / 20.152
P-3a	5 / LH001 Propulsion and Auxiliary Control System (PACS) (TBD)				- / 15.462	- / 35.195	- / 25.406	- / 25.836	- / 33.762	- / 159.568
P-3a	6 / LH001 - Power Management Platform (Electric Plant Control) (TBD)				- / 1.615	- / 33.938	- / 12.995	- / 24.010	- / 24.137	- / 107.405
P-3a	7 / LH001 - HYDRA (TBD)				- / 10.237	- / 11.923	- / 5.926	- / 7.612	- / 13.717	- / 60.409
P-3a	8 / LH001 - BALLAST AND DC CONSOLE (TBD)				- / 5.472	- / 8.547	- / 6.400	- / 6.548	- / 6.245	- / 40.796
P-3a	9 / LH001 - SCS- GOV (TBD)				- / 10.717	- / 8.575	- / 8.531	- / 3.906	- / 7.616	- / 46.612

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Exhibit P-40, Budget Line Item Justification: PB 2020 Navy								Date: March 2019		
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					FY 2021	FY 2022	FY 2023	FY 2024	To Complete	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-3a	10 / LH001 - AMPLIFIED ANNOUNCING SYSTEM (TBD)				- / 5.188	- / 4.423	- / 2.192	- / 6.970	- / 4.901	- / 32.473
P-3a	11 / LH001 - DCSS UPGRADE (TBD)				- / 2.318	- / 0.252	- / 1.134	- / 0.000	- / 0.000	- / 5.038
P-3a	12 / LH001 - ICT UPGRADE (TBD)				- / 4.426	- / 1.165	- / 4.484	- / 7.794	- / 3.597	- / 27.867
P-3a	13 / LH001 - IVN UPGRADE (TBD)				- / 0.360	- / 2.596	- / 3.477	- / 7.473	- / 9.110	- / 27.143
P-3a	14 / LH001 - IVCN Tech Refresh (TBD)				- / 7.594	- / 0.252	- / 2.367	- / 0.000	- / 0.000	- / 15.399
P-3a	15 / LH001 - MACHINERY CONTROL SYSTEM (MCS) (TBD)				- / 3.824	- / 1.573	- / 11.851	- / 4.078	- / 5.369	- / 36.964
P-40	Total Gross/Weapon System Cost				- / 81.007	- / 138.772	- / 109.716	- / 118.763	- / 155.467	- / 793.297
*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: Funds provide for modernization of Amphibious Assault Ships. The increased funding is due to the execution of LHD Midlife in FY 2022. Due to the long procurement time, midlife procurements are required in FY 2020. The following modernization items converted from a P-40a to P-3a in FY 2020: HYRDA, BALLAST AND DC CONSOLE, SCS-GOV, AMPLIFIED ANNOUNCING SYSTEM, DCSS UPGRADE, ICT UPGRADE, AND IVCN Tech Refresh.										

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Exhibit P-40a, Budget Item Justification For Aggregated Items: PB 2020 Navy															Date: March 2019				
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 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 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 Alterations ⁽¹⁾																				
1.1) Conjunctive Alterations	A		-	-	9.208	-	-	0.480	-	-	7.654	-	-	12.193	-	-	-	-	-	12.193
1.2) LHD Cyber Resiliency ⁽²⁾	A		-	-	-	-	-	-	-	-	0.583	-	-	0.699	-	-	-	-	-	0.699
Subtotal: 1) LH002 Conjunctive Alterations			-	-	9.208	-	-	0.480	-	-	8.237	-	-	12.892	-	-	-	-	-	12.892
2) LHD Midlife HVAC improvements (HESC) ⁽³⁾																				
2.1) HESC	A		-	-	3.199	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: 2) LHD Midlife HVAC improvements (HESC)			-	-	3.199	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total			-	-	12.407	-	-	0.480	-	-	8.237	-	-	12.892	-	-	-	-	-	12.892

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

Footnotes:

⁽¹⁾ Conjunctives increase from FY 2019 to FY 2020 to support the integration of significant modernization planned for FY 2022 with other shipboard systems.

⁽²⁾ This solution proposed would implement core cyber resiliency principles, it would implement a Defense-in-Depth Functional Implementation Architecture (DFIA) and meet the requirements of the standards released by the Information Assurance Technical Authority Board (IA TAB) across all the H,M&E systems deploying the ability to protect, detect, react, and restore in a cyber contested environment

⁽³⁾ The High Efficiency Super Capacity (HES-C) replaces the ship's existing 300-ton Air Conditioners (A/C) with a 450-ton capable A/C plant that meets the demand of new electronic warfare systems and will improve operational availability of the A/C plant. HES-C has been deferred indefinitely due to engineering efforts not proceeding as planned. FY 2019 funding was realigned to Conjunctive Alterations.

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Exhibit P-3a, Individual Modification: PB 2020 Navy						Date: March 2019					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9				P-1 Line Item Number / Title: 0933 / LHA/LHD Midlife				Modification Number / Title: 1 / LH001 - LHD Midlife, Brushless Generator for PMP			

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

Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity (<i>Units in Each</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost (<i>\$ in Millions</i>)	38.415	0.000	0.000	0.820	0.000	0.820	9.321	19.446	21.292	19.349	24.518	133.161
Less PY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (<i>\$ in Millions</i>)	38.415	0.000	0.000	0.820	0.000	0.820	9.321	19.446	21.292	19.349	24.518	133.161
Plus CY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority (<i>\$ in Millions</i>)	38.415	0.000	0.000	0.820	0.000	0.820	9.321	19.446	21.292	19.349	24.518	133.161
(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>)	-	-	-	-	-	-	-	-	-	-	-	-

Description:

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

[Brushless Generator for PMP]

[New Cost Element] Brushless Generator Upgrade replaces a LHD's (5) brush-type Ship's Service Turbine Generators that are plagued by severe reliability, maintenance and obsolescence problems. Brushless Generator Upgrade will reduce both S/F and depot level maintenance requirements, and increase a LHD's electric plant Operational Availability (Ao).

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Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019			
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9				P-1 Line Item Number / Title: 0933 / LHA/LHD Midlife						Modification Number / Title: 1 / LH001 - LHD Midlife, Brushless Generator for PMP			
ID Code (A=Service Ready, B=Not Service Ready) :								MDAP/MAIS Code:					
Models of Systems Affected: LHD Midlife PMP				Modification Type: TBD				Related RDT&E PEs:					
Financial Plan	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total	
	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	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: LH001 - LHD Midlife, Brushless Generator for PMP													
B Kits													
Recurring													
1.1.1) Brushless Generator for PMP - NonOrganic ⁽⁴⁾	2 / 13.199	- / -	- / -	- / -	- / -	- / -	1 / 6.322	1 / 6.454	1 / 6.590	1 / 6.728	- / -	6 / 39.293	
Subtotal: Recurring	- / 13.199	- / -	- / -	- / -	- / -	- / -	- / 6.322	- / 6.454	- / 6.590	- / 6.728	- / 0.000	- / 39.293	
Subtotal: LH001 - LHD Midlife, Brushless Generator for PMP	2 / 13.199	- / -	- / -	- / -	- / -	- / -	1 / 6.322	1 / 6.454	1 / 6.590	1 / 6.728	- / -	6 / 39.293	
Subtotal: Procurement, All Modification Items	- / 13.199	- / -	- / -	- / -	- / -	- / -	- / 6.322	- / 6.454	- / 6.590	- / 6.728	- / 0.000	- / 39.293	
Support (All Modification Items)													
2.1) Non-Recurring Engineering	- / 10.197	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / 10.197	
2.2) Engineering Services	- / -	- / -	- / -	- / 0.260	- / -	- / 0.260	- / 0.464	- / 0.677	- / 0.691	- / 0.705	- / -	- / 2.797	
Subtotal: Support	- / 10.197	- / -	- / -	- / 0.260	- / -	- / 0.260	- / 0.464	- / 0.677	- / 0.691	- / 0.705	- / 0.000	- / 12.994	
Installation													
Modification Item 1 of 1: LH001 - LHD Midlife, Brushless Generator for PMP	- / 15.019	- / 0.000	- / 0.000	- / 0.560	- / 0.000	- / 0.560	- / 2.535	- / 12.315	- / 14.011	- / 11.916	- / 24.518	- / 80.874	
Subtotal: Installation	- / 15.019	- / -	- / -	- / 0.560	- / -	- / 0.560	- / 2.535	- / 12.315	- / 14.011	- / 11.916	- / 24.518	- / 80.874	
Total													
Total Cost (Procurement + Support + Installation)	38.415	0.000	0.000	0.820	0.000	0.820	9.321	19.446	21.292	19.349	24.518	133.161	

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Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019																						
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9										P-1 Line Item Number / Title: 0933 / LHA/LHD Midlife										Modification Number / Title: 1 / LH001 - LHD Midlife, Brushless Generator for PMP												
ID Code (A=Service Ready, B=Not Service Ready) :															MDAP/MAIS Code:																	
Modification Item 1 of 1: LH001 - LHD Midlife, Brushless Generator for PMP																																
Manufacturer Information																																
Manufacturer Name: KATO ENGINEERING															Manufacturer Location: MN																	
Administrative Leadtime (in Months): 0															Production Leadtime (in Months): 24																	
Dates		FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024						
Contract Dates														May 2021				Mar 2022				May 2023				Mar 2024						
Delivery Dates														May 2023				Mar 2024				May 2025				Mar 2026						
Installation Information																																
Method of Implementation: AIT/Industrial:: Installation Name: Brushless Generator for PMP																																
Installation Cost		Prior Years		FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total		FY 2021		FY 2022		FY 2023		FY 2024		To Complete		Total								
		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)								
Prior Years		1 / 15.019		- / -		- / -		0 / 0.560		0 / 0.000		0 / 0.560		0 / 1.963		1 / 9.630		- / -		- / -		0 / 0.000		2 / 27.172								
FY 2018		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -								
FY 2019		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -								
FY 2020		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -								
FY 2021		- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.572		0 / 2.101		1 / 11.419		- / -		0 / 0.000		1 / 14.092								
FY 2022		- / -		- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.584		0 / 1.996		1 / 9.221		0 / 0.000		1 / 11.801								
FY 2023		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.596		0 / 2.087		1 / 10.199		1 / 12.882								
FY 2024		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.608		1 / 14.319		1 / 14.927								
To Complete		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -								
Total		1 / 15.019		- / -		- / -		0 / 0.560		0 / 0.000		0 / 0.560		0 / 2.535		1 / 12.315		1 / 14.011		1 / 11.916		2 / 24.518		6 / 80.874								
Installation Schedule																																
	PYS	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				TC	Tot	
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4			
In	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	1	-	-	-	-	1	-	2	6
Out	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	1	3	6
Footnotes:																																
(4) Installation funding for a ship is divided over a three-year period. Installation execution funding in the year of availability, and Design Service Allocation (DSA) two years prior to availability, and DSA in the year prior to the availability. This includes ship checks, ship installation drawing (SID) development, logistic document development and long lead time material procurements (LLTM). Installation costs across the																																

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LI 0933 - LHA/LHD Midlife Navy

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Exhibit P-3a, Individual Modification: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	P-1 Line Item Number / Title: 0933 / LHA/LHD Midlife	Modification Number / Title: 2 / LH001 - Main Feed Pump

ID Code (A=Service Ready, B=Not Service Ready) :						MDAP/MAIS Code:						
Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity (<i>Units in Each</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost (<i>\$ in Millions</i>)	1.643	0.000	0.000	2.618	0.000	2.618	1.487	3.949	1.315	4.103	12.495	27.610
Less PY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (<i>\$ in Millions</i>)	1.643	0.000	0.000	2.618	0.000	2.618	1.487	3.949	1.315	4.103	12.495	27.610
Plus CY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority (<i>\$ in Millions</i>)	1.643	0.000	0.000	2.618	0.000	2.618	1.487	3.949	1.315	4.103	12.495	27.610
(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>)	-	-	-	-	-	-	-	-	-	-	-	-

Description:

Main Feed Pump (MFP) replacement addresses system obsolescence by installing an industry supported, steam driven pump with a new electronic automatic boiler control that will prevent over-speed conditions, which is a major cause of MFP failures. The new pump will improve reliability, operational availability and bring commonality with other ship classes.

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Exhibit P-3a, Individual Modification: PB 2020 Navy								Date: March 2019					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9				P-1 Line Item Number / Title: 0933 / LHA/LHD Midlife				Modification Number / Title: 2 / LH001 - Main Feed Pump					
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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	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)	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: LH001 - Main Feed Pump													
B Kits													
Recurring													
1.1.1) Main Feed Pump - NonOrganic ⁽⁵⁾	- / -	- / -	- / -	1 / 2.300	- / -	1 / 2.300	- / -	1 / 2.398	- / -	1 / 2.500	2 / 5.044	5 / 12.242	
Subtotal: Recurring	- / 0.000	- / -	- / -	- / 2.300	- / -	- / 2.300	- / -	- / 2.398	- / -	- / 2.500	- / 5.044	- / 12.242	
Subtotal: LH001 - Main Feed Pump	- / -	- / -	- / -	1 / 2.300	- / -	1 / 2.300	- / -	1 / 2.398	- / -	1 / 2.500	2 / 5.044	5 / 12.242	
Subtotal: Procurement, All Modification Items	- / 0.000	- / -	- / -	- / 2.300	- / -	- / 2.300	- / -	- / 2.398	- / -	- / 2.500	- / 5.044	- / 12.242	
Support (All Modification Items)													
2.1) Non-Recurring Engineering	- / 1.643	- / -	- / -	- / -	- / -	- / -	- / 0.331	- / -	- / 0.172	- / -	- / -	- / 2.146	
Subtotal: Support	- / 1.643	- / -	- / -	- / -	- / -	- / -	- / 0.331	- / -	- / 0.172	- / -	- / 0.000	- / 2.146	
Installation													
Modification Item 1 of 1: LH001 - Main Feed Pump	- / 0.000	- / 0.000	- / 0.000	- / 0.318	- / 0.000	- / 0.318	- / 1.156	- / 1.551	- / 1.143	- / 1.603	- / 7.451	- / 13.222	
Subtotal: Installation	- / 0.000	- / -	- / -	- / 0.318	- / -	- / 0.318	- / 1.156	- / 1.551	- / 1.143	- / 1.603	- / 7.451	- / 13.222	
Total													
Total Cost (Procurement + Support + Installation)	1.643	0.000	0.000	2.618	0.000	2.618	1.487	3.949	1.315	4.103	12.495	27.610	

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Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019																					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9										P-1 Line Item Number / Title: 0933 / LHA/LHD Midlife										Modification Number / Title: 2 / LH001 - Main Feed Pump											
ID Code (A=Service Ready, B=Not Service Ready) :															MDAP/MAIS Code:																
Modification Item 1 of 1: LH001 - Main Feed Pump																															
Manufacturer Information																															
Manufacturer Name: TBD															Manufacturer Location: TBD																
Administrative Leadtime <i>(in Months)</i> : 0															Production Leadtime <i>(in Months)</i> : 22																
Dates		FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024					
Contract Dates										Dec 2019								May 2022								May 2024					
Delivery Dates										Oct 2021								Mar 2024								Mar 2026					
Installation Information																															
Method of Implementation: Industrial:: Installation Name: Main Feed Pump																															
Installation Cost		Prior Years		FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total		FY 2021		FY 2022		FY 2023		FY 2024		To Complete		Total							
		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)							
Prior Years		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
FY 2018		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
FY 2019		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
FY 2020		- / -		- / -		- / -		0 / 0.318		0 / 0.000		0 / 0.318		0 / 1.156		1 / 1.220		- / -		- / -		0 / 0.000		1 / 2.694							
FY 2021		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -							
FY 2022		- / -		- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.331		0 / 1.143		1 / 1.258		0 / 0.000		1 / 2.732							
FY 2023		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -							
FY 2024		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.345		1 / 2.512		1 / 2.857							
To Complete		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		2 / 4.939		2 / 4.939							
Total		- / -		- / -		- / -		0 / 0.318		0 / 0.000		0 / 0.318		0 / 1.156		1 / 1.551		0 / 1.143		1 / 1.603		3 / 7.451		5 / 13.222							
Installation Schedule																															
	PYS	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				TC	Tot
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4		
In	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	1	-	3	5
Out	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	4	5
Footnotes: ⁽⁵⁾ Funding is for procurement and installation of MFP equipment to address system obsolescence by installing an industry supported, steam driven pump with a new electronic automatic boiler control that will prevent over-speed conditions, which is a major cause of MFP failures. The new pump will improve reliability, operational availability and bring commonality with other ship classes. Installation funding for a ship is divided over a three-year period. Installation execution funding in the year of availability, and Design Service Allocation (DSA) two years prior to availability, and DSA in the year prior to the availability. This includes ship checks, ship installation drawing (SID) development, logistic document development and long lead time material procurements (LLTM). Installation costs across the FYDP may vary depending on																															

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Exhibit P-3a, Individual Modification: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	P-1 Line Item Number / Title: 0933 / LHA/LHD Midlife	Modification Number / Title: 2 / LH001 - Main Feed Pump
ID Code (A=Service Ready, B=Not Service Ready) :		MDAP/MAIS Code:
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: PB 2020 Navy						Date: March 2019					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9				P-1 Line Item Number / Title: 0933 / LHA/LHD Midlife				Modification Number / Title: 3 / LH001-Shipboard Air Traffic Control Communication (SATCC)			

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

Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity (<i>Units in Each</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost (<i>\$ in Millions</i>)	1.820	0.000	0.360	3.150	0.000	3.150	2.730	1.599	0.000	0.000	0.000	9.659
Less PY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (<i>\$ in Millions</i>)	1.820	0.000	0.360	3.150	0.000	3.150	2.730	1.599	0.000	0.000	0.000	9.659
Plus CY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority (<i>\$ in Millions</i>)	1.820	0.000	0.360	3.150	0.000	3.150	2.730	1.599	0.000	0.000	0.000	9.659
(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>)	-	-	-	-	-	-	-	-	-	-	-	-

Description:

Shipboard Air Traffic Control Communication (SATCC) provides highly reliable Air Traffic Control (ATC) voice communications between pilots and ATC team, command and control, and connection to administrative jdal services throughout the ship. This installs a ruggedized, Commercial off the Shelf (COTS) system that addresses Safety of Flight concerns due to cumbersome communication controls that degrades ATC's situational awareness during flight operations. This install will establish commonality across CVN, LHD and LHA classes.

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Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019			
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9					P-1 Line Item Number / Title: 0933 / LHA/LHD Midlife					Modification Number / Title: 3 / LH001-Shipboard Air Traffic Control Communication (SATCC)			
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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total	
	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	
Procurement													
<i>Modification Item 1 of 1:</i> LH001-Shipboard Air Traffic Control Communication (SATCC)													
B Kits													
Recurring													
1.1.1) Shipboard Air Traffic Control Communication (SATCC) - NonOrganic ⁽⁶⁾	1 / 1.820	- / -	- / -	1 / 0.946	- / -	1 / 0.946	1 / 0.966	- / -	- / -	- / -	- / -	3 / 3.732	
<i>Subtotal: Recurring</i>	- / 1.820	- / -	- / -	- / 0.946	- / -	- / 0.946	- / 0.966	- / -	- / -	- / -	- / 0.000	- / 3.732	
<i>Subtotal: LH001-Shipboard Air Traffic Control Communication (SATCC)</i>	1 / 1.820	- / -	- / -	1 / 0.946	- / -	1 / 0.946	1 / 0.966	- / -	- / -	- / -	- / -	3 / 3.732	
<i>Subtotal: Procurement, All Modification Items</i>	- / 1.820	- / -	- / -	- / 0.946	- / -	- / 0.946	- / 0.966	- / -	- / -	- / -	- / 0.000	- / 3.732	
Installation													
<i>Modification Item 1 of 1:</i> LH001-Shipboard Air Traffic Control Communication (SATCC)	- / 0.000	- / 0.000	- / 0.360	- / 2.204	- / 0.000	- / 2.204	- / 1.764	- / 1.599	- / 0.000	- / 0.000	- / 0.000	- / 5.927	
<i>Subtotal: Installation</i>	- / 0.000	- / -	- / 0.360	- / 2.204	- / -	- / 2.204	- / 1.764	- / 1.599	- / -	- / -	- / 0.000	- / 5.927	
Total													
Total Cost (Procurement + Support + Installation)	1.820	0.000	0.360	3.150	0.000	3.150	2.730	1.599	0.000	0.000	0.000	9.659	

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Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019																					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9										P-1 Line Item Number / Title: 0933 / LHA/LHD Midlife										Modification Number / Title: 3 / LH001-Shipboard Air Traffic Control Communication (SATCC)											
ID Code (A=Service Ready, B=Not Service Ready) :															MDAP/MAIS Code:																
Modification Item 1 of 1: LH001-Shipboard Air Traffic Control Communication (SATCC)																															
Manufacturer Information																															
Manufacturer Name: VARIOUS															Manufacturer Location: TBD																
Administrative Leadtime (in Months): 0															Production Leadtime (in Months): 12																
Dates		FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024					
Contract Dates										Jan 2020				Feb 2021																	
Delivery Dates										Jan 2021				Feb 2022																	
Installation Information																															
Method of Implementation: [none specified]:: Installation Name: Shipboard Air Traffic Control Communication (SATCC)																															
Installation Cost		Prior Years		FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total		FY 2021		FY 2022		FY 2023		FY 2024		To Complete		Total							
		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)							
Prior Years		- / -		- / -		0 / 0.360		1 / 1.862		0 / 0.000		1 / 1.862		- / -		- / -		- / -		- / -		0 / 0.000		1 / 2.222							
FY 2018		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -							
FY 2019		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -							
FY 2020		- / -		- / -		- / -		0 / 0.342		0 / 0.000		0 / 0.342		1 / 1.411		- / -		- / -		- / -		0 / 0.000		1 / 1.753							
FY 2021		- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.353		1 / 1.599		- / -		- / -		0 / 0.000		1 / 1.952							
FY 2022		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -							
FY 2023		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -							
FY 2024		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -							
To Complete		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -							
Total		- / -		- / -		0 / 0.360		1 / 2.204		0 / 0.000		1 / 2.204		1 / 1.764		1 / 1.599		- / -		- / -		0 / 0.000		3 / 5.927							
Installation Schedule																															
	PYS	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				TC	Tot
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4		
In	-	-	-	-	-	-	-	-	-	-	-	1	-	-	1	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	3
Out	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	1	-	-	1	-	-	-	-	-	-	-	3
Footnotes: ⁽⁶⁾ The installation costs are higher for the PY procurement in comparison to future procurements due to port manday rates being different. Funding is for procurement and installation of SATCC to provide highly reliable Air Traffic Control (ATC) voice communications between pilots and ATC team, command and control, and connection to administrative djal services throughout the ship. This installs a ruggedized, Commercial off the Shelf (COTS) system that addresses Safety of Flight concerns due to cumbersome communication controls that degrades ATC's situational awareness during flight operations. Installation																															

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Exhibit P-3a, Individual Modification: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	P-1 Line Item Number / Title: 0933 / LHA/LHD Midlife	Modification Number / Title: 3 / LH001-Shipboard Air Traffic Control Communication (SATCC)
ID Code (A=Service Ready, B=Not Service Ready) :		MDAP/MAIS Code:
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: PB 2020 Navy										Date: March 2019		
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9					P-1 Line Item Number / Title: 0933 / LHA/LHD Midlife					Modification Number / Title: 4 / LH001- Navigation Critical Data Distribution (NavCrit)		
ID Code (A=Service Ready, B=Not Service Ready) :							MDAP/MAIS Code:					
Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity (<i>Units in Each</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost (<i>\$ in Millions</i>)	2.516	4.287	1.577	1.772	0.000	1.772	0.000	0.000	0.000	0.000	10.000	20.152
Less PY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (<i>\$ in Millions</i>)	2.516	4.287	1.577	1.772	0.000	1.772	0.000	0.000	0.000	0.000	10.000	20.152
Plus CY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority (<i>\$ in Millions</i>)	2.516	4.287	1.577	1.772	0.000	1.772	0.000	0.000	0.000	0.000	10.000	20.152
<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 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.												

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Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019			
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9				P-1 Line Item Number / Title: 0933 / LHA/LHD Midlife						Modification Number / Title: 4 / LH001- Navigation Critical Data Distribution (NavCrit)			
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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	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)	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> LH001- Navigation Critical Data Distribution (NavCrit)													
B Kits													
Recurring													
1.1.1) Navigation Critical Data Distribution (NavCrit) - NonOrganic ⁽⁷⁾	2 / 2.516	- / -	1 / 1.157	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	3 / 3.673	
<i>Subtotal: Recurring</i>	- / 2.516	- / -	- / 1.157	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / 0.000	- / 3.673	
<i>Subtotal: LH001- Navigation Critical Data Distribution (NavCrit)</i>	2 / 2.516	- / -	1 / 1.157	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	3 / 3.673	
<i>Subtotal: Procurement, All Modification Items</i>	- / 2.516	- / -	- / 1.157	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / 0.000	- / 3.673	
Installation													
<i>Modification Item 1 of 1:</i> LH001- Navigation Critical Data Distribution (NavCrit)	- / 0.000	- / 4.287	- / 0.420	- / 1.772	- / 0.000	- / 1.772	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 10.000	- / 16.479	
<i>Subtotal: Installation</i>	- / 0.000	- / 4.287	- / 0.420	- / 1.772	- / -	- / 1.772	- / -	- / -	- / -	- / -	- / 10.000	- / 16.479	
Total													
Total Cost (Procurement + Support + Installation)	2.516	4.287	1.577	1.772	0.000	1.772	0.000	0.000	0.000	0.000	10.000	20.152	

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Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019																					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9										P-1 Line Item Number / Title: 0933 / LHA/LHD Midlife										Modification Number / Title: 4 / LH001- Navigation Critical Data Distribution (NavCrit)											
ID Code (A=Service Ready, B=Not Service Ready) :															MDAP/MAIS Code:																
Modification Item 1 of 1: LH001- Navigation Critical Data Distribution (NavCrit)																															
Manufacturer Information																															
Manufacturer Name: VARIOUS															Manufacturer Location: TBD																
Administrative Leadtime (<i>in Months</i>): 0															Production Leadtime (<i>in Months</i>): 24																
Dates		FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024					
Contract Dates						Feb 2019																									
Delivery Dates						Feb 2021																									
Installation Information																															
Method of Implementation: Industrial:: Installation Name: Navigation Critical Data Distribution (NavCrit)																															
Installation Cost		Prior Years		FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total		FY 2021		FY 2022		FY 2023		FY 2024		To Complete		Total							
		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)							
Prior Years		- / -		1 / 4.287		- / -		1 / 1.772		0 / 0.000		1 / 1.772		- / -		- / -		- / -		- / -		0 / 5.000		2 / 11.059							
FY 2018		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -							
FY 2019		- / -		- / -		0 / 0.420		- / -		- / -		- / -		- / -		- / -		- / -		- / -		1 / 5.000		1 / 5.420							
FY 2020		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -							
FY 2021		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -							
FY 2022		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -							
FY 2023		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -							
FY 2024		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -							
To Complete		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -							
Total		- / -		1 / 4.287		0 / 0.420		1 / 1.772		0 / 0.000		1 / 1.772		- / -		- / -		- / -		- / -		1 / 10.000		3 / 16.479							
Installation Schedule																															
	PYS	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				TC	Tot
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4		
In	-	-	-	1	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	3
Out	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	1	3
Footnotes: ⁽⁷⁾ NAVCRIT funding realigned to 0670 beginning in FY 2020. NAVCRIT must be installed conjunctive with both SSDS MK II and CIC Room Rearrangement SCDs. Installation funding for a ship is divided over a three-year period. Installation execution funding in the year of availability, and Design Service Allocation (DSA) two years prior to availability, and DSA in the year prior to the availability. This includes ship checks, ship installation drawing (SID) development, logistic document development and long lead time material procurements (LLTM). Installation costs across the FYDP may vary depending on current																															

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Exhibit P-3a, Individual Modification: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	P-1 Line Item Number / Title: 0933 / LHA/LHD Midlife	Modification Number / Title: 4 / LH001- Navigation Critical Data Distribution (NavCrit)
ID Code (A=Service Ready, B=Not Service Ready) :		MDAP/MAIS Code:
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: PB 2020 Navy										Date: March 2019		
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9					P-1 Line Item Number / Title: 0933 / LHA/LHD Midlife					Modification Number / Title: 5 / LH001 Propulsion and Auxiliary Control System (PACS)		
ID Code (A=Service Ready, B=Not Service Ready) :							MDAP/MAIS Code:					
Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity (<i>Units in Each</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost (<i>\$ in Millions</i>)	0.000	0.000	2.708	21.199	0.000	21.199	15.462	35.195	25.406	25.836	33.762	159.568
Less PY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (<i>\$ in Millions</i>)	0.000	0.000	2.708	21.199	0.000	21.199	15.462	35.195	25.406	25.836	33.762	159.568
Plus CY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority (<i>\$ in Millions</i>)	0.000	0.000	2.708	21.199	0.000	21.199	15.462	35.195	25.406	25.836	33.762	159.568
<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: [Propulsion and Auxiliary Control System (PACS) procurement] Description: Propulsion and Auxiliary Control System (PACS) provides a network infrastructure for Hull, Mechanical & Electrical Systems to operate on that provides the operator necessary situational awareness of the engineering plant. It will improve functionality for Fluid Control Systems (FCS), Fire Protection Systems and Interior Communication/ System Monitoring (IC/SM) alarm switchboard, which are severely degraded or inoperable across the LHD Class due to obsolescence. PACS must be installed prior to or conjunctively with Damage Control/ Ballast Control Console Upgrade, which is a Class Safety Alteration.												

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Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019			
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9				P-1 Line Item Number / Title: 0933 / LHA/LHD Midlife						Modification Number / Title: 5 / LH001 Propulsion and Auxiliary Control System (PACS)			
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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	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)	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: LH001 Propulsion and Auxiliary Control System (PACS)													
B Kits													
Recurring													
1.1.1) Propulsion and Auxiliary Control System (PACS) procurement - NonOrganic ⁽⁸⁾	- / -	- / -	- / -	2 / 16.034	- / -	2 / 16.034	1 / 8.154	1 / 8.330	1 / 8.908	1 / 8.860	- / -	6 / 50.286	
Subtotal: Recurring	- / 0.000	- / -	- / -	- / 16.034	- / -	- / 16.034	- / 8.154	- / 8.330	- / 8.908	- / 8.860	- / 0.000	- / 50.286	
Subtotal: LH001 Propulsion and Auxiliary Control System (PACS)	- / -	- / -	- / -	2 / 16.034	- / -	2 / 16.034	1 / 8.154	1 / 8.330	1 / 8.908	1 / 8.860	- / -	6 / 50.286	
Subtotal: Procurement, All Modification Items	- / 0.000	- / -	- / -	- / 16.034	- / -	- / 16.034	- / 8.154	- / 8.330	- / 8.908	- / 8.860	- / 0.000	- / 50.286	
Support (All Modification Items)													
2.1) Propulsion and Auxiliary Control System (PACS) Eng Services	- / -	- / -	- / 2.708	- / 4.516	- / -	- / 4.516	- / 3.963	- / 2.862	- / 3.382	- / 3.453	- / 7.206	- / 28.090	
Subtotal: Support	- / 0.000	- / -	- / 2.708	- / 4.516	- / -	- / 4.516	- / 3.963	- / 2.862	- / 3.382	- / 3.453	- / 7.206	- / 28.090	
Installation													
Modification Item 1 of 1: LH001 Propulsion and Auxiliary Control System (PACS)	- / 0.000	- / 0.000	- / 0.000	- / 0.649	- / 0.000	- / 0.649	- / 3.345	- / 24.003	- / 13.116	- / 13.523	- / 26.556	- / 81.192	
Subtotal: Installation	- / 0.000	- / -	- / -	- / 0.649	- / -	- / 0.649	- / 3.345	- / 24.003	- / 13.116	- / 13.523	- / 26.556	- / 81.192	
Total													
Total Cost (Procurement + Support + Installation)	0.000	0.000	2.708	21.199	0.000	21.199	15.462	35.195	25.406	25.836	33.762	159.568	

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Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019																					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9										P-1 Line Item Number / Title: 0933 / LHA/LHD Midlife										Modification Number / Title: 5 / LH001 Propulsion and Auxiliary Control System (PACS)											
ID Code (A=Service Ready, B=Not Service Ready) :															MDAP/MAIS Code:																
Modification Item 1 of 1: LH001 Propulsion and Auxiliary Control System (PACS)																															
Manufacturer Information																															
Manufacturer Name: VARIOUS															Manufacturer Location: TBD																
Administrative Leadtime (<i>in Months</i>): 0															Production Leadtime (<i>in Months</i>): 22																
Dates		FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024					
Contract Dates										Dec 2019				Jul 2021				May 2022				Mar 2023				May 2024					
Delivery Dates										Oct 2021				May 2023				Mar 2024				Jan 2025				Mar 2026					
Installation Information																															
Method of Implementation: Industrial:: Installation Name: Propulsion and Auxiliary Control System (PACS) procurement																															
Installation Cost		Prior Years		FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total		FY 2021		FY 2022		FY 2023		FY 2024		To Complete		Total							
		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)							
Prior Years		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
FY 2018		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
FY 2019		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
FY 2020		- / -		- / -		- / -		0 / 0.649		0 / 0.000		0 / 0.649		0 / 3.014		2 / 22.062		- / -		- / -		0 / 0.000		2 / 25.725							
FY 2021		- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.331		0 / 1.602		1 / 11.247		- / -		0 / 0.000		1 / 13.180							
FY 2022		- / -		- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.339		0 / 1.441		1 / 11.467		0 / 0.000		1 / 13.247							
FY 2023		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.428		0 / 1.704		1 / 13.135		1 / 15.267							
FY 2024		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.352		1 / 13.421		1 / 13.773							
To Complete		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -							
Total		- / -		- / -		- / -		0 / 0.649		0 / 0.000		0 / 0.649		0 / 3.345		2 / 24.003		1 / 13.116		1 / 13.523		2 / 26.556		6 / 81.192							
Installation Schedule																															
	PYS	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				TC	Tot
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4		
In	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	1	-	-	-	1	-	-	-	1	-	2	6
Out	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	1	-	-	1	3	6
Footnotes:																															
(8) The higher engineering services costs prior to first install in FY22 are due to non-reoccurring engineering costs, which include first article environmental quality testing and engineering lab setup to support software development and Risk Management Framework Certification. Installation costs will vary because the scope of install differs between LHD 1-4 and LHD 5-7. Installation funding for a ship is divided over a three-year period. Installation execution funding in the year of availability, and Design Service Allocation (DSA) two years prior to availability, and DSA in the year prior to the availability. This includes																															

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Exhibit P-3a, Individual Modification: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	P-1 Line Item Number / Title: 0933 / LHA/LHD Midlife	Modification Number / Title: 5 / LH001 Propulsion and Auxiliary Control System (PACS)
ID Code (A=Service Ready, B=Not Service Ready) :		MDAP/MAIS Code:
ship checks, ship installation drawing (SID) development, logistic document development and long lead time material procurements (LLTM). 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: PB 2020 Navy										Date: March 2019		
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9					P-1 Line Item Number / Title: 0933 / LHA/LHD Midlife					Modification Number / Title: 6 / LH001 - Power Management Platform (Electric Plant Control)		
ID Code (A=Service Ready, B=Not Service Ready) :							MDAP/MAIS Code:					
Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity (<i>Units in Each</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost (<i>\$ in Millions</i>)	0.000	0.000	0.000	10.710	0.000	10.710	1.615	33.938	12.995	24.010	24.137	107.405
Less PY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (<i>\$ in Millions</i>)	0.000	0.000	0.000	10.710	0.000	10.710	1.615	33.938	12.995	24.010	24.137	107.405
Plus CY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority (<i>\$ in Millions</i>)	0.000	0.000	0.000	10.710	0.000	10.710	1.615	33.938	12.995	24.010	24.137	107.405
<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: Description: Power Management Platform (PMP) modernization converts legacy analog controls to a digital automated control system. This system gathers and combines all Electric plant data that can be monitored at different control stations throughout the engineering plant ensuring redundancy of the system. PMP simplifies multiple control sequences into single step operations, making possible new control capabilities that were too cumbersome for operators to perform. PMP implements a gradual Ship Service Turbine Generator (SSTG) turbine startup/shutdown sequence which allows the turbine to achieve stabilized temperatures more consistently, reducing operational stress on components and improves reliability and operational availability of the system. PMP automation will reduce 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. During PMP installation obsolete switchboard breakers will be replaced with Commercial Off-the-Shelf (COTS) Whipp and Bourne circuit breakers that will improve navy total ownership by increasing commonality across the fleet and reducing preventative and corrective maintenance.												

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Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019			
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9				P-1 Line Item Number / Title: 0933 / LHA/LHD Midlife						Modification Number / Title: 6 / LH001 - Power Management Platform (Electric Plant Control)			
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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total	
	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	
Procurement													
<i>Modification Item 1 of 1:</i> LH001 - Power Management Platform (Electric Plant Control)													
B Kits													
Recurring													
1.1.1) Power Management Platform (Electric Plant Control) - NonOrganic ⁽⁹⁾	- / -	- / -	- / -	1 / 9.994	- / -	1 / 9.994	- / -	1 / 10.418	1 / 10.637	- / -	- / -	3 / 31.049	
<i>Subtotal: Recurring</i>	- / 0.000	- / -	- / -	- / 9.994	- / -	- / 9.994	- / -	- / 10.418	- / 10.637	- / -	- / 0.000	- / 31.049	
<i>Subtotal: LH001 - Power Management Platform (Electric Plant Control)</i>	- / -	- / -	- / -	1 / 9.994	- / -	1 / 9.994	- / -	1 / 10.418	1 / 10.637	- / -	- / -	3 / 31.049	
<i>Subtotal: Procurement, All Modification Items</i>	- / 0.000	- / -	- / -	- / 9.994	- / -	- / 9.994	- / -	- / 10.418	- / 10.637	- / -	- / 0.000	- / 31.049	
Support (All Modification Items)													
2.1) PMP Eng Services	- / -	- / -	- / -	- / 0.296	- / -	- / 0.296	- / -	- / 0.308	- / 0.315	- / -	- / -	- / 0.919	
<i>Subtotal: Support</i>	- / 0.000	- / -	- / -	- / 0.296	- / -	- / 0.296	- / -	- / 0.308	- / 0.315	- / -	- / 0.000	- / 0.919	
Installation													
<i>Modification Item 1 of 1:</i> LH001 - Power Management Platform (Electric Plant Control)	- / 0.000	- / 0.000	- / 0.000	- / 0.420	- / 0.000	- / 0.420	- / 1.615	- / 23.212	- / 2.043	- / 24.010	- / 24.137	- / 75.437	
<i>Subtotal: Installation</i>	- / 0.000	- / -	- / -	- / 0.420	- / -	- / 0.420	- / 1.615	- / 23.212	- / 2.043	- / 24.010	- / 24.137	- / 75.437	
Total													
Total Cost (Procurement + Support + Installation)	0.000	0.000	0.000	10.710	0.000	10.710	1.615	33.938	12.995	24.010	24.137	107.405	

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Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019																					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9										P-1 Line Item Number / Title: 0933 / LHA/LHD Midlife										Modification Number / Title: 6 / LH001 - Power Management Platform (Electric Plant Control)											
ID Code (A=Service Ready, B=Not Service Ready) :															MDAP/MAIS Code:																
Modification Item 1 of 1: LH001 - Power Management Platform (Electric Plant Control)																															
Manufacturer Information																															
Manufacturer Name: TBD															Manufacturer Location: TBD																
Administrative Leadtime <i>(in Months)</i> : 0															Production Leadtime <i>(in Months)</i> : 22																
Dates		FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024					
Contract Dates										Dec 2019								May 2022				Mar 2023									
Delivery Dates										Oct 2021								Mar 2024				Jan 2025									
Installation Information																															
Method of Implementation: [none specified]:: Installation Name: Power Management Platform (Electric Plant Control)																															
Installation Cost		Prior Years		FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total		FY 2021		FY 2022		FY 2023		FY 2024		To Complete		Total							
		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)							
Prior Years		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
FY 2018		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
FY 2019		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
FY 2020		- / -		- / -		- / -		0 / 0.420		0 / 0.000		0 / 0.420		0 / 1.615		1 / 22.774		- / -		- / -		0 / 0.000		1 / 24.809							
FY 2021		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
FY 2022		- / -		- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.438		0 / 1.596		1 / 22.293		0 / 0.000		1 / 24.327							
FY 2023		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.447		0 / 1.717		1 / 24.137		1 / 26.301							
FY 2024		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
To Complete		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
Total		- / -		- / -		- / -		0 / 0.420		0 / 0.000		0 / 0.420		0 / 1.615		1 / 23.212		0 / 2.043		1 / 24.010		1 / 24.137		3 / 75.437							
Installation Schedule																															
	PYS	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				TC	Tot
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4		
In	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	1	-	1	3
Out	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	2	3
Footnotes: ⁽⁹⁾ Installation funding for a ship is divided over a three-year period. Installation execution funding in the year of availability, and Design Service Allocation (DSA) two years prior to availability, and DSA in the year prior to the availability. This includes ship checks, ship installation drawing (SID) development, logistic document development and long lead time material procurements (LLTM). Installation costs across the																															

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Exhibit P-3a, Individual Modification: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	P-1 Line Item Number / Title: 0933 / LHA/LHD Midlife	Modification Number / Title: 6 / LH001 - Power Management Platform (Electric Plant Control)
ID Code (A=Service Ready, B=Not Service Ready) :		MDAP/MAIS Code:
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: PB 2020 Navy						Date: March 2019					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9				P-1 Line Item Number / Title: 0933 / LHA/LHD Midlife				Modification Number / Title: 7 / LH001 - HYDRA			

ID Code (A=Service Ready, B=Not Service Ready) :						MDAP/MAIS Code:						
Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity <i>(Units in Each)</i>	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost <i>(\$ in Millions)</i>	0.000	0.000	3.217	7.777	0.000	7.777	10.237	11.923	5.926	7.612	13.717	60.409
Less PY Advance Procurement <i>(\$ in Millions)</i>	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) <i>(\$ in Millions)</i>	0.000	0.000	3.217	7.777	0.000	7.777	10.237	11.923	5.926	7.612	13.717	60.409
Plus CY Advance Procurement <i>(\$ in Millions)</i>	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority <i>(\$ in Millions)</i>	0.000	0.000	3.217	7.777	0.000	7.777	10.237	11.923	5.926	7.612	13.717	60.409
(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>	-	-	-	-	-	-	-	-	-	-	-	-

Description:

Hierarchical Yet Dynamically Reprogrammable Architecture (HYDRA) modernization replaces the unsupported P7100/MRK fixed and portable radios with new XG-75 radios and Radiating Transmission Lines (RTL) that incorporates industry standard Association of Public Safety Communications Official (APCO) P-25 signaling protocols. The new system will maintain vital, below deck, wireless communications that enable ship's force to coordinate amphibious, aviation, force protection and damage control operations safely. HYDRA modernization will establish commonality across CG, CVN, LPD and LSD Ship Classes.

[HYDRA] Modernization converted from P-40(PB-19 Budget) to P3A due to total cost of program.

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Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019			
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9				P-1 Line Item Number / Title: 0933 / LHA/LHD Midlife						Modification Number / Title: 7 / LH001 - HYDRA			
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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	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)	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: LH001 - HYDRA													
B Kits													
Recurring													
1.1.1) HYDRA - NonOrganic ⁽¹⁰⁾	- / -	- / -	1 / 3.065	2 / 6.695	- / -	2 / 6.695	1 / 3.418	- / -	- / -	2 / 7.275	- / -	6 / 20.453	
Subtotal: Recurring	- / 0.000	- / -	- / 3.065	- / 6.695	- / -	- / 6.695	- / 3.418	- / -	- / -	- / 7.275	- / 0.000	- / 20.453	
Subtotal: LH001 - HYDRA	- / -	- / -	1 / 3.065	2 / 6.695	- / -	2 / 6.695	1 / 3.418	- / -	- / -	2 / 7.275	- / -	6 / 20.453	
Subtotal: Procurement, All Modification Items	- / 0.000	- / -	- / 3.065	- / 6.695	- / -	- / 6.695	- / 3.418	- / -	- / -	- / 7.275	- / 0.000	- / 20.453	
Installation													
Modification Item 1 of 1: LH001 - HYDRA	- / 0.000	- / 0.000	- / 0.152	- / 1.082	- / 0.000	- / 1.082	- / 6.819	- / 11.923	- / 5.926	- / 0.337	- / 13.717	- / 39.956	
Subtotal: Installation	- / 0.000	- / -	- / 0.152	- / 1.082	- / -	- / 1.082	- / 6.819	- / 11.923	- / 5.926	- / 0.337	- / 13.717	- / 39.956	
Total													
Total Cost (Procurement + Support + Installation)	0.000	0.000	3.217	7.777	0.000	7.777	10.237	11.923	5.926	7.612	13.717	60.409	

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Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019																					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9										P-1 Line Item Number / Title: 0933 / LHA/LHD Midlife										Modification Number / Title: 7 / LH001 - HYDRA											
ID Code (A=Service Ready, B=Not Service Ready) :															MDAP/MAIS Code:																
Modification Item 1 of 1: LH001 - HYDRA																															
Manufacturer Information																															
Manufacturer Name: TBD															Manufacturer Location: TBD																
Administrative Leadtime <i>(in Months)</i> : 0															Production Leadtime <i>(in Months)</i> : 20																
Dates		FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024					
Contract Dates						Jun 2019				Feb 2020				Jul 2021												Mar 2024					
Delivery Dates						Feb 2021				Oct 2021				Mar 2023												Nov 2025					
Installation Information																															
Method of Implementation: [none specified]:: Installation Name: HYDRA																															
Installation Cost		Prior Years		FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total		FY 2021		FY 2022		FY 2023		FY 2024		To Complete		Total							
		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)							
Prior Years		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
FY 2018		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
FY 2019		- / -		- / -		0 / 0.152		0 / 0.771		0 / 0.000		0 / 0.771		1 / 4.992		- / -		- / -		- / -		- / -		0 / 0.000		1 / 5.915					
FY 2020		- / -		- / -		- / -		0 / 0.311		0 / 0.000		0 / 0.311		0 / 1.668		2 / 11.042		- / -		- / -		- / -		0 / 0.000		2 / 13.021					
FY 2021		- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.159		0 / 0.881		1 / 5.926		- / -		- / -		0 / 0.000		1 / 6.966					
FY 2022		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
FY 2023		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
FY 2024		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.337		2 / 13.717		2 / 14.054					
To Complete		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
Total		- / -		- / -		0 / 0.152		0 / 1.082		0 / 0.000		0 / 1.082		1 / 6.819		2 / 11.923		1 / 5.926		0 / 0.337		2 / 13.717		6 / 39.956							
Installation Schedule																															
	PYS	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				TC	Tot
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4		
In	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	1	-	1	-	-	-	1	-	-	-	-	-	2	6
Out	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	1	-	-	-	1	-	-	1	2	6
Footnotes: ⁽¹⁰⁾ Procurement unit cost increase in FY20 reflects the updated estimate from the performing activity. Installation funding for a ship is divided over a three-year period. Installation execution funding in the year of availability, and Design Service Allocation (DSA) two years prior to availability, and DSA in the year prior to the availability. This includes ship checks, ship installation drawing (SID) development, logistic document development and long lead time material procurements (LLTM). Installation costs across the FYDP may vary depending on current port rates. Port rates are updated every year by a CNRMC letter																															

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Exhibit P-3a, Individual Modification: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	P-1 Line Item Number / Title: 0933 / LHA/LHD Midlife	Modification Number / Title: 7 / LH001 - HYDRA
ID Code (A=Service Ready, B=Not Service Ready) :		MDAP/MAIS Code:
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: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	P-1 Line Item Number / Title: 0933 / LHA/LHD Midlife	Modification Number / Title: 8 / LH001 - BALLAST AND DC CONSOLE

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

Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity <i>(Units in Each)</i>	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost <i>(\$ in Millions)</i>	0.000	0.000	2.632	4.952	0.000	4.952	5.472	8.547	6.400	6.548	6.245	40.796
Less PY Advance Procurement <i>(\$ in Millions)</i>	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) <i>(\$ in Millions)</i>	0.000	0.000	2.632	4.952	0.000	4.952	5.472	8.547	6.400	6.548	6.245	40.796
Plus CY Advance Procurement <i>(\$ in Millions)</i>	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority <i>(\$ in Millions)</i>	0.000	0.000	2.632	4.952	0.000	4.952	5.472	8.547	6.400	6.548	6.245	40.796
(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>	-	-	-	-	-	-	-	-	-	-	-	-

Description:

[BALLAST AND DC CONSOLE PROCUREMENT] Description: Ballast and Damage Control Console install will replace the existing operator consoles for Ballasting, Firemain, Firefighting, and AFFF Systems with Commercial off-the-Shelf, dual screen consoles and Operator Interface Panels. These consoles have been plagued by power supply assemblies and circuit card obsolescence, which has made these system degraded from their normal capability reducing watch stander situational awareness. This install is a Class safety alt to prevent casualties such as Ballast tank over pressurization and flooding as seen on LHD 1 in FY15.

60% of Engineering Services required 2 years prior to install, 40% required 1-year prior to install.

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Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019			
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9				P-1 Line Item Number / Title: 0933 / LHA/LHD Midlife						Modification Number / Title: 8 / LH001 - BALLAST AND DC CONSOLE			
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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total	
	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	
Procurement													
<i>Modification Item 1 of 1:</i> LH001 - BALLAST AND DC CONSOLE													
B Kits													
Recurring													
2.1.1) BALLAST AND DC CONSOLE PROCUREMENT - NonOrganic ⁽¹¹⁾	- / -	- / -	- / -	2 / 2.913	- / -	2 / 2.913	1 / 1.487	1 / 1.518	1 / 1.550	1 / 1.583	- / -	6 / 9.051	
<i>Subtotal: Recurring</i>	- / 0.000	- / -	- / -	- / 2.913	- / -	- / 2.913	- / 1.487	- / 1.518	- / 1.550	- / 1.583	- / 0.000	- / 9.051	
<i>Subtotal: LH001 - BALLAST AND DC CONSOLE</i>	- / -	- / -	- / -	2 / 2.913	- / -	2 / 2.913	1 / 1.487	1 / 1.518	1 / 1.550	1 / 1.583	- / -	6 / 9.051	
<i>Subtotal: Procurement, All Modification Items</i>	- / 0.000	- / -	- / -	- / 2.913	- / -	- / 2.913	- / 1.487	- / 1.518	- / 1.550	- / 1.583	- / 0.000	- / 9.051	
Support (All Modification Items)													
3.1) ENGINEERING SUPPORT	- / -	- / -	- / 2.632	- / 1.624	- / -	- / 1.624	- / 1.934	- / 1.410	- / 1.440	- / 1.470	- / 0.598	- / 11.108	
<i>Subtotal: Support</i>	- / 0.000	- / -	- / 2.632	- / 1.624	- / -	- / 1.624	- / 1.934	- / 1.410	- / 1.440	- / 1.470	- / 0.598	- / 11.108	
Installation													
<i>Modification Item 1 of 1:</i> LH001 - BALLAST AND DC CONSOLE	- / 0.000	- / 0.000	- / 0.000	- / 0.415	- / 0.000	- / 0.415	- / 2.051	- / 5.619	- / 3.410	- / 3.495	- / 5.647	- / 20.637	
<i>Subtotal: Installation</i>	- / 0.000	- / -	- / -	- / 0.415	- / -	- / 0.415	- / 2.051	- / 5.619	- / 3.410	- / 3.495	- / 5.647	- / 20.637	
Total													
Total Cost (Procurement + Support + Installation)	0.000	0.000	2.632	4.952	0.000	4.952	5.472	8.547	6.400	6.548	6.245	40.796	

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Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019																					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9										P-1 Line Item Number / Title: 0933 / LHA/LHD Midlife										Modification Number / Title: 8 / LH001 - BALLAST AND DC CONSOLE											
ID Code (A=Service Ready, B=Not Service Ready) :															MDAP/MAIS Code:																
Modification Item 1 of 1: LH001 - BALLAST AND DC CONSOLE																															
Manufacturer Information																															
Manufacturer Name: TBD															Manufacturer Location: TBD																
Administrative Leadtime <i>(in Months)</i> : 0															Production Leadtime <i>(in Months)</i> : 22																
Dates		FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024					
Contract Dates										Dec 2019				Jul 2021				May 2022				Mar 2023				May 2024					
Delivery Dates										Oct 2021				May 2023				Mar 2024				Jan 2025				Mar 2026					
Installation Information																															
Method of Implementation: [none specified]:: Installation Name: BALLAST AND DC CONSOLE PROCUREMENT																															
Installation Cost		Prior Years		FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total		FY 2021		FY 2022		FY 2023		FY 2024		To Complete		Total							
		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)							
Prior Years		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
FY 2018		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
FY 2019		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
FY 2020		- / -		- / -		- / -		0 / 0.415		0 / 0.000		0 / 0.415		0 / 1.839		2 / 4.446		- / -		- / -		0 / 0.000		2 / 6.700							
FY 2021		- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.212		0 / 0.957		1 / 2.267		- / -		0 / 0.000		1 / 3.436							
FY 2022		- / -		- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.216		0 / 0.922		1 / 2.311		0 / 0.000		1 / 3.449							
FY 2023		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.221		0 / 0.959		1 / 2.350		1 / 3.530							
FY 2024		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.225		1 / 3.297		1 / 3.522							
To Complete		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -							
Total		- / -		- / -		- / -		0 / 0.415		0 / 0.000		0 / 0.415		0 / 2.051		2 / 5.619		1 / 3.410		1 / 3.495		2 / 5.647		6 / 20.637							
Installation Schedule																															
	PYS	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				TC	Tot
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4		
In	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	1	-	-	-	1	-	-	-	1	-	2	6
Out	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	1	-	-	1	3	6
Footnotes:																															
(11) The higher engineering services costs prior to first install in FY22 are due to non-reoccurring engineering costs, which include first article environmental quality testing and engineering lab setup to support software development and Risk Management Framework Certification. Installation funding for a ship is divided over a three-year period. Installation execution funding in the year of availability, and Design Service Allocation (DSA) two years prior to availability, and DSA in the year prior to the availability. This includes ship checks, ship installation drawing (SID) development, logistic document development and																															

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LI 0933 - LHA/LHD Midlife Navy

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Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019		
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9					P-1 Line Item Number / Title: 0933 / LHA/LHD Midlife					Modification Number / Title: 9 / LH001 - SCS- GOV		
ID Code (A=Service Ready, B=Not Service Ready) :							MDAP/MAIS Code:					
Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity (<i>Units in Each</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost (<i>\$ in Millions</i>)	0.000	0.000	1.770	5.497	0.000	5.497	10.717	8.575	8.531	3.906	7.616	46.612
Less PY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (<i>\$ in Millions</i>)	0.000	0.000	1.770	5.497	0.000	5.497	10.717	8.575	8.531	3.906	7.616	46.612
Plus CY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority (<i>\$ in Millions</i>)	0.000	0.000	1.770	5.497	0.000	5.497	10.717	8.575	8.531	3.906	7.616	46.612
<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: (P40A) SCS-GOV (LHD7/8, LHA 6/7): The Ship Control System-Government (SCS-GOV) supports the standardization of hardware, software and design of the surface ship Ship Control Systems (SCS) to address hardware and software obsolescence issues. The installation will bring commonality across the LHD 1-8 and LHA-6 hulls. SCS-GOV replaces the analog Ship Control System (SCS) with a digital SCS. Analog systems are very maintenance intensive constantly requiring alignment of the amplifiers, indicators, and other transmitting devices. The existing system is also largely obsolete requiring cannibalization from decommissioned ships. [SCS- GOV PROCUREMENT]												

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Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019			
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9					P-1 Line Item Number / Title: 0933 / LHA/LHD Midlife					Modification Number / Title: 9 / LH001 - SCS- GOV			
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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total	
	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	
Procurement													
<i>Modification Item 1 of 1:</i> LH001 - SCS- GOV													
B Kits													
Recurring													
2.1.1) SCS- GOV PROCUREMENT - NonOrganic ⁽¹²⁾	- / -	- / -	1 / 1.451	2 / 2.893	- / -	2 / 2.893	2 / 2.753	- / -	1 / 1.539	1 / 1.572	- / -	7 / 10.208	
<i>Subtotal: Recurring</i>	- / 0.000	- / -	- / 1.451	- / 2.893	- / -	- / 2.893	- / 2.753	- / -	- / 1.539	- / 1.572	- / 0.000	- / 10.208	
<i>Subtotal: LH001 - SCS- GOV</i>	- / -	- / -	1 / 1.451	2 / 2.893	- / -	2 / 2.893	2 / 2.753	- / -	1 / 1.539	1 / 1.572	- / -	7 / 10.208	
<i>Subtotal: Procurement, All Modification Items</i>	- / 0.000	- / -	- / 1.451	- / 2.893	- / -	- / 2.893	- / 2.753	- / -	- / 1.539	- / 1.572	- / 0.000	- / 10.208	
Support (All Modification Items)													
3.1) ENGINEERING SERVICES	- / -	- / -	- / -	- / 1.088	- / -	- / 1.088	- / 1.111	- / -	- / 0.579	- / 0.591	- / -	- / 3.369	
<i>Subtotal: Support</i>	- / 0.000	- / -	- / -	- / 1.088	- / -	- / 1.088	- / 1.111	- / -	- / 0.579	- / 0.591	- / 0.000	- / 3.369	
Installation													
<i>Modification Item 1 of 1:</i> LH001 - SCS- GOV	- / 0.000	- / 0.000	- / 0.319	- / 1.516	- / 0.000	- / 1.516	- / 6.853	- / 8.575	- / 6.413	- / 1.743	- / 7.616	- / 33.035	
<i>Subtotal: Installation</i>	- / 0.000	- / -	- / 0.319	- / 1.516	- / -	- / 1.516	- / 6.853	- / 8.575	- / 6.413	- / 1.743	- / 7.616	- / 33.035	
Total													
Total Cost (Procurement + Support + Installation)	0.000	0.000	1.770	5.497	0.000	5.497	10.717	8.575	8.531	3.906	7.616	46.612	

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Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019																					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9					P-1 Line Item Number / Title: 0933 / LHA/LHD Midlife										Modification Number / Title: 9 / LH001 - SCS- GOV																
ID Code (A=Service Ready, B=Not Service Ready) :										MDAP/MAIS Code:																					
Modification Item 1 of 1: LH001 - SCS- GOV																															
Manufacturer Information																															
Manufacturer Name: L3										Manufacturer Location: TBD																					
Administrative Leadtime (in Months): 0										Production Leadtime (in Months): 22																					
Dates		FY 2018		FY 2019		FY 2020		FY 2021		FY 2022		FY 2023		FY 2024																	
Contract Dates				Jul 2019		Dec 2019		Jul 2021				Mar 2023		May 2024																	
Delivery Dates				May 2021		Oct 2021		May 2023				Jan 2025		Mar 2026																	
Installation Information																															
Method of Implementation: [none specified]:: Installation Name: SCS- GOV PROCUREMENT																															
Installation Cost		Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total																		
		Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)																		
Prior Years		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -																		
FY 2018		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -																		
FY 2019		- / -	- / -	0 / 0.319	0 / 1.169	0 / 0.000	0 / 1.169	1 / 3.215	- / -	- / -	- / -	0 / 0.000	1 / 4.703																		
FY 2020		- / -	- / -	- / -	0 / 0.347	0 / 0.000	0 / 0.347	0 / 3.128	2 / 5.656	- / -	- / -	0 / 0.000	2 / 9.131																		
FY 2021		- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.510	0 / 2.919	2 / 6.228	- / -	0 / 0.000	2 / 9.657																		
FY 2022		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -																		
FY 2023		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.185	0 / 1.554	1 / 2.991	1 / 4.730																		
FY 2024		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.189	1 / 4.625	1 / 4.814																		
To Complete		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -																		
Total		- / -	- / -	0 / 0.319	0 / 1.516	0 / 0.000	0 / 1.516	1 / 6.853	2 / 8.575	2 / 6.413	0 / 1.743	2 / 7.616	7 / 33.035																		
Installation Schedule																															
	PYS	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				TC	Tot
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4		
In	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	1	-	1	-	-	1	1	-	-	-	-	-	2	7
Out	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	-	-	1	1	-	-	1	2	7
Footnotes: ⁽¹²⁾ Installation/procurement costs vary because the scope of work on LHD8, LHA 6-7 varies from LHD 1-7. Installation funding for a ship is divided over a three-year period. Installation execution funding in the year of availability, and Design Service Allocation (DSA) two years prior to availability, and DSA in the year prior to the availability. This includes ship checks, ship installation drawing (SID) development, logistic document development and long lead time material procurements (LLTM). Installation costs across the FYDP may vary depending on current port rates. Port rates are updated every year by a CNRMC letter																															

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Exhibit P-3a, Individual Modification: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	P-1 Line Item Number / Title: 0933 / LHA/LHD Midlife	Modification Number / Title: 9 / LH001 - SCS- GOV
ID Code (A=Service Ready, B=Not Service Ready) :		MDAP/MAIS Code:
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. Modernization converted from P40 (PB-19 Budget) to P3A due to total cost program.		

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Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019		
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9					P-1 Line Item Number / Title: 0933 / LHA/LHD Midlife					Modification Number / Title: 10 / LH001 - AMPLIFIED ANNOUNCING SYSTEM		
ID Code (A=Service Ready, B=Not Service Ready) :							MDAP/MAIS Code:					
Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity (<i>Units in Each</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost (<i>\$ in Millions</i>)	0.000	0.000	2.755	6.044	0.000	6.044	5.188	4.423	2.192	6.970	4.901	32.473
Less PY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (<i>\$ in Millions</i>)	0.000	0.000	2.755	6.044	0.000	6.044	5.188	4.423	2.192	6.970	4.901	32.473
Plus CY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority (<i>\$ in Millions</i>)	0.000	0.000	2.755	6.044	0.000	6.044	5.188	4.423	2.192	6.970	4.901	32.473
<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: General Announcing upgrade replaces the obsolete 1/2/3/5/6/10MC Announcing Systems with a common, survival Digital Integrated Announcing System (DIAS), which has been installed on the DDG and CG Classes during midlife modernization. Existing announcing systems are riddled with obsolescence that degrades performance and presents a safety concern, during shipboard operations and casualties. This is a capability required in the LHD Required Operational Capabilities (ROC) document.												

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Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019			
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9				P-1 Line Item Number / Title: 0933 / LHA/LHD Midlife						Modification Number / Title: 10 / LH001 - AMPLIFIED ANNOUNCING SYSTEM			
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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total	
	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	
Procurement													
<i>Modification Item 1 of 1:</i> LH001 - AMPLIFIED ANNOUNCING SYSTEM													
B Kits													
Non-Recurring													
2.2.1) AMLIFIED ANNOUNCING SYSTEM PROCUREMENTS - NonOrganic ⁽¹³⁾	- / -	- / -	1 / 2.721	2 / 5.733	- / -	2 / 5.733	1 / 2.927	- / -	- / -	2 / 6.230	- / -	6 / 17.611	
<i>Subtotal: Non-Recurring</i>	<i>- / 0.000</i>	<i>- / -</i>	<i>- / 2.721</i>	<i>- / 5.733</i>	<i>- / -</i>	<i>- / 5.733</i>	<i>- / 2.927</i>	<i>- / -</i>	<i>- / -</i>	<i>- / 6.230</i>	<i>- / 0.000</i>	<i>- / 17.611</i>	
<i>Subtotal: LH001 - AMPLIFIED ANNOUNCING SYSTEM</i>	<i>- / -</i>	<i>- / -</i>	<i>1 / 2.721</i>	<i>2 / 5.733</i>	<i>- / -</i>	<i>2 / 5.733</i>	<i>1 / 2.927</i>	<i>- / -</i>	<i>- / -</i>	<i>2 / 6.230</i>	<i>- / -</i>	<i>6 / 17.611</i>	
<i>Subtotal: Procurement, All Modification Items</i>	<i>- / 0.000</i>	<i>- / -</i>	<i>- / 2.721</i>	<i>- / 5.733</i>	<i>- / -</i>	<i>- / 5.733</i>	<i>- / 2.927</i>	<i>- / -</i>	<i>- / -</i>	<i>- / 6.230</i>	<i>- / 0.000</i>	<i>- / 17.611</i>	
Installation													
<i>Modification Item 1 of 1:</i> LH001 - AMPLIFIED ANNOUNCING SYSTEM	<i>- / 0.000</i>	<i>- / 0.000</i>	<i>- / 0.034</i>	<i>- / 0.311</i>	<i>- / 0.000</i>	<i>- / 0.311</i>	<i>- / 2.261</i>	<i>- / 4.423</i>	<i>- / 2.192</i>	<i>- / 0.740</i>	<i>- / 4.901</i>	<i>- / 14.862</i>	
<i>Subtotal: Installation</i>	<i>- / 0.000</i>	<i>- / -</i>	<i>- / 0.034</i>	<i>- / 0.311</i>	<i>- / -</i>	<i>- / 0.311</i>	<i>- / 2.261</i>	<i>- / 4.423</i>	<i>- / 2.192</i>	<i>- / 0.740</i>	<i>- / 4.901</i>	<i>- / 14.862</i>	
Total													
Total Cost (Procurement + Support + Installation)	0.000	0.000	2.755	6.044	0.000	6.044	5.188	4.423	2.192	6.970	4.901	32.473	

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Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019																					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9										P-1 Line Item Number / Title: 0933 / LHA/LHD Midlife										Modification Number / Title: 10 / LH001 - AMPLIFIED ANNOUNCING SYSTEM											
ID Code (A=Service Ready, B=Not Service Ready) :															MDAP/MAIS Code:																
Modification Item 1 of 1: LH001 - AMPLIFIED ANNOUNCING SYSTEM																															
Manufacturer Information																															
Manufacturer Name: TBD															Manufacturer Location: TBD																
Administrative Leadtime (in Months): 0															Production Leadtime (in Months): 20																
Dates		FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024					
Contract Dates						Jun 2019				Feb 2020				Jul 2021												Mar 2024					
Delivery Dates						Feb 2021				Oct 2021				Mar 2023												Nov 2025					
Installation Information																															
Method of Implementation: [none specified]:: Installation Name: AMLIFIED ANNOUNCING SYSTEM PROCUREMENTS																															
Installation Cost		Prior Years		FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total		FY 2021		FY 2022		FY 2023		FY 2024		To Complete		Total							
		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)							
Prior Years		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
FY 2018		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
FY 2019		- / -		- / -		0 / 0.034		0 / 0.243		0 / 0.000		0 / 0.243		1 / 2.104		- / -		- / -		- / -		- / -		0 / 0.000		1 / 2.381					
FY 2020		- / -		- / -		- / -		0 / 0.068		0 / 0.000		0 / 0.068		0 / 0.122		2 / 4.296		- / -		- / -		- / -		0 / 0.000		2 / 4.486					
FY 2021		- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.035		0 / 0.127		1 / 2.192		- / -		- / -		0 / 0.000		1 / 2.354					
FY 2022		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
FY 2023		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
FY 2024		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.740		2 / 4.901		2 / 5.641					
To Complete		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
Total		- / -		- / -		0 / 0.034		0 / 0.311		0 / 0.000		0 / 0.311		1 / 2.261		2 / 4.423		1 / 2.192		0 / 0.740		2 / 4.901		6 / 14.862							
Installation Schedule																															
	PYS	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				TC	Tot
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4		
In	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	1	-	1	-	-	-	1	-	-	-	-	-	2	6
Out	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	1	-	-	-	1	-	-	1	2	6
Footnotes:																															
⁽¹³⁾ Installation funding for a ship is divided over a three-year period. Installation execution funding in the year of availability, and Design Service Allocation (DSA) two years prior to availability, and DSA in the year prior to the availability. This includes ship checks, ship installation drawing (SID) development, logistic document development and long lead time material procurements (LLTM). 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																															

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Exhibit P-3a, Individual Modification: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	P-1 Line Item Number / Title: 0933 / LHA/LHD Midlife	Modification Number / Title: 10 / LH001 - AMPLIFIED ANNOUNCING SYSTEM
ID Code (A=Service Ready, B=Not Service Ready) :		MDAP/MAIS Code:
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. Modernization converted from P40 (PB-19 Budget) to P3A due to total cost program.		

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Exhibit P-3a, Individual Modification: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	P-1 Line Item Number / Title: 0933 / LHA/LHD Midlife	Modification Number / Title: 11 / LH001 - DCSS UPGRADE

ID Code (A=Service Ready, B=Not Service Ready) :						MDAP/MAIS Code:						
Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity <i>(Units in Each)</i>	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost <i>(\$ in Millions)</i>	0.000	0.000	1.092	0.242	0.000	0.242	2.318	0.252	1.134	0.000	0.000	5.038
Less PY Advance Procurement <i>(\$ in Millions)</i>	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) <i>(\$ in Millions)</i>	0.000	0.000	1.092	0.242	0.000	0.242	2.318	0.252	1.134	0.000	0.000	5.038
Plus CY Advance Procurement <i>(\$ in Millions)</i>	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority <i>(\$ in Millions)</i>	0.000	0.000	1.092	0.242	0.000	0.242	2.318	0.252	1.134	0.000	0.000	5.038
(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>	-	-	-	-	-	-	-	-	-	-	-	-

Description:

Digital Defense Communications Subsystem (DCSS) Upgrade: Replaces four full size, 23", obsolete cabinets on LHD 5-7 and two full size, 23", legacy cabinets on LHD 8 and LHA 6 with two 2U,19" rack mountable IP conference servers. Exterior net terminals and interior non-operational or materially deficient net terminals will be replaced.

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Exhibit P-3a, Individual Modification: PB 2020 Navy								Date: March 2019					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9				P-1 Line Item Number / Title: 0933 / LHA/LHD Midlife				Modification Number / Title: 11 / LH001 - DCSS 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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	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)	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: LH001 - DCSS UPGRADE													
B Kits													
Non-Recurring													
2.2.1) DIGITAL DCSS UPGRADE PROCUREMENT - NonOrganic ⁽¹⁴⁾	- / -	- / -	1 / 1.025	- / -	- / -	- / -	1 / 1.160	- / -	- / -	- / -	- / -	2 / 2.185	
Subtotal: Non-Recurring	- / 0.000	- / -	- / 1.025	- / -	- / -	- / -	- / 1.160	- / -	- / -	- / -	- / 0.000	- / 2.185	
Subtotal: LH001 - DCSS UPGRADE	- / -	- / -	1 / 1.025	- / -	- / -	- / -	1 / 1.160	- / -	- / -	- / -	- / -	2 / 2.185	
Subtotal: Procurement, All Modification Items	- / 0.000	- / -	- / 1.025	- / -	- / -	- / -	- / 1.160	- / -	- / -	- / -	- / 0.000	- / 2.185	
Installation													
Modification Item 1 of 1: LH001 - DCSS UPGRADE	- / 0.000	- / 0.000	- / 0.067	- / 0.242	- / 0.000	- / 0.242	- / 1.158	- / 0.252	- / 1.134	- / 0.000	- / 0.000	- / 2.853	
Subtotal: Installation	- / 0.000	- / -	- / 0.067	- / 0.242	- / -	- / 0.242	- / 1.158	- / 0.252	- / 1.134	- / -	- / 0.000	- / 2.853	
Total													
Total Cost (Procurement + Support + Installation)	0.000	0.000	1.092	0.242	0.000	0.242	2.318	0.252	1.134	0.000	0.000	5.038	

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Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019																					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9					P-1 Line Item Number / Title: 0933 / LHA/LHD Midlife										Modification Number / Title: 11 / LH001 - DCSS UPGRADE																
ID Code (A=Service Ready, B=Not Service Ready) :															MDAP/MAIS Code:																
Modification Item 1 of 1: LH001 - DCSS UPGRADE																															
Manufacturer Information																															
Manufacturer Name: TBD															Manufacturer Location: TBD																
Administrative Leadtime (in Months): 0															Production Leadtime (in Months): 22																
Dates		FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024					
Contract Dates						Apr 2019								Jul 2021																	
Delivery Dates						Feb 2021								May 2023																	
Installation Information																															
Method of Implementation: [none specified]:: Installation Name: DIGITAL DCSS UPGRADE PROCUREMENT																															
Installation Cost		Prior Years	FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total		FY 2021		FY 2022		FY 2023		FY 2024		To Complete		Total								
		Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)								
Prior Years		- / -	- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -								
FY 2018		- / -	- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -								
FY 2019		- / -	- / -		0 / 0.067		0 / 0.242		0 / 0.000		0 / 0.242		1 / 1.090		- / -		- / -		- / -		0 / 0.000		1 / 1.399								
FY 2020		- / -	- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -								
FY 2021		- / -	- / -		- / -		- / -		- / -		- / -		0 / 0.068		0 / 0.252		1 / 1.134		- / -		0 / 0.000		1 / 1.454								
FY 2022		- / -	- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -								
FY 2023		- / -	- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -								
FY 2024		- / -	- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -								
To Complete		- / -	- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -								
Total		- / -	- / -		0 / 0.067		0 / 0.242		0 / 0.000		0 / 0.242		1 / 1.158		0 / 0.252		1 / 1.134		- / -		0 / 0.000		2 / 2.853								
Installation Schedule																															
	PYS	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				TC	Tot
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4		
In	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	2
Out	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	1	-	2
Footnotes: ⁽¹⁴⁾ Installation funding for a ship is divided over a three-year period. Installation execution funding in the year of availability, and Design Service Allocation (DSA) two years prior to availability, and DSA in the year prior to the availability. This includes ship checks, ship installation drawing (SID) development, logistic document development and long lead time material procurements (LLTM). 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																															

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Exhibit P-3a, Individual Modification: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	P-1 Line Item Number / Title: 0933 / LHA/LHD Midlife	Modification Number / Title: 11 / LH001 - DCSS UPGRADE
ID Code (A=Service Ready, B=Not Service Ready) :		MDAP/MAIS Code:
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. Modernization converted from P40 (PB-19 Budget) to P3A due to total cost program.		

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Exhibit P-3a, Individual Modification: PB 2020 Navy						Date: March 2019					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9				P-1 Line Item Number / Title: 0933 / LHA/LHD Midlife				Modification Number / Title: 12 / LH001 - ICT UPGRADE			

ID Code (A=Service Ready, B=Not Service Ready) :						MDAP/MAIS Code:						
Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity (Units in Each)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost (\$ in Millions)	0.000	0.000	3.061	3.340	0.000	3.340	4.426	1.165	4.484	7.794	3.597	27.867
Less PY Advance Procurement (\$ in Millions)	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (\$ in Millions)	0.000	0.000	3.061	3.340	0.000	3.340	4.426	1.165	4.484	7.794	3.597	27.867
Plus CY Advance Procurement (\$ in Millions)	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority (\$ in Millions)	0.000	0.000	3.061	3.340	0.000	3.340	4.426	1.165	4.484	7.794	3.597	27.867
(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:

Integrated Communication Terminals (ICT) upgrade replaces the antiquated system with a Commercial off-the-Shelf digital system that improves both internal and external communications with the ship necessary to meeting USMC requirements for executing operations. The system incorporates hardware installed on the LCS, CVN-78 and CVN-68 classes, reducing supportability and training requirements for the fleet. This upgrade is necessary for Digital Conference Switch System (DCSS) and Integrated Voice Network System upgrades to be implemented.

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Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019			
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9				P-1 Line Item Number / Title: 0933 / LHA/LHD Midlife						Modification Number / Title: 12 / LH001 - ICT 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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	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)	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: LH001 - ICT UPGRADE													
B Kits													
Non-Recurring													
2.2.1) ICT UPGRADE (SCD14785) PROCUREMENT - NonOrganic ⁽¹⁵⁾	- / -	- / -	1 / 3.028	1 / 3.185	- / -	1 / 3.185	1 / 3.252	- / -	1 / 3.390	2 / 6.922	- / -	6 / 19.777	
Subtotal: Non-Recurring	- / 0.000	- / -	- / 3.028	- / 3.185	- / -	- / 3.185	- / 3.252	- / -	- / 3.390	- / 6.922	- / 0.000	- / 19.777	
Subtotal: LH001 - ICT UPGRADE	- / -	- / -	1 / 3.028	1 / 3.185	- / -	1 / 3.185	1 / 3.252	- / -	1 / 3.390	2 / 6.922	- / -	6 / 19.777	
Subtotal: Procurement, All Modification Items	- / 0.000	- / -	- / 3.028	- / 3.185	- / -	- / 3.185	- / 3.252	- / -	- / 3.390	- / 6.922	- / 0.000	- / 19.777	
Installation													
Modification Item 1 of 1: LH001 - ICT UPGRADE	- / 0.000	- / 0.000	- / 0.033	- / 0.155	- / 0.000	- / 0.155	- / 1.174	- / 1.165	- / 1.094	- / 0.872	- / 3.597	- / 8.090	
Subtotal: Installation	- / 0.000	- / -	- / 0.033	- / 0.155	- / -	- / 0.155	- / 1.174	- / 1.165	- / 1.094	- / 0.872	- / 3.597	- / 8.090	
Total													
Total Cost (Procurement + Support + Installation)	0.000	0.000	3.061	3.340	0.000	3.340	4.426	1.165	4.484	7.794	3.597	27.867	

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Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019																					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9										P-1 Line Item Number / Title: 0933 / LHA/LHD Midlife										Modification Number / Title: 12 / LH001 - ICT UPGRADE											
ID Code (A=Service Ready, B=Not Service Ready) :															MDAP/MAIS Code:																
Modification Item 1 of 1: LH001 - ICT UPGRADE																															
Manufacturer Information																															
Manufacturer Name: TBD															Manufacturer Location: TBD																
Administrative Leadtime <i>(in Months)</i> : 0															Production Leadtime <i>(in Months)</i> : 20																
Dates		FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024					
Contract Dates						Jun 2019				Feb 2020				Jul 2021								May 2023				Mar 2024					
Delivery Dates						Feb 2021				Oct 2021				Mar 2023								Jan 2025				Nov 2025					
Installation Information																															
Method of Implementation: [none specified]:: Installation Name: ICT UPGRADE (SCD14785) PROCUREMENT																															
Installation Cost		Prior Years		FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total		FY 2021		FY 2022		FY 2023		FY 2024		To Complete		Total							
		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)							
Prior Years		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
FY 2018		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
FY 2019		- / -		- / -		0 / 0.033		0 / 0.121		0 / 0.000		0 / 0.121		1 / 1.017		- / -		- / -		- / -		- / -		0 / 0.000		1 / 1.171					
FY 2020		- / -		- / -		- / -		0 / 0.034		0 / 0.000		0 / 0.034		0 / 0.123		1 / 1.038		- / -		- / -		- / -		0 / 0.000		1 / 1.195					
FY 2021		- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.034		0 / 0.127		1 / 1.058		- / -		- / -		0 / 0.000		1 / 1.219					
FY 2022		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
FY 2023		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.036		0 / 0.132		1 / 1.094		1 / 1.262					
FY 2024		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.740		2 / 2.503		2 / 3.243					
To Complete		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
Total		- / -		- / -		0 / 0.033		0 / 0.155		0 / 0.000		0 / 0.155		1 / 1.174		1 / 1.165		1 / 1.094		0 / 0.872		3 / 3.597		6 / 8.090							
Installation Schedule																															
	PYS	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				TC	Tot
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4		
In	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	1	-	-	-	-	-	1	-	-	-	-	-	3	6
Out	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	1	-	-	-	-	-	-	1	3	6
Footnotes: ⁽¹⁵⁾ Installation funding for a ship is divided over a three-year period. Installation execution funding in the year of availability, and Design Service Allocation (DSA) two years prior to availability, and DSA in the year prior to the availability. This includes ship checks, ship installation drawing (SID) development, logistic document development and long lead time material procurements (LLTM). 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																															

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Exhibit P-3a, Individual Modification: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	P-1 Line Item Number / Title: 0933 / LHA/LHD Midlife	Modification Number / Title: 12 / LH001 - ICT UPGRADE
ID Code (A=Service Ready, B=Not Service Ready) :		MDAP/MAIS Code:
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. Modernization converted from P40 (PB-19 Budget) to P3A due to total cost program.		

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Exhibit P-3a, Individual Modification: PB 2020 Navy						Date: March 2019					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9				P-1 Line Item Number / Title: 0933 / LHA/LHD Midlife				Modification Number / Title: 13 / LH001 - IVN UPGRADE			

ID Code (A=Service Ready, B=Not Service Ready) :						MDAP/MAIS Code:						
Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity <i>(Units in Each)</i>	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost <i>(\$ in Millions)</i>	0.000	0.000	0.000	4.127	0.000	4.127	0.360	2.596	3.477	7.473	9.110	27.143
Less PY Advance Procurement <i>(\$ in Millions)</i>	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) <i>(\$ in Millions)</i>	0.000	0.000	0.000	4.127	0.000	4.127	0.360	2.596	3.477	7.473	9.110	27.143
Plus CY Advance Procurement <i>(\$ in Millions)</i>	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority <i>(\$ in Millions)</i>	0.000	0.000	0.000	4.127	0.000	4.127	0.360	2.596	3.477	7.473	9.110	27.143
<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:

Integrated Voice Network (IVN) upgrade replaces the legacy Ship Service Telephone System (SSTS) with a ruggedized digital communication system that provides command and control communications for tactical employment of forces. The new system will bring LHDs into alignment with LPD, LSD and LCC modernization.

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Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019			
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9					P-1 Line Item Number / Title: 0933 / LHA/LHD Midlife					Modification Number / Title: 13 / LH001 - IVN 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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	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)	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: LH001 - IVN UPGRADE													
B Kits													
Non-Recurring													
2.2.1) IVN UPGRADE - NonOrganic ⁽¹⁶⁾	- / -	- / -	- / -	1 / 3.171	- / -	1 / 3.171	- / -	- / -	1 / 3.375	2 / 6.892	- / -	4 / 13.438	
<i>Subtotal: Non-Recurring</i>	- / 0.000	- / -	- / -	- / 3.171	- / -	- / 3.171	- / -	- / -	- / 3.375	- / 6.892	- / 0.000	- / 13.438	
<i>Subtotal: LH001 - IVN UPGRADE</i>	- / -	- / -	- / -	1 / 3.171	- / -	1 / 3.171	- / -	- / -	1 / 3.375	2 / 6.892	- / -	4 / 13.438	
<i>Subtotal: Procurement, All Modification Items</i>	- / 0.000	- / -	- / -	- / 3.171	- / -	- / 3.171	- / -	- / -	- / 3.375	- / 6.892	- / 0.000	- / 13.438	
Installation													
Modification Item 1 of 1: LH001 - IVN UPGRADE	- / 0.000	- / 0.000	- / 0.000	- / 0.956	- / 0.000	- / 0.956	- / 0.360	- / 2.596	- / 0.102	- / 0.581	- / 9.110	- / 13.705	
<i>Subtotal: Installation</i>	- / 0.000	- / -	- / -	- / 0.956	- / -	- / 0.956	- / 0.360	- / 2.596	- / 0.102	- / 0.581	- / 9.110	- / 13.705	
Total													
Total Cost (Procurement + Support + Installation)	0.000	0.000	0.000	4.127	0.000	4.127	0.360	2.596	3.477	7.473	9.110	27.143	

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Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019																					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9					P-1 Line Item Number / Title: 0933 / LHA/LHD Midlife					Modification Number / Title: 13 / LH001 - IVN UPGRADE																					
ID Code (A=Service Ready, B=Not Service Ready) :										MDAP/MAIS Code:																					
Modification Item 1 of 1: LH001 - IVN UPGRADE																															
Manufacturer Information																															
Manufacturer Name: TBD										Manufacturer Location: TBD																					
Administrative Leadtime <i>(in Months)</i> : 0										Production Leadtime <i>(in Months)</i> : 20																					
Dates		FY 2018		FY 2019		FY 2020		FY 2021		FY 2022		FY 2023		FY 2024																	
Contract Dates						Feb 2020						May 2023		Aug 2024																	
Delivery Dates						Oct 2021						Jan 2025		Apr 2026																	
Installation Information																															
Method of Implementation: [none specified]:: Installation Name: IVN UPGRADE																															
Installation Cost		Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total																		
		Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)																		
Prior Years		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -																		
FY 2018		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -																		
FY 2019		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -																		
FY 2020		- / -	- / -	- / -	0 / 0.956	0 / 0.000	0 / 0.956	0 / 0.360	1 / 2.596	- / -	- / -	0 / 0.000	1 / 3.912																		
FY 2021		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -																		
FY 2022		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -																		
FY 2023		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.102	0 / 0.373	1 / 2.751	1 / 3.226																		
FY 2024		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.208	2 / 6.359	2 / 6.567																		
To Complete		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -																		
Total		- / -	- / -	- / -	0 / 0.956	0 / 0.000	0 / 0.956	0 / 0.360	1 / 2.596	0 / 0.102	0 / 0.581	3 / 9.110	4 / 13.705																		
Installation Schedule																															
	PYS	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				TC	Tot
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4		
In	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	3	4
Out	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	3	4
Footnotes: ⁽¹⁶⁾ Installation funding for a ship is divided over a three-year period. Installation execution funding in the year of availability, and Design Service Allocation (DSA) two years prior to availability, and DSA in the year prior to the availability. This includes ship checks, ship installation drawing (SID) development, logistic document development and long lead time material procurements (LLTM). 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: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	P-1 Line Item Number / Title: 0933 / LHA/LHD Midlife	Modification Number / Title: 14 / LH001 - IVCN Tech Refresh

ID Code (A=Service Ready, B=Not Service Ready) :						MDAP/MAIS Code:						
Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity (Units in Each)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost (\$ in Millions)	0.000	0.000	4.944	0.242	0.000	0.242	7.594	0.252	2.367	0.000	0.000	15.399
Less PY Advance Procurement (\$ in Millions)	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (\$ in Millions)	0.000	0.000	4.944	0.242	0.000	0.242	7.594	0.252	2.367	0.000	0.000	15.399
Plus CY Advance Procurement (\$ in Millions)	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority (\$ in Millions)	0.000	0.000	4.944	0.242	0.000	0.242	7.594	0.252	2.367	0.000	0.000	15.399
(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:

[IVCN Tech Refresh] Integrated Voice Communications Network (IVCN) Tech Refresh unifies three obsolete communication servers into a single, redundant distributed IP network that will enable expanded communication capabilities for command and control. The refresh will incorporate a wireless, digital telephone system that will improve coordination between shipboard personnel.

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Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019			
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9				P-1 Line Item Number / Title: 0933 / LHA/LHD Midlife						Modification Number / Title: 14 / LH001 - IVCN Tech Refresh			
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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total	
	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	
Procurement													
<i>Modification Item 1 of 1: LH001 - IVCN Tech Refresh</i>													
B Kits													
Non-Recurring													
2.2.1) IVCN Tech Refresh - NonOrganic ⁽¹⁷⁾	- / -	- / -	1 / 4.877	- / -	- / -	- / -	1 / 5.252	- / -	- / -	- / -	- / -	2 / 10.129	
<i>Subtotal: Non-Recurring</i>	<i>- / 0.000</i>	<i>- / -</i>	<i>- / 4.877</i>	<i>- / -</i>	<i>- / -</i>	<i>- / -</i>	<i>- / 5.252</i>	<i>- / -</i>	<i>- / -</i>	<i>- / -</i>	<i>- / 0.000</i>	<i>- / 10.129</i>	
<i>Subtotal: LH001 - IVCN Tech Refresh</i>	<i>- / -</i>	<i>- / -</i>	<i>1 / 4.877</i>	<i>- / -</i>	<i>- / -</i>	<i>- / -</i>	<i>1 / 5.252</i>	<i>- / -</i>	<i>- / -</i>	<i>- / -</i>	<i>- / -</i>	<i>2 / 10.129</i>	
<i>Subtotal: Procurement, All Modification Items</i>	<i>- / 0.000</i>	<i>- / -</i>	<i>- / 4.877</i>	<i>- / -</i>	<i>- / -</i>	<i>- / -</i>	<i>- / 5.252</i>	<i>- / -</i>	<i>- / -</i>	<i>- / -</i>	<i>- / 0.000</i>	<i>- / 10.129</i>	
Installation													
<i>Modification Item 1 of 1: LH001 - IVCN Tech Refresh</i>	<i>- / 0.000</i>	<i>- / 0.000</i>	<i>- / 0.067</i>	<i>- / 0.242</i>	<i>- / 0.000</i>	<i>- / 0.242</i>	<i>- / 2.342</i>	<i>- / 0.252</i>	<i>- / 2.367</i>	<i>- / 0.000</i>	<i>- / 0.000</i>	<i>- / 5.270</i>	
<i>Subtotal: Installation</i>	<i>- / 0.000</i>	<i>- / -</i>	<i>- / 0.067</i>	<i>- / 0.242</i>	<i>- / -</i>	<i>- / 0.242</i>	<i>- / 2.342</i>	<i>- / 0.252</i>	<i>- / 2.367</i>	<i>- / -</i>	<i>- / 0.000</i>	<i>- / 5.270</i>	
Total													
Total Cost (Procurement + Support + Installation)	0.000	0.000	4.944	0.242	0.000	0.242	7.594	0.252	2.367	0.000	0.000	15.399	

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Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019																					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9										P-1 Line Item Number / Title: 0933 / LHA/LHD Midlife										Modification Number / Title: 14 / LH001 - IVCN Tech Refresh											
ID Code (A=Service Ready, B=Not Service Ready) :															MDAP/MAIS Code:																
Modification Item 1 of 1: LH001 - IVCN Tech Refresh																															
Manufacturer Information																															
Manufacturer Name: TBD															Manufacturer Location: TBD																
Administrative Leadtime <i>(in Months)</i> : 0															Production Leadtime <i>(in Months)</i> : 20																
Dates		FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024					
Contract Dates						Feb 2019								Jul 2021																	
Delivery Dates						Oct 2020								Mar 2023																	
Installation Information																															
Method of Implementation: [none specified]:: Installation Name: IVCN Tech Refresh																															
Installation Cost		Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total																		
		<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>																	
Prior Years		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -																		
FY 2018		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -																		
FY 2019		- / -	- / -	0 / 0.067	0 / 0.242	0 / 0.000	0 / 0.242	1 / 2.274	- / -	- / -	- / -	0 / 0.000	1 / 2.583																		
FY 2020		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -																		
FY 2021		- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.068	0 / 0.252	1 / 2.367	- / -	0 / 0.000	1 / 2.687																		
FY 2022		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -																		
FY 2023		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -																		
FY 2024		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -																		
To Complete		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -																		
Total		- / -	- / -	0 / 0.067	0 / 0.242	0 / 0.000	0 / 0.242	1 / 2.342	0 / 0.252	1 / 2.367	- / -	0 / 0.000	2 / 5.270																		
Installation Schedule																															
	PYS	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				TC	Tot
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4		
In	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-
Out	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	1	-
Footnotes: ⁽¹⁷⁾ Installation funding for a ship is divided over a three-year period. Installation execution funding in the year of availability, and Design Service Allocation (DSA) two years prior to availability, and DSA in the year prior to the availability. This includes ship checks, ship installation drawing (SID) development, logistic document development and long lead time material procurements (LLTM). 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																															

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Exhibit P-3a, Individual Modification: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	P-1 Line Item Number / Title: 0933 / LHA/LHD Midlife	Modification Number / Title: 14 / LH001 - IVCN Tech Refresh
ID Code (A=Service Ready, B=Not Service Ready) :		MDAP/MAIS Code:
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. Modernization converted from P40 (PB-19 Budget) to P3A due to total cost program.		

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Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019		
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9					P-1 Line Item Number / Title: 0933 / LHA/LHD Midlife					Modification Number / Title: 15 / LH001 - MACHINERY CONTROL SYSTEM (MCS)		
ID Code (A=Service Ready, B=Not Service Ready) :							MDAP/MAIS Code:					
Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity (<i>Units in Each</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost (<i>\$ in Millions</i>)	0.000	0.000	0.000	10.269	0.000	10.269	3.824	1.573	11.851	4.078	5.369	36.964
Less PY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (<i>\$ in Millions</i>)	0.000	0.000	0.000	10.269	0.000	10.269	3.824	1.573	11.851	4.078	5.369	36.964
Plus CY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority (<i>\$ in Millions</i>)	0.000	0.000	0.000	10.269	0.000	10.269	3.824	1.573	11.851	4.078	5.369	36.964
<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) will replace the existing obsolete Versa Module Europa (VME) server with Windows XP operating system (O/S) that was purchased in the mid-2000s as part of the ship construction award for LHD8 and LHA6. Both the hardware and software are no longer supported by industry and require a complete replacement. MCS will leverage existing infrastructure replacing internal hardware to the existing system's servers. LHD8, LHA 6-7 will receive a Versatile Performance Switching (VPX) server with Windows 10, or future O/S that provides improved bandwidth for control of the ship's 37 vital engineering systems, while maintain margin for new capabilities to be introduced. The new system provides room for growth and flexibility to easily incorporate emerging cyber security requirements that will help prevent adversarial threats.												

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Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019			
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9				P-1 Line Item Number / Title: 0933 / LHA/LHD Midlife						Modification Number / Title: 15 / LH001 - MACHINERY CONTROL SYSTEM (MCS)			
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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	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)	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> LH001 - MACHINERY CONTROL SYSTEM (MCS)													
B Kits													
Non-Recurring													
2.2.1) MCS PROCUREMENT - NonOrganic ⁽¹⁸⁾	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	1 / 9.662	- / -	- / -	1 / 9.662	
<i>Subtotal: Non-Recurring</i>	- / 0.000	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / 9.662	- / -	- / 0.000	- / 9.662	
<i>Subtotal: LH001 - MACHINERY CONTROL SYSTEM (MCS)</i>	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	1 / 9.662	- / -	- / -	1 / 9.662	
<i>Subtotal: Procurement, All Modification Items</i>	- / 0.000	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / 9.662	- / -	- / 0.000	- / 9.662	
Support (All Modification Items)													
3.1) ENGINEERING SERVICES	- / -	- / -	- / -	- / 10.269	- / -	- / 10.269	- / 3.824	- / 1.573	- / 2.016	- / 3.258	- / -	- / 20.940	
<i>Subtotal: Support</i>	- / 0.000	- / -	- / -	- / 10.269	- / -	- / 10.269	- / 3.824	- / 1.573	- / 2.016	- / 3.258	- / 0.000	- / 20.940	
Installation													
<i>Modification Item 1 of 1:</i> LH001 - MACHINERY CONTROL SYSTEM (MCS)	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.173	- / 0.820	- / 5.369	- / 6.362	
<i>Subtotal: Installation</i>	- / 0.000	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / 0.173	- / 0.820	- / 5.369	- / 6.362	
Total													
Total Cost (Procurement + Support + Installation)	0.000	0.000	0.000	10.269	0.000	10.269	3.824	1.573	11.851	4.078	5.369	36.964	

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Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019																							
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9										P-1 Line Item Number / Title: 0933 / LHA/LHD Midlife										Modification Number / Title: 15 / LH001 - MACHINERY CONTROL SYSTEM (MCS)													
ID Code (A=Service Ready, B=Not Service Ready) :															MDAP/MAIS Code:																		
Modification Item 1 of 1: LH001 - MACHINERY CONTROL SYSTEM (MCS)																																	
Manufacturer Information																																	
Manufacturer Name: TBD															Manufacturer Location: TBD																		
Administrative Leadtime (<i>in Months</i>): 0															Production Leadtime (<i>in Months</i>): 24																		
Dates		FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024							
Contract Dates																						Jun 2023											
Delivery Dates																										Jun 2025							
Installation Information																																	
Method of Implementation: [none specified]:: Installation Name: MCS PROCUREMENT																																	
Installation Cost		Prior Years	FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total		FY 2021		FY 2022		FY 2023		FY 2024		To Complete		Total										
		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>)		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 2018		- / -	- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -								
FY 2019		- / -	- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -								
FY 2020		- / -	- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -								
FY 2021		- / -	- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -								
FY 2022		- / -	- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -								
FY 2023		- / -	- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.173		0 / 0.820		1 / 5.369		1 / 6.362								
FY 2024		- / -	- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -								
To Complete		- / -	- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -								
Total		- / -	- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.173		0 / 0.820		1 / 5.369		1 / 6.362								
Installation Schedule																																	
	PYS	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				TC	Tot		
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4				
In	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1		
Out	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1		
Footnotes:																																	
⁽¹⁸⁾ MCS requires sufficient upfront cost for non-reoccurring engineering services because of the significant amount of control the system provides to 37-subsystems throughout the ship via 10,000 different signals. The NRE will be utilized for first article environmental quality testing of 12 different components and establishment of an MCS Land Based Test Facility that will be required for software development for future availabilities and be leveraged for system engineering for milestone review and Cyber Security hardening under the Risk Management Framework. Installation funding for a ship is divided over a three-																																	

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Exhibit P-40, Budget Line Item Justification: PB 2020 Navy										Date: March 2019		
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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity (<i>Units in Each</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost (<i>\$ in Millions</i>)	402.008	15.564	20.883	23.910	0.000	23.910	23.129	23.550	23.999	24.476	Continuing	Continuing
Less PY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (<i>\$ in Millions</i>)	402.008	15.564	20.883	23.910	0.000	23.910	23.129	23.550	23.999	24.476	Continuing	Continuing
Plus CY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority (<i>\$ in Millions</i>)	402.008	15.564	20.883	23.910	0.000	23.910	23.129	23.550	23.999	24.476	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>)	-	0.129	0.044	0.088	-	0.088	0.021	-	-	-	-	0.282
Flyaway Unit Cost (<i>\$ in Dollars</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost (<i>\$ in Dollars</i>)	-	-	-	-	-	-	-	-	-	-	-	-

Description:

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 / 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

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Exhibit P-40, Budget Line Item Justification: PB 2020 Navy		Date: March 2019
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		
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 / HF060 HOT TAP TRAINING SYSTEMS]: These systems are designed to train Fleet divers on the tools and techniques for penetrating into vessel oil tanks below the waterline. The hot tap training kit is a system that contains a cutting device, an underwater hydraulic drill to drive the cutting mechanism and all necessary flanges, fasteners, valves, pumps and ancillaries to use when tapping through shell plating into laden tanks to remove the contents. This training is required as a part of pre-deployment salvage preparations for Mobile Diving and Salvage Unit (MDSU) Companies to train for lightering or removal of oil from a vessel in distress.		
[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 / 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 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 inventory objective for CFC R-114 is 402 converted units.		
[P3A / HF024 CFC-114 (R-114) AC CONVERSION]: HF5IN - INSTALLATION OF EQUIPMENT - EXPEDITIONARY WARFARE Funding is for installation of equipment for the Fleet Modernization Program installations.		
HF6IN - INSTALLATION OF EQUIPMENT - SURFACE WARFARE Funding is for installation of equipment for the Fleet Modernization Program installations.		
[P3A - 2 / HF031 OPA IMPROVEMENTS]: 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.		

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Exhibit P-40, Budget Line Item Justification: PB 2020 Navy		Date: March 2019
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		
[P3A - 3 / HF031 DRY WASTE PROCESSING SUITE IMPROVEMENTS]: Dry Waste Processing Suite Improvements: The Fleet's challenged to keep solid waste equipment operating and sanitary. The root cause of this is: 1) workload; 2) reliability; 3) the maintainability (parts availability); and 4) obsolescence. The improvement and application of current and new processing tools will ensure the safe and efficient management of these materials. The goal is to decrease labor-hours by improving operation and maintenance, increase system availability and address all current and projected obsolescence issues and reducing parts failures by redesign. Impacted equipment includes Compress Melt Units (CMUs), pulpers, shredders, incinerators, and compactors.		

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Exhibit P-40, Budget Line Item Justification: PB 2020 Navy								Date: March 2019		
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										
Exhibits Schedule					Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Exhibit Type	Title*	Subexhibits	ID CD	MDAP/MAIS Code	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)
P-40a	Pollution Control Equipment	P-5a			- / 44.454	- / 2.872	- / 3.518	- / 3.123	- / -	- / 3.123
P-3a	1 / HF024 CFC-114 (R-114) AC CONVERSION (AIT)				- / 345.158	- / 6.262	- / 7.500	- / 7.557	- / 0.000	- / 7.557
P-3a	2 / HF031 OPA IMPROVEMENTS (AIT)				- / 12.396	- / 6.430	- / 9.865	- / 13.230	- / 0.000	- / 13.230
P-3a	3 / HF031 DRY WASTE PROCESSING SUITE IMPROVEMENTS (AIT)				- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000
P-40	Total Gross/Weapon System Cost				- / 402.008	- / 15.564	- / 20.883	- / 23.910	- / 0.000	- / 23.910
Exhibits Schedule					FY 2021	FY 2022	FY 2023	FY 2024	To Complete	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	Pollution Control Equipment	P-5a			- / -	- / -	- / -	- / -	- / -	- / -
P-3a	1 / HF024 CFC-114 (R-114) AC CONVERSION (AIT)				- / 2.031	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 368.508
P-3a	2 / HF031 OPA IMPROVEMENTS (AIT)				- / 18.212	- / 20.465	- / 20.534	- / 15.741	- / 56.950	- / 173.823
P-3a	3 / HF031 DRY WASTE PROCESSING SUITE IMPROVEMENTS (AIT)				- / 0.000	- / 0.000	- / 1.387	- / 6.615	- / 199.937	- / 207.939
P-40	Total Gross/Weapon System Cost				- / 23.129	- / 23.550	- / 23.999	- / 24.476	Continuing	Continuing

*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 FY 18 House Appropriation Committee (HAC) mark reduced Pollution Control Equipment FY 18 budget by \$1,729K. Specifically, the mark reduced Shore Based Pollution Equipment - Equipment Clean Up Systems budget by \$310K, Oil Pollution Abatement (OPA) Improvements budget by \$1,361K, and Pollution Control Equipment Field Changes - Air Warfare budget by \$58K. FY19-FY20 increase of \$3,027K is for continued ramp up of Oil Pollution Abatement System Improvement installations across Surface Warfare Class and Expeditionary Warfare Class ships.

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Exhibit P-40a, Budget Item Justification For Aggregated Items: PB 2020 Navy															Date: March 2019					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9								P-1 Line Item Number / Title: 0935 / Pollution Control Equipment							Aggregated Items Title: Pollution Control Equipment					
Item Number / Title [DODIC]	ID CD	MDAP/MAIS Code	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 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) LOGISTICS																				
1.1) HF040 FIELD SUPPORT SYSTEMS (1)(†)	A		300,523.08	65	19.534	349,500.00	2	0.699	355,000.00	1	0.355	358,000.00	2	0.716	-	-	-	358,000.00	2	0.716
1.2) HF056 EQUIPMENT CLEAN-UP SYSTEMS(†)	A		-	-	-	-	-	-	310,000.00	1	0.310	-	-	-	-	-	-	-	-	-
1.3) HF057 OIL HANDLING SYSTEMS(†)	A		290,142.86	7	2.031	150,666.67	6	0.904	150,000.00	1	0.150	150,500.00	2	0.301	-	-	-	150,500.00	2	0.301
1.4) HF060 HOT TAP TRAINING SYSTEMS(†)	A		-	-	-	-	-	-	23,000.00	5	0.115	-	-	-	-	-	-	-	-	-
1.5) HF063 VESSEL OF OPPORTUNITY SKIMMER SYSTEMS (2)(†)	A		198,600.00	20	3.972	-	-	-	-	-	-	198,000.00	1	0.198	-	-	-	198,000.00	1	0.198
1.6) HF067 VESSEL SKIMMER SYSTEMS(†)	A		-	-	-	-	-	-	150,000.00	6	0.900	152,250.00	4	0.609	-	-	-	152,250.00	4	0.609
Subtotal: 1) LOGISTICS			-	-	25.537	-	-	1.603	-	-	1.830	-	-	1.824	-	-	-	-	-	1.824
2) EXPEDITIONARY WARFARE																				
2.1) HF830 PRODUCTION ENGINEERING	A		-	-	3.711	-	-	-	-	-	0.185	-	-	-	-	-	-	-	-	-
Subtotal: 2) EXPEDITIONARY WARFARE			-	-	3.711	-	-	-	-	-	0.185	-	-	-	-	-	-	-	-	-
3) SURFACE WARFARE																				
3.1) HF830 PRODUCTION ENGINEERING	A		-	-	7.963	-	-	0.180	-	-	0.366	-	-	0.380	-	-	-	-	-	0.380
Subtotal: 3) SURFACE WARFARE			-	-	7.963	-	-	0.180	-	-	0.366	-	-	0.380	-	-	-	-	-	0.380
4) AIR WARFARE																				
4.1) HF031 POLLUTION CONTROL EQUIPMENT FIELD CHANGES	A		-	-	7.243	-	-	1.089	-	-	1.137	-	-	0.919	-	-	-	-	-	0.919
Subtotal: 4) AIR WARFARE			-	-	7.243	-	-	1.089	-	-	1.137	-	-	0.919	-	-	-	-	-	0.919
Total			-	-	44.454	-	-	2.872	-	-	3.518	-	-	3.123	-	-	-	-	-	3.123
Note: Subtotals or Totals in this Exhibit P-40a may not be exact or sum exactly, due to rounding.																				
(†) indicates the presence of a P-5a																				

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Exhibit P-40a, Budget Item Justification For Aggregated Items: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	P-1 Line Item Number / Title: 0935 / Pollution Control Equipment	Aggregated Items Title: Pollution Control Equipment
Footnotes: ⁽¹⁾ HF040: Unit costs vary greatly between various field support systems. Systems include containerized Field Command Centers, Field Repair Workshops, Field Rigging Lockers, Personnel Berthing Modules, Satellite Communication Systems, and Aerial Oil Surveillance Systems. Unit costs vary greatly between various field support systems used to sustain oil spill response operations in remote and austere environments because these systems are all purpose-built and range from satellite communications equipment to Field Command & Control Centers, Field Repair Workshops, Field Rigging Lockers, Personnel Berthing Modules and Aerial Oil Surveillance Systems. ⁽²⁾ HF063: Procurement of next generation Vessel of Opportunity Skimmer system with increased unit cost due to technology advancements commences in FY24.		

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Exhibit P-5a, Procurement History and Planning: PB 2020 Navy								Date: March 2019				
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9			P-1 Line Item Number / Title: 0935 / Pollution Control Equipment					Aggregated Items: Pollution Control Equipment				
Item Number / Title [DODIC]	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) LOGISTICS												
1.1) HF040 FIELD SUPPORT SYSTEMS ⁽¹⁾		2018	GPC / VA	C / CPFF	WASHINGTON, DC	Apr 2018	Dec 2018	2	349,500.00	Y		
1.1) HF040 FIELD SUPPORT SYSTEMS ⁽¹⁾		2019	GPC / VA	C / CPAF	WASHINGTON, DC	Apr 2019	Apr 2019	1	355,000.00	Y		
1.1) HF040 FIELD SUPPORT SYSTEMS ⁽¹⁾		2020	GPC / VA	C / CPAF	WASHINGTON, DC	Apr 2020	Apr 2020	2	358,000.00	Y		
1.2) HF056 EQUIPMENT CLEAN-UP SYSTEMS		2019	GPC / VA	C / CPAF	WASHINGTON, DC	Apr 2019	Apr 2020	1	310,000.00	Y		
1.3) HF057 OIL HANDLING SYSTEMS		2018	GPC / VA	C / CPFF	WASHINGTON, DC	Apr 2018	Apr 2019	6	150,666.67	Y		
1.3) HF057 OIL HANDLING SYSTEMS		2019	GPC / VA	C / CPAF	WASHINGTON, DC	Apr 2019	Apr 2020	1	150,000.00	Y		
1.3) HF057 OIL HANDLING SYSTEMS		2020	GPC / VA	C / CPAF	WASHINGTON, DC	Apr 2020	Apr 2021	2	150,500.00	Y		
1.4) HF060 HOT TAP TRAINING SYSTEMS		2019	GPC / VA	C / CPAF	WASHINGTON, DC	Apr 2019	Apr 2020	5	23,000.00	Y		
1.5) HF063 VESSEL OF OPPORTUNITY SKIMMER SYSTEMS ⁽²⁾		2020	GPC / VA	C / CPAF	WASHINGTON, DC	Apr 2020	Apr 2021	1	198,000.00	Y		
1.6) HF067 VESSEL SKIMMER SYSTEMS		2019	GPC / VA	C / CPAF	WASHINGTON, DC	Apr 2019	Apr 2020	6	150,000.00	Y		
1.6) HF067 VESSEL SKIMMER SYSTEMS		2020	GPC / VA	C / CPAF	WASHINGTON, DC	Apr 2020	Apr 2020	4	152,250.00	Y		

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Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019		
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9					P-1 Line Item Number / Title: 0935 / Pollution Control Equipment					Modification Number / Title: 1 / HF024 CFC-114 (R-114) AC CONVERSION		
ID Code (A=Service Ready, B=Not Service Ready) :							MDAP/MAIS Code:					
Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity (<i>Units in Each</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost (<i>\$ in Millions</i>)	345.158	6.262	7.500	7.557	0.000	7.557	2.031	0.000	0.000	0.000	0.000	368.508
Less PY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (<i>\$ in Millions</i>)	345.158	6.262	7.500	7.557	0.000	7.557	2.031	0.000	0.000	0.000	0.000	368.508
Plus CY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority (<i>\$ in Millions</i>)	345.158	6.262	7.500	7.557	0.000	7.557	2.031	0.000	0.000	0.000	0.000	368.508
<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 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 inventory objective for CFC R-114 is 402 converted units. [HF024 CFC-114 (R-114) AC CONVERSION] Average cost per unit in PY is lower than FY18-FY20 in part as result of utilization of reclaimed parts and equipment. The FY19-FY20 hardware procurement costs are higher than FY18 due to new FY19 contract award escalation. The Program currently utilizes reclaimed equipment with cost avoidance in excess of \$200,000 per unit. The supply of reclaimed equipment was exhausted in FY17; as a result, the FY18AF equipment procurement unit cost exceeds standard inflation costs due to the unavailability of reclaimed parts.												

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Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019			
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9					P-1 Line Item Number / Title: 0935 / Pollution Control Equipment					Modification Number / Title: 1 / HF024 CFC-114 (R-114) AC CONVERSION			
ID Code (A=Service Ready, B=Not Service Ready) :								MDAP/MAIS Code:					
Models of Systems Affected: CFC R-114 Air- Conditioning (A/C) plants				Modification Type: AIT				Related RDT&E PEs:					
Financial Plan	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total	
	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	
Procurement													
<i>Modification Item 1 of 1:</i> HF024 CFC-114 (R-114) AC CONVERSION													
B Kits													
Recurring													
1.1.1) HF024 CFC-114 (R-114) AC CONVERSION - NonOrganic ⁽³⁾	390 / 155.909	2 / 1.800	6 / 5.874	4 / 4.275	- / -	4 / 4.275	- / -	- / -	- / -	- / -	- / -	402 / 167.858	
<i>Subtotal: Recurring</i>	- / 155.909	- / 1.800	- / 5.874	- / 4.275	- / -	- / 4.275	- / -	- / -	- / -	- / -	- / 0.000	- / 167.858	
<i>Subtotal: HF024 CFC-114 (R-114) AC CONVERSION</i>	390 / 155.909	2 / 1.800	6 / 5.874	4 / 4.275	- / -	4 / 4.275	- / -	- / -	- / -	- / -	- / -	402 / 167.858	
<i>Subtotal: Procurement, All Modification Items</i>	- / 155.909	- / 1.800	- / 5.874	- / 4.275	- / -	- / 4.275	- / -	- / -	- / -	- / -	- / 0.000	- / 167.858	
Installation													
<i>Modification Item 1 of 1:</i> HF024 CFC-114 (R-114) AC CONVERSION	- / 189.249	- / 4.462	- / 1.626	- / 3.282	- / 0.000	- / 3.282	- / 2.031	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 200.650	
<i>Subtotal: Installation</i>	- / 189.249	- / 4.462	- / 1.626	- / 3.282	- / -	- / 3.282	- / 2.031	- / -	- / -	- / -	- / 0.000	- / 200.650	
Total													
Total Cost (Procurement + Support + Installation)	345.158	6.262	7.500	7.557	0.000	7.557	2.031	0.000	0.000	0.000	0.000	368.508	

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Exhibit P-3a, Individual Modification: PB 2020 Navy												Date: March 2019																			
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9								P-1 Line Item Number / Title: 0935 / Pollution Control Equipment								Modification Number / Title: 1 / HF024 CFC-114 (R-114) AC CONVERSION															
ID Code (A=Service Ready, B=Not Service Ready) :												MDAP/MAIS Code:																			
Modification Item 1 of 1: HF024 CFC-114 (R-114) AC CONVERSION																															
Manufacturer Information																															
Manufacturer Name: YORK INTERNATIONAL												Manufacturer Location: PA																			
Administrative Leadtime (in Months): 2												Production Leadtime (in Months): 12																			
Dates		FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024					
Contract Dates		Oct 2017				Oct 2018				Oct 2019																					
Delivery Dates		Oct 2018				Oct 2019				Oct 2020																					
Installation Information																															
Method of Implementation: AIT:: Installation Name: HF024 CFC-114 (R-114) AC CONVERSION																															
Installation Cost		Prior Years		FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total		FY 2021		FY 2022		FY 2023		FY 2024		To Complete		Total							
		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)							
Prior Years		384 / 189.249		6 / 4.462		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.000		390 / 193.711							
FY 2018		- / -		- / -		2 / 1.626		- / -		- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.000		2 / 1.626							
FY 2019		- / -		- / -		- / -		6 / 3.282		0 / 0.000		6 / 3.282		- / -		- / -		- / -		- / -		0 / 0.000		6 / 3.282							
FY 2020		- / -		- / -		- / -		- / -		- / -		- / -		4 / 2.031		- / -		- / -		- / -		0 / 0.000		4 / 2.031							
FY 2021		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -							
FY 2022		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -							
FY 2023		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -							
FY 2024		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -							
To Complete		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -							
Total		384 / 189.249		6 / 4.462		2 / 1.626		6 / 3.282		0 / 0.000		6 / 3.282		4 / 2.031		- / -		- / -		- / -		0 / 0.000		402 / 200.650							
Installation Schedule																															
	PYS	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				TC	Tot
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4		
In	384	4	2	-	-	-	2	-	-	-	-	2	4	-	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	402
Out	381	3	-	2	-	4	-	2	-	-	-	-	-	-	2	4	-	2	-	-	2	-	-	-	-	-	-	-	-	-	402
Footnotes:																															
⁽³⁾ Installation cost per unit varies as a result of installation location (East versus West Coast), the type of Ship being converted (Expeditionary Warfare versus Surface Warfare), and number of units being converted (2-4 units per ship). Specifically in FY18, the cost to install DDG-70 increased when the original planned installation location changed from San Diego shifted to Pearl Harbor. Installation costs also include Design Services Allocations (DSA) and Advanced Planning (AP) efforts which are funded one year prior to installation. In FY19, the cost includes DSA and AP efforts at \$649K for six (6) units.																															

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Exhibit P-3a, Individual Modification: PB 2020 Navy								Date: March 2019				
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9				P-1 Line Item Number / Title: 0935 / Pollution Control Equipment				Modification Number / Title: 2 / HF031 OPA IMPROVEMENTS				
ID Code (A=Service Ready, B=Not Service Ready) :							MDAP/MAIS Code:					
Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity (Units in Each)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost (\$ in Millions)	12.396	6.430	9.865	13.230	0.000	13.230	18.212	20.465	20.534	15.741	56.950	173.823
Less PY Advance Procurement (\$ in Millions)	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (\$ in Millions)	12.396	6.430	9.865	13.230	0.000	13.230	18.212	20.465	20.534	15.741	56.950	173.823
Plus CY Advance Procurement (\$ in Millions)	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority (\$ in Millions)	12.396	6.430	9.865	13.230	0.000	13.230	18.212	20.465	20.534	15.741	56.950	173.823
(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: HF031 Expeditionary Warfare: OPA Systems Improvements: These installations resolve issues with existing OPA systems including poor operational availability, maintainability, and reliability. Variations in costs are subject to specific ship needs and are confirmed based upon ship checks. Shipset install/hardware buys may include: VS-50 oily water separators, secondary membrane treatment system, oil content monitor datalogger(s), multiple pumps, valves, valve actuators, sensors, switches, placards, and hoses. HF031 Surface Warfare: OPA Systems Improvements: These installations resolve issues with existing OPA systems including poor operational availability, maintainability, and reliability. Variations in costs are subject to specific ship needs and are confirmed based upon ship checks. Shipset install/hardware buys may include: oily water transfer systems, secondary membrane treatment system, oil content monitor datalogger(s), multiple pumps, valves, valve actuators, sensors, switches, placards, and hoses. [HF031 OPA Improvements] Hardware funding includes Production Engineering (PE) efforts. Significant hardware suite cost variance is due to specific ship requirements. Each ship may require one or more of these improvements: datalogger, upgrades to oily waste transfer system, upgrades to primary treatment system, and upgrades to secondary treatment system. FY18 hardware funding supports: one (1) CG-47 class (SCD 13323) (in Norfolk) at \$506K, one (1) LHD-1 Class (SCD 13325) (in Norfolk) at \$1,575K, one (1) LPD-17 class (SCD 13326) (in Mayport) at \$125K, and one (1) LSD-41 class (SCD 13336) (in San Diego) at \$285K. FY19 hardware funding will support: two (2) CG-47 class (SCD 13323) (one in Norfolk and one in San Diego) at \$517K per suite, one (1) LHD-1 Class (SCD 13325) (in San Diego) at \$1,687K, two (2) LHA-6 class (SCD 84365) (one in Norfolk and one in San Diego) at \$16K per suite, and one (1) LPD-21 class (SCD 84365) (in San Diego) at \$32K. LPD-17 Class FY19 hardware was deferred to FY24 to meet FY25 availability requirements.												

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Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019			
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9					P-1 Line Item Number / Title: 0935 / Pollution Control Equipment					Modification Number / Title: 2 / HF031 OPA IMPROVEMENTS			
ID Code (A=Service Ready, B=Not Service Ready) :								MDAP/MAIS Code:					
Models of Systems Affected: Oil Pollution Abatement System					Modification Type: AIT				Related RDT&E PEs:				
Financial Plan	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total	
	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	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> HF031 OPA IMPROVEMENTS													
B Kits													
Recurring													
1.1.1) HF031 OPA Improvements - NonOrganic ⁽⁴⁾	34 / 5.959	4 / 2.491	6 / 2.785	9 / 6.351	- / -	9 / 6.351	14 / 5.307	16 / 9.190	16 / 2.885	15 / 5.244	34 / 18.096	148 / 58.308	
<i>Subtotal: Recurring</i>	- / 5.959	- / 2.491	- / 2.785	- / 6.351	- / -	- / 6.351	- / 5.307	- / 9.190	- / 2.885	- / 5.244	- / 18.096	- / 58.308	
<i>Subtotal: HF031 OPA IMPROVEMENTS</i>	34 / 5.959	4 / 2.491	6 / 2.785	9 / 6.351	- / -	9 / 6.351	14 / 5.307	16 / 9.190	16 / 2.885	15 / 5.244	34 / 18.096	148 / 58.308	
<i>Subtotal: Procurement, All Modification Items</i>	- / 5.959	- / 2.491	- / 2.785	- / 6.351	- / -	- / 6.351	- / 5.307	- / 9.190	- / 2.885	- / 5.244	- / 18.096	- / 58.308	
Installation													
<i>Modification Item 1 of 1:</i> HF031 OPA IMPROVEMENTS	- / 6.437	- / 3.939	- / 7.080	- / 6.879	- / 0.000	- / 6.879	- / 12.905	- / 11.275	- / 17.649	- / 10.497	- / 38.854	- / 115.515	
<i>Subtotal: Installation</i>	- / 6.437	- / 3.939	- / 7.080	- / 6.879	- / -	- / 6.879	- / 12.905	- / 11.275	- / 17.649	- / 10.497	- / 38.854	- / 115.515	
Total													
Total Cost (Procurement + Support + Installation)	12.396	6.430	9.865	13.230	0.000	13.230	18.212	20.465	20.534	15.741	56.950	173.823	

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Exhibit P-3a, Individual Modification: PB 2020 Navy												Date: March 2019																			
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9										P-1 Line Item Number / Title: 0935 / Pollution Control Equipment										Modification Number / Title: 2 / HF031 OPA IMPROVEMENTS											
ID Code (A=Service Ready, B=Not Service Ready) :														MDAP/MAIS Code:																	
Modification Item 1 of 1: HF031 OPA IMPROVEMENTS																															
Manufacturer Information																															
Manufacturer Name: Various ⁽⁵⁾														Manufacturer Location: Various																	
Administrative Leadtime (in Months): 2														Production Leadtime (in Months): 12																	
Dates		FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024					
Contract Dates		Dec 2017				Dec 2018				Dec 2019				Dec 2020				Dec 2021				Dec 2022				Dec 2023					
Delivery Dates		Dec 2018				Dec 2019				Dec 2020				Dec 2021				Dec 2022				Dec 2023				Dec 2024					
Installation Information																															
Method of Implementation: AIT:: Installation Name: HF031 OPA Improvements																															
Installation Cost		Prior Years		FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total		FY 2021		FY 2022		FY 2023		FY 2024		To Complete		Total							
		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)							
Prior Years		32 / 6.437		1 / 3.939		1 / 1.113		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.000		34 / 11.489					
FY 2018		- / -		- / -		3 / 5.967		1 / 0.398		0 / 0.000		1 / 0.398		- / -		- / -		- / -		- / -		- / -		0 / 0.000		4 / 6.365					
FY 2019		- / -		- / -		- / -		6 / 6.481		0 / 0.000		6 / 6.481		- / -		- / -		- / -		- / -		- / -		0 / 0.000		6 / 6.481					
FY 2020		- / -		- / -		- / -		- / -		- / -		- / -		9 / 12.905		- / -		- / -		- / -		- / -		0 / 0.000		9 / 12.905					
FY 2021		- / -		- / -		- / -		- / -		- / -		- / -		- / -		14 / 11.275		- / -		- / -		- / -		0 / 0.000		14 / 11.275					
FY 2022		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		16 / 17.649		- / -		- / -		0 / 0.000		16 / 17.649					
FY 2023		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		16 / 10.497		- / -		0 / 0.000		16 / 10.497					
FY 2024		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		15 / 10.674		- / -		15 / 10.674					
To Complete		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		34 / 28.180		34 / 28.180					
Total		32 / 6.437		1 / 3.939		4 / 7.080		7 / 6.879		0 / 0.000		7 / 6.879		9 / 12.905		14 / 11.275		16 / 17.649		16 / 10.497		49 / 38.854		148 / 115.515							
Installation Schedule																															
	PYS	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				TC	Tot
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4		
In	32	-	-	-	1	-	-	1	3	2	3	2	-	-	3	2	4	2	7	1	4	5	3	3	5	4	4	5	3	49	148
Out	25	1	-	-	2	1	1	3	-	-	-	4	1	1	4	2	1	3	-	7	1	6	4	4	3	3	3	7	4	57	148
Footnotes:																															
⁽⁴⁾ Installation cost variance is due to the scope of the hardware suite and the installation location. Installation costs include Design Services Allocations (DSA) and Advanced Planning (AP) efforts which are funded one year prior to installation. FY18 installation funding supports: one (1) LHD-1 Class (SCD 13325) installation (in Norfolk) at \$2,960K and five (5) ship DSA and AP efforts at \$979K (DSA and AP costs in FY18 will range from \$50K for a LPD-17 class (SCD 13326) to \$530K for a LHD-1 class (SCD 13325)). FY19 installation funding will support: two (2) CG-47 class (SCD 13323) installations (one in Mayport and one in Norfolk) at \$1,113K per installation, one (1) LHD-1 Class (SCD 13325) installation (in Norfolk) at \$3,020K, and one (1) LSD-41 class (SCD 13336) installations (in San Diego) at \$803K; and seven (7)																															

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Exhibit P-3a, Individual Modification: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	P-1 Line Item Number / Title: 0935 / Pollution Control Equipment	Modification Number / Title: 2 / HF031 OPA IMPROVEMENTS
ID Code (A=Service Ready, B=Not Service Ready) :		MDAP/MAIS Code:
ship DSA and AP efforts at \$1,031K (DSA and AP costs in FY19 will range from \$5K for a LHA-6 class (SCD 84365) to \$530K for a LHD-1 class (SCD 13325)). LPD-17 Class FY19 availability was cancelled and deferred to FY25. (5) HF031 OPA Improvements Manufacturer Identification is a hardware suite and includes various part pieces and equipment procurements from multiple vendors per specific ship requirements.		

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Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019		
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9					P-1 Line Item Number / Title: 0935 / Pollution Control Equipment					Modification Number / Title: 3 / HF031 DRY WASTE PROCESSING SUITE IMPROVEMENTS		
ID Code (A=Service Ready, B=Not Service Ready) :							MDAP/MAIS Code:					
Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity <i>(Units in Each)</i>	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost <i>(\$ in Millions)</i>	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.387	6.615	199.937	207.939
Less PY Advance Procurement <i>(\$ in Millions)</i>	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) <i>(\$ in Millions)</i>	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.387	6.615	199.937	207.939
Plus CY Advance Procurement <i>(\$ in Millions)</i>	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority <i>(\$ in Millions)</i>	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.387	6.615	199.937	207.939
<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: Dry Waste Processing Suite Improvements: Expeditionary Warfare: Funding provided to support dry waste handling equipment improvements on LHA, LHD, LPD and LSD platforms including compressed melt units, pulpers, shredders, and compactors. Dry Waste Processing Suite Improvements: Air Warfare: Funding provided to support dry waste handling equipment improvements on CVN platforms including compressed melt units, pulpers, shredders, incinerators, and compactors.												

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Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019			
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9					P-1 Line Item Number / Title: 0935 / Pollution Control Equipment					Modification Number / Title: 3 / HF031 DRY WASTE PROCESSING SUITE IMPROVEMENTS			
ID Code (A=Service Ready, B=Not Service Ready) :								MDAP/MAIS Code:					
Models of Systems Affected: Dry Waste Processing Equipment					Modification Type: AIT					Related RDT&E PEs:			
Financial Plan	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total	
	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	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: HF031 DRY WASTE PROCESSING SUITE IMPROVEMENTS													
B Kits													
Recurring													
1.1.1) Dry Waste Processing Suite Improvements - NonOrganic ⁽⁶⁾	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	1 / 1.387	7 / 5.374	152 / 123.376	160 / 130.137	
Subtotal: Recurring	- / 0.000	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / 1.387	- / 5.374	- / 123.376	- / 130.137	
Subtotal: HF031 DRY WASTE PROCESSING SUITE IMPROVEMENTS	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	1 / 1.387	7 / 5.374	152 / 123.376	160 / 130.137	
Subtotal: Procurement, All Modification Items	- / 0.000	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / 1.387	- / 5.374	- / 123.376	- / 130.137	
Installation													
Modification Item 1 of 1: HF031 DRY WASTE PROCESSING SUITE IMPROVEMENTS	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 1.241	- / 76.561	- / 77.802	
Subtotal: Installation	- / 0.000	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / 1.241	- / 76.561	- / 77.802	
Total													
Total Cost (Procurement + Support + Installation)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.387	6.615	199.937	207.939	

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Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019																						
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9										P-1 Line Item Number / Title: 0935 / Pollution Control Equipment										Modification Number / Title: 3 / HF031 DRY WASTE PROCESSING SUITE IMPROVEMENTS												
ID Code (A=Service Ready, B=Not Service Ready) :															MDAP/MAIS Code:																	
Modification Item 1 of 1: HF031 DRY WASTE PROCESSING SUITE IMPROVEMENTS																																
Manufacturer Information																																
Manufacturer Name: Various ⁽⁷⁾															Manufacturer Location: Various																	
Administrative Leadtime <i>(in Months)</i> : 2															Production Leadtime <i>(in Months)</i> : 12																	
Dates		FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024						
Contract Dates																						Dec 2022				Dec 2023						
Delivery Dates																						Dec 2023				Dec 2024						
Installation Information																																
Method of Implementation: AIT:: Installation Name: Dry Waste Processing Suite Improvements																																
Installation Cost		Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total																			
		<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>																	
Prior Years		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -																		
FY 2018		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -																		
FY 2019		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -																		
FY 2020		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -																		
FY 2021		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -																		
FY 2022		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -																		
FY 2023		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	
FY 2024		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	
To Complete		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	
Total		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	
Installation Schedule																																
	PYS	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				TC	Tot	
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4			
In	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	159	160
Out	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	160	160
Footnotes:																																
⁽⁶⁾ Total quantity and price changed to reflect incorporation of Air Warfare incinerator procurements and installations.																																

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Exhibit P-3a, Individual Modification: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	P-1 Line Item Number / Title: 0935 / Pollution Control Equipment	Modification Number / Title: 3 / HF031 DRY WASTE PROCESSING SUITE IMPROVEMENTS
ID Code (A=Service Ready, B=Not Service Ready) :		MDAP/MAIS Code:
⁽⁷⁾ HF031 Dry Waste Processing Improvements Manufacturer Identification is a hardware suite and includes various part pieces and equipment procurements from multiple vendors per specific ship requirements.		

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Exhibit P-40, Budget Line Item Justification: PB 2020 Navy										Date: March 2019		
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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity (<i>Units in Each</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost (<i>\$ in Millions</i>)	104.393	27.190	37.155	44.895	0.000	44.895	62.343	95.705	97.331	97.233	Continuing	Continuing
Less PY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (<i>\$ in Millions</i>)	104.393	27.190	37.155	44.895	0.000	44.895	62.343	95.705	97.331	97.233	Continuing	Continuing
Plus CY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority (<i>\$ in Millions</i>)	104.393	27.190	37.155	44.895	0.000	44.895	62.343	95.705	97.331	97.233	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 FY 2020 funding request was reduced by \$2.300 million to account for the availability of prior year execution balances. 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, alteration installation 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. These silencing program 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. As the VIRGINIA Class submarine program matures and more submarines enter the operational and sustainment phase of the lifecycle, Navy leadership made a decision to transfer funds for modernization and maintenance upgrades and obsolete equipment replacement from new construction program to the Submarine Support Equipment account for these items to be executed on operational VA class submarines. 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 / SSTG Digital Voltage Procurement]: 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 shipsets will be procured and installed. [P40A / ICS Block 1 & 2 Design Change Procurement]: Integrated Communications System (ICS) Block 1 & 2 and Block 5 - The interior Integrated Communication System installation on VA Class ships Block 1 & 2 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. To resolve current parts obsolescence, procurement and backfit of key replacement components (example, processor cards, graphics cards, Asynchronous Transfer Mode switches, Linear Displacement Transducers) on Block 1 & 2 platforms is required to ensure continued operation in the near term. This effort began in line item 0942 and transitioned to 0941 in FY18. To address continuing future obsolescence of the ICS, a system redesign and replacement via SHIPALT is required. SHIPALT development leveraging the Block 5 ICS design will commence in FY19 with procurements and installs in following years. [P40A / Bulkhead 6 Tile Maintenance SA 4563K Procurement]: 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												

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Exhibit P-40, Budget Line Item Justification: PB 2020 Navy		Date: March 2019
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		
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.		
[P40A / DGIOTS Shock Modification SA 4776K Procurement]: 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 14 ships). Material lead time is less than 12 months.		
[P40A / Fwd Automatic Bus Transfer Pwr Mod Procurement]: SSN Class Component Upgrades - Forward 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 Procurement]: 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-81, 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 D/Cath Protection Sys OER Procurement]: Circuit 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 Advanced Message Queuing Protocol (AMPQ), requiring Circuit (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 Impressed Current Cathodic Protection (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.		
[P40A / SSTG Reliability Upgrades Procurement]: 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. These alt designs would be installed by fleet activities and not require headquarters procurement or install funding. 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 / Portable Ship Control Unit Installation]: Portable Ship's Control Station - The current Portable Ship's Control Station on VA Class Bocks I and II is obsolete and not supported for spare parts or replacement tablets. This bridge suitcase is used to provide the officer of the deck with electronic chart navigation information and sensor contact information as well as ship's course/speed/rudder indication and related information while underway on the surface. SHIPALT 4776 has previously been developed to install new designed Portable Ship's Control Station (PSCS) systems, and shipsets procured by the VA Class Program Office (PMS450) in BLI 0942 to support installations in FY19 and follow years. Funding in 0941 provides for installation of these units.		
[P40A / High Pressure Air Dryer Design Development]: New Line. High Pressure Air Dryer (HPAD) controller components are obsolete and no longer support by the original equipment manufacturer. The replacement HPAD controller is identified but requires non-recurring engineering to build and qualify prototype then develop into a refresh/upgrade alteration with logistic support. Funds procurement for controller upgrades for applicable hulls and to purchase four (4) complete HPADs with upgraded controllers in FY23 to establish an Advanced Equipment Repair Program (AERP) for HPADs for SSN 21/774 Classes.		
[P40A / Drydeck Shelter]: New Line. Procures modification efforts required to modernize two of the remaining five DDS over the FYDP per a cost share agreement between Navy and USSOCOM. Funding continues engineering design, fabrication, assembly, acceptance, and testing for field change kits. Changes include extending the shelter 50 inches, replacing the Track and Cradle assembly with a higher		

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Exhibit P-40, Budget Line Item Justification: PB 2020 Navy		Date: March 2019
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		
capacity and remotely operated Payload-Launch and Recovery System (P-LARS), incorporation of remote controls for all DDS functions, and relocation of equipment inside the DDS hangar to accommodate Navy and USSOCOM payloads such as SWCS, Large Diameter Unmanned Undersea Vehicle, and a variant of the USSOCOM Dry Combat Submersible.		
[P40A / VA Class Acoustic Superiority Prog Design & Dev./Tech Transfer]: 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 Acoustic Superiority (AS) treatment on 5 BLK III submarines during their first Extended Docking Selected Restricted Availability (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 Intermediate Maintenance Activities (IMAs). 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]: Acoustic Range Replacement Equipment 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 SCS Microprocesor Proc Design & Dev]: 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 / SW Class SCS Microprocesor Procurement]: SEAWOLF Class Ship Control System Microprocessing Unit - This shipalt will replace Seawolf Class submarine ship control processing unit. The ship control processors are obsolete and contain electronic components that are no longer supported by industry.		
[P40A / LA/SW Class Design and Shipalt Dev. for SSTG Governors]: SSTG Governors - Provides for replacement of submarine 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.		
[P40A / SSTG MOD 25 Procurement]: SSTG Mod 25 - Provides for replacement on 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.		
[P40A / SEAWOLF Class SSTG Governor Procurement/Installation]: PB008 - SEAWOLF Class SSTG Governors - Provides for replacement on 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-40, Budget Line Item Justification: PB 2020 Navy								Date: March 2019	
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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Exhibit Type	Title*	Subexhibits	ID CD	MDAP/MAIS Code	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)
P-40a	Submarine Support Equipment				- / 104.393	- / 27.190	- / 37.155	- / 33.040	- / -	- / 33.040
P-3a	10 / PB002 VA Acoustic Superiority (TBD)				- / 0.000	- / 0.000	- / 0.000	- / 11.855	- / 0.000	- / 11.855
P-40	Total Gross/Weapon System Cost				- / 104.393	- / 27.190	- / 37.155	- / 44.895	- / 0.000	- / 44.895

Exhibits Schedule					FY 2021	FY 2022	FY 2023	FY 2024	To Complete	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				- / -	- / -	- / -	- / -	- / -	- / -
P-3a	10 / PB002 VA Acoustic Superiority (TBD)				- / 34.138	- / 61.802	- / 61.974	- / 69.378	- / 497.432	- / 736.579
P-40	Total Gross/Weapon System Cost				- / 62.343	- / 95.705	- / 97.331	- / 97.233	Continuing	Continuing

*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 control increase from FY19 to FY20 is due to Acoustic Superiority upgrade commencing Procurement and Staging efforts.

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Exhibit P-40a, Budget Item Justification For Aggregated Items: PB 2020 Navy															Date: March 2019					
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 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 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/PB51N SSN Class Component Upgrades																				
1.1) Propulsor Upgrade Procurement ⁽²⁾	A		-	-	-	-	-	2.500	-	-	0.750	-	-	0.765	-	-	-	-	-	0.765
1.2) Propulsor Upgrade Installation	A		-	-	-	-	-	4.400	-	-	1.800	-	-	1.836	-	-	-	-	-	1.836
1.3) SSTG Digital Voltage Procurement	A		-	-	-	-	-	3.600	-	-	-	-	-	-	-	-	-	-	-	-
1.4) SSTG Digital Voltage Installation ⁽³⁾	A		-	-	-	-	-	0.500	-	-	-	-	-	1.040	-	-	-	-	-	1.040
1.5) ICS Block 1 & 2 Design Change Procurement ⁽⁴⁾	A		-	-	-	-	-	1.000	-	-	-	-	-	-	-	-	-	-	-	-
1.6) ICS Block 1 & 2 Design Change Installation	A		-	-	-	-	-	2.500	-	-	2.550	-	-	-	-	-	-	-	-	-
1.7) ICS Block 5 ShipAlt Design & Dev. ⁽⁵⁾	A		-	-	-	-	-	-	-	-	4.890	-	-	1.809	-	-	-	-	-	1.809
1.8) ICS Block 5 Design Change Procurement ⁽⁶⁾	A		-	-	-	-	-	-	-	-	-	-	-	5.202	-	-	-	-	-	5.202
1.10) Bulkhead 6 Tile Maintenance SA 4563K Procurement	A		-	-	-	-	-	0.060	-	-	0.122	-	-	-	-	-	-	-	-	-
1.11) Bulkhead 6 Tile Maint SA 4563K Installation ⁽⁷⁾	A		-	-	-	-	-	0.645	-	-	0.658	-	-	1.342	-	-	-	-	-	1.342
1.12) DGIOTS Shock Modification SA 4776K Procurement ⁽⁸⁾	A		-	-	-	-	-	0.300	-	-	0.306	-	-	0.312	-	-	-	-	-	0.312
1.13) DGIOTS Shock Modification SA 4776K Installation	A		-	-	-	-	-	0.200	-	-	0.204	-	-	0.208	-	-	-	-	-	0.208
1.14) Fwd Automatic Bus Transfer Pwr Mod Design & Dev.	A		-	-	-	-	-	0.039	-	-	1.800	-	-	-	-	-	-	-	-	-
1.15) Fwd Automatic Bus Transfer Pwr Mod Procurement ⁽⁹⁾	A		-	-	-	-	-	-	-	-	-	-	-	0.816	-	-	-	-	-	0.816
1.16) Fwd Automatic Bus Transfer Pwr Mod Installation ⁽¹⁰⁾	A		-	-	-	-	-	-	-	-	-	-	-	3.264	-	-	-	-	-	3.264

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Exhibit P-40a, Budget Item Justification For Aggregated Items: PB 2020 Navy															Date: March 2019					
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 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 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)
1.17) MRO Shock Mod SA 4629K Design & Development	A		-	-	-	-	-	-	-	-	1.000	-	-	-	-	-	-	-	-	-
1.18) MRO Shock Mod SA 4629K Procurement ⁽¹¹⁾	A		-	-	-	-	-	-	-	-	0.420	-	-	0.857	-	-	-	-	-	0.857
1.19) MRO Shock Mod SA 4629K Installation	A		-	-	-	-	-	-	-	-	-	-	-	0.112	-	-	-	-	-	0.112
1.20) Circuit Cathodic Protection Sys OER Design & Dev.	A		-	-	-	-	-	-	-	-	0.768	-	-	1.119	-	-	-	-	-	1.119
1.21) Circuit D/Cath Protection Sys OER Procurement ⁽¹²⁾	A		-	-	-	-	-	-	-	-	1.200	-	-	1.224	-	-	-	-	-	1.224
1.22) Circuit D/Cath Protection Sys OER Installation	A		-	-	-	-	-	-	-	-	-	-	-	0.060	-	-	-	-	-	0.060
1.23) SSTG Reliability Upgrades Design & Dev. ⁽¹³⁾	A		-	-	-	-	-	-	-	-	0.459	-	-	0.134	-	-	-	-	-	0.134
1.26) Portable Ship Control Unit Installation ⁽¹⁴⁾	A		-	-	-	-	-	-	-	-	1.200	-	-	1.224	-	-	-	-	-	1.224
1.27) High Pressure Air Dryer Design Development ⁽¹⁵⁾	A		-	-	-	-	-	-	-	-	-	-	-	0.400	-	-	-	-	-	0.400
1.30) VA Class Acoustic Superiority Prog Design & Dev./ Tech Transfer ⁽¹⁶⁾	A		-	-	-	-	-	2.200	-	-	8.125	-	-	5.064	-	-	-	-	-	5.064
Subtotal: 1) PB002/PB5IN SSN Class Component Upgrades			-	-	0.000	-	-	17.944	-	-	26.252	-	-	26.788	-	-	-	-	-	26.788
2) PB004/PB5IN Facilities/Lab Upgrades																				
2.1) Acoustic Range Replacement Equipment ⁽¹⁷⁾	A		-	-	59.475	-	-	3.594	-	-	6.138	-	-	5.987	-	-	-	-	-	5.987
Subtotal: 2) PB004/PB5IN Facilities/ Lab Upgrades			-	-	59.475	-	-	3.594	-	-	6.138	-	-	5.987	-	-	-	-	-	5.987
3) PB007/PB5IN SW Class HM&E Threshold Modernization																				
3.1) SW Class SCS Microprocessor Proc Design & Dev	A		-	-	25.564	-	-	0.136	-	-	-	-	-	-	-	-	-	-	-	-

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Exhibit P-40a, Budget Item Justification For Aggregated Items: PB 2020 Navy															Date: March 2019					
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 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 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) SW Class SCS Microprocesor Procurement ⁽¹⁸⁾	A		-	-	-	-	-	1.562	-	-	2.500	-	-	-	-	-	-	-	-	-
3.3) SW Class SCS Microprocesor Installation/DSA	A		-	-	-	-	-	0.191	-	-	0.305	-	-	-	-	-	-	-	-	-
Subtotal: 3) PB007/PB5IN SW Class HM&E Threshold Modernization			-	-	25.564	-	-	1.889	-	-	2.805	-	-	-	-	-	-	-	-	-
4) PB008/PB5IN SSTG Governors																				
4.1) LA/SW Class Design and Shipalt Dev. for SSTG Governors ⁽¹⁹⁾	A		-	-	16.413	-	-	1.763	-	-	0.421	-	-	-	-	-	-	-	-	-
4.2) SSTG MOD 25 Procurement	A		-	-	-	-	-	2.000	-	-	1.021	-	-	-	-	-	-	-	-	-
4.3) SSTG MOD 25 Installation/DSA ⁽²⁰⁾	A		-	-	-	-	-	-	-	-	0.518	-	-	0.265	-	-	-	-	-	0.265
4.4) SEAWOLF Class SSTG Governor Procurement/ Installation	A		-	-	2.941	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: 4) PB008/PB5IN SSTG Governors			-	-	19.354	-	-	3.763	-	-	1.960	-	-	0.265	-	-	-	-	-	0.265
Total			-	-	104.393	-	-	27.190	-	-	37.155	-	-	33.040	-	-	-	-	-	33.040
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 Hull, Mechanical & Electrical (HM&E) Threshold Modernization (PB007) and SSTG Governors (PB008) are for SHIPALT design documentation and Integrated Logistics Support (ILS) product preparation costs. 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⁾ 1.1 & 1.2 Propulsor program provides upgrade to a total of 5 ships and completes in FY21.																				
⁽³⁾ 1.3 & 1.4 SSTG Digital Voltage Regulator program upgrades a total of 6 ships. Shipset procurement lead time is two years.																				
⁽⁴⁾ 1.5 & 1.6 ICS Block 1 & 2 Design Change: No funding required in FY20. Funding procures 1 unit in FY18 (second unit was procured by the VA Class program office in FY17) and installs a total of 2 units, one in FY18 and one in FY19.																				
⁽⁵⁾ 1.7 ICS Block 5 Design Change: Design & Development of a back fit SHIPALT leveraging the New Con block 5 design to provide ICS sustainment for earlier block hulls begins in FY19 and planned to complete in FY20.																				
⁽⁶⁾ 1.8 & 1.9 ICS Block 5 Design Change: Procurement funding begins in FY20 with installs beginning in FY21. This funding profile supports 7 procurements and 6 installs across the FYDP, with remaining procurements and installs outside the FYDP. Change made to ICS Block 5 Design Procurement and Installation because figures were transposed.																				
⁽⁷⁾ 1.10 & 1.11 Bulkhead 6 Tile Maintenance ShipAlt 4563K: Procurements have a 1-year lead time. FY20 funding supports 2 installations of 2 units procured in FY19, Program funding procures a total of 4 units (additional unit was procured separately by the VA Class program office in FY17) and installs a total of 5 units.																				
⁽⁸⁾ 1.12 & 1.13 DGIOTS Shock Modification ShipAlt 4776K: Procurement and installation occurs in the same year (less than 12-month lead time) executing 2 per year in FYs 18-20, 3 per year in FYs 21-22, and 1 per year in FYs 23-24 for a total of 14 Units.																				
⁽⁹⁾ 1.15 Forward Automatic Bus Transfer Power Mod: Procurement and installation occurs in the same year (less than 12 months lead time), executing 2 per year in FYs 20-23, and 1 per year in remaining FYs for a total of 10 Units.																				

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Exhibit P-40a, Budget Item Justification For Aggregated Items: PB 2020 Navy		Date: March 2019
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⁾
⁽¹⁰⁾ 1.16 Forward Automatic Bus Transfer Power Mod: Installation occurs in the same year as procurement (less than 12 months lead time), executing 2 per year in FYs 20-23, and 1 per year in remaining FYs for a total of 10 Units. ⁽¹¹⁾ 1.18 & 1.19 MRO Shock Mod ShipAlt 4629K funding plan is to procure and install a total of 8 units. ⁽¹²⁾ 1.21 & 1.22 Circuit D/Cathodic Protection Sys OER funding plan is to procure and install a total of 16 units. ⁽¹³⁾ 1.23, 1.24 & 1.25 SSTG Reliability Upgrades: Back fit design and SHIPALT development NRE is planned for FYs 19-20, with procurements starting in FY22 and installations starting in FY23 for a total of 10 ships. ⁽¹⁴⁾ 1.26 Four Portable Ship Control Units were procured by PMS450; funds showing in FY19 and FY20 are for installation of these. Starting in FY23 the plan is to procure and install 10 units. ⁽¹⁵⁾ 1.27 & 1.28 New Line - High Pressure Air Dryer funds NRE Design Development in FYs 20-22 and procurement in FYs 21-23 for applicable ships and for rotatable pool. ⁽¹⁶⁾ 1.30 VA Class Acoustic Superiority funding provides ShipAlt development. ⁽¹⁷⁾ 2.1 Acoustic Range replacement equipment requirements have been updated to include additional maintenance deferred from previous years. ⁽¹⁸⁾ 3.2 & 3.3 SEAWOLF Class Ship Control System Micro-Processing Unit funding procures and installs a total of 3 units and completes in FY19. ⁽¹⁹⁾ 4.1 SSTG Governor design and development NRE for SW and LA Mod 25 Class completes in FY19. ⁽²⁰⁾ 4.2 & 4.3 SSTG Governor Mod 25 funding procures and installs a total of 3 units completing in FY20.		

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Exhibit P-3a, Individual Modification: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	P-1 Line Item Number / Title: 0941 / Submarine Support Equipment	Modification Number / Title: 10 / PB002 VA Acoustic Superiority

ID Code (A=Service Ready, B=Not Service Ready) :							MDAP/MAIS Code:					
Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity (Units in Each)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost (\$ in Millions)	0.000	0.000	0.000	11.855	0.000	11.855	34.138	61.802	61.974	69.378	497.432	736.579
Less PY Advance Procurement (\$ in Millions)	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (\$ in Millions)	0.000	0.000	0.000	11.855	0.000	11.855	34.138	61.802	61.974	69.378	497.432	736.579
Plus CY Advance Procurement (\$ in Millions)	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority (\$ in Millions)	0.000	0.000	0.000	11.855	0.000	11.855	34.138	61.802	61.974	69.378	497.432	736.579
(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:

[VA Acoustic Superiority] PB002 SSN Class Component Upgrades - Virginia Class Acoustic Superiority (AS) - Funding is provided for procurement of AS treatment material for each hull and for installation labor. Material procurement has a 2-year lead time. Installation is planned during an EDSRA which starts in 4th qtr. FY22 and completes in FY24.

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Exhibit P-3a, Individual Modification: PB 2020 Navy								Date: March 2019					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9				P-1 Line Item Number / Title: 0941 / Submarine Support Equipment				Modification Number / Title: 10 / PB002 VA Acoustic Superiority					
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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	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)	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: PB002 VA Acoustic Superiority													
B Kits													
Recurring													
1.1.1) VA Acoustic Superiority - NonOrganic	- / -	- / -	- / -	1 / 10.000	- / -	1 / 10.000	1 / 10.200	1 / 10.404	1 / 10.612	2 / 21.649	5 / 57.697	11 / 120.562	
Subtotal: Recurring	- / 0.000	- / -	- / -	- / 10.000	- / -	- / 10.000	- / 10.200	- / 10.404	- / 10.612	- / 21.649	- / 57.697	- / 120.562	
Subtotal: PB002 VA Acoustic Superiority	- / -	- / -	- / -	1 / 10.000	- / -	1 / 10.000	1 / 10.200	1 / 10.404	1 / 10.612	2 / 21.649	5 / 57.697	11 / 120.562	
Subtotal: Procurement, All Modification Items	- / 0.000	- / -	- / -	- / 10.000	- / -	- / 10.000	- / 10.200	- / 10.404	- / 10.612	- / 21.649	- / 57.697	- / 120.562	
Support (All Modification Items)													
2.1) Acoustic Superiority Planning & Staging ⁽²¹⁾	- / -	- / -	- / -	- / 1.855	- / -	- / 1.855	- / 23.938	- / 19.098	- / 18.416	- / 14.124	- / 44.972	- / 122.403	
Subtotal: Support	- / 0.000	- / -	- / -	- / 1.855	- / -	- / 1.855	- / 23.938	- / 19.098	- / 18.416	- / 14.124	- / 44.972	- / 122.403	
Installation													
Modification Item 1 of 1: PB002 VA Acoustic Superiority	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 32.300	- / 32.946	- / 33.605	- / 394.763	- / 493.614	
Subtotal: Installation	- / 0.000	- / -	- / -	- / -	- / -	- / -	- / -	- / 32.300	- / 32.946	- / 33.605	- / 394.763	- / 493.614	
Total													
Total Cost (Procurement + Support + Installation)	0.000	0.000	0.000	11.855	0.000	11.855	34.138	61.802	61.974	69.378	497.432	736.579	

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Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019																					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9										P-1 Line Item Number / Title: 0941 / Submarine Support Equipment										Modification Number / Title: 10 / PB002 VA Acoustic Superiority											
ID Code (A=Service Ready, B=Not Service Ready) :															MDAP/MAIS Code:																
Modification Item 1 of 1: PB002 VA Acoustic Superiority																															
Manufacturer Information																															
Manufacturer Name: Electric Boat															Manufacturer Location: Groton, CT																
Administrative Leadtime (in Months): 3															Production Leadtime (in Months): 24																
Dates		FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024					
Contract Dates										Jul 2020				Jul 2021				Jul 2022				Jul 2023				Jul 2024					
Delivery Dates										Jul 2022				Jul 2023				Jul 2024				Jul 2025				Jul 2026					
Installation Information																															
Method of Implementation: [none specified]:: Installation Name: VA Acoustic Superiority																															
Installation Cost		Prior Years		FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total		FY 2021		FY 2022		FY 2023		FY 2024		To Complete		Total							
		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)							
Prior Years		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
FY 2018		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
FY 2019		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
FY 2020		- / -		- / -		- / -		- / -		- / -		- / -		- / -		1 / 32.300		- / -		- / -		0 / 0.000		1 / 32.300							
FY 2021		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		1 / 32.946		- / -		0 / 0.000		1 / 32.946							
FY 2022		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		1 / 33.605		0 / 0.000		1 / 33.605							
FY 2023		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		1 / 34.277		1 / 34.277							
FY 2024		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		2 / 69.925		2 / 69.925							
To Complete		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		5 / 290.561		5 / 290.561							
Total		- / -		- / -		- / -		- / -		- / -		- / -		- / -		1 / 32.300		1 / 32.946		1 / 33.605		8 / 394.763		11 / 493.614							
Installation Schedule																															
	PYS	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				TC	Tot
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4		
In	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	1	-	-	-	1	8	11
Out	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	11	11
Footnotes: ⁽²¹⁾ Funds provided in FY20 to Naval Shipyards to begin planning/design of environmental staging enclosures adaptable to their specific dry-docks to support AS installations. Funds provided in successive years for actual fabrication and assembly of multiple staging enclosures by individual Naval Shipyards to support planned execution of AS installations on submarines during targeted EDSRAs at each Shipyard																															

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Exhibit P-40, Budget Line Item Justification: PB 2020 Navy										Date: March 2019		
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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity (<i>Units in Each</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost (<i>\$ in Millions</i>)	1,166.825	46.610	66.328	28.465	0.000	28.465	23.263	22.910	23.326	23.792	Continuing	Continuing
Less PY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (<i>\$ in Millions</i>)	1,166.825	46.610	66.328	28.465	0.000	28.465	23.263	22.910	23.326	23.792	Continuing	Continuing
Plus CY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority (<i>\$ in Millions</i>)	1,166.825	46.610	66.328	28.465	0.000	28.465	23.263	22.910	23.326	23.792	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>)	-	-	0.068	-	-	-	-	-	-	-	-	0.068
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 materials required to operate, test, support and maintain the viability of VIRGINIA SSN774 Class Submarines. There is a significant decrease in the request from FY19 to FY20 driven primarily by the final hotel services working group installation on SSN 774 in FY19 and Naval Foundry and Propeller Center (NFPC) High speed Machine funding profile peaking in FY19. Additional details are provided below for each effort.

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 in FY18, FY19 and 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 COLUMBIA Program Office.

The Test and Evaluation (T&E) component 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 the submarine acoustic signatures trials program. The resultant capabilities support the Submarine Acoustic Trials Enterprise, which includes the VIRGINIA Class submarine test and evaluation program.

VIRGINIA Payload Tubes (VPT) and Intermediate and Depot (I&D) Support Equipment funding includes Vertical Launch System (VLS) Peculiar Support Equipment (PSE) for All-Up Round Simulators (AURS)/All-Up Round (AUR) Ballast Cans necessary to conduct TECHEVAL/OPEVAL and provide ballast for ship operation.

Non-Tactical Data Processing System (NTDPS) funding includes shipboard wireless LAN that 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).

The Hotel Services Working Group (HSWG) cost component provides funding for procurement and installation 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) Non-Propulsion Electronic System (NPES)

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Exhibit P-40, Budget Line Item Justification: PB 2020 Navy		Date: March 2019
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		
configuration. This combination of Hull, Mechanical and Electrical (HM&E) alterations to VIRGINIA Class submarines is collectively referred to as the "Hotel Services" modification. The last Hotel Services modernization kit procurement for SSN774 took place in FY18 and was installed during FY19 Depot Modernization Period(DMP). 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. 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, distributed and comprehensive training and maintenance solution delivering dynamic content. This set of tools and the associated ship-to-shore data environment will reduce Operations & Maintenance, Navy (OM&N) 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 NPES. The class level of modernization and capability rests on available resources. [P40A / Weapons Equipment: VPT Platform]: The VACL Submarines are being delivered at a rate of two per year, and must maintain a required racetrack to submarine ratio of 0.6 thru the FYDP. The increased quantity from FY19 to FY20 is required to maintain this ratio. [P40A / Auxiliary Equipment]: Auxiliary equipment component includes funding for ladders and ladder storage containers for Sail Racetracks, Logistics Escape Trunk/Logistics Plug Trunk (LET/LPT) and other equipment such as I&D material, support material for VPT, and storage containers for Center Cell Access Port(CCAP)/All Up Round Volumetric Shape(AURS)/All Up Round Ballast Grade B(AURBb). [P40A / Non-Tactical Data Processing System]: 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-40, Budget Line Item Justification: PB 2020 Navy				Date: March 2019	
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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Exhibit Type	Title*	Subexhibits	ID CD	MDAP/MAIS Code	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)
P-40a	Virginia Class Support Equipment				- / 619.204	- / 9.131	- / 13.622	- / 14.436	- / -	- / 14.436
P-3a	1 / H1RC6 - Major Shore Spares (Various)				- / 207.324	- / 22.255	- / 25.209	- / 14.029	- / 0.000	- / 14.029
P-3a	2 / HRC13 - Hotel Services (Various)				- / 266.472	- / 9.100	- / 27.497	- / 0.000	- / 0.000	- / 0.000
P-3a	3 / HRC13 - Infrastructure Upgrades (Various)				- / 33.080	- / 2.258	- / 0.000	- / 0.000	- / 0.000	- / 0.000
P-3a	4 / HRC13 - Ship Control System (SCS) Modernization Backfit (Various)				- / 40.745	- / 3.866	- / 0.000	- / 0.000	- / 0.000	- / 0.000
P-40	Total Gross/Weapon System Cost				- / 1,166.825	- / 46.610	- / 66.328	- / 28.465	- / 0.000	- / 28.465

Exhibits Schedule					FY 2021	FY 2022	FY 2023	FY 2024	To Complete	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				- / -	- / -	- / -	- / -	- / -	- / -
P-3a	1 / H1RC6 - Major Shore Spares (Various)				- / 7.236	- / 7.494	- / 7.630	- / 7.783	Continuing	Continuing
P-3a	2 / HRC13 - Hotel Services (Various)				- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 303.069
P-3a	3 / HRC13 - Infrastructure Upgrades (Various)				- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 35.338
P-3a	4 / HRC13 - Ship Control System (SCS) Modernization Backfit (Various)				- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 44.611
P-40	Total Gross/Weapon System Cost				- / 23.263	- / 22.910	- / 23.326	- / 23.792	Continuing	Continuing

*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 decrease in funding from FY19 to FY20 was driven by the final hotel services working group installation in FY19 (\$27M) and decrease of major shore spares (\$11M) as required investments at NFPC ramps down.

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Exhibit P-40a, Budget Item Justification For Aggregated Items: PB 2020 Navy															Date: March 2019					
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 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 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		-	-	30.046	-	-	2.047	-	-	2.021	-	-	2.030	-	-	-	-	-	2.030
Subtotal: 2) H1RC2 TEST & EVALUATION EQUIPMENT			-	-	30.046	-	-	2.047	-	-	2.021	-	-	2.030	-	-	-	-	-	2.030
3) H1RC8 - VPT and I&D Support Equipment																				
3.1) Weapons Equipment: VPT Platform	A		-	-	-	-	-	-	1,800K	2	3.600	1,836K	2	3.672	-	-	-	1,836K	2	3.672
3.2) Industrial Equipment: Sail Racetracks	A		-	-	-	-	-	-	300,000.00	2	0.600	306,000.00	4	1.224	-	-	-	306,000.00	4	1.224
3.3) Auxiliary Equipment	A		-	-	-	-	-	-	636,000.00	1	0.636	487,000.00	1	0.487	-	-	-	487,000.00	1	0.487
Subtotal: 3) H1RC8 - VPT and I&D Support Equipment			-	-	0.000	-	-	-	-	-	4.836	-	-	5.383	-	-	-	-	-	5.383
4) H1RC13 TECH INSERTION TECH REFRESH & UPGRADES																				
4.1) Shipboard Mobile Computing NTDPS (ULAN + SW Enclave + PDOCS + Upgrades)	A		-	-	16.890	-	-	2.535	-	-	2.581	-	-	2.627	-	-	-	-	-	2.627
4.2) Non-Tactical Data Processing System	A		-	-	4.467	-	-	4.549	-	-	4.184	-	-	4.396	-	-	-	-	-	4.396
Subtotal: 4) H1RC13 TECH INSERTION TECH REFRESH & UPGRADES			-	-	21.357	-	-	7.084	-	-	6.765	-	-	7.023	-	-	-	-	-	7.023
Total			-	-	619.204	-	-	9.131	-	-	13.622	-	-	14.436	-	-	-	-	-	14.436
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-3a, Individual Modification: PB 2020 Navy						Date: March 2019					
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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity <i>(Units in Each)</i>	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost <i>(\$ in Millions)</i>	207.324	22.255	25.209	14.029	0.000	14.029	7.236	7.494	7.630	7.783	Continuing	Continuing
Less PY Advance Procurement <i>(\$ in Millions)</i>	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) <i>(\$ in Millions)</i>	207.324	22.255	25.209	14.029	0.000	14.029	7.236	7.494	7.630	7.783	Continuing	Continuing
Plus CY Advance Procurement <i>(\$ in Millions)</i>	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority <i>(\$ in Millions)</i>	207.324	22.255	25.209	14.029	0.000	14.029	7.236	7.494	7.630	7.783	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>	-	-	-	-	-	-	-	-	-	-	-	-
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. 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.

Procure production tooling and fixtures and Leica trackers/scanners in support of additional high speed machining capabilities at the Naval Foundry and Propeller Center (NFPC) in Philadelphia.

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LI 0942 - Virginia Class Support Equipment
Navy

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Exhibit P-3a, Individual Modification: PB 2020 Navy					Date: March 2019		
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: Rolls Royce Marine North America - Spare Rotor				Manufacturer Location: Pascagoula, MS			
Administrative Leadtime <i>(in Months)</i> : 0				Production Leadtime <i>(in Months)</i> : 30			
Dates	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024
Contract Dates	Aug 2018	Aug 2019	Aug 2020	Aug 2021	Aug 2022	Aug 2023	Aug 2024
Delivery Dates	Feb 2021	Feb 2022	Feb 2023	Feb 2024	Feb 2025	Feb 2026	Feb 2027
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 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024
Contract Dates	Feb 2018	Feb 2019	Feb 2020				
Delivery Dates	Feb 2019	Feb 2020	Feb 2021				
Footnotes: ⁽¹⁾ The significant decrease in the profile from FY19 to FY20 in support of additional high speed machining capabilities at the Naval Foundry and Propeller Center (NFPC) in Philadelphia is due to the FY19 investment providing for one measuring machine, one blast booth, one 85-ton furnace and one SU-22 (vertical turning center) while the FY20 investment will provide for fully funding production tooling and fixtures and Leica trackers/scanners.							

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Exhibit P-3a, Individual Modification: PB 2020 Navy						Date: March 2019					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9				P-1 Line Item Number / Title: 0942 / Virginia Class Support Equipment				Modification Number / Title: 2 / HRC13 - Hotel Services			

ID Code (A=Service Ready, B=Not Service Ready) :						MDAP/MAIS Code:						
Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity (Units in Each)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost (\$ in Millions)	266.472	9.100	27.497	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	303.069
Less PY Advance Procurement (\$ in Millions)	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (\$ in Millions)	266.472	9.100	27.497	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	303.069
Plus CY Advance Procurement (\$ in Millions)	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority (\$ in Millions)	266.472	9.100	27.497	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	303.069
(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:

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.

Final hotel services modernization kit was procured in FY18 and installed in PB19. This is the final procurement and installation for HSWG, after which all Block I and II hulls will have received the upgrade.

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Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019			
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9				P-1 Line Item Number / Title: 0942 / Virginia Class Support Equipment						Modification Number / Title: 2 / HRC13 - Hotel Services			
ID Code (A=Service Ready, B=Not Service Ready) :								MDAP/MAIS Code:					
Models of Systems Affected: VA Class Submarines				Modification Type: Various				Related RDT&E PEs:					
Financial Plan	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total	
	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	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: HRC13 - Hotel Services													
A Kits													
Non-Recurring													
1.1.1) Design - Organic	- / 34.233	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / 34.233	
1.1.2) TI-02 Baseline Upgrade - NonOrganic	9 / 79.300	1 / 9.100	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	10 / 88.400	
Subtotal: Non-Recurring	- / 113.533	- / 9.100	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / 0.000	- / 122.633	
Subtotal: HRC13 - Hotel Services	9 / 113.533	1 / 9.100	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	10 / 122.633	
Subtotal: Procurement, All Modification Items	- / 113.533	- / 9.100	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / 0.000	- / 122.633	
Installation													
Modification Item 1 of 1: HRC13 - Hotel Services													
	- / 152.939	- / 0.000	- / 27.497	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 180.436	
Subtotal: Installation	- / 152.939	- / -	- / 27.497	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / 0.000	- / 180.436	
Total													
Total Cost (Procurement + Support + Installation)	266.472	9.100	27.497	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	303.069	

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Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019																					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9										P-1 Line Item Number / Title: 0942 / Virginia Class Support Equipment										Modification Number / Title: 2 / HRC13 - Hotel Services											
ID Code (A=Service Ready, B=Not Service Ready) :															MDAP/MAIS Code:																
Modification Item 1 of 1: HRC13 - Hotel Services																															
Manufacturer Information																															
Manufacturer Name: Electric Boat-VA Platform Mod ⁽²⁾															Manufacturer Location: Groton, CT																
Administrative Leadtime <i>(in Months)</i> : 0															Production Leadtime <i>(in Months)</i> : 9																
Dates		FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024					
Contract Dates		Oct 2017																													
Delivery Dates		Jul 2018																													
Installation Information																															
Method of Implementation: AIT:: Installation Name: TI-02 Baseline Upgrade																															
Installation Cost		Prior Years	FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total		FY 2021		FY 2022		FY 2023		FY 2024		To Complete		Total								
		Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)								
Prior Years		9 / 152.939		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.000		9 / 152.939							
FY 2018		- / -		- / -		1 / 27.497		- / -		- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.000		1 / 27.497							
FY 2019		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -							
FY 2020		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -							
FY 2021		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -							
FY 2022		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -							
FY 2023		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -							
FY 2024		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -							
To Complete		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -							
Total		9 / 152.939		- / -		1 / 27.497		- / -		- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.000		10 / 180.436							
Installation Schedule																															
	PYS	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				TC	Tot
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4		
In	9	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	10
Out	9	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	10
Footnotes: ⁽²⁾ VA Platform Modernization TI-02 Baseline Upgrade																															

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Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019		
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9					P-1 Line Item Number / Title: 0942 / Virginia Class Support Equipment					Modification Number / Title: 3 / HRC13 - Infrastructure Upgrades		
ID Code (A=Service Ready, B=Not Service Ready) :							MDAP/MAIS Code:					
Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity <i>(Units in Each)</i>	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost <i>(\$ in Millions)</i>	33.080	2.258	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	35.338
Less PY Advance Procurement <i>(\$ in Millions)</i>	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) <i>(\$ in Millions)</i>	33.080	2.258	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	35.338
Plus CY Advance Procurement <i>(\$ in Millions)</i>	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority <i>(\$ in Millions)</i>	33.080	2.258	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	35.338
<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: 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-3a, Individual Modification: PB 2020 Navy								Date: March 2019					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9				P-1 Line Item Number / Title: 0942 / Virginia Class Support Equipment				Modification Number / Title: 3 / HRC13 - Infrastructure Upgrades					
ID Code (A=Service Ready, B=Not Service Ready) :								MDAP/MAIS Code:					
Models of Systems Affected: VA Class Submarines				Modification Type: Various				Related RDT&E PEs:					
Financial Plan	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total	
	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	
Procurement													
<i>Modification Item 1 of 1:</i> HRC13 - Infrastructure Upgrades													
A Kits													
Recurring													
1.1.1) Design - Organic	- / 4.312	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / 4.312	
<i>Subtotal: Recurring</i>	- / 4.312	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / 0.000	- / 4.312	
Non-Recurring													
1.2.1) Infrastructure Updates (from TI-08 and beyond baseline) - NonOrganic	4 / 18.242	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	4 / 18.242	
<i>Subtotal: Non-Recurring</i>	- / 18.242	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / 0.000	- / 18.242	
<i>Subtotal: HRC13 - Infrastructure Upgrades</i>	4 / 22.554	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	4 / 22.554	
<i>Subtotal: Procurement, All Modification Items</i>	- / 22.554	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / 0.000	- / 22.554	
Installation													
<i>Modification Item 1 of 1:</i> HRC13 - Infrastructure Upgrades	- / 10.526	- / 2.258	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 12.784	
<i>Subtotal: Installation</i>	- / 10.526	- / 2.258	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / 0.000	- / 12.784	
Total													
Total Cost (Procurement + Support + Installation)	33.080	2.258	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	35.338	

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Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019																					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9										P-1 Line Item Number / Title: 0942 / Virginia Class Support Equipment										Modification Number / Title: 3 / HRC13 - Infrastructure Upgrades											
ID Code (A=Service Ready, B=Not Service Ready) :															MDAP/MAIS Code:																
Modification Item 1 of 1: HRC13 - Infrastructure Upgrades																															
Manufacturer Information																															
Manufacturer Name: Electric Boat-Infrastructure Upgrades															Manufacturer Location: Groton, CT																
Administrative Leadtime (in Months): 0															Production Leadtime (in Months): 10																
Dates		FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024					
Contract Dates																															
Delivery Dates																															
Installation Information																															
Method of Implementation: ALT:: Installation Name: Infrastructure Updates (from TI-08 and beyond baseline)																															
Installation Cost		Prior Years		FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total		FY 2021		FY 2022		FY 2023		FY 2024		To Complete		Total							
		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)							
Prior Years		3 / 10.526		1 / 2.258		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.000		4 / 12.784					
FY 2018		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
FY 2019		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
FY 2020		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
FY 2021		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
FY 2022		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
FY 2023		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
FY 2024		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
To Complete		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
Total		3 / 10.526		1 / 2.258		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.000		4 / 12.784					
Installation Schedule																															
	PYS	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				TC	Tot
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4		
In	3	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4
Out	3	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4

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Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019		
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9					P-1 Line Item Number / Title: 0942 / Virginia Class Support Equipment					Modification Number / Title: 4 / HRC13 - Ship Control System (SCS) Modernization Backfit		
ID Code (A=Service Ready, B=Not Service Ready) :							MDAP/MAIS Code:					
Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity (<i>Units in Each</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost (<i>\$ in Millions</i>)	40.745	3.866	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	44.611
Less PY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (<i>\$ in Millions</i>)	40.745	3.866	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	44.611
Plus CY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority (<i>\$ in Millions</i>)	40.745	3.866	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	44.611
<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 and install obsolescence redesign for Ship Control System (SC) 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: PB 2020 Navy								Date: March 2019					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9				P-1 Line Item Number / Title: 0942 / Virginia Class Support Equipment						Modification Number / Title: 4 / HRC13 - Ship Control System (SCS) Modernization Backfit			
ID Code (A=Service Ready, B=Not Service Ready) :							MDAP/MAIS Code:						
Models of Systems Affected: VA Class Submarines				Modification Type: Various				Related RDT&E PEs:					
Financial Plan	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total	
	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	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: HRC13 - Ship Control System (SCS) Modernization Backfit													
A Kits													
Non-Recurring													
1.1.1) Modification Non-Recurring - Organic		- / 5.300	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / 5.300	
Subtotal: Non-Recurring		- / 5.300	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / 0.000	- / 5.300	
B Kits													
Non-Recurring													
2.1.1) Material and Install - NonOrganic		5 / 23.868	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	5 / 23.868	
Subtotal: Non-Recurring		- / 23.868	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / 0.000	- / 23.868	
Subtotal: HRC13 - Ship Control System (SCS) Modernization Backfit		5 / 29.168	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	5 / 29.168	
Subtotal: Procurement, All Modification Items		- / 29.168	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / 0.000	- / 29.168	
Installation													
Modification Item 1 of 1: HRC13 - Ship Control System (SCS) Modernization Backfit		- / 11.577	- / 3.866	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 15.443	
Subtotal: Installation		- / 11.577	- / 3.866	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / 0.000	- / 15.443	
Total													
Total Cost (Procurement + Support + Installation)		40.745	3.866	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	44.611	

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Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019																					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9										P-1 Line Item Number / Title: 0942 / Virginia Class Support Equipment										Modification Number / Title: 4 / HRC13 - Ship Control System (SCS) Modernization Backfit											
ID Code (A=Service Ready, B=Not Service Ready) :															MDAP/MAIS Code:																
Modification Item 1 of 1: HRC13 - Ship Control System (SCS) Modernization Backfit																															
Manufacturer Information																															
Manufacturer Name: Electric Boat-Procurement ⁽³⁾															Manufacturer Location: Groton, CT																
Administrative Leadtime (in Months): 0															Production Leadtime (in Months): 13																
Dates		FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024					
Contract Dates																															
Delivery Dates																															
Installation Information																															
Method of Implementation: AIT:: Installation Name: Material and Install																															
Installation Cost		Prior Years		FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total		FY 2021		FY 2022		FY 2023		FY 2024		To Complete		Total							
		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)							
Prior Years		4 / 11.577		1 / 3.866		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.000		5 / 15.443					
FY 2018		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
FY 2019		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
FY 2020		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
FY 2021		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
FY 2022		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
FY 2023		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
FY 2024		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
To Complete		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
Total		4 / 11.577		1 / 3.866		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.000		5 / 15.443					
Installation Schedule																															
	PYS	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				TC	Tot
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4		
In	4	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5
Out	4	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5
Footnotes: ⁽³⁾ SCS Backfit Procurement																															

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Exhibit P-40, Budget Line Item Justification: PB 2020 Navy								Date: March 2019				
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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity (Units in Each)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost (\$ in Millions)	168.503	43.407	47.241	19.426	0.000	19.426	54.365	69.941	49.706	69.080	-	521.669
Less PY Advance Procurement (\$ in Millions)	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (\$ in Millions)	168.503	43.407	47.241	19.426	0.000	19.426	54.365	69.941	49.706	69.080	-	521.669
Plus CY Advance Procurement (\$ in Millions)	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority (\$ in Millions)	168.503	43.407	47.241	19.426	0.000	19.426	54.365	69.941	49.706	69.080	-	521.669
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)												
Initial Spares (\$ in Millions)	-	1.492	2.754	-	-	-	-	-	-	-	-	4.246
Flyaway Unit Cost (\$ in Dollars)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost (\$ in Dollars)	-	-	-	-	-	-	-	-	-	-	-	-
Description:												
The FY 2020 funding request was reduced by \$9.000 million to account for the availability of prior year execution balances.												
This funding procures long-lead major end items and sub-component kits required for repairs to both variants of Littoral Combat Ships (LCS). The items procured mitigate major long-lead replacement times due to 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 ship and mission package systems. Systems that require shore-based spares include gas turbines, diesel engines and generators, propulsion systems, reduction gears, Auxiliary Propulsion Units (APUs), Machinery Plant Control & Monitoring Systems (MPCMSs), Command/Control/Communications/Computers/Collaboration/Intelligence (C5I), Combat Systems, AIS Laptops and mission package support equipment. Inventory objectives are determined by the LCS Reliability, Maintainability, and Availability (RMA) data, NAVSEA RMA guidance, the critical application of equipment, and inputs from the NAVSEA 05 technical community. The MK 110 57MM gun (BOFORS) is a multi-purpose, medium caliber gun installed on all LCS hulls. The primary mission of the MK 110 Gun Mount is to provide engagement of known surface threats during combat operations in a theater area of operation. This system is common across both variants of LCS.												
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 variants and five water jet configurations, 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 as battle spares material and support a rotatable pool for life cycle sustainment. In the event of a casualty the broken water jet is replaced with an operational asset from the water jet inventory pool and the non functional asset is sent to the depot to be repaired. AIS Laptops - procurement and fit LCS platforms with additional PoR AIS laptops in CIC (Freedom Variant 16 quantity/ Independence Variant 16 Quantity).												
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.												

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Exhibit P-40, Budget Line Item Justification: PB 2020 Navy		Date: March 2019
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		
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: PB 2020 Navy								Date: March 2019		
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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Exhibit Type	Title*	Subexhibits	ID CD	MDAP/MAIS Code	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)
P-40a	LCS Class Support Equipment	P-5a, P-21			- / 168.503	- / 43.407	- / 47.241	- / 19.426	- / -	- / 19.426
P-40	Total Gross/Weapon System Cost				- / 168.503	- / 43.407	- / 47.241	- / 19.426	- / 0.000	- / 19.426
*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: FY 2020 funding supports procurement of multiple LCS Battlespares: (1) Twin-Boom extensible crane (Independence variant), (1)) Star Safire III, (1) MK 110 57MM gun, (1) TRS 4D Radar (partial kit, Freedom variant) and (2) boat davits (Freedom and Independence variants). The MK 110 57MM gun is classified as a single point of failure (SPF) component for LCS, as it has no redundancy and a failure of the gun is a mission ending event. Based on failure analysis/rates on LCS (from April 2014 through December 2018), there have been multiple critical / non-critical failures identified across 7 hulls. Due to mission criticality and the fact that this system is common across both variants of LCS, the technical community has recommended a complete Battle Spare procurement to support the mission. AIS Laptops - procurement and fit LCS platforms with additional PoR AIS laptops in CIC (Freedom Variant 2 quantity/ Independence Variant 2 Quantity) \$350K										

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Exhibit P-40a, Budget Item Justification For Aggregated Items: PB 2020 Navy															Date: March 2019					
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 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 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		3,588K	4	14.353	5,924K	1	5.924	-	-	-	-	-	-	-	-	-	-	-	-
1.2) MT-30 GAS TURBINE ENGINE (SUB-ASSEMBLY ENGINE FREEDOM VARIANT)	A		3,358K	3	10.073	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.3) MT-30 GAS TURBINE ENGINE (FULL ENGINE FREEDOM VARIANT) ^(†)	A		-	-	-	-	-	-	16,540K	1	16.540	-	-	-	-	-	-	-	-	-
1.4) SHIPS SERVICE DIESEL GENERATOR (INDEPENDENCE VARIANT)	A		3,158K	3	9.475	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.5) LAUNCH, RECOVERY, AND HANDLING SYSTEM (FREEDOM VARIANT) ^(†)	A		3,700K	2	7.400	-	-	-	3,595K	1	3.595	-	-	-	-	-	-	-	-	-
1.6) INTEGRATED BRIDGE SYSTEM	A		924,000.00	1	0.924	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.7) MT-30 GAS TURBINE ENGINE ANCILLARY EQUIPMENT (FREEDOM VARIANT)	A		8,354K	1	8.354	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.9) MAIN PROP. CONTRL. & MONITOR SYS (MPCMS) Partial kit	A		750,000.00	1	0.750	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.10) TWIN-BOOM EXTENSIBLE CRANE (INDEPENDENCE VARIANT) ^(†)	A		3,700K	1	3.700	-	-	-	-	-	-	4,139K	1	4.139	-	-	-	4,139K	1	4.139
1.11) TRS-3D RADAR (FREEDOM VARIANT)	A		1,189K	3	3.566	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.12) SEA GIRAFFE 3D RADAR	A		1,856K	2	3.713	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

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Exhibit P-40a, Budget Item Justification For Aggregated Items: PB 2020 Navy															Date: March 2019					
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 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 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)
(INDEPENDENCE VARIANT)																				
1.13) MULT. AIRCRAFT NOSE & TAILGEAR INTEGRATED SYS (INDEPENDENCE VARIANT)	A		450,000.00	2	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		725,000.00	2	1.450	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.17) AUXILIARY PROPULSION UNIT	A		1,063K	3	3.188	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.18) MAIN PROPULSION DIESEL ENGINE (FREEDOM VARIANT)	A		5,647K	2	11.294	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.19) SHIPS SERVICE DIESEL GENERATOR (FREEDOM VARIANT)	A		812,000.00	4	3.248	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.26) Star Safire III ^(†)	A		-	-	-	-	-	-	-	-	-	1,428K	1	1.428	-	-	-	1,428K	1	1.428
1.27) MK 110 57MM GUN ^(†)	A		-	-	-	-	-	-	-	-	-	9,606K	1	9.606	-	-	-	9,606K	1	9.606
1.35) TRS-4D RADAR/Partial Kit (FREEDOM VARIANT) ^(†)	A		-	-	-	-	-	-	-	-	-	829,000.00	1	0.829	-	-	-	829,000.00	1	0.829
1.36) Boat Davit 5 AF ^(†)	A		-	-	-	-	-	-	-	-	-	295,000.00	1	0.295	-	-	-	295,000.00	1	0.295
1.37) Boat Davit 6 AF ^(†)	A		-	-	-	-	-	-	-	-	-	2,500K	1	2.500	-	-	-	2,500K	1	2.500
1.39) AIS Laptops (Both Variants)	A		-	-	-	-	-	0.775	-	-	0.425	-	-	0.350	-	-	-	-	-	0.350
Subtotal: 1) LN001 LCS Battle Spares			-	-	102.451	-	-	6.699	-	-	20.560	-	-	19.147	-	-	-	-	-	19.147
2) LN002 LCS Water Jet Spares																				

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Exhibit P-40a, Budget Item Justification For Aggregated Items: PB 2020 Navy															Date: March 2019					
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 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 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) WATERJET ASSEMBLY (FREEDOM VARIANT)	A		2,021K	8	16.168	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2.2) WATERJET IMPELLER (INDEPENDENCE VARIANT)	A		1,501K	7	10.507	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: 2) LN002 LCS Water Jet Spares			-	-	26.675	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4) LN002 LCS 5AF Water Jet Spares																				
4.1) Steerable Jet Assembly ^(†)	A		-	-	-	-	-	-	1,720K	7	12.043	-	-	-	-	-	-	-	-	-
4.2) Boost Jet Assembly ^(†)	A		-	-	-	-	-	-	1,200K	7	8.400	-	-	-	-	-	-	-	-	-
4.3) Impeller Shaft Assembly ^(†)	A		-	-	-	-	-	-	1,020K	6	6.120	-	-	-	-	-	-	-	-	-
Subtotal: 4) LN002 LCS 5AF Water Jet Spares			-	-	0.000	-	-	-	-	-	26.563	-	-	-	-	-	-	-	-	-
7) LN002 LCS 6AF Water Jet Spares																				
7.1) WLD 1500 Water Jet Assembly ^(†)	A		-	-	-	1,205K	11	13.255	-	-	-	-	-	-	-	-	-	-	-	-
7.2) WLD 1720 WJ Assembly ^(†)	A		-	-	-	803,333.33	10	8.033	-	-	-	-	-	-	-	-	-	-	-	-
7.3) WLD 1500 Shaft Assembly ^(†)	A		-	-	-	430,000.00	10	4.300	-	-	-	-	-	-	-	-	-	-	-	-
7.4) WLD 1720 Shaft Assembly ^(†)	A		-	-	-	430,000.00	10	4.300	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: 7) LN002 LCS 6AF Water Jet Spares			-	-	0.000	-	-	29.888	-	-	-	-	-	-	-	-	-	-	-	-
8) LN003 Engineering Services (TDPs & installation planning)																				
8.1) Engineering Services (TDPs & installation planning)	A		-	-	0.613	-	-	-	-	-	0.064	-	-	0.114	-	-	-	-	-	0.114
8.2) Modernization Design/Eng Changes for LCS 4	A		-	-	7.347	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: 8) LN003 Engineering Services (TDPs & installation planning)			-	-	7.960	-	-	-	-	-	0.064	-	-	0.114	-	-	-	-	-	0.114
9) LN004 Habitability Modification																				

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Exhibit P-40a, Budget Item Justification For Aggregated Items: PB 2020 Navy															Date: March 2019					
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 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 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)
9.1) HABITABILITY MOD (FREEDOM VARIANT)	A		3,113K	3	9.340	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
9.2) HABITABILITY MOD (INDEPENDENCE VARIANT)	A		2,263K	4	9.051	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: 9) LN004 Habitability Modification			-	-	18.391	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10) LN005 LCS Ship Class Safety Design Changes																				
10.1) Stern Ramp (FREEDOM VARIANT)	A		600,000.00	3	1.800	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10.2) Bridge Wings (INDEPENDENCE VARIANT)	A		2,525K	4	10.100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: 10) LN005 LCS Ship Class Safety Design Changes			-	-	11.900	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11) LN006 Ancillary Equipment																				
11.1) Ancillary Equipment	A		-	-	0.535	-	-	0.105	-	-	0.054	-	-	0.165	-	-	-	-	-	0.165
Subtotal: 11) LN006 Ancillary Equipment			-	-	0.535	-	-	0.105	-	-	0.054	-	-	0.165	-	-	-	-	-	0.165
12) LN007 Afloat Forward Staging Base SOF Mods																				
12.1) AFSB SOF Mods MLP-AFSB 3 Rev	A		-	-	0.591	-	-	6.715	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: 12) LN007 Afloat Forward Staging Base SOF Mods			-	-	0.591	-	-	6.715	-	-	-	-	-	-	-	-	-	-	-	-
Total			-	-	168.503	-	-	43.407	-	-	47.241	-	-	19.426	-	-	-	-	-	19.426
Note: Subtotals or Totals in this Exhibit P-40a may not be exact or sum exactly, due to rounding. (†) indicates the presence of a P-5a																				

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Exhibit P-5a, Procurement History and Planning: PB 2020 Navy								Date: March 2019				
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9			P-1 Line Item Number / Title: 0944 / LCS Class Support Equipment					Aggregated Items: LCS Class Support Equipment				
Item Number / Title [DODIC]	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) LN001 LCS Battle Spares												
1.1) MAIN PROPULSION DIESEL ENGINE (INDEPENDENCE VARIANT)		2018	MTU / GERMANY	C / FFP	NAVSEA	Jun 2018	Jun 2019	1	5,924K	Y		Feb 2017
1.3) MT-30 GAS TURBINE ENGINE (FULL ENGINE FREEDOM VARIANT)		2019	ROLLS ROYCE / WALEPOLE, MA	C / TBD	** NO PCO **	Mar 2019	Mar 2020	1	16,540K	Y		
1.5) LAUNCH, RECOVERY, AND HANDLING SYSTEM (FREEDOM VARIANT)		2019	Oldenburg Group Inc. / Kingsford, MI	C / FFP	NAVSUP/WSS	Jun 2019	Dec 2020	1	3,595K	Y		Feb 2018
1.10) TWIN-BOOM EXTENSIBLE CRANE (INDEPENDENCE VARIANT)		2020	Maritime Applied Physics Corporation / Baltimore, MD	C / FFP	NAVSEA	Jun 2020	Dec 2021	1	4,139K	Y		Nov 2019
1.26) Star Safire III		2020	KVR / Seattle, WA	C / FFP	SOSBATH	Jun 2020	Dec 2021	1	1,428K	Y		Nov 2019
1.27) MK 110 57MM GUN		2020	BAE / NASHUA NH	C / FFP	SOSBATH	Jun 2020	Jun 2022	1	9,606K	Y		Nov 2019
1.35) TRS-4D RADAR/Partial Kit (FREEDOM VARIANT)		2020	DLA / Philadelphia, PA	C / FFP	DLA	Apr 2020	Oct 2021	1	829,000.00	Y		Jun 2019
1.36) Boat Davit 5 AF		2020	DLA / Philadelphia, PA	C / FFP	DLA	Apr 2020	Apr 2020	1	295,000.00	Y		Jun 2019
1.37) Boat Davit 6 AF		2020	DLA / Philadelphia, PA	C / FFP	DLA2019-06	Apr 2020	Oct 2021	1	2,500K	Y		
4) LN002 LCS 5AF Water Jet Spares												
4.1) Steerable Jet Assembly ^(†)		2019	ROLLS ROYCE / WALEPOLE, MA	C / FFP	SOSBATH	Mar 2019	Mar 2021	7	1,720K	Y		
4.2) Boost Jet Assembly ^(†)		2019	Rolls Royce / MS	C / FFP	SOSBATH	Mar 2019	Mar 2021	7	1,200K	Y		
4.3) Impeller Shaft Assembly		2019	ROLLS ROYCE / WALEPOLE, MA	C / FFP	SOSBATH	Jun 2019	Jun 2021	6	1,020K	Y		Nov 2018
7) LN002 LCS 6AF Water Jet Spares												
7.1) WLD 1500 Water Jet Assembly		2018	GD-BIW / Bath ME	C / FFP	SOSBATH	Feb 2019	Feb 2022	11	1,205K	Y		Nov 2017
7.2) WLD 1720 WJ Assembly		2018	GD-BIW / Bath ME	C / FFP	SOSBATH	Feb 2019	Feb 2021	10	803,333.33	Y		Nov 2017
7.3) WLD 1500 Shaft Assembly		2018	GD-BIW / Bath ME	C / FFP	SOSBATH	Jul 2018	Jul 2019	10	430,000.00	Y		Nov 2017
7.4) WLD 1720 Shaft Assembly		2018	GD-BIW / Bath ME	C / FFP	SOSBATH	Feb 2019	Feb 2020	10	430,000.00	Y		Nov 2017
^(†) indicates the presence of a P-21												

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Exhibit P-21, Production Schedule: PB 2020 Navy																				Date: March 2019													
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9										P-1 Line Item Number / Title: 0944 / LCS Class Support Equipment										Aggregated Items: LCS Class Support Equipment													
Items <i>(Units in Each)</i>							Fiscal Year 2018										Fiscal Year 2019										BALANCE						
OCO	MFR #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2017	BAL DUE AS OF 1 OCT	Calendar Year 2018										Calendar Year 2019																
							OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY		JUN	JUL	AUG	SEP		
4) LN002 LCS 5AF Water Jet Spares																																	
4.1) Steerable Jet Assembly																																	
	2	2019	NAVY		7	0	7																		A -	-	-	-	-	-	-	-	7
4.2) Boost Jet Assembly																																	
	3	2019	NAVY		7	0	7																		A -	-	-	-	-	-	-	-	7
								OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP		

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Exhibit P-21, Production Schedule: PB 2020 Navy																							Date: March 2019										
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9										P-1 Line Item Number / Title: 0944 / LCS Class Support Equipment													Aggregated Items: LCS Class Support Equipment										
Items <i>(Units in Each)</i>							Fiscal Year 2020													Fiscal Year 2021													BALANCE
OCO	MFR #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2019	BAL DUE AS OF 1 OCT	Calendar Year 2020													Calendar Year 2021													
							OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP			
4) LN002 LCS 5AF Water Jet Spares																																	
4.1) Steerable Jet Assembly																																	
	2	2019	NAVY		7	0	7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	1				0	
4.2) Boost Jet Assembly																																	
	3	2019	NAVY		7	0	7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	1					0	
							OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP			

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Exhibit P-21, Production Schedule: PB 2020 Navy									Date: March 2019			
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9					P-1 Line Item Number / Title: 0944 / LCS Class Support Equipment				Aggregated Items: LCS Class Support Equipment			
MFR Ref #	Manufacturer Name - Location	Production Rates (Each / Year)			Procurement Leadtime (Months)							
		MSR For 2020	1-8-5 For 2020	MAX For 2020	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	ROLLS ROYCE - WALEPOLE, MA			TBD	0	0	0	0	0	0	24	24
2	Rolls Royce - MS			TBD	0	0	0	0	0	0	24	24

"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: PB 2020 Navy										Date: March 2019		
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): 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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity (<i>Units in Each</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost (<i>\$ in Millions</i>)	316.840	24.394	24.460	26.290	0.000	26.290	24.879	19.972	21.630	22.053	Continuing	Continuing
Less PY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (<i>\$ in Millions</i>)	316.840	24.394	24.460	26.290	0.000	26.290	24.879	19.972	21.630	22.053	Continuing	Continuing
Plus CY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority (<i>\$ in Millions</i>)	316.840	24.394	24.460	26.290	0.000	26.290	24.879	19.972	21.630	22.053	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:

Procurement of Valve Regulated Lead Acid (VRLA) batteries and installation of Ship Alteration (ShipAlt) to modify submarines from use of legacy flooded battery (no longer in production at former sole source manufacturer) to new design VRLA battery. Installation of the VRLA battery includes installation of a new Automatic Battery Monitoring system (ABMS) as part of the ShipAlt. This program procures and installs initial and replacement VRLA batteries for all classes of submarines (LOS ANGELES, SEAWOLF, OHIO SSBN/SSGNs and VIRGINIA). Batteries have a finite life and are consumables; this budget procures replacement VRLA batteries throughout the submarine service life on a notional 4 to 5 year replacement cycle.

Battery operation and capacity is critical. Without acceptable battery capacity submarines cannot deploy effectively reducing the submarine force at a time when Strategic requirements, force protection and intelligence gathering capabilities are in high demand by combatant commanders. Beginning in FY19, program requirements were increased to provide needed critical support to operational submarines. These are funded via HM830 and include:

Battery Installation Test Equipment/Fixtures: Procures battery charging and test equipment to support the testing, balancing, and charging of Submarine Batteries at Puget Sound Naval Shipyard (PSNSY). This replaces the current PSNS Battery Shop 1,500 Amperes(AMP) Motor Generator with a 5,000 AMP solid state battery charger and other improvements required to conduct pre installation battery testing and troubleshooting prior to installation on SSBN/SSGNs.

Submarine Battery Evaluation Center (SUBBEC): Procures needed equipment and test stands for a full battery test station at NSWC Crane to test a full submarine battery (250+ cells). This is vitally needed to help solve the battery life issues being experienced in the fleet. The proposed system would allow 24/7 unmanned testing and evaluation within the existing submarine battery test activity at NSWC Crane. Current capability must be constantly manned and monitored and only allows for testing of a small quantity of cells which does not provide a completely accurate representation of submarine battery operating profile or battery reaction to changes in profiles due to inherent in-balance in the strings of cells as installed on a submarine.

Automated Battery Monitoring System (ABMS) Tech Refresh: Upgrades the currently fielded ABMS system that was developed in 2002 and is suffering from continued obsolescence issues which are directly impacting the fleet operations. Upgrades will be performed by NSWC Crane Power and Energy Division. The Power and Energy Division has one of the only DoD owned and operated circuit board production lines with reverse engineering and technical capabilities required to perform this Tech Refresh.

HM002 LOS ANGELES SSN, HM008 OHIO Class SSBN/SSGN, HM009 SEAWOLF Class SSN, and HM010 VIRGINIA Class SSN: Procures replacement low maintenance sealed lead acid batteries for all submarines. This replaces flooded battery technology for which the industrial base ceased manufacture and support of in 2005. OHIO Class SSBN/SSGN replacements include handling and shipping trays to speed change-out during short refit periods. Funds are provided based on a reduced 4 to 5 year planned replacement cycle.

HM830 Production Engineering: Naval Surface Warfare Center (NSWC) Crane, as the designated procurement activity and In-Service Engineering Agent (ISEA) monitors battery performance and schedules replacements with the fleet. NSWC Crane is tasked with leading a Government & Industry Root Cause Analysis (RCA) team to identify and address battery performance issues and provide corrective actions

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Exhibit P-40, Budget Line Item Justification: PB 2020 Navy		Date: March 2019
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): B	Program Elements for Code B Items: N/A	Other Related Program Elements: N/A
Line Item MDAP/MAIS Code: N/A		
to operational submarines. NSWCC Crane conducts qualification testing of delivered VRLA and analysis of poor performing VRLA cells returned from operational submarines which has proven very beneficial to the Navy in detecting battery deficiencies before installation, thus alleviating critical emergent fleet impact and assisting in identifying failure modes to improve long term performance. Funding provided to Puget Sound and Portsmouth Naval Shipyards include responsibilities for the VRLA and flooded battery inventory management, maintenance and storage, SHIPALT support, and Alteration Installation Team (AIT) management. Also, Planning Yard and Lead Yard Services are funded through this line. ***Starting in FY19 Puget Sound and FY20 Portsmouth Naval Shipyard (PNSY) Battery Teams originally funded in within the battery installation costs will be funded in this line. This will enable the battery warehouse, battery shops and the subject matter experts to complete critical diagnostics, balancing, boosting, cabinets, shipping crates, testing and reporting, etc. *** HM51N Procurement for Install/Installation under \$10M: Procurement of Valve Regulated Lead Acid (VRLA) batteries and install of the ShipAlt to modify submarines from use of legacy flooded batteries for the LOS ANGELES, OHIO, SEAWOLF and VIRGINIA Class Submarines. Installation unit costs vary due to the availability types, location of installation and submarine type. All initial procurements and installations for the OHIO and SEAWOLF Class are complete. The final installation on the LOS ANGELES Class SSN 765 has moved ahead to FY19 from FY20.		

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Exhibit P-40, Budget Line Item Justification: PB 2020 Navy								Date: March 2019		
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): 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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Exhibit Type	Title*	Subexhibits	ID CD	MDAP/MAIS Code	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)
P-40a	Equipment	P-5a			- / 316.840	- / 24.394	- / 24.460	- / 26.290	- / -	- / 26.290
P-40	Total Gross/Weapon System Cost				- / 316.840	- / 24.394	- / 24.460	- / 26.290	- / 0.000	- / 26.290
*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 increased funding FY 2019 through FY 2021 provides for Main Storage Batteries and a series of critical three year projects for Submarine Battery program that includes the Battery Installation Test Equipment/Fixtures, the Submarine Battery Evaluation Center and the Automated Battery Monitoring System. Details on these projects are included in the description above. FY18 control increased \$5M in FY18 by Congressional Add for shortfall in battery supply due to the average battery life decreasing from 5 yrs. to 4 yrs. for some batteries. FY18 actuals and out year projections have changed due to costs reflected in the FY18 new IDIQ contract award. Individual battery lines in HM002, HM008, HM009 and HM010 now reflect costs related to the individual battery only. Trays are on a separate line. The planned FY19 installation of the VRLA battery change out has moved up from FY20 to FY19.										

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Exhibit P-40a, Budget Item Justification For Aggregated Items: PB 2020 Navy															Date: March 2019					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9								P-1 Line Item Number / Title: 0945 / Submarine Batteries							Aggregated Items Title: Equipment					
Item Number / Title [DODIC]	ID CD	MDAP/MAIS Code	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 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) HM002 - LOS ANGELES Class Main Storage Battery																				
1.1) LA VRLA Battery Storage Boosting Packaging ^{(1)(t)}	A		-	-	-	598,600.00	10	5.986	646,250.00	4	2.585	669,857.14	7	4.689	-	-	-	669,857.14	7	4.689
1.2) LA Class VRLA Installation Tray ⁽²⁾	A		-	-	-	164,066.67	3	0.492	-	-	-	-	-	-	-	-	-	-	-	-
1.3) Replacement Cells	A		-	-	-	-	-	0.188	-	-	-	-	-	-	-	-	-	-	-	-
1.4) LA Class VRLA Installation Material	A		-	-	-	-	-	-	-	-	0.671	-	-	-	-	-	-	-	-	-
Subtotal: 1) HM002 - LOS ANGELES Class Main Storage Battery			-	-	0.000	-	-	6.666	-	-	3.256	-	-	4.689	-	-	-	-	-	4.689
2) HM008 - OHIO Class Main Storage Battery																				
2.1) OH VRLA Battery Storage Boosting Packaging ^{(3)(t)}	A		-	-	-	812,800.00	5	4.064	1,010K	3	3.031	1,047K	5	5.236	-	-	-	1,047K	5	5.236
2.2) OH VRLA Installation Tray ^{(4)(t)}	A		-	-	-	-	-	-	-	-	-	1,301K	1	1.301	-	-	-	1,301K	1	1.301
Subtotal: 2) HM008 - OHIO Class Main Storage Battery			-	-	0.000	-	-	4.064	-	-	3.031	-	-	6.537	-	-	-	-	-	6.537
3) HM009 - SEAWOLF Class Main Storage Battery																				
3.1) SW VRLA Battery Storage Boosting Packaging ^{(5)(t)}	A		-	-	-	610,000.00	1	0.610	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: 3) HM009 - SEAWOLF Class Main Storage Battery			-	-	0.000	-	-	0.610	-	-	-	-	-	-	-	-	-	-	-	-
4) HM010 - VIRGINIA Class Main Storage Battery																				
4.1) VA VRLA Battery Storage Boosting Packaging ^{(6)(t)}	A		-	-	-	543,500.00	4	2.174	689,750.00	4	2.759	715,666.67	3	2.147	-	-	-	715,666.67	3	2.147
4.2) VA VRLA Installation Tray ^{(7)(t)}	A		-	-	-	806,000.00	2	1.612	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: 4) HM010 - VIRGINIA Class Main Storage Battery			-	-	0.000	-	-	3.786	-	-	2.759	-	-	2.147	-	-	-	-	-	2.147
5) HM830 - Production Engineering / Test Equipment/ SUBEC / ABMS Tech Refresh																				
5.1) Production Engineering	A		-	-	51.820	-	-	5.528	-	-	7.108	-	-	7.200	-	-	-	-	-	7.200
5.2) Battery Installation Test Equipment/Fixtures ⁽⁸⁾	B		-	-	-	-	-	-	-	-	-	-	-	1.000	-	-	-	-	-	1.000

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Exhibit P-40a, Budget Item Justification For Aggregated Items: PB 2020 Navy															Date: March 2019				
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9								P-1 Line Item Number / Title: 0945 / Submarine Batteries							Aggregated Items Title: Equipment				

Item Number / Title [DODIC]	ID CD	MDAP/MAIS Code	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 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)
5.3) Submarine Battery Evaluation Center (SUBBEC) ⁽⁹⁾	A		-	-	-	-	-	-	-	-	5.669	-	-	2.117	-	-	-	-	-	2.117
5.4) ABMS Tech Refresh ⁽¹⁰⁾	A		-	-	-	-	-	-	-	-	-	-	-	2.600	-	-	-	-	-	2.600
Subtotal: 5) HM830 - Production Engineering / Test Equipment/ SUBEC / ABMS Tech Refresh			-	-	51.820	-	-	5.528	-	-	12.777	-	-	12.917	-	-	-	-	-	12.917
6) HM5IN Procurement for Install / Installation under \$10M																				
6.1) LA Class Procurement for Install/ Installation under \$10M ⁽¹¹⁾	A		-	-	150.349	-	-	-	-	-	2.637	-	-	-	-	-	-	-	-	-
6.2) OH Class Procurement for Install/Installation under \$10M	A		-	-	77.746	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6.3) VA Class Procurement for Install / Installation under \$10M ⁽¹²⁾	A		-	-	36.925	-	-	3.740	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: 6) HM5IN Procurement for Install / Installation under \$10M			-	-	265.020	-	-	3.740	-	-	2.637	-	-	-	-	-	-	-	-	-
Total			-	-	316.840	-	-	24.394	-	-	24.460	-	-	26.290	-	-	-	-	-	26.290

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

(†) indicates the presence of a P-5a

Footnotes:

(1) 1.1 The Battery set price discontinuities within FY18 and moving forward to FY19 and beyond are attributable to "the new IDIQ contract award in 2018". Estimated prices for FY19-FY24 are based on individual battery set procurements under the new contract. The contract strategy is based on cell quantities and there is opportunity for price reductions per battery if purchased in bulk quantities. FY18 shows actuals including new contract pricing. FY19-FY24 are projected VRLA battery unit costs and reflect the cost in the existing commercial dual vendor contract. The costs vary by procurement FY, vendor, procurement quantity, boosting intervals, packaging and storage duration. Starting this PB20 budget trays are listed on a separate line.

(2) 2.2 New Line. Starting in FY18, trays costs are shown separate from the battery costs.

(3) 2.1 Refer to footnote (1).

(4) 2.2 Refer to footnote (2).

(5) 3.1 Refer to footnote (1).

(6) 4.1 Refer to footnote (1).

(7) 4.2 Refer to footnote (2).

(8) 5.2 Battery Installation Test Equipment/Fixtures FY19 new start. Funding is provided for the purchase of battery charging equipment to support the testing, balancing, and charging of Submarine Batteries. For this equipment will replace the Puget Sound NSY Battery Shop 1500 AMP Motor Generator with 5,000A AMP solid state battery charger in to Bldg. 978. Improvements are required to conduct pre installation battery testing and troubleshooting.

(9) 5.3 Submarine Battery Evaluation Center (SUBBEC) FY19 new start funding is provided for the full string battery test station (SUBBEC). The Submarine Battery Evaluation Center tests multiple battery string configurations which mirror specific submarine class installations. FY19 - FY21 funding encompasses the design phase, material procurement, performance evaluation, lab upgrades, installation and testing.

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Exhibit P-40a, Budget Item Justification For Aggregated Items: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	P-1 Line Item Number / Title: 0945 / Submarine Batteries	Aggregated Items Title: Equipment
⁽¹⁰⁾ 5.4 FY19 new start provides funding for ABMS Tech Refresh that will be performed by NSWC Crane Power and Energy Division. The current plan is for material and Installation of the tech refresh beginning in Aug 2019. The installation is on ABMS on all Class VRLA Battery modified submarines and will continue through FY21. ⁽¹¹⁾ The installation of the SSN 765 was originally scheduled for FY20 and has moved forward to FY19 due to battery performance issues. ⁽¹²⁾ Funds SSN 779 VRLA battery installation.		

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Exhibit P-5a, Procurement History and Planning: PB 2020 Navy									Date: March 2019			
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9				P-1 Line Item Number / Title: 0945 / Submarine Batteries					Aggregated Items: Equipment			
Item Number / Title [DODIC]	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) HM002 - LOS ANGELES Class Main Storage Battery												
1.1) LA VRLA Battery Storage Boosting Packaging ⁽¹⁾		2018	ENERSYS & GNB (Exide) / Warrensburg, MO & Ft. Smith , AR	C / IDIQ	NSWC CRANE	Mar 2018	Mar 2019	10	598,600.00	Y		
1.1) LA VRLA Battery Storage Boosting Packaging ⁽¹⁾		2019	ENERSYS & GNB (Exide) / Warrensburg, MO & Ft. Smith , AR	C / IDIQ	NSWC CRANE	Mar 2019	Mar 2020	4	646,250.00	Y		
1.1) LA VRLA Battery Storage Boosting Packaging ⁽¹⁾		2020	ENERSYS & GNB (Exide) / Warrensburg, MO & Ft. Smith , AR	C / IDIQ	NSWC CRANENSWC CRANENSWC CRANE	Apr 2020	Apr 2021	7	669,857.14	Y		
2) HM008 - OHIO Class Main Storage Battery												
2.1) OH VRLA Battery Storage Boosting Packaging ⁽³⁾		2018	ENERSYS & GNB (Exide) / Warrensburg, MO & Ft. Smith , AR	C / IDDQ	NSWC CRANE	Mar 2018	Mar 2019	5	812,800.00	Y		
2.1) OH VRLA Battery Storage Boosting Packaging ⁽³⁾		2019	ENERSYS & GNB (Exide) / Warrensburg, MO & Ft. Smith , AR	C / IDIQ	NSWC CRANE	Mar 2019	Mar 2020	3	1,010K	Y		
2.1) OH VRLA Battery Storage Boosting Packaging ⁽³⁾		2020	ENERSYS & GNB (Exide) / Warrensburg, MO & Ft. Smith , AR	C / TBD	** NO PCO **	Oct 2019	Oct 2021	5	1,047K	Y		
2.2) OH VRLA Installation Tray ⁽⁴⁾		2020	ENERSYS & GNB (Exide) / Warrensburg, MO & Ft. Smith , AR	C / TBD	** NO PCO **	Mar 2020	Mar 2021	1	1,301K	Y		
3) HM009 - SEAWOLF Class Main Storage Battery												
3.1) SW VRLA Battery Storage Boosting Packaging ⁽⁵⁾		2018	ENERSYS & GNB (Exide) / Warrensburg, MO & Ft. Smith , AR	C / IDIQ	** NO PCO **	Aug 2018	Aug 2019	1	610,000.00	Y		
4) HM010 - VIRGINIA Class Main Storage Battery												
4.1) VA VRLA Battery Storage Boosting Packaging ⁽⁶⁾		2018	ENERSYS & GNB (Exide) / Warrensburg, MO & Ft. Smith , AR	C / IDIQ	NSWC CRANE	Mar 2018	Mar 2019	4	543,500.00	Y		
4.1) VA VRLA Battery Storage Boosting Packaging ⁽⁶⁾		2019	ENERSYS & GNB (Exide) / Warrensburg, MO & Ft. Smith , AR	C / IDIQ	NSWC CRANE	Mar 2019	Mar 2020	4	689,750.00	Y		
4.2) VA VRLA Installation Tray ⁽⁷⁾		2018	ENERSYS & GNB (Exide) / Warrensburg, MO & Ft. Smith , AR	C / IDIQ	** NO PCO **	Mar 2018	Mar 2019	2	806,000.00	Y		

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Exhibit P-40, Budget Line Item Justification: PB 2020 Navy								Date: March 2019				
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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity (Units in Each)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost (\$ in Millions)	143.625	52.114	62.026	46.945	0.000	46.945	62.685	56.096	74.179	69.084	76.221	642.975
Less PY Advance Procurement (\$ in Millions)	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (\$ in Millions)	143.625	52.114	62.026	46.945	0.000	46.945	62.685	56.096	74.179	69.084	76.221	642.975
Plus CY Advance Procurement (\$ in Millions)	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority (\$ in Millions)	143.625	52.114	62.026	46.945	0.000	46.945	62.685	56.096	74.179	69.084	76.221	642.975
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)												
Initial Spares (\$ in Millions)	-	-	-	0.233	-	0.233	0.058	0.113	0.215	-	-	0.619
Flyaway Unit Cost (\$ in Dollars)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost (\$ in Dollars)	-	-	-	-	-	-	-	-	-	-	-	-
Description: The FY 2020 funding request was reduced by \$10.000 million to account for the availability of prior year execution balances. 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 are critical long lead time items that are staged shore-side in the event of a catastrophic failure on an operational ship. These spares must be periodically replenished as assets are utilized. Furthermore, as the LPD 17 Class continues to introduce new ships (additional) to the fleet, the number of spare requirements increases as additional items are added to the spares list to support newer shipboard configurations. [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). [P3A / CJ030 - HW/SW Obsolescence]: CJ030, CJ032 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 -Rudder Angle Indicator -Engineering Control Systems (ECS) - Windows XP and Windows 10 upgrades												

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Exhibit P-40, Budget Line Item Justification: PB 2020 Navy		Date: March 2019
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		
-Ship Control Systems (SCS) - Windows XP and Windows 10 upgrades/SCS Tech Refresh, Digital Rudder Angle Display Information System (DRADIS) -Fire Detection System Upgrade Phase 1 -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 -Advanced Fire and Smoke Sensor System (AFSS) - AFSS System Upgrade. -Integrated Voice Communication System (IVCS) - IVCS system upgrades (local cutout switches, AFT lookout communication 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 - Reduction & Sustainment -Damage Control Action Management System (DCAMS) - Upgrade to Advanced Damage Control System (ADCS) -Boundary Defense Cyber Security hardening		
[P3A - 2 / CJ040 HM&E Electrical Modifications]: CJ040 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 UPS Reduction		
[P3A - 3 / 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: -Composite Ventilation Louvers and Screens.		
[P3A - 4 / CJ060 - HM&E Mechanical/Auxiliary Modifications]: CJ060, CJ061, CJ062, CJ063 HM&E MECHANICAL/AUXILIARY MODIFICATIONS HM&E 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 -Gaylord System Improvements -Branch Piping Modifications -Titanium valve replacement -Common Fuel Rail upgrades		
[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), removing unsupported software, replacing aging obsolete network		

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Exhibit P-40, Budget Line Item Justification: PB 2020 Navy		Date: March 2019
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		
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: PB 2020 Navy					Date: March 2019				
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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Exhibit Type	Title*	Subexhibits	ID CD	MDAP/MAIS Code	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)
P-40a	LPD Class Support Equipment				- / 9.900	- / 17.947	- / 15.862	- / -	- / -	- / -
P-3a	1 / CJ030 - HW/SW Obsolescence (TBD)				- / 24.654	- / 9.300	- / 12.282	- / 8.630	- / 0.000	- / 8.630
P-3a	2 / CJ040 HM&E Electrical Modifications (TBD)				- / 0.000	- / 3.636	- / 8.181	- / 8.631	- / 0.000	- / 8.631
P-3a	3 / CJ050 - HM&E Survivability Modifications (TBD)				- / 0.948	- / 0.000	- / 1.766	- / 1.617	- / 0.000	- / 1.617
P-3a	4 / CJ060 - HM&E Mechanical/Auxiliary Modifications (TBD)				- / 59.523	- / 5.064	- / 7.382	- / 9.525	- / 0.000	- / 9.525
P-3a	5 / CJ070 SWAN-CANES Integration (TBD)				- / 44.572	- / 12.584	- / 10.787	- / 12.332	- / 0.000	- / 12.332
P-3a	6 / CJ032 HW/SW Obsolescence Wireless Portable Communications Main Site Upgrades (TBD)				- / 0.000	- / 0.000	- / 0.000	- / 0.137	- / 0.000	- / 0.137
P-3a	7 / CJ061 Titanium Valve Replacement (TBD)				- / 3.728	- / 2.563	- / 3.353	- / 5.174	- / 0.000	- / 5.174
P-3a	8 / CJ062 HM&E Mechanical/Auxiliary Mods Knuckleboom Crane Improvements (TBD)				- / 0.300	- / 1.020	- / 2.413	- / 0.899	- / 0.000	- / 0.899
P-3a	9 / CJ063 HM&E Mechanical/Auxiliary Mod Common Fuel Rail (TBD)				- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000
P-3a	10 / CJ035 CYBER REQUIREMENT (TBD)				- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000
P-40	Total Gross/Weapon System Cost				- / 143.625	- / 52.114	- / 62.026	- / 46.945	- / 0.000	- / 46.945

Exhibits Schedule					FY 2021	FY 2022	FY 2023	FY 2024	To Complete	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				- / -	- / -	- / -	- / -	- / -	- / -
P-3a	1 / CJ030 - HW/SW Obsolescence (TBD)				- / 2.926	- / 2.143	- / 12.713	- / 7.611	- / 7.299	- / 87.558
P-3a	2 / CJ040 HM&E Electrical Modifications (TBD)				- / 5.963	- / 3.241	- / 2.320	- / 2.000	- / 3.536	- / 37.508
P-3a	3 / CJ050 - HM&E Survivability Modifications (TBD)				- / 1.763	- / 0.980	- / 3.094	- / 2.000	- / 1.146	- / 13.314
P-3a	4 / CJ060 - HM&E Mechanical/Auxiliary Modifications (TBD)				- / 6.173	- / 2.550	- / 7.394	- / 2.323	- / 6.411	- / 106.345
P-3a	5 / CJ070 SWAN-CANES Integration (TBD)				- / 13.509	- / 5.925	- / 3.200	- / 0.000	- / 0.000	- / 102.909
P-3a	6 / CJ032 HW/SW Obsolescence Wireless Portable Communications Main Site Upgrades (TBD)				- / 2.588	- / 5.954	- / 14.923	- / 9.104	- / 4.992	- / 37.698
P-3a	7 / CJ061 Titanium Valve Replacement (TBD)				- / 6.334	- / 7.561	- / 1.800	- / 8.515	- / 1.752	- / 40.780
P-3a	8 / CJ062 HM&E Mechanical/Auxiliary Mods Knuckleboom Crane Improvements (TBD)				- / 3.201	- / 3.138	- / 2.026	- / 0.578	- / 0.758	- / 14.333
P-3a	9 / CJ063 HM&E Mechanical/Auxiliary Mod Common Fuel Rail (TBD)				- / 15.076	- / 21.433	- / 14.259	- / 11.355	- / 47.118	- / 109.241
P-3a	10 / CJ035 CYBER REQUIREMENT (TBD)				- / 1.632	- / 2.876	- / 3.692	- / 0.000	- / 0.000	- / 8.200
P-40	Total Gross/Weapon System Cost				- / 62.685	- / 56.096	- / 74.179	- / 69.084	- / 76.221	- / 642.975

*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: PB 2020 Navy																Date: March 2019				
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 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 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	-	-	1.659	-	-	5.893	-	-	-	-	-	-	-	-	-
Subtotal: 2) CJ020 - Shore Based Spares			-	-	8.700	-	-	1.659	-	-	5.893	-	-	-	-	-	-	-	-	-
3) CJ080 Conjunctive HM&E AIT																				
3.1) Conjunctive HM&E Alterations ⁽¹⁾	A		-	-	-	-	-	16.288	-	-	9.969	-	-	-	-	-	-	-	-	-
Subtotal: 3) CJ080 Conjunctive HM&E AIT			-	-	0.000	-	-	16.288	-	-	9.969	-	-	-	-	-	-	-	-	-
Total			-	-	9.900	-	-	17.947	-	-	15.862	-	-	-	-	-	-	-	-	-

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 Advanced Planning Long Lead Time Material in support of follow-on CNO availability installations.

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Exhibit P-3a, Individual Modification: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	P-1 Line Item Number / Title: 0946 / LPD Class Support Equipment	Modification Number / Title: 1 / CJ030 - HW/SW Obsolescence

ID Code (A=Service Ready, B=Not Service Ready) :						MDAP/MAIS Code:						
Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity <i>(Units in Each)</i>	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost <i>(\$ in Millions)</i>	24.654	9.300	12.282	8.630	0.000	8.630	2.926	2.143	12.713	7.611	7.299	87.558
Less PY Advance Procurement <i>(\$ in Millions)</i>	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) <i>(\$ in Millions)</i>	24.654	9.300	12.282	8.630	0.000	8.630	2.926	2.143	12.713	7.611	7.299	87.558
Plus CY Advance Procurement <i>(\$ in Millions)</i>	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority <i>(\$ in Millions)</i>	24.654	9.300	12.282	8.630	0.000	8.630	2.926	2.143	12.713	7.611	7.299	87.558
<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:

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.

[HW/SW Obsolescence] 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 - HW refresh and upgrade to Windows 10

-Rudder Angle Indicator

-Ship Control Systems (SCS) - Windows XP and Windows 10 upgrade/SCS Tech Refresh, Digital Rudder Angle Display Information System (DRADIS)

-Fire Detection System Upgrade Phase 1

-Wire-free Portable Communication System (WPCS) - Uninterruptible Power Supply (UPS) Upgrade, Low Power Amplifier Upgrade

-27TV - 27TV Low Channel Pier Cable Blockage improvement

-Advanced Fire and Smoke Sensor System (AFSS) - AFSS System Upgrade

-Integrated Voice Communication System (IVCS)- IVCS system upgrades (local cutout switches, AFT lookout communication mod, obsolete terminal replacement, FWD/AFT KITE), Software version 7.2.2.

-1MC Announcing System - Digital Microphone Control Station 1MC improvements

-Navigational Data Distribution System (NDDS) - Sustainment and Reduction

-Damage Control Action Management Software (DCAMS) - Upgrade to Advanced Damage Control System

-Boundary Defense Cyber Security Hardening

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Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019			
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9					P-1 Line Item Number / Title: 0946 / LPD Class Support Equipment					Modification Number / Title: 1 / CJ030 - HW/SW Obsolescence			
ID Code (A=Service Ready, B=Not Service Ready) :								MDAP/MAIS Code:					
Models of Systems Affected: HW/SW Obsolescence				Modification Type: TBD				Related RDT&E PEs:					
Financial Plan	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total	
	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	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> CJ030 - HW/SW Obsolescence													
B Kits													
Recurring													
1.1.1) HW/SW Obsolescence - NonOrganic ⁽²⁾	71 / 14.698	13 / 3.738	23 / 5.744	7 / 1.395	- / -	7 / 1.395	3 / 0.295	5 / 1.225	6 / 1.433	1 / 0.369	3 / 0.851	132 / 29.748	
<i>Subtotal: Recurring</i>	- / 14.698	- / 3.738	- / 5.744	- / 1.395	- / -	- / 1.395	- / 0.295	- / 1.225	- / 1.433	- / 0.369	- / 0.851	- / 29.748	
<i>Subtotal: CJ030 - HW/SW Obsolescence</i>	71 / 14.698	13 / 3.738	23 / 5.744	7 / 1.395	- / -	7 / 1.395	3 / 0.295	5 / 1.225	6 / 1.433	1 / 0.369	3 / 0.851	132 / 29.748	
<i>Subtotal: Procurement, All Modification Items</i>	- / 14.698	- / 3.738	- / 5.744	- / 1.395	- / -	- / 1.395	- / 0.295	- / 1.225	- / 1.433	- / 0.369	- / 0.851	- / 29.748	
Support (All Modification Items)													
2.1) Non-Recurring Engineering	- / -	- / 0.330	- / -	- / -	- / -	- / -	- / -	- / -	- / 1.000	- / 2.000	- / -	- / 3.330	
<i>Subtotal: Support</i>	- / 0.000	- / 0.330	- / -	- / -	- / -	- / -	- / -	- / -	- / 1.000	- / 2.000	- / 0.000	- / 3.330	
Installation													
<i>Modification Item 1 of 1:</i> CJ030 - HW/SW Obsolescence	- / 9.956	- / 5.232	- / 6.538	- / 7.235	- / 0.000	- / 7.235	- / 2.631	- / 0.918	- / 10.280	- / 5.242	- / 6.448	- / 54.480	
<i>Subtotal: Installation</i>	- / 9.956	- / 5.232	- / 6.538	- / 7.235	- / -	- / 7.235	- / 2.631	- / 0.918	- / 10.280	- / 5.242	- / 6.448	- / 54.480	
Total													
Total Cost (Procurement + Support + Installation)	24.654	9.300	12.282	8.630	0.000	8.630	2.926	2.143	12.713	7.611	7.299	87.558	

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Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019																					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9										P-1 Line Item Number / Title: 0946 / LPD Class Support Equipment										Modification Number / Title: 1 / CJ030 - HW/SW Obsolescence											
ID Code (A=Service Ready, B=Not Service Ready) :															MDAP/MAIS Code:																
Modification Item 1 of 1: CJ030 - HW/SW Obsolescence																															
Manufacturer Information																															
Manufacturer Name: Various															Manufacturer Location: Various																
Administrative Leadtime (in Months): 3															Production Leadtime (in Months): 12																
Dates		FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024					
Contract Dates		Jul 2018				Dec 2018				Jan 2020				Mar 2021				Dec 2021				Mar 2023				Mar 2024					
Delivery Dates		Mar 2019				Dec 2019				Jan 2021				Mar 2022				Dec 2022				Mar 2024				Mar 2025					
Installation Information																															
Method of Implementation: AIT:: Installation Name: HW/SW Obsolescence																															
Installation Cost		Prior Years		FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total		FY 2021		FY 2022		FY 2023		FY 2024		To Complete		Total							
		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)							
Prior Years		63 / 9.956		8 / 3.985		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.000		71 / 13.941					
FY 2018		- / -		0 / 1.247		13 / 5.477		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.000		13 / 6.724					
FY 2019		- / -		- / -		0 / 1.061		15 / 6.727		0 / 0.000		15 / 6.727		- / -		- / -		8 / 2.750		- / -		- / -		0 / 0.000		23 / 10.538					
FY 2020		- / -		- / -		- / -		0 / 0.508		0 / 0.000		0 / 0.508		7 / 2.623		- / -		- / -		- / -		- / -		0 / 0.000		7 / 3.131					
FY 2021		- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.008		3 / 0.588		- / -		- / -		- / -		0 / 0.000		3 / 0.596					
FY 2022		- / -		- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.330		5 / 7.221		- / -		- / -		0 / 2.104		5 / 9.655					
FY 2023		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.309		6 / 5.141		0 / 0.000		6 / 5.450							
FY 2024		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.101		1 / 0.613		1 / 0.714							
To Complete		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		3 / 3.731		3 / 3.731					
Total		63 / 9.956		8 / 5.232		13 / 6.538		15 / 7.235		0 / 0.000		15 / 7.235		7 / 2.631		3 / 0.918		13 / 10.280		6 / 5.242		4 / 6.448		132 / 54.480							
Installation Schedule																															
	PYS	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				TC	Tot
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4		
In	63	-	2	6	-	-	-	8	5	7	6	2	-	-	-	3	4	-	2	1	-	2	4	3	4	-	1	1	4	4	132
Out	54	3	6	-	-	6	-	2	-	3	1	4	3	6	-	2	9	3	-	4	-	-	2	1	2	6	1	4	2	8	132
Footnotes:																															
⁽²⁾ Due to changes in CNO Availabilities, FY19 procurements and subsequent FY20 installations originally budgeted (PB19) for a quantity of (8) installations have been deferred by three years. The FY19 procurements will now be installed in FY23. 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.																															

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Exhibit P-3a, Individual Modification: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	P-1 Line Item Number / Title: 0946 / LPD Class Support Equipment	Modification Number / Title: 1 / CJ030 - HW/SW Obsolescence
ID Code (A=Service Ready, B=Not Service Ready) :		MDAP/MAIS Code:
Ships may be receiving more than 1 kit in a single availability based upon the fielding plan for the systems being modernized. In FY19, there are (15) total kits being procured for installation during (4) FY20 CNO Availabilities on LPD 17 (3 kit), LPD 18 (1 kit), LPD 25 (8 kit), and LPD 26 (3 kit). In FY20, there are (7) total kits being procured for installation during (3) FY21 CNO Availabilities on LPD 19 (3 kits), LPD 22 (3 kits), and LPD 27 (1 kit). In FY21, there are (3) total kits being procured for installation during (2) FY22 CNO Availabilities on LPD 21 (2 kits), and LPD 23 (1 kit). In FY22, there are (5) total kits being procured for installation during (4) FY23 CNO Availabilities on LPD 17 (1 kit), LPD 20 (2 kits), LPD 24 (1 kit), and LPD 26 (1 kit). In FY23, there are (6) total kits being procured for installation during (3) FY24 CNO Availabilities on LPD 19 (1 kit), LPD 25 (1 kit), and LPD 27 (4 kits). In FY24, there is (1) total kit being procured for installation during (1) FY25 CNO Availability on LPD 26 (1 kit). DSA costs will also vary by kit due to differences in scope and complexity, and first installation compared to follow-on installations. The program has experienced longer production lead times than previously budgeted. All production lead times for FY19 and follow have been adjusted to support on-time delivery of materials.		

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Exhibit P-3a, Individual Modification: PB 2020 Navy						Date: March 2019					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9				P-1 Line Item Number / Title: 0946 / LPD Class Support Equipment				Modification Number / Title: 2 / CJ040 HM&E Electrical Modifications			

ID Code (A=Service Ready, B=Not Service Ready) :						MDAP/MAIS Code:						
Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity (Units in Each)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost (\$ in Millions)	0.000	3.636	8.181	8.631	0.000	8.631	5.963	3.241	2.320	2.000	3.536	37.508
Less PY Advance Procurement (\$ in Millions)	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (\$ in Millions)	0.000	3.636	8.181	8.631	0.000	8.631	5.963	3.241	2.320	2.000	3.536	37.508
Plus CY Advance Procurement (\$ in Millions)	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority (\$ in Millions)	0.000	3.636	8.181	8.631	0.000	8.631	5.963	3.241	2.320	2.000	3.536	37.508
(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:

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

The installation fielding plan for this cost code has been adjusted to align with Consolidated Afloat Networks and Enterprise Services (CANES) installations aboard LPD 17 Class ships. This alignment has been completed to reduce the operational burden on ship's force, and reduce re-work during CANES installations.

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Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019			
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9					P-1 Line Item Number / Title: 0946 / LPD Class Support Equipment					Modification Number / Title: 2 / CJ040 HM&E Electrical Modifications			
ID Code (A=Service Ready, B=Not Service Ready) :								MDAP/MAIS Code:					
Models of Systems Affected: HM&E Electrical Modifications				Modification Type: TBD				Related RDT&E PEs:					
Financial Plan	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total	
	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	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> CJ040 HM&E Electrical Modifications													
B Kits													
Recurring													
1.1.1) HM&E Electrical Upgrades - NonOrganic ⁽³⁾	- / -	2 / 2.504	3 / 3.834	3 / 3.915	- / -	3 / 3.915	1 / 1.332	1 / 1.360	- / -	- / -	1 / 1.444	11 / 14.389	
<i>Subtotal: Recurring</i>	- / 0.000	- / 2.504	- / 3.834	- / 3.915	- / -	- / 3.915	- / 1.332	- / 1.360	- / -	- / -	- / 1.444	- / 14.389	
<i>Subtotal: CJ040 HM&E Electrical Modifications</i>	- / -	2 / 2.504	3 / 3.834	3 / 3.915	- / -	3 / 3.915	1 / 1.332	1 / 1.360	- / -	- / -	1 / 1.444	11 / 14.389	
<i>Subtotal: Procurement, All Modification Items</i>	- / 0.000	- / 2.504	- / 3.834	- / 3.915	- / -	- / 3.915	- / 1.332	- / 1.360	- / -	- / -	- / 1.444	- / 14.389	
Support (All Modification Items)													
2.1) Non-Recurring Engineering	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / 1.000	- / 2.000	- / -	- / 3.000	
<i>Subtotal: Support</i>	- / 0.000	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / 1.000	- / 2.000	- / 0.000	- / 3.000	
Installation													
<i>Modification Item 1 of 1:</i> CJ040 HM&E Electrical Modifications	- / 0.000	- / 1.132	- / 4.347	- / 4.716	- / 0.000	- / 4.716	- / 4.631	- / 1.881	- / 1.320	- / 0.000	- / 2.092	- / 20.119	
<i>Subtotal: Installation</i>	- / 0.000	- / 1.132	- / 4.347	- / 4.716	- / -	- / 4.716	- / 4.631	- / 1.881	- / 1.320	- / -	- / 2.092	- / 20.119	
Total													
Total Cost (Procurement + Support + Installation)	0.000	3.636	8.181	8.631	0.000	8.631	5.963	3.241	2.320	2.000	3.536	37.508	

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Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019																						
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9										P-1 Line Item Number / Title: 0946 / LPD Class Support Equipment										Modification Number / Title: 2 / CJ040 HM&E Electrical Modifications												
ID Code (A=Service Ready, B=Not Service Ready) :															MDAP/MAIS Code:																	
Modification Item 1 of 1: CJ040 HM&E Electrical Modifications																																
Manufacturer Information																																
Manufacturer Name: Various															Manufacturer Location: Various																	
Administrative Leadtime <i>(in Months)</i> : 3															Production Leadtime <i>(in Months)</i> : 12																	
Dates		FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024						
Contract Dates		Jul 2018				Apr 2019				Jan 2020				Mar 2021				Apr 2022														
Delivery Dates		Mar 2019				Apr 2020				Jan 2021				Mar 2022				Apr 2023														
Installation Information																																
Method of Implementation: AIT:: Installation Name: HM&E Electrical Upgrades																																
Installation Cost		Prior Years	FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total		FY 2021		FY 2022		FY 2023		FY 2024		To Complete		Total									
		<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>		<i>Qty (Each) / Total Cost (\$ M)</i>		<i>Qty (Each) / Total Cost (\$ M)</i>		<i>Qty (Each) / Total Cost (\$ M)</i>		<i>Qty (Each) / Total Cost (\$ M)</i>		<i>Qty (Each) / Total Cost (\$ M)</i>		<i>Qty (Each) / Total Cost (\$ M)</i>		<i>Qty (Each) / Total Cost (\$ M)</i>		<i>Qty (Each) / Total Cost (\$ M)</i>		<i>Qty (Each) / Total Cost (\$ M)</i>		<i>Qty (Each) / Total Cost (\$ M)</i>									
Prior Years		- / -	- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -							
FY 2018		- / -	0 / 1.132		2 / 2.614		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.000		2 / 3.746							
FY 2019		- / -	- / -		0 / 1.733		3 / 3.950		0 / 0.000		3 / 3.950		- / -		- / -		- / -		- / -		- / -		0 / 0.000		3 / 5.683							
FY 2020		- / -	- / -		- / -		0 / 0.766		0 / 0.000		0 / 0.766		3 / 4.030		- / -		- / -		- / -		- / -		0 / 0.000		3 / 4.796							
FY 2021		- / -	- / -		- / -		- / -		- / -		- / -		0 / 0.601		1 / 1.267		- / -		- / -		- / -		0 / 0.000		1 / 1.868							
FY 2022		- / -	- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.614		1 / 1.320		- / -		- / -		0 / 0.000		1 / 1.934							
FY 2023		- / -	- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -							
FY 2024		- / -	- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -							
To Complete		- / -	- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		1 / 2.092		1 / 2.092							
Total		- / -	0 / 1.132		2 / 4.347		3 / 4.716		0 / 0.000		3 / 4.716		3 / 4.631		1 / 1.881		1 / 1.320		- / -		1 / 2.092		11 / 20.119									
Installation Schedule																																
	PYS	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				TC	Tot	
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4			
In	-	-	-	-	-	-	-	-	2	-	-	-	2	1	-	-	1	2	-	1	-	-	-	-	-	1	-	-	-	-	1	11
Out	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	2	-	1	1	-	2	-	-	1	-	-	1	-	-	-	1	11
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 FY19, there are (3) total kits being procured for installation during (3) FY20 CNO Availabilities on LPD 17 (1 kit), LPD 25 (1 kit), and LPD 26 (1 kit). In FY20, there are (3) total kits being procured for installation during (3) FY21 CNO Availabilities on LPD 19 (1 kit), LPD 22 (1																																

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Exhibit P-3a, Individual Modification: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	P-1 Line Item Number / Title: 0946 / LPD Class Support Equipment	Modification Number / Title: 2 / CJ040 HM&E Electrical Modifications
ID Code (A=Service Ready, B=Not Service Ready) :		MDAP/MAIS Code:
kit), and LPD 27 (1 kit). In FY21, there is (1) total kit being procured for installation (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 20 (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. DSA costs will also vary by kit due to differences in scope and complexity, and first installation compared to follow-on installations. The program has experienced longer production lead times than previously budgeted. All production lead times for FY19 and follow have been adjusted to support on-time delivery of materials.		

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Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019		
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9					P-1 Line Item Number / Title: 0946 / LPD Class Support Equipment					Modification Number / Title: 3 / CJ050 - HM&E Survivability Modifications		
ID Code (A=Service Ready, B=Not Service Ready) :							MDAP/MAIS Code:					
Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity (<i>Units in Each</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost (<i>\$ in Millions</i>)	0.948	0.000	1.766	1.617	0.000	1.617	1.763	0.980	3.094	2.000	1.146	13.314
Less PY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (<i>\$ in Millions</i>)	0.948	0.000	1.766	1.617	0.000	1.617	1.763	0.980	3.094	2.000	1.146	13.314
Plus CY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority (<i>\$ in Millions</i>)	0.948	0.000	1.766	1.617	0.000	1.617	1.763	0.980	3.094	2.000	1.146	13.314
<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: 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: -Composite Ventilation Louvers and Screens. [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: -Composite Ventilation Louvers and Screens.												

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Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019			
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9					P-1 Line Item Number / Title: 0946 / LPD Class Support Equipment					Modification Number / Title: 3 / CJ050 - HM&E Survivability Modifications			
ID Code (A=Service Ready, B=Not Service Ready) :								MDAP/MAIS Code:					
Models of Systems Affected: HM&E Survivability Modifications				Modification Type: TBD				Related RDT&E PEs:					
Financial Plan	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total	
	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	
Procurement													
<i>Modification Item 1 of 1:</i> CJ050 - HM&E Survivability Modifications													
B Kits													
Recurring													
1.1.1) HM&E Survivability Modifications - NonOrganic ⁽⁴⁾	3 / 0.824	- / -	5 / 1.436	2 / 0.749	- / -	2 / 0.749	1 / 0.382	1 / 0.390	- / -	- / -	1 / 0.414	13 / 4.195	
<i>Subtotal: Recurring</i>	- / 0.824	- / -	- / 1.436	- / 0.749	- / -	- / 0.749	- / 0.382	- / 0.390	- / -	- / -	- / 0.414	- / 4.195	
<i>Subtotal: CJ050 - HM&E Survivability Modifications</i>	3 / 0.824	- / -	5 / 1.436	2 / 0.749	- / -	2 / 0.749	1 / 0.382	1 / 0.390	- / -	- / -	1 / 0.414	13 / 4.195	
<i>Subtotal: Procurement, All Modification Items</i>	- / 0.824	- / -	- / 1.436	- / 0.749	- / -	- / 0.749	- / 0.382	- / 0.390	- / -	- / -	- / 0.414	- / 4.195	
Support (All Modification Items)													
2.1) Non-Recurring Engineering	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / 1.000	- / 2.000	- / -	- / 3.000	
<i>Subtotal: Support</i>	- / 0.000	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / 1.000	- / 2.000	- / 0.000	- / 3.000	
Installation													
<i>Modification Item 1 of 1:</i> CJ050 - HM&E Survivability Modifications	- / 0.124	- / 0.000	- / 0.330	- / 0.868	- / 0.000	- / 0.868	- / 1.381	- / 0.590	- / 2.094	- / 0.000	- / 0.732	- / 6.119	
<i>Subtotal: Installation</i>	- / 0.124	- / -	- / 0.330	- / 0.868	- / -	- / 0.868	- / 1.381	- / 0.590	- / 2.094	- / -	- / 0.732	- / 6.119	
Total													
Total Cost (Procurement + Support + Installation)	0.948	0.000	1.766	1.617	0.000	1.617	1.763	0.980	3.094	2.000	1.146	13.314	

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Exhibit P-3a, Individual Modification: PB 2020 Navy											Date: March 2019																				
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9										P-1 Line Item Number / Title: 0946 / LPD Class Support Equipment										Modification Number / Title: 3 / CJ050 - HM&E Survivability Modifications											
ID Code (A=Service Ready, B=Not Service Ready) :															MDAP/MAIS Code:																
Modification Item 1 of 1: CJ050 - HM&E Survivability Modifications																															
Manufacturer Information																															
Manufacturer Name: VARIOUS														Manufacturer Location: TBD																	
Administrative Leadtime (in Months): 4														Production Leadtime (in Months): 12																	
Dates		FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024					
Contract Dates						Jan 2019				Jan 2020				Mar 2021				Jan 2022													
Delivery Dates						Jan 2020				Jan 2021				Mar 2022				Jan 2023													
Installation Information																															
Method of Implementation: AIT:: Installation Name: HM&E Survivability Modifications																															
Installation Cost		Prior Years		FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total		FY 2021		FY 2022		FY 2023		FY 2024		To Complete		Total							
		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)							
Prior Years		3 / 0.124		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.000		3 / 0.124					
FY 2018		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
FY 2019		- / -		- / -		0 / 0.330		1 / 0.703		0 / 0.000		1 / 0.703		- / -		- / -		4 / 1.545		- / -		0 / 0.000		5 / 2.578							
FY 2020		- / -		- / -		- / -		0 / 0.165		0 / 0.000		0 / 0.165		2 / 1.297		- / -		- / -		- / -		0 / 0.000		2 / 1.462							
FY 2021		- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.084		1 / 0.504		- / -		- / -		0 / 0.000		1 / 0.588							
FY 2022		- / -		- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.086		1 / 0.549		- / -		0 / 0.000		1 / 0.635							
FY 2023		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -							
FY 2024		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -							
To Complete		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		1 / 0.732		1 / 0.732							
Total		3 / 0.124		- / -		0 / 0.330		1 / 0.868		0 / 0.000		1 / 0.868		2 / 1.381		1 / 0.590		5 / 2.094		- / -		1 / 0.732		13 / 6.119							
Installation Schedule																															
	PYS	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				TC	Tot
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4		
In	3	-	-	-	-	-	-	-	-	-	-	1	-	-	-	1	1	-	1	-	-	-	2	1	2	-	-	-	-	1	13
Out	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	1	-	1	-	-	1	-	-	3	-	1	1	1	13
Footnotes:																															
(4) Due to changes in CNO Availabilities, FY19 procurements and subsequent FY20 installations originally budgeted (PB19) for a quantity of (4) installations have been deferred by three years. The FY19 procurements will now be installed in FY23. 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																															

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Exhibit P-3a, Individual Modification: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	P-1 Line Item Number / Title: 0946 / LPD Class Support Equipment	Modification Number / Title: 3 / CJ050 - HM&E Survivability Modifications
ID Code (A=Service Ready, B=Not Service Ready) :		MDAP/MAIS Code:
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 FY19, there are (1) total kit being procured for installation during (1) FY20 CNO Availability on LPD 17 (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 is (1) total kit being procured for installation during (1) FY23 CNO Availability on LPD 20 (1 kit). DSA costs will also vary by kit due to differences in scope and complexity, and first installation compared to follow-on installations.		

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Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019		
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9				P-1 Line Item Number / Title: 0946 / LPD Class Support Equipment						Modification Number / Title: 4 / CJ060 - HM&E Mechanical/Auxiliary Modifications		
ID Code (A=Service Ready, B=Not Service Ready) :							MDAP/MAIS Code:					
Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity <i>(Units in Each)</i>	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost <i>(\$ in Millions)</i>	59.523	5.064	7.382	9.525	0.000	9.525	6.173	2.550	7.394	2.323	6.411	106.345
Less PY Advance Procurement <i>(\$ in Millions)</i>	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) <i>(\$ in Millions)</i>	59.523	5.064	7.382	9.525	0.000	9.525	6.173	2.550	7.394	2.323	6.411	106.345
Plus CY Advance Procurement <i>(\$ in Millions)</i>	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority <i>(\$ in Millions)</i>	59.523	5.064	7.382	9.525	0.000	9.525	6.173	2.550	7.394	2.323	6.411	106.345
<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: 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. 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 -Geislinger Coupling Improvements -Scullery Improvements -Gaylord System Improvements -Branch Piping Modifications												

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Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019			
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9				P-1 Line Item Number / Title: 0946 / LPD Class Support Equipment						Modification Number / Title: 4 / CJ060 - HM&E Mechanical/Auxiliary Modifications			
ID Code (A=Service Ready, B=Not Service Ready) :								MDAP/MAIS Code:					
Models of Systems Affected: HM&E Mechanical/ Auxiliary Modifications				Modification Type: TBD				Related RDT&E PEs:					
Financial Plan	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total	
	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	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: CJ060 - HM&E Mechanical/ Auxiliary Modifications													
B Kits													
Recurring													
1.1.1) CJ060 HM&E Mechanical/Auxiliary Modifications - NonOrganic ⁽⁵⁾	41 / 39.426	7 / 1.010	14 / 3.290	11 / 2.346	- / -	11 / 2.346	2 / 0.369	5 / 0.933	1 / 0.068	- / -	7 / 1.449	88 / 48.891	
Subtotal: Recurring	- / 39.426	- / 1.010	- / 3.290	- / 2.346	- / -	- / 2.346	- / 0.369	- / 0.933	- / 0.068	- / -	- / 1.449	- / 48.891	
Subtotal: CJ060 - HM&E Mechanical/Auxiliary Modifications	41 / 39.426	7 / 1.010	14 / 3.290	11 / 2.346	- / -	11 / 2.346	2 / 0.369	5 / 0.933	1 / 0.068	- / -	7 / 1.449	88 / 48.891	
Subtotal: Procurement, All Modification Items	- / 39.426	- / 1.010	- / 3.290	- / 2.346	- / -	- / 2.346	- / 0.369	- / 0.933	- / 0.068	- / -	- / 1.449	- / 48.891	
Support (All Modification Items)													
2.1) Non-Recurring Engineering	- / 2.613	- / 0.054	- / -	- / -	- / -	- / -	- / -	- / -	- / 1.000	- / 2.000	- / -	- / 5.667	
Subtotal: Support	- / 2.613	- / 0.054	- / -	- / -	- / -	- / -	- / -	- / -	- / 1.000	- / 2.000	- / 0.000	- / 5.667	
Installation													
Modification Item 1 of 1: CJ060 - HM&E Mechanical/ Auxiliary Modifications	- / 17.484	- / 4.000	- / 4.092	- / 7.179	- / 0.000	- / 7.179	- / 5.804	- / 1.617	- / 6.326	- / 0.323	- / 4.962	- / 51.787	
Subtotal: Installation	- / 17.484	- / 4.000	- / 4.092	- / 7.179	- / -	- / 7.179	- / 5.804	- / 1.617	- / 6.326	- / 0.323	- / 4.962	- / 51.787	
Total													
Total Cost (Procurement + Support + Installation)	59.523	5.064	7.382	9.525	0.000	9.525	6.173	2.550	7.394	2.323	6.411	106.345	

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Exhibit P-3a, Individual Modification: PB 2020 Navy											Date: March 2019																				
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9										P-1 Line Item Number / Title: 0946 / LPD Class Support Equipment										Modification Number / Title: 4 / CJ060 - HM&E Mechanical/Auxiliary Modifications											
ID Code (A=Service Ready, B=Not Service Ready) :															MDAP/MAIS Code:																
Modification Item 1 of 1: CJ060 - HM&E Mechanical/Auxiliary Modifications																															
Manufacturer Information																															
Manufacturer Name: Various														Manufacturer Location: Various																	
Administrative Leadtime (in Months): 3														Production Leadtime (in Months): 12																	
Dates		FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024					
Contract Dates		Jul 2018				Jan 2019				Jan 2020				Mar 2021				Dec 2021				Mar 2023									
Delivery Dates		Mar 2019				Jan 2020				Jan 2021				Mar 2022				Dec 2022				Mar 2024									
Installation Information																															
Method of Implementation: [none specified]:: Installation Name: CJ060 HM&E Mechanical/Auxiliary Modifications																															
Installation Cost		Prior Years		FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total		FY 2021		FY 2022		FY 2023		FY 2024		To Complete		Total							
		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)							
Prior Years		33 / 17.484		6 / 3.599		0 / 0.102		1 / 0.738		0 / 0.000		1 / 0.738		- / -		0 / 0.109		1 / 0.661		- / -		0 / 0.000		41 / 22.693							
FY 2018		- / -		0 / 0.401		7 / 2.145		- / -		- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.000		7 / 2.546							
FY 2019		- / -		- / -		0 / 1.845		10 / 5.340		0 / 0.000		10 / 5.340		- / -		- / -		4 / 2.728		- / -		0 / 0.000		14 / 9.913							
FY 2020		- / -		- / -		- / -		0 / 1.101		0 / 0.000		0 / 1.101		11 / 5.442		- / -		- / -		- / -		0 / 0.000		11 / 6.543							
FY 2021		- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.362		2 / 0.662		- / -		- / -		0 / 0.000		2 / 1.024							
FY 2022		- / -		- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.846		5 / 2.900		- / -		0 / 1.654		5 / 5.400							
FY 2023		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.037		1 / 0.323		0 / 0.000		1 / 0.360							
FY 2024		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -							
To Complete		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		7 / 3.308		7 / 3.308							
Total		33 / 17.484		6 / 4.000		7 / 4.092		11 / 7.179		0 / 0.000		11 / 7.179		11 / 5.804		2 / 1.617		10 / 6.326		1 / 0.323		7 / 4.962		88 / 51.787							
Installation Schedule																															
	PYS	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				TC	Tot
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4		
In	33	-	3	3	-	-	-	2	5	-	2	6	3	-	-	5	6	-	1	1	-	-	4	-	6	-	1	-	-	7	88
Out	22	9	2	-	-	3	-	3	-	1	2	-	4	3	-	5	3	4	-	7	-	-	1	1	-	4	-	-	-	14	88
Footnotes: ⁽⁵⁾ Two (2) FY16 procurements originally scheduled to be installed in FY17 on LPD 17 and in FY17 on LPD 20 were deferred due to delay in delivery of material. LPD 17 (1 kit) will be installed in FY20 and LPD 20 (1 kit) will be installed in FY23. Due to changes in CNO Availabilities, FY19 procurements and subsequent FY20 installations originally budgeted (PB19) for a quantity of (4) installations have been deferred by three years. The FY19 procurements will now be installed in FY23. HM&E Mechanical/Auxiliary Modifications (CJ060) includes funding for procurement and installation of equipment to support upgrades of																															

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Exhibit P-3a, Individual Modification: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	P-1 Line Item Number / Title: 0946 / LPD Class Support Equipment	Modification Number / Title: 4 / CJ060 - HM&E Mechanical/Auxiliary Modifications
ID Code (A=Service Ready, B=Not Service Ready) :		MDAP/MAIS Code:
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 FY19, there are (10) total kits being procured for installation during (4) FY20 CNO Availabilities on LPD 17 (5 kits), LPD 18 (1 kits), LPD 25 (3 kits), and LPD 26 (1 kit). In FY20, there are (11) total kits being procured for installation during (3) FY21 CNO Availabilities on LPD 19 (5 kits), LPD 22 (4 kits), and LPD 27 (2 kits). In FY21, there are (2) total kits being procured for installation during (2) FY22 CNO Availabilities on LPD 21 (1 kit), and LPD 23 (1 kit). In FY22, there are (5) total kits being procured for installation during (3) FY23 CNO Availabilities on LPD 20 (3 kits), LPD 24 (1 kit), and LPD 26 (1 kit). In FY23, there is a total of (1) kit being procured for installation during (1) FY24 CNO Availability on LPD 25 (1 kit). DSA costs will also vary by kit due to differences in scope and complexity, and first installation compared to follow-on installations. The program has experienced longer production lead times than previously budgeted. All production lead times for FY19 and follow have been adjusted to support on-time delivery of materials.		

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Exhibit P-3a, Individual Modification: PB 2020 Navy		Date: March 2019
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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity <i>(Units in Each)</i>	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost <i>(\$ in Millions)</i>	44.572	12.584	10.787	12.332	0.000	12.332	13.509	5.925	3.200	0.000	0.000	102.909
Less PY Advance Procurement <i>(\$ in Millions)</i>	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) <i>(\$ in Millions)</i>	44.572	12.584	10.787	12.332	0.000	12.332	13.509	5.925	3.200	0.000	0.000	102.909
Plus CY Advance Procurement <i>(\$ in Millions)</i>	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority <i>(\$ in Millions)</i>	44.572	12.584	10.787	12.332	0.000	12.332	13.509	5.925	3.200	0.000	0.000	102.909
<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), removing unsupported software, 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: PB 2020 Navy										Date: March 2019			
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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	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)	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: CJ070 SWAN-CANES Integration													
B Kits													
Recurring													
1.1.1) SWAN-CANES Integration - NonOrganic ⁽⁶⁾	88 / 21.247	4 / 7.859	17 / 5.471	8 / 4.112	- / -	8 / 4.112	2 / 2.998	2 / 2.386	- / -	- / -	- / -	121 / 44.073	
Subtotal: Recurring	- / 21.247	- / 7.859	- / 5.471	- / 4.112	- / -	- / 4.112	- / 2.998	- / 2.386	- / -	- / -	- / 0.000	- / 44.073	
Non-Recurring													
1.2.1) SWAN-CANES Integration - Organic ⁽⁷⁾	- / 6.885	- / 1.203	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / 8.088	
Subtotal: Non-Recurring	- / 6.885	- / 1.203	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / 0.000	- / 8.088	
Subtotal: CJ070 SWAN-CANES Integration	88 / 28.132	4 / 9.062	17 / 5.471	8 / 4.112	- / -	8 / 4.112	2 / 2.998	2 / 2.386	- / -	- / -	- / -	121 / 52.161	
Subtotal: Procurement, All Modification Items	- / 28.132	- / 9.062	- / 5.471	- / 4.112	- / -	- / 4.112	- / 2.998	- / 2.386	- / -	- / -	- / 0.000	- / 52.161	
Installation													
Modification Item 1 of 1: CJ070 SWAN-CANES Integration													
	- / 16.440	- / 3.522	- / 5.316	- / 8.220	- / 0.000	- / 8.220	- / 10.511	- / 3.539	- / 3.200	- / 0.000	- / 0.000	- / 50.748	
Subtotal: Installation	- / 16.440	- / 3.522	- / 5.316	- / 8.220	- / -	- / 8.220	- / 10.511	- / 3.539	- / 3.200	- / -	- / 0.000	- / 50.748	
Total													
Total Cost (Procurement + Support + Installation)	44.572	12.584	10.787	12.332	0.000	12.332	13.509	5.925	3.200	0.000	0.000	102.909	

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Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019																					
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): 12																
Dates		FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024					
Contract Dates		Dec 2017				Dec 2018				Jan 2020				Dec 2020				May 2022													
Delivery Dates		Jul 2018				Dec 2019				Jan 2021				Dec 2021				May 2023													
Installation Information																															
Method of Implementation: AIT:: Installation Name: SWAN-CANES Integration																															
Installation Cost		Prior Years		FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total		FY 2021		FY 2022		FY 2023		FY 2024		To Complete		Total							
		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)							
Prior Years		59 / 16.440		29 / 3.522		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.000		88 / 19.962					
FY 2018		- / -		- / -		4 / 5.316		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.000		4 / 5.316					
FY 2019		- / -		- / -		- / -		17 / 8.220		0 / 0.000		17 / 8.220		- / -		- / -		- / -		- / -		- / -		0 / 0.000		17 / 8.220					
FY 2020		- / -		- / -		- / -		- / -		- / -		- / -		8 / 10.511		- / -		- / -		- / -		- / -		0 / 0.000		8 / 10.511					
FY 2021		- / -		- / -		- / -		- / -		- / -		- / -		- / -		2 / 3.539		- / -		- / -		- / -		0 / 0.000		2 / 3.539					
FY 2022		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		2 / 3.200		- / -		- / -		0 / 0.000		2 / 3.200					
FY 2023		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
FY 2024		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
To Complete		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
Total		59 / 16.440		29 / 3.522		4 / 5.316		17 / 8.220		0 / 0.000		17 / 8.220		8 / 10.511		2 / 3.539		2 / 3.200		- / -		0 / 0.000		121 / 50.748							
Installation Schedule																															
	PYS	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				TC	Tot
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4		
In	59	9	-	12	8	-	-	2	2	-	5	3	9	-	-	2	6	-	2	-	-	-	-	-	2	-	-	-	-	-	121
Out	43	5	2	9	13	9	-	-	7	-	-	2	2	-	5	3	9	-	-	2	6	-	1	-	2	-	-	-	-	1	121
Footnotes: ⁽⁶⁾ 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.																															

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Exhibit P-3a, Individual Modification: PB 2020 Navy		Date: March 2019
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:
(7) Due to the acceleration of Consolidated Afloat Network Enterprise Services (CANES) installations on LPD 25 and LPD 26 originally budgeted (PB19) FY20 LPD 25 and FY22 LPD 26 procurements and subsequent FY21 LPD 25 and FY23 LPD 26 installations have been accelerated to FY19 procurements and to FY20 installations respectively. These installations are conjunctive to the CANES installation. FY19 Conjunctive HM&E Alterations - CJ080 were reduced to support FY19 procurements. Accelerated installations include: LPD 25 - SWAN Removal, HM&E Network Conversion Mesh, SCDN Out of Band Management, SCDN Cybersecurity Enhancements; LPD 26 - SWAN Removal, HM&E Network Conversion Ring. FY20 Availabilities: LPD 17 - Ship Control Data Network (SCDN) Out of Band Management; LPD 18 - SCDN Out of Band Management; LPD 20 - SWAN Compose 4.0.1, Windows 10 SHB, SWAN NIPRNET CLO, SWAN SIPRNET CLO, SWAN Next Generation Server; LPD 21 - SWAN Compose 4.0.1, Windows 10 SHB, SWAN NIPRNET CLO, SWAN SIPRNET CLO; LPD 25 - SWAN Removal, HM&E Network Conversion Mesh, SCDN Out of Band Management, SCDN Cybersecurity Enhancements; LPD 26 - SWAN Removal, HM&E Network Conversion Ring. FY21 Availabilities: LPD 19 - SWAN Removal, HM&E Network Conversion Ring; LPD 22 - SWAN Removal, HM&E Network Conversion Mesh, SCDN Out of Band Management, SCDN Cybersecurity Enhancements; LPD 27 - SWAN Removal, HM&E Network Conversion Ring. FY22 Availabilities: LPD 21 - SWAN Removal, HM&E Network Conversion Ring. FY23 Availabilities: LPD 20 - SWAN Removal, HM&E Network Conversion Ring. The program has experienced longer production lead times than previously budgeted. All production lead times for FY19 and follow have been adjusted to support on-time delivery of materials.		

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Exhibit P-3a, Individual Modification: PB 2020 Navy						Date: March 2019					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9				P-1 Line Item Number / Title: 0946 / LPD Class Support Equipment				Modification Number / Title: 6 / CJ032 HW/SW Obsolescence Wireless Portable Communications Main Site Upgrades			

ID Code (A=Service Ready, B=Not Service Ready) :						MDAP/MAIS Code:						
Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity (Units in Each)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost (\$ in Millions)	0.000	0.000	0.000	0.137	0.000	0.137	2.588	5.954	14.923	9.104	4.992	37.698
Less PY Advance Procurement (\$ in Millions)	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (\$ in Millions)	0.000	0.000	0.000	0.137	0.000	0.137	2.588	5.954	14.923	9.104	4.992	37.698
Plus CY Advance Procurement (\$ in Millions)	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority (\$ in Millions)	0.000	0.000	0.000	0.137	0.000	0.137	2.588	5.954	14.923	9.104	4.992	37.698
(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:

NRE includes the following efforts:

FY20: 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.

[WPCS Main Site Upgrades] 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.

[Non-Recurring Engineering] NRE includes the following efforts:

FY20: 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.

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Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019			
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9				P-1 Line Item Number / Title: 0946 / LPD Class Support Equipment						Modification Number / Title: 6 / CJ032 HW/SW Obsolescence Wireless Portable Communications Main Site 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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	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)	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: CJ032 HW/SW Obsolescence Wireless Portable Communications Main Site Upgrades</i>													
B Kits													
Recurring													
1.1.1) WPCS Main Site Upgrades - NonOrganic ⁽⁸⁾	- / -	- / -	- / -	- / -	- / -	- / -	1 / 2.477	2 / 5.058	5 / 12.910	2 / 5.272	1 / 2.684	11 / 28.401	
<i>Subtotal: Recurring</i>	- / 0.000	- / -	- / -	- / -	- / -	- / -	- / 2.477	- / 5.058	- / 12.910	- / 5.272	- / 2.684	- / 28.401	
<i>Subtotal: CJ032 HW/SW Obsolescence Wireless Portable Communications Main Site Upgrades</i>	- / -	- / -	- / -	- / -	- / -	- / -	1 / 2.477	2 / 5.058	5 / 12.910	2 / 5.272	1 / 2.684	11 / 28.401	
<i>Subtotal: Procurement, All Modification Items</i>	- / 0.000	- / -	- / -	- / -	- / -	- / -	- / 2.477	- / 5.058	- / 12.910	- / 5.272	- / 2.684	- / 28.401	
Support (All Modification Items)													
2.1) Non-Recurring Engineering	- / -	- / -	- / -	- / 0.137	- / -	- / 0.137	- / -	- / -	- / -	- / -	- / -	- / 0.137	
<i>Subtotal: Support</i>	- / 0.000	- / -	- / -	- / 0.137	- / -	- / 0.137	- / -	- / -	- / -	- / -	- / 0.000	- / 0.137	
Installation													
<i>Modification Item 1 of 1: CJ032 HW/SW Obsolescence Wireless Portable Communications Main Site Upgrades</i>	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.111	- / 0.896	- / 2.013	- / 3.832	- / 2.308	- / 9.160	
<i>Subtotal: Installation</i>	- / 0.000	- / -	- / -	- / -	- / -	- / -	- / 0.111	- / 0.896	- / 2.013	- / 3.832	- / 2.308	- / 9.160	
Total													
Total Cost (Procurement + Support + Installation)	0.000	0.000	0.000	0.137	0.000	0.137	2.588	5.954	14.923	9.104	4.992	37.698	

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Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019																					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9										P-1 Line Item Number / Title: 0946 / LPD Class Support Equipment										Modification Number / Title: 6 / CJ032 HW/SW Obsolescence Wireless Portable Communications Main Site Upgrades											
ID Code (A=Service Ready, B=Not Service Ready) :															MDAP/MAIS Code:																
Modification Item 1 of 1: CJ032 HW/SW Obsolescence Wireless Portable Communications Main Site Upgrades																															
Manufacturer Information																															
Manufacturer Name: TBD															Manufacturer Location: TBD																
Administrative Leadtime (in Months): 3															Production Leadtime (in Months): 12																
Dates		FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024					
Contract Dates														Mar 2021				Jul 2022				Mar 2023				Dec 2023					
Delivery Dates														Mar 2022				Jul 2023				Mar 2024				Dec 2024					
Installation Information																															
Method of Implementation: [none specified]:: Installation Name: WPCS Main Site Upgrades																															
Installation Cost		Prior Years		FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total		FY 2021		FY 2022		FY 2023		FY 2024		To Complete		Total							
		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)							
Prior Years		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
FY 2018		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
FY 2019		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
FY 2020		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
FY 2021		- / -		- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.111		1 / 0.669		- / -		- / -		0 / 0.000		1 / 0.780					
FY 2022		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.227		2 / 1.433		- / -		0 / 0.000		2 / 1.660					
FY 2023		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.580		5 / 3.595		0 / 0.000		5 / 4.175					
FY 2024		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.237		2 / 1.347		2 / 1.584					
To Complete		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		1 / 0.961		1 / 0.961					
Total		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.111		1 / 0.896		2 / 2.013		5 / 3.832		11 / 9.160					
Installation Schedule																															
	PYS	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				TC	Tot
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4		
In	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	2	-	1	2	3	11
Out	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	1	9
Footnotes:																															
⁽⁸⁾ 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																															

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Exhibit P-3a, Individual Modification: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	P-1 Line Item Number / Title: 0946 / LPD Class Support Equipment	Modification Number / Title: 6 / CJ032 HW/SW Obsolescence Wireless Portable Communications Main Site Upgrades
ID Code (A=Service Ready, B=Not Service Ready) :		MDAP/MAIS Code:
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 FY21, there is (1) total kit being procured for installation during (1) FY22 CNO Availability on LPD 23 (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 20 (1 kit). In FY23, there are (5) total kits being procured for installation during (5) FY24 CNO Availabilities on LPD 18 (1 kit), LPD 19 (1 kit), LPD 22 (1 kit), LPD 25 (1 kit), and LPD 27 (1 kit). In FY24 there are (2) total kits being procured for installation during (2) FY25 CNO Availabilities on LPD 21 (1 kit) and LPD 26 (1 kit). DSA costs will also vary by kit due to differences in scope and complexity, and first installation compared to follow-on installations.		

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Exhibit P-3a, Individual Modification: PB 2020 Navy							Date: March 2019				
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9				P-1 Line Item Number / Title: 0946 / LPD Class Support Equipment				Modification Number / Title: 7 / CJ061 Titanium Valve Replacement			

ID Code (A=Service Ready, B=Not Service Ready) :							MDAP/MAIS Code:					
Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity (<i>Units in Each</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost (<i>\$ in Millions</i>)	3.728	2.563	3.353	5.174	0.000	5.174	6.334	7.561	1.800	8.515	1.752	40.780
Less PY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (<i>\$ in Millions</i>)	3.728	2.563	3.353	5.174	0.000	5.174	6.334	7.561	1.800	8.515	1.752	40.780
Plus CY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority (<i>\$ in Millions</i>)	3.728	2.563	3.353	5.174	0.000	5.174	6.334	7.561	1.800	8.515	1.752	40.780
<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:

[Titanium Valve Replacement Phase 1] 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 Phase 2] TITANIUM VALVE REPLACEMENT (CJ061) Titanium Valve Replacement Phase II: 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 II of the Titanium valve replacement.

All Phase II procurements have been moved to A-2 years prior to installation, vice A-1 year prior to installation, due to actual lead times encountered on previously procured ship sets. One exception to this change is (1) kit being procured in FY18 for LPD 21 FY19 CNO Availability, which will still be procured at A-1 year. The procurement of (1) kit for LPD 21 FY19 CNO Availability has remained an A-1 year prior to installation procurement because funding was not available to accelerate the procurement once actual lead times were known.

[Titanium Valves Replacement Phase 3] TITANIUM VALVE REPLACEMENT (CJ061) Titanium Valve Replacement Phase III: 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 III of the Titanium valve replacement.

All Phase III procurements have been moved to A-2 years prior to installation, vice A-1 year prior to installation, due to actual lead times encountered on previously procured ship sets.

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Exhibit P-3a, Individual Modification: PB 2020 Navy								Date: March 2019					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9			P-1 Line Item Number / Title: 0946 / LPD Class Support Equipment					Modification Number / Title: 7 / CJ061 Titanium Valve Replacement					
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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	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)	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 3: Titanium Valve Replacement Phase 1													
B Kits													
Recurring													
1.1.1) Titanium Valve Replacement Phase 1 - NonOrganic ⁽⁹⁾		2 / 3.728	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	2 / 3.728	
Subtotal: Recurring		- / 3.728	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / 0.000	- / 3.728	
Subtotal: Titanium Valve Replacement Phase 1		2 / 3.728	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	2 / 3.728	
Modification Item 2 of 3: Titanium Valve Replacement Phase 2													
B Kits													
Recurring													
2.1.1) Titanium Valve Replacement Phase 2 - NonOrganic ⁽¹⁰⁾		- / -	3 / 2.448	3 / 2.499	- / -	- / -	- / -	- / -	- / -	- / -	- / -	6 / 4.947	
Subtotal: Recurring		- / 0.000	- / 2.448	- / 2.499	- / -	- / -	- / -	- / -	- / -	- / -	- / 0.000	- / 4.947	
Subtotal: Titanium Valve Replacement Phase 2		- / -	3 / 2.448	3 / 2.499	- / -	- / -	- / -	- / -	- / -	- / -	- / -	6 / 4.947	
Modification Item 3 of 3: Titanium Valve Replacement Phase 3													
B Kits													
Recurring													
3.1.1) Titanium Valves Replacement Phase 3 - NonOrganic ⁽¹¹⁾		- / -	- / -	- / -	1 / 3.190	- / -	1 / 3.190	1 / 3.257	2 / 6.650	- / -	2 / 6.933	- / -	6 / 20.030
Subtotal: Recurring		- / 0.000	- / -	- / -	- / 3.190	- / -	- / 3.190	- / 3.257	- / 6.650	- / -	- / 6.933	- / 0.000	- / 20.030
Subtotal: Titanium Valve Replacement Phase 3		- / -	- / -	- / -	1 / 3.190	- / -	1 / 3.190	1 / 3.257	2 / 6.650	- / -	2 / 6.933	- / -	6 / 20.030
Subtotal: Procurement, All Modification Items		- / 3.728	- / 2.448	- / 2.499	- / 3.190	- / -	- / 3.190	- / 3.257	- / 6.650	- / -	- / 6.933	- / 0.000	- / 28.705
Installation													
Modification Item 1 of 3: Titanium Valve Replacement Phase 1		- / 0.000	- / 0.000	- / 0.000	- / 0.209	- / 0.000	- / 0.209	- / 1.391	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 1.600
Modification Item 2 of 3: Titanium Valve Replacement Phase 2		- / 0.000	- / 0.115	- / 0.854	- / 1.775	- / 0.000	- / 1.775	- / 1.549	- / 0.134	- / 0.677	- / 0.000	- / 0.000	- / 5.104
Modification Item 3 of 3: Titanium Valve Replacement Phase 3		- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.137	- / 0.777	- / 1.123	- / 1.582	- / 1.752	- / 5.371

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Exhibit P-3a, Individual Modification: PB 2020 Navy									Date: March 2019			
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9			P-1 Line Item Number / Title: 0946 / LPD Class Support Equipment						Modification Number / Title: 7 / CJ061 Titanium Valve Replacement			
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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	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)	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)
	Subtotal: Installation	- / 0.000	- / 0.115	- / 0.854	- / 1.984	- / -	- / 1.984	- / 3.077	- / 0.911	- / 1.800	- / 1.582	- / 1.752
Total												
Total Cost (Procurement + Support + Installation)	3.728	2.563	3.353	5.174	0.000	5.174	6.334	7.561	1.800	8.515	1.752	40.780

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Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019																					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9										P-1 Line Item Number / Title: 0946 / LPD Class Support Equipment										Modification Number / Title: 7 / CJ061 Titanium Valve Replacement											
ID Code (A=Service Ready, B=Not Service Ready) :															MDAP/MAIS Code:																
Modification Item 1 of 3: Titanium Valve Replacement Phase 1																															
Manufacturer Information																															
Manufacturer Name: TBD														Manufacturer Location: TBD																	
Administrative Leadtime (in Months): 0														Production Leadtime (in Months): 12																	
Dates		FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024					
Contract Dates																															
Delivery Dates																															
Installation Information																															
Method of Implementation: [none specified]:: Installation Name: Titanium Valve Replacement Phase 1																															
Installation Cost		Prior Years		FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total		FY 2021		FY 2022		FY 2023		FY 2024		To Complete		Total							
		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)							
Prior Years		- / -		- / -		- / -		0 / 0.209		0 / 0.000		0 / 0.209		2 / 1.391		- / -		- / -		- / -		0 / 0.000		2 / 1.600							
FY 2018		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -							
FY 2019		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -							
FY 2020		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -							
FY 2021		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -							
FY 2022		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -							
FY 2023		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -							
FY 2024		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -							
To Complete		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -							
Total		- / -		- / -		- / -		0 / 0.209		0 / 0.000		0 / 0.209		2 / 1.391		- / -		- / -		- / -		0 / 0.000		2 / 1.600							
Installation Schedule																															
	PYS	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				TC	Tot
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4		
In	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	2
Out	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	1	-	-	-	-	-	-	-	-	-	-	2

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Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019																						
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9										P-1 Line Item Number / Title: 0946 / LPD Class Support Equipment										Modification Number / Title: 7 / CJ061 Titanium Valve Replacement												
ID Code (A=Service Ready, B=Not Service Ready) :															MDAP/MAIS Code:																	
Modification Item 2 of 3: Titanium Valve Replacement Phase 2																																
Manufacturer Information																																
Manufacturer Name: TBD														Manufacturer Location: TBD																		
Administrative Leadtime (in Months): 0														Production Leadtime (in Months): 18																		
Dates		FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024						
Contract Dates		Oct 2017				Jul 2019								Jun 2020																		
Delivery Dates		Apr 2019				Jan 2021								Dec 2021																		
Installation Information																																
Method of Implementation: [none specified]:: Installation Name: Titanium Valve Replacement Phase 2																																
Installation Cost		Prior Years		FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total		FY 2021		FY 2022		FY 2023		FY 2024		To Complete		Total								
		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)								
Prior Years		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -						
FY 2018		- / -		0 / 0.115		1 / 0.854		2 / 1.523		0 / 0.000		2 / 1.523		- / -		- / -		- / -		- / -		- / -		0 / 0.000		3 / 2.492						
FY 2019		- / -		- / -		- / -		0 / 0.252		0 / 0.000		0 / 0.252		2 / 1.549		0 / 0.134		1 / 0.677		- / -		0 / 0.000		3 / 2.612								
FY 2020		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -						
FY 2021		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -						
FY 2022		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -						
FY 2023		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -						
FY 2024		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -						
To Complete		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -						
Total		- / -		0 / 0.115		1 / 0.854		2 / 1.775		0 / 0.000		2 / 1.775		2 / 1.549		0 / 0.134		1 / 0.677		- / -		0 / 0.000		6 / 5.104								
Installation Schedule																																
	PYS	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				TC	Tot	
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4			
In	-	-	-	-	-	-	-	1	-	-	-	1	1	-	-	-	1	1	-	-	-	-	-	-	-	1	-	-	-	-	-	6
Out	-	-	-	-	-	-	-	-	-	-	-	1	-	-	1	1	-	1	-	1	-	-	-	-	-	-	-	-	-	1	6	

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Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019																						
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9										P-1 Line Item Number / Title: 0946 / LPD Class Support Equipment										Modification Number / Title: 7 / CJ061 Titanium Valve Replacement												
ID Code (A=Service Ready, B=Not Service Ready) :															MDAP/MAIS Code:																	
Modification Item 3 of 3: Titanium Valve Replacement Phase 3																																
Manufacturer Information																																
Manufacturer Name: TBD															Manufacturer Location: TBD																	
Administrative Leadtime (in Months): 0															Production Leadtime (in Months): 18																	
Dates		FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024						
Contract Dates										Jun 2020				Jul 2021				Jul 2022								Jul 2024						
Delivery Dates										Dec 2021				Jan 2023				Jan 2024								Jan 2026						
Installation Information																																
Method of Implementation: [none specified]:: Installation Name: Titanium Valves Replacement Phase 3																																
Installation Cost		Prior Years		FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total		FY 2021		FY 2022		FY 2023		FY 2024		To Complete		Total								
		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)								
Prior Years		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -						
FY 2018		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -						
FY 2019		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -						
FY 2020		- / -		- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.137		1 / 0.637		- / -		- / -		0 / 0.000		1 / 0.774						
FY 2021		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.140		1 / 0.838		- / -		0 / 0.000		1 / 0.978						
FY 2022		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.285		2 / 1.582		0 / 0.000		2 / 1.867						
FY 2023		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -						
FY 2024		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		2 / 1.752		2 / 1.752						
To Complete		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -						
Total		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.137		1 / 0.777		1 / 1.123		2 / 1.582		6 / 5.371						
Installation Schedule																																
	PYS	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				TC	Tot	
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4			
In	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	1	-	-	-	-	1	1	2	6
Out	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	1	4	6
Footnotes: ⁽⁹⁾ CJ061 HM&E MECHANICAL/AUXILIARY MODIFICATIONS HM&E 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																																

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Exhibit P-3a, Individual Modification: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	P-1 Line Item Number / Title: 0946 / LPD Class Support Equipment	Modification Number / Title: 7 / CJ061 Titanium Valve Replacement
ID Code (A=Service Ready, B=Not Service Ready) :		MDAP/MAIS Code:
were a total of (2) kits procured in support of (2) FY18 CNO Availabilities on LPD 19 (1 kit) and LPD 22 (1 kit). The material was delayed due to the manufacturer failing required shock and vibration testing, and therefore these installations were deferred. Installation will occur in FY21 for both LPD 19 (1 kit) and LPD 22 (1 kit). DSA costs will also vary by kit due to differences in scope and complexity, and first installation compared to follow-on installations. ⁽¹⁰⁾ Due to LPD 20 operational commitments resulting in a reduction to the FY21 CNO Availability duration, an FY19 procurement has had the subsequent originally budgeted (PB19) FY21 installation for (1) kit deferred to FY23. The (1) kit for LPD 20 will now be installed in FY23 in a CNO Availability that has sufficient duration to support the installation. HM&E MECHANICAL/AUXILIARY MODIFICATIONS HM&E 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 were (3) total kits being procured for installation during (1) FY19 CNO Availability, (1) FY20 CNO Availability and (1) FY26 CNO availability on LPD 21 (1 kit for FY19), LPD 17 (1 kit for FY20), and LPD 18 (1 kit for FY26). In FY19, there are (2) total kits being procured for installation during (2) FY21 CNO Availabilities on LPD 19 (1 kit) and LPD 22 (1 kit). There are no FY22 CNO availabilities that would support associated procurements in FY20. In FY21, there is (1) total kit being procured for installation during (1) FY23 CNO Availability on LPD 20 (1 kit). There are no FY24 CNO availabilities that would support associated procurements in FY22. There are no FY25 CNO availabilities that would support associated procurements in FY23. DSA costs will also vary by kit due to differences in scope and complexity, and first installation compared to follow-on installations. All Phase II procurements have been moved to A-2 years prior to installation, vice A-1 year prior to installation, due to actual lead times encountered on previously procured ship sets. Once exception to this change is (1) kit being procured in FY18 for LPD 21 FY19 CNO Availability, which was procured at A-1 years. The procurement of (1) kit for LPD 21 FY19 CNO Availability has remained an A-1 year prior to installation procurement because funding was not available to accelerate the procurement once actual lead times were known. ⁽¹¹⁾ HM&E MECHANICAL/AUXILIARY MODIFICATIONS HM&E 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. 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 FY20, there is (1) total kit being procured for installation during (1) FY22 CNO Availability on LPD 21 (1 kit). In FY21, there is (1) total kit being procured for installation during (1) FY23 CNO Availability on LPD 17 (1 kit). In FY22, there are (2) total kits being procured for installation during (2) FY24 CNO Availabilities on LPD 19 (1 kit) and LPD 22 (1 kit). There are no FY25 CNO availabilities that would support associated procurements in FY23. In FY24, there are (2) total kits being procured for installation during (2) FY26 CNO Availabilities on LPD 18 (1 kit) and on LPD 20 (1 kit). DSA costs will also vary by kit due to differences in scope and complexity, and first installation compared to follow-on installations. All Phase III procurements have been moved to A-2 years prior to installation, vice A-1 year prior to installation, due to actual lead times encountered on previously procured ship sets.		

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Exhibit P-3a, Individual Modification: PB 2020 Navy						Date: March 2019					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9				P-1 Line Item Number / Title: 0946 / LPD Class Support Equipment				Modification Number / Title: 8 / CJ062 HM&E Mechanical/Auxiliary Mods Knuckleboom Crane Improvements			

ID Code (A=Service Ready, B=Not Service Ready) :						MDAP/MAIS Code:						
Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity (Units in Each)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost (\$ in Millions)	0.300	1.020	2.413	0.899	0.000	0.899	3.201	3.138	2.026	0.578	0.758	14.333
Less PY Advance Procurement (\$ in Millions)	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (\$ in Millions)	0.300	1.020	2.413	0.899	0.000	0.899	3.201	3.138	2.026	0.578	0.758	14.333
Plus CY Advance Procurement (\$ in Millions)	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority (\$ in Millions)	0.300	1.020	2.413	0.899	0.000	0.899	3.201	3.138	2.026	0.578	0.758	14.333
(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:

[Knuckleboom Crane Improvement] 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.

[Non-Recurring Engineering]

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Exhibit P-3a, Individual Modification: PB 2020 Navy								Date: March 2019				
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9				P-1 Line Item Number / Title: 0946 / LPD Class Support Equipment				Modification Number / Title: 8 / CJ062 HM&E Mechanical/Auxiliary Mods Knuckleboom Crane Improvements				
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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	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)	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: CJ062 HM&E Mechanical/ Auxiliary Mods Knuckleboom Crane Improvements												
B Kits												
Recurring												
1.1.1) Knuckleboom Crane Improvement - NonOrganic (12)	- / -	2 / 1.020	2 / 1.041	1 / 0.532	- / -	1 / 0.532	2 / 1.086	3 / 1.663	- / -	1 / 0.578	- / -	11 / 5.920
Subtotal: Recurring	- / 0.000	- / 1.020	- / 1.041	- / 0.532	- / -	- / 0.532	- / 1.086	- / 1.663	- / -	- / 0.578	- / 0.000	- / 5.920
Subtotal: CJ062 HM&E Mechanical/Auxiliary Mods Knuckleboom Crane Improvements	- / -	2 / 1.020	2 / 1.041	1 / 0.532	- / -	1 / 0.532	2 / 1.086	3 / 1.663	- / -	1 / 0.578	- / -	11 / 5.920
Subtotal: Procurement, All Modification Items	- / 0.000	- / 1.020	- / 1.041	- / 0.532	- / -	- / 0.532	- / 1.086	- / 1.663	- / -	- / 0.578	- / 0.000	- / 5.920
Support (All Modification Items)												
2.1) Non-Recurring Engineering	- / 0.300	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / 0.300
Subtotal: Support	- / 0.300	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / 0.000	- / 0.300
Installation												
Modification Item 1 of 1: CJ062 HM&E Mechanical/ Auxiliary Mods Knuckleboom Crane Improvements	- / 0.000	- / 0.000	- / 1.372	- / 0.367	- / 0.000	- / 0.367	- / 2.115	- / 1.475	- / 2.026	- / 0.000	- / 0.758	- / 8.113
Subtotal: Installation	- / 0.000	- / -	- / 1.372	- / 0.367	- / -	- / 0.367	- / 2.115	- / 1.475	- / 2.026	- / -	- / 0.758	- / 8.113
Total												
Total Cost (Procurement + Support + Installation)	0.300	1.020	2.413	0.899	0.000	0.899	3.201	3.138	2.026	0.578	0.758	14.333

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Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019																					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9										P-1 Line Item Number / Title: 0946 / LPD Class Support Equipment										Modification Number / Title: 8 / CJ062 HM&E Mechanical/Auxiliary Mods Knuckleboom Crane Improvements											
ID Code (A=Service Ready, B=Not Service Ready) :															MDAP/MAIS Code:																
Modification Item 1 of 1: CJ062 HM&E Mechanical/Auxiliary Mods Knuckleboom Crane Improvements																															
Manufacturer Information																															
Manufacturer Name: TBD															Manufacturer Location: TBDBTBD																
Administrative Leadtime (in Months): 3															Production Leadtime (in Months): 12																
Dates		FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024					
Contract Dates		Jan 2019				Jan 2019				Mar 2020				Jan 2021				Jan 2022								Mar 2024					
Delivery Dates		Jan 2020				Jan 2020				Mar 2021				Jan 2022				Jan 2023								Mar 2025					
Installation Information																															
Method of Implementation: [none specified]:: Installation Name: Knuckleboom Crane Improvement																															
Installation Cost		Prior Years		FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total		FY 2021		FY 2022		FY 2023		FY 2024		To Complete		Total							
		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)							
Prior Years		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
FY 2018		- / -		- / -		2 / 1.132		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.000		2 / 1.132					
FY 2019		- / -		- / -		0 / 0.240		- / -		- / -		- / -		2 / 1.243		- / -		- / -		- / -		- / -		0 / 0.000		2 / 1.483					
FY 2020		- / -		- / -		- / -		0 / 0.367		0 / 0.000		0 / 0.367		1 / 0.622		- / -		- / -		- / -		- / -		0 / 0.000		1 / 0.989					
FY 2021		- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.250		2 / 1.093		- / -		- / -		- / -		0 / 0.000		2 / 1.343					
FY 2022		- / -		- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.382		3 / 2.026		- / -		- / -		0 / 0.000		3 / 2.408					
FY 2023		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
FY 2024		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		1 / 0.758		1 / 0.758					
To Complete		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
Total		- / -		- / -		2 / 1.372		0 / 0.367		0 / 0.000		0 / 0.367		3 / 2.115		2 / 1.475		3 / 2.026		- / -		1 / 0.758		11 / 8.113							
Installation Schedule																															
	PYS	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				TC	Tot
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4		
In	-	-	-	-	-	-	-	-	-	-	1	-	1	-	-	1	2	-	1	1	-	-	1	-	2	-	-	-	-	1	11
Out	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	1	-	-	2	1	-	1	1	-	-	1	-	1	2	11
Footnotes:																															
⁽¹²⁾ Due to a delay in Non-Recurring Engineering, FY18 procurements and subsequent FY19 installations originally budgeted (PB18 and PB19) for a quantity of two (2) Knuckleboom Crane Improvements have been deferred by one year. The FY18 procurements will now be executed in FY19, and installed in FY20. The two (2) budgeted FY19 procurements in PB19 will be procured in FY19, and installed in FY21. All other procurements and installations have been adjusted to account for the delay in NRE. HM&E MECHANICAL/AUXILIARY MODIFICATIONS HM&E Modernization Knuckleboom Crane Improvement funding																															

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Exhibit P-3a, Individual Modification: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	P-1 Line Item Number / Title: 0946 / LPD Class Support Equipment	Modification Number / Title: 8 / CJ062 HM&E Mechanical/Auxiliary Mods Knuckleboom Crane Improvements
ID Code (A=Service Ready, B=Not Service Ready) :		MDAP/MAIS Code:
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 FY19, there are (2) total kits being procured for installation during (2) FY20 CNO Availabilities on LPD 18 (1 kit) and 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), LPD 22 (1 kit), and LPD 27 (1 kit). In FY21, there are (2) total kits being procured for installation during (2) FY22 CNO Availabilities on LPD 21 (1 kit) and LPD 23 (1 kit). In FY22, there are (3) total kits being procured for installation during (3) FY23 CNO Availabilities on LPD 17 (1 kit), LPD 20 (1 kit), and LPD 24 (1 kit). There are no FY24 CNO availabilities that would support associated procurements in FY23. In FY24, there is (1) total kit being procured for installation during (1) FY25 CNO Availability on LPD 26 (1 kit). DSA costs will also vary by kit due to differences in scope and complexity, and first installation compared to follow-on installations.		

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Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019		
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9					P-1 Line Item Number / Title: 0946 / LPD Class Support Equipment					Modification Number / Title: 9 / CJ063 HM&E Mechanical/Auxiliary Mod Common Fuel Rail		
ID Code (A=Service Ready, B=Not Service Ready) :							MDAP/MAIS Code:					
Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity (Units in Each)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost (\$ in Millions)	0.000	0.000	0.000	0.000	0.000	0.000	15.076	21.433	14.259	11.355	47.118	109.241
Less PY Advance Procurement (\$ in Millions)	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (\$ in Millions)	0.000	0.000	0.000	0.000	0.000	0.000	15.076	21.433	14.259	11.355	47.118	109.241
Plus CY Advance Procurement (\$ in Millions)	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority (\$ in Millions)	0.000	0.000	0.000	0.000	0.000	0.000	15.076	21.433	14.259	11.355	47.118	109.241
(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: [Common Fuel Rail] FUEL INJECTION COMMON RAIL Modernization funding is provided to correct mission, safety and reliability issues on Main Propulsion Diesel Engine (MPDE) systems and ultimately resolve maintenance intensive system concerns. Funding will support developing and installing a high-pressure, electronically-controlled fuel injection rail system.												

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Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019			
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9					P-1 Line Item Number / Title: 0946 / LPD Class Support Equipment					Modification Number / Title: 9 / CJ063 HM&E Mechanical/Auxiliary Mod Common Fuel Rail			
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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total	
	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	
Procurement													
<i>Modification Item 1 of 1: CJ063 HM&E Mechanical/ Auxiliary Mod Common Fuel Rail</i>													
<i>B Kits</i>													
<i>Recurring</i>													
1.1.1) Common Fuel Rail - NonOrganic ⁽¹³⁾	- / -	- / -	- / -	- / -	- / -	- / -	2 / 14.468	2 / 14.772	1 / 7.541	1 / 7.699	6 / 21.861	12 / 66.341	
<i>Subtotal: Recurring</i>	- / 0.000	- / -	- / -	- / -	- / -	- / -	- / 14.468	- / 14.772	- / 7.541	- / 7.699	- / 21.861	- / 66.341	
<i>Subtotal: CJ063 HM&E Mechanical/Auxiliary Mod Common Fuel Rail</i>	- / -	- / -	- / -	- / -	- / -	- / -	2 / 14.468	2 / 14.772	1 / 7.541	1 / 7.699	6 / 21.861	12 / 66.341	
<i>Subtotal: Procurement, All Modification Items</i>	- / 0.000	- / -	- / -	- / -	- / -	- / -	- / 14.468	- / 14.772	- / 7.541	- / 7.699	- / 21.861	- / 66.341	
Installation													
<i>Modification Item 1 of 1: CJ063 HM&E Mechanical/ Auxiliary Mod Common Fuel Rail</i>	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.608	- / 6.661	- / 6.718	- / 3.656	- / 25.257	- / 42.900	
<i>Subtotal: Installation</i>	- / 0.000	- / -	- / -	- / -	- / -	- / -	- / 0.608	- / 6.661	- / 6.718	- / 3.656	- / 25.257	- / 42.900	
Total													
Total Cost (Procurement + Support + Installation)	0.000	0.000	0.000	0.000	0.000	0.000	15.076	21.433	14.259	11.355	47.118	109.241	

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Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019																					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9										P-1 Line Item Number / Title: 0946 / LPD Class Support Equipment										Modification Number / Title: 9 / CJ063 HM&E Mechanical/Auxiliary Mod Common Fuel Rail											
ID Code (A=Service Ready, B=Not Service Ready) :															MDAP/MAIS Code:																
Modification Item 1 of 1: CJ063 HM&E Mechanical/Auxiliary Mod Common Fuel Rail																															
Manufacturer Information																															
Manufacturer Name: TBD															Manufacturer Location: TBD																
Administrative Leadtime (in Months): 3															Production Leadtime (in Months): 12																
Dates		FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024					
Contract Dates														Jun 2021				Jan 2022				Apr 2023									
Delivery Dates														Jun 2022				Jan 2023				Apr 2024									
Installation Information																															
Method of Implementation: [none specified]:: Installation Name: Common Fuel Rail																															
Installation Cost		Prior Years		FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total		FY 2021		FY 2022		FY 2023		FY 2024		To Complete		Total							
		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)							
Prior Years		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
FY 2018		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
FY 2019		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
FY 2020		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
FY 2021		- / -		- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.608		2 / 6.040		- / -		- / -		0 / 0.000		2 / 6.648					
FY 2022		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.621		2 / 6.401		- / -		0 / 0.000		2 / 7.022					
FY 2023		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.317		1 / 3.332		0 / 0.000		1 / 3.649					
FY 2024		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.324		1 / 3.250		1 / 3.574					
To Complete		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		6 / 22.007		6 / 22.007					
Total		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.608		2 / 6.661		2 / 6.718		1 / 3.656		12 / 42.900					
Installation Schedule																															
	PYS	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				TC	Tot
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4		
In	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	-	-	-	-	2	-	-	1	-	7	12
Out	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	-	-	-	-	1	9	12
Footnotes: ⁽¹³⁾ HM&E MECHANICAL/AUXILIARY MODIFICATIONS HM&E Modernization Common Fuel Rail (CFR) funding is provided to correct mission, safety and reliability issues on Main Propulsion Diesel Engine (MPDE) systems and ultimately resolve maintenance intensive system concerns. FY22 Installations: LPD 21 and LPD 23. FY23 Installations: LPD 17 and LPD 20. FY24 Installation: LPD 19. FY25 Installation:																															

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Exhibit P-3a, Individual Modification: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	P-1 Line Item Number / Title: 0946 / LPD Class Support Equipment	Modification Number / Title: 9 / CJ063 HM&E Mechanical/Auxiliary Mod Common Fuel Rail
ID Code (A=Service Ready, B=Not Service Ready) :		MDAP/MAIS Code:
LPD 26. Non-Recurring Engineering (NRE) for the CFR was completed in FY18. The fielding plan for the CFR has been changed to reflect current funding capabilities based upon cost estimates at the completion of NRE.		

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Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019		
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9					P-1 Line Item Number / Title: 0946 / LPD Class Support Equipment					Modification Number / Title: 10 / CJ035 CYBER REQUIREMENT		
ID Code (A=Service Ready, B=Not Service Ready) :							MDAP/MAIS Code:					
Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity (<i>Units in Each</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost (<i>\$ in Millions</i>)	0.000	0.000	0.000	0.000	0.000	0.000	1.632	2.876	3.692	0.000	0.000	8.200
Less PY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (<i>\$ in Millions</i>)	0.000	0.000	0.000	0.000	0.000	0.000	1.632	2.876	3.692	0.000	0.000	8.200
Plus CY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority (<i>\$ in Millions</i>)	0.000	0.000	0.000	0.000	0.000	0.000	1.632	2.876	3.692	0.000	0.000	8.200
<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: [CJ035 CYBER REQUIREMENT] CYBER REQUIREMENT Modernization funding is provided to implement cyber resiliency principles, a Defense-in-Depth Functional Implementation Architecture (DFIA), Boundary Defense Capabilities and Situational Awareness tools.												

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LI 0946 - LPD Class Support Equipment
Navy

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Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019																						
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9										P-1 Line Item Number / Title: 0946 / LPD Class Support Equipment										Modification Number / Title: 10 / CJ035 CYBER REQUIREMENT												
ID Code (A=Service Ready, B=Not Service Ready) :															MDAP/MAIS Code:																	
Modification Item 1 of 1: CJ035 CYBER REQUIREMENT																																
Manufacturer Information																																
Manufacturer Name: Various															Manufacturer Location: Various																	
Administrative Leadtime (<i>in Months</i>): 0															Production Leadtime (<i>in Months</i>): 12																	
Dates		FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024						
Contract Dates														Jun 2021				Dec 2021														
Delivery Dates														Jun 2022				Dec 2022														
Installation Information																																
Method of Implementation: [none specified]:: Installation Name: CJ035 CYBER REQUIREMENT																																
Installation Cost		Prior Years		FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total		FY 2021		FY 2022		FY 2023		FY 2024		To Complete		Total								
		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)								
Prior Years		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -						
FY 2018		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -						
FY 2019		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -						
FY 2020		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -						
FY 2021		- / -		- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.162		2 / 1.244		- / -		- / -		0 / 0.000		2 / 1.406						
FY 2022		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.162		2 / 1.244		- / -		0 / 0.000		2 / 1.406						
FY 2023		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.243		- / -		3 / 0.000		3 / 0.243						
FY 2024		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -						
To Complete		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -						
Total		- / -		- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.162		2 / 1.406		2 / 1.487		- / -		3 / 0.000		7 / 3.055						
Installation Schedule																																
	PYS	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				TC	Tot	
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4			
In	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-	1	-	1	-	-	-	-	3	7
Out	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-	-	5	7	
Footnotes: ⁽¹⁴⁾ CYBER REQUIREMENT Modernization funding is provided to implement cyber resiliency principles, a Defense-in-Depth Functional Implementation Architecture (DFIA), Boundary Defense Capabilities and Situational Awareness tools. 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 FY21, there are a total of (2) kits being procured in support of (2) FY22																																

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Exhibit P-3a, Individual Modification: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	P-1 Line Item Number / Title: 0946 / LPD Class Support Equipment	Modification Number / Title: 10 / CJ035 CYBER REQUIREMENT
ID Code (A=Service Ready, B=Not Service Ready) :		MDAP/MAIS Code:
CNO Availabilities on LPD 23 (1 kit) and LPD 28 (1 kit). In FY22, there are at total of (2) kits being procured in support of (2) FY23 CNO Availabilities on LPD 17 (1 kit) and LPD 24 (1) kit. In FY23, there are a total of (3) kits being procured in support of (3) FY24 CNO Availabilities on LPD 19 (1 kit), LPD 22 (1 kit), and LPD 25 (1 kit). DSA costs will also vary by kit due to differences in scope and complexity, and first installation compared to follow-on installations.		

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Exhibit P-40, Budget Line Item Justification: PB 2020 Navy								Date: March 2019				
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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity (Units in Each)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost (\$ in Millions)	33.404	0.000	57.700	9.930	0.000	9.930	14.791	24.516	21.635	22.067	-	184.043
Less PY Advance Procurement (\$ in Millions)	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (\$ in Millions)	33.404	0.000	57.700	9.930	0.000	9.930	14.791	24.516	21.635	22.067	-	184.043
Plus CY Advance Procurement (\$ in Millions)	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority (\$ in Millions)	33.404	0.000	57.700	9.930	0.000	9.930	14.791	24.516	21.635	22.067	-	184.043
(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:												
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. 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.												
After a comprehensive review of Zumwalt class requirements, Navy decided in November 2017 to refocus the primary mission of the Zumwalt Class Destroyers from Land Attack to Offensive Surface Strike. The FY19 funds will facilitate this change in mission and add lethal, offensive fires against targets afloat and ashore. These changes include integration of SM-6 capability, Maritime Strike Tomahawk Integration, and organic cryptologic collection equipment (SPECTRAL). In order to maintain the required radar signature, an upgrade in off-board platform communications to the Network Tactical Common Data Link (NTCDL) is also required, paired with the SPECTRAL system.												
The Advanced Gun Systems will remain on the ships, but in an inactive status for future use, when a gun round that can affordably meet the desired capability is developed and fielded.												
Fact of Life Changes impacted ability to execute Data Center Tech Refresh. Funding realigned to address a sub set of TSCE tech refresh and higher priority fleet requirements for On Board Trainer (OBT).												
[P40A / DDG 1000 Class On Board Trainer]: Funding provides for the procurement and installation of On Board Training (OBT) environment hardware for the ZUMWALT Class to include DDG 1000, 1001 and 1002. OBT allows the ship's combat system to enter into a simulated environment and stimulate the combat system with non-real training tracks, allowing the crew to exercise their system and prepare for real world scenarios. This OBT capability, as requested by the fleet, is necessary to ensure the ship is prepared for deployment.												
[P40A / DDG 1000 Class Operating System Refresh]: Funding provides for the procurement and installation of critical operating systems and targeted technology refresh of the technical baseline for DDG 1000 Embedded Distributed Adaptation Processors (EDAPs), Wireless Access Points (WAPS), and Cameras. Technology refresh includes non-recurring systems engineering required to plan for and integrate the												

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Exhibit P-40, Budget Line Item Justification: PB 2020 Navy		Date: March 2019
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		
newly procured EDAPs, WAPs, and network IP video cameras. The systems engineering efforts consisted of identifying and developing design approaches for applications or hardware assemblies that required re-architecture or redesign due to changes in the COTS designs. EDAPs provide the electrical and logical interfaces to Total Ship Computing Environment (TSCE) via the Total Ship Computing Environment Infrastructure (TSCEI) network. EDAP procurements necessary to support the DDG 1000 Class Operating System upgrade to ensure Information Assurance (IA) compliance. The hardware procurement will provide the DDG 1000 Class ships critical upgrades to support required integration allowing the DDG 1000 Class ships to operate as a multi-mission warfare platform. Wireless Access Points (WAPs) provide shipboard wireless connectivity to the TSCEI throughout the ship. Cameras (fixed and Pan Tilt Zoom (PTZ)) provide the necessary monitoring and safe operation of unmanned spaces and are integrated into the TSCE. These cameras are primarily a watch-stander situational awareness tool which augments the manning reductions on DDG 1000 class ships. This procurement replaces obsolete and unsupported legacy camera systems (including sensors, pan/tilt, unit, controllers and other HW). [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 (AIt) within the Fleet Modernization Program (FMP). 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. [P40A / Critical Cybersecurity Upgrades and Improvements]: The Total Ship Computing Environment (TSCE) integrates all the ship's sensors and weapons into a cohesive Combat System (CS). The TSCE is integrated with an array of sensors and weapons that exchange data across the domains with the core network using a series of buffering computers known as Distributed Adaptation Processors (DAPs). The new ZUMWALT Class ship design has reliable and effective land-attack maritime dominance capabilities that meet stringent signature goals, which are interoperable with Joint forces. Funding required for hardware procurement and hardware engineering support to support Windows 10 Upgrade, Linux Kernel Integrity Validation tool, and Secure Data Distribution Services equipment. Windows 10 upgrade is required to support existing capabilities, prevent cybersecurity vulnerabilities, and is mandated by OPNAV requirements. Installation of Linux Kernel Integrity Validation tool will upgrade methods for detecting malicious activity (including "Zero-day" attacks) in order to keep pace with ongoing threats. Secure Data Distribution Services will provide comprehensive detection and countermeasure capabilities to ensure data confidentiality and integrity, and will help keep pace with ongoing threats. [P40A / Common Display System]: The Common Display System (CDS), an integral part of the TSCE infrastructure, consists of information-display consoles/peripherals that display the integrated data required to operate the ship and its systems. There are 40 consoles on each Zumwalt Class ship and 22 consoles in the shore trainer facility. The CDS variant on ZUMWALT class are unique configuration based on a 10 year old design and should be aligned with ongoing modernization efforts in the Fleet. [P40A / TSCE Diminishing Manufacturing Sources & Material Shortages (DMSMS)]: FY20 OPN funding is required to procure ZUMWALT Class ships network and computing equipment to address obsolescence and DMS concerns to sustain the ZUMWALT Class TSCE and minimize total operation costs. Fifty percent of TSCE components are currently obsolete and obsolescence forecasts predict ninety percent obsolete by FY20. NRE is based on SD-22 solution costs adjusted for inflation for current and predicted obsolescence. Funding is required to maintain ship readiness; without funding, obsolescence in ZUMWALT Class network and computing environments will impact the ship's ability to get underway, increase cybersecurity vulnerabilities, and decrease capacity for sparing. [P40A / DDG 1000 Maritime Strike Tomahawk Integration]: Maritime Strike Tomahawk Integration Funding required for software development, integration and test (RDT&E) and hardware and ILS (OPN) [P40A / DDG 1000 N-CC-1/3 Integration]: Integration of SM-6 capability. Funding required for Total Ship Computing Environment (TSCE) Integration (OPN), testing, and Live Fire Testing (RDT&E).		

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Exhibit P-40, Budget Line Item Justification: PB 2020 Navy		Date: March 2019
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		
[P40A / DDG 1000 NTCDL Integration]: Upgrade Tactical Common Data Link (TCDL) to Network Tactical Common Data Link (NTCDL) by removing TCDL from 07 level and replacing with deckhouse mounted NTCDL. TCDL is a Commercial Off-The-Shelf (COTS) antenna which SPAWAR supports whereas NTCDL is a full program of record. Would increase capacity for Common Data Link (CDL) links, as well as freeing up 07 space and improve Radar Cross Section (RCS) to allow for installation of other antennas. Improves signature and increases capacity of CDL links. [P40A / DDG 1000 Spectral Integration]: Upgrade Ship's Signal Exploitation Equipment Increment F (SSEE Inc F) antennas to meet DDG 1000 RCS requirements. Utilize previous research and treatment methods to develop antenna set for SSEE INC F / Spectral that meets RCS requirements. Adds warfighting capability to the ship while not sacrificing signature of the ship.		

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Exhibit P-40, Budget Line Item Justification: PB 2020 Navy								Date: March 2019		
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										
Exhibits Schedule					Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Exhibit Type	Title*	Subexhibits	ID CD	MDAP/MAIS Code	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)
P-40a	DDG 1000 Class Support Equipment	P-5a, P-21			- / 33.404	- / -	- / 57.700	- / 9.930	- / -	- / 9.930
P-40	Total Gross/Weapon System Cost				- / 33.404	- / 0.000	- / 57.700	- / 9.930	- / 0.000	- / 9.930
*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: Existing DDG 1000 and follow hardware is already over 10 years old. Total Ship Computing Environment (TSCE) Diminishing Manufacturing Sources & Material Shortages (DMSMS) effort includes non-recurring engineering required to identify and qualify applicable obsolete parts, prepare drawing updates (Lowest Replaceable Unit (LRU) & cabinet level), prepare Integrated Logistics Support (ILS) updates (LRU & cabinet level) and procure replacement parts. Network Tactical Common Data Link (NTCDL) Integration effort includes preparation of ship installation drawings and procurement of NCTDL components.										

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Exhibit P-40a, Budget Item Justification For Aggregated Items: PB 2020 Navy															Date: March 2019					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9							P-1 Line Item Number / Title: 0947 / DDG 1000 Class Support Equipment								Aggregated Items Title: DDG 1000 Class Support Equipment					
Item Number / Title [DODIC]	ID CD	MDAP/MAIS Code	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 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) DDG 1000 CLASS SUPPORT EQUIPMENT																				
1.1) DDG 1000 Class On Board Trainer ^(†)	A		-	-	-	-	-	-	10,667K	3	32.000	-	-	-	-	-	-	-	-	-
1.2) DDG 1000 Class Operating System Refresh ^(†)	A		9,912K	3	29.735	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: 1) DDG 1000 CLASS SUPPORT EQUIPMENT			-	-	29.735	-	-	-	-	-	32.000	-	-	-	-	-	-	-	-	-
2) DDG 1000 CLASS SUPPORT																				
2.1) Production Engineering	A		-	-	1.400	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: 2) DDG 1000 CLASS SUPPORT			-	-	1.400	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3) DDG 1000 CLASS HM&E PRODUCT IMPROVEMENT																				
3.1) DDG 1000 Class Product Improvement	A		-	-	1.404	-	-	-	-	-	3.200	-	-	2.030	-	-	-	-	-	2.030
3.2) Critical Cybersecurity Upgrades and Improvements	A		-	-	-	-	-	-	-	-	9.300	-	-	-	-	-	-	-	-	-
3.3) Common Display System	A		-	-	0.865	-	-	-	-	-	8.000	-	-	-	-	-	-	-	-	-
3.4) TSCE Diminishing Manufacturing Sources & Material Shortages (DMSMS)	A		-	-	-	-	-	-	-	-	5.200	-	-	3.400	-	-	-	-	-	3.400
Subtotal: 3) DDG 1000 CLASS HM&E PRODUCT IMPROVEMENT			-	-	2.269	-	-	-	-	-	25.700	-	-	5.430	-	-	-	-	-	5.430
4) DDG 1000 SURFACE STRIKE																				
4.3) DDG 1000 NTCDL Integration	A		-	-	-	-	-	-	-	-	-	-	-	4.500	-	-	-	-	-	4.500
Subtotal: 4) DDG 1000 SURFACE STRIKE			-	-	0.000	-	-	-	-	-	-	-	-	4.500	-	-	-	-	-	4.500
Total			-	-	33.404	-	-	-	-	-	57.700	-	-	9.930	-	-	-	-	-	9.930

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

(†) indicates the presence of a P-5a

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Exhibit P-5a, Procurement History and Planning: PB 2020 Navy								Date: March 2019				
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9			P-1 Line Item Number / Title: 0947 / DDG 1000 Class Support Equipment					Aggregated Items: DDG 1000 Class Support Equipment				
Item Number / Title [DODIC]	OCO	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) DDG 1000 CLASS SUPPORT EQUIPMENT												
1.1) DDG 1000 Class On Board Trainer ^(†)		2019	Raytheon / Portsmouth, RI	SS / FP	NAVSEA	Sep 2019	Sep 2020	3	10,667K	N	Jul 2017	Aug 2018
1.2) DDG 1000 Class Operating System Refresh ^(†)		2017	Raytheon / Portsmouth, RI	SS / FP	NAVSEA	Feb 2018	Dec 2018	3	9,912K	Y		Aug 2017
^(†) indicates the presence of a P-21												

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Exhibit P-21, Production Schedule: PB 2020 Navy																							Date: March 2019										
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9										P-1 Line Item Number / Title: 0947 / DDG 1000 Class Support Equipment													Aggregated Items: DDG 1000 Class Support Equipment										
Items <i>(Units in Each)</i>							Fiscal Year 2018												Fiscal Year 2019													BALANCE	
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) DDG 1000 CLASS SUPPORT EQUIPMENT																																	
1.1) DDG 1000 Class On Board Trainer																																	
	4	2019	NAVY	3	0	3																										A -	3
1.2) DDG 1000 Class Operating System Refresh																																	
	5	2017	NAVY	3	0	3						A -	-	-	-	-	-	-	-	-	-	1	-	-	-	1	-	-	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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Exhibit P-21, Production Schedule: PB 2020 Navy																				Date: March 2019											
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9										P-1 Line Item Number / Title: 0947 / DDG 1000 Class Support Equipment										Aggregated Items: DDG 1000 Class Support Equipment											
Items <i>(Units in Each)</i>							Fiscal Year 2020										Fiscal Year 2021														BALANCE
O C C O	M F R #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2019	BAL DUE AS OF 1 OCT	Calendar Year 2020										Calendar Year 2021														
							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) DDG 1000 CLASS SUPPORT EQUIPMENT																															
1.1) DDG 1000 Class On Board Trainer																															
	4	2019	NAVY	3	0	3	-	-	-	-	-	-	-	-	-	-	-	3													0
1.2) DDG 1000 Class Operating System Refresh																															
	5	2017	NAVY	3	3	0																									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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Exhibit P-21, Production Schedule: PB 2020 Navy				Date: March 2019			
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9			P-1 Line Item Number / Title: 0947 / DDG 1000 Class Support Equipment			Aggregated Items: DDG 1000 Class Support Equipment	

MFR Ref #	Manufacturer Name - Location	Production Rates (Each / Year)			Procurement Leadtime (Months)							
		MSR For 2020	1-8-5 For 2020	MAX For 2020	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	Raytheon - Portsmouth, RI			TBD	0	0	18	18	0	0	12	12
2	Raytheon - Portsmouth, RI	3	3	3	0	16	10	26	0	0	0	0

"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: PB 2020 Navy										Date: March 2019		
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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity (<i>Units in Each</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost (<i>\$ in Millions</i>)	111.812	14.726	22.254	14.331	0.000	14.331	15.389	8.877	11.208	11.410	Continuing	Continuing
Less PY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (<i>\$ in Millions</i>)	111.812	14.726	22.254	14.331	0.000	14.331	15.389	8.877	11.208	11.410	Continuing	Continuing
Plus CY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority (<i>\$ in Millions</i>)	111.812	14.726	22.254	14.331	0.000	14.331	15.389	8.877	11.208	11.410	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 FY 2020 funding request was reduced by \$1.000 million to account for the availability of prior year execution balances. 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. The growth in this line is due to procurement and installation of OHIO CLASS Ship Control Station Obsolete Equipment Replacement (SCS OER). [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. Commencing in FY19 funding is provided for upgrading Laboratory facilities at Electric Boar Corporation and Naval Undersea Warfare Center Newport Rhode Island and at the Trident Training Facilities in Kings Bay Georgia and Bangor Washington. This upgrade is required so the Ship Control Laboratory facilities and the Trident Training Facilities are current with installed Ohio Class Ship Control Systems. This upgrade completes in FY21. 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. The two SSBN/GN OER transducer upgrade programs initiated in FY16, one for Hovering Transducers and the second for MDD/MHC Differential Pressure Transducers, complete in FY18. 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,												

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Exhibit P-40, Budget Line Item Justification: PB 2020 Navy		Date: March 2019	
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			
and has similar obsolescence issues, with terminated vendor component production as of 2009. Starting in FY19, the SSBN Strategic Weapon Support Systems (SWSS) program includes a Sustainability effort, which maintains the SWSS surveillance, modernization and obsolescence management program. This line monitors and predicts SWSS obsolescence issues and plans for program modernization to address predicted obsolescence, reliability or maintainability issues to ensure OHIO class submarines continue to meet mission requirements to end of life until replaced by the COLUMBIA Class. Items anticipated may include; Harvesting Critical Components, Reverse Engineering, Form-Fit-Function replacements, providing lifetime buys, providing component-level SHIPALTs (reactive). Starting in FY20, funding is for replacement Trim/Drain Pump motors as the current installed motors are obsolete and not supportable to end of life for OHIO Class SSBNs and SSGNs. The manufacturer of the OHIO Class Trim and Drain pump motor closed their facility. Leverages VA Class motors as replacements, but requires non-recurring engineering, qualification funding for arrangement, power connection and integrated logistics support changes and install funding as a backfit SHIPALT. Also in FY20, begin funding replacement for High Pressure Air Compressor (HPAC) programmable logic controllers (PLCs) that are obsolete, and replacements are no longer available. PLCs on OHIO Class are no longer supported by the stock system and repair parts are not available. Funds support non-recurring engineering to develop a refresh modification and ILS support for the PLC on existing HPAC TRIPER assets. Once the PLC upgrade design is qualified, kits will be procured to install on each TRIPER asset during unit overhaul to support in-service OHIO class submarines. [P40A / HH012 EQUIPMENT HM&E TRIDENT ENGINEERING AVAILABILITY]: TRIDENT Engineered Availability (EA) support funding is required to provide system engineering, technical, logistic and configuration management support for all accomplished modernization during the SSBN 726 Class Submarine Engineered Availabilities (EAs) commencing in FY93 and continuing through the operational life of the submarine. This program also provides funding for Quality Assurance (QA) oversight and certification by Supervisor Of Shipbuilding, Groton (SOS Groton) of SHIPALTS performed by Electric Boat Corporation (EB), provides funding to the Planning Yard for Configuration Record change and Liaison Action Request processing, and Selected Record Drawings mark ups for SHIPALT-related work, accomplishment of availability work package requirements assigned to the Planning Yard such as Design Review hanger inspections, Integrated Logistic Support product updates, and Configuration Overhaul Planning Product development and distribution for each availability. The program also provides funding for NUWC Newport system-level final end-to-end certification test development and onboard test conduct and analysis to support end of CNO availability certification of entire Command and Control system as ready for sea and strategic deployment. This system-level engineering support is provided during Engineered Refueling Overhauls (ERO), Extended Refit Periods (ERPs), and Maintenance & Modernization Periods (MMPs). [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. 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]: Funds are provided for installation of Submarine Special Operations Forces (SOF) unique system components. Starting in FY19, additional funding is needed for the Modernized Dry Deck Shelter (DDS) Project and will be used to complete the SHIPALT production or Initial Fit-up of the Modernized DDS on the target (yet to be defined) VA Class host submarine.			

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

Exhibits Schedule					Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Exhibit Type	Title*	Subexhibits	ID CD	MDAP/MAIS Code	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)
P-40a	Strategic Platform Support Equip				- / 89.463	- / 9.483	- / 12.010	- / 11.127	- / -	- / 11.127
P-3a	1 / EQUIPMENT HM&E SWS/SS ALTERATION SCS SSBN/SSGN PROC (TBD)				- / 22.349	- / 5.243	- / 10.244	- / 3.204	- / 0.000	- / 3.204
P-40	Total Gross/Weapon System Cost				- / 111.812	- / 14.726	- / 22.254	- / 14.331	- / 0.000	- / 14.331

Exhibits Schedule					FY 2021	FY 2022	FY 2023	FY 2024	To Complete	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	Strategic Platform Support Equip				- / -	- / -	- / -	- / -	- / -	- / -
P-3a	1 / EQUIPMENT HM&E SWS/SS ALTERATION SCS SSBN/SSGN PROC (TBD)				- / 5.931	- / 1.488	- / 0.000	- / 0.000	- / 0.000	- / 48.459
P-40	Total Gross/Weapon System Cost				- / 15.389	- / 8.877	- / 11.208	- / 11.410	Continuing	Continuing

*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:
 While per unit procurement and install costs remain the same across the FYDP (save for inflation) for the Ship Control Station (SCS) OER Program, FY20 reflects lower funding than FY19 due to the planned number of material procurements and installations, which is tied to support ship's maintenance availability schedules. This upgrade is delivered during scheduled ship availabilities and so accomplishes two fewer procurements and fewer installations in FY20, as compared to FY19.

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Exhibit P-40a, Budget Item Justification For Aggregated Items: PB 2020 Navy															Date: March 2019					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9								P-1 Line Item Number / Title: 0950 / Strategic Platform Support Equip							Aggregated Items Title: Strategic Platform Support Equip					
Item Number / Title [DODIC]	ID CD	MDAP/MAIS Code	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 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) HH009 EQUIPMENT HM&E & SWS/SS ALTERATION																				
1.1) SCS PY SHIPALT DEV	A		-	-	35.926	-	-	2.928	-	-	0.820	-	-	0.221	-	-	-	-	-	0.221
1.2) SWSS SSBN/SSGN Hovering System DP Transducers	A		-	-	1.680	-	-	0.280	-	-	-	-	-	-	-	-	-	-	-	-
1.3) SWSS MDD/MHC Differential Pressure Transducers	A		-	-	1.800	-	-	0.200	-	-	-	-	-	-	-	-	-	-	-	-
1.4) Ship Control Station OER Material (1)	A		-	-	0.960	-	-	0.670	-	-	1.567	-	-	0.532	-	-	-	-	-	0.532
1.5) SCS OER Lab/TTF Equip Upgrade (2)	A		-	-	-	-	-	-	-	-	3.311	-	-	3.391	-	-	-	-	-	3.391
1.6) SWSS Sustainability	A		-	-	-	-	-	-	-	-	0.950	-	-	0.969	-	-	-	-	-	0.969
1.7) Ohio Class Trim/Drain Pump Motor Replacement (3)	A		-	-	-	-	-	-	-	-	-	-	-	1.625	-	-	-	-	-	1.625
1.8) Ohio Class High Pressure Air Compressor Controllers (4)	A		-	-	-	-	-	-	-	-	-	-	-	1.412	-	-	-	-	-	1.412
Subtotal: 1) HH009 EQUIPMENT HM&E & SWS/SS ALTERATION			-	-	40.366	-	-	4.078	-	-	6.648	-	-	8.150	-	-	-	-	-	8.150
2) HH012 EQUIPMENT HM&E TRIDENT ENGINEERING AVAILABILITY																				
2.1) SHIPALT INSTALLATION AND ENGINEERING SERVICES	A		-	-	17.579	-	-	1.913	-	-	1.384	-	-	0.879	-	-	-	-	-	0.879
2.2) CCS EQUIPMENT REFURBISHMENT & SHIPBOARD TESTING	A		-	-	14.907	-	-	1.549	-	-	1.121	-	-	0.711	-	-	-	-	-	0.711
2.3) HM&E EQUIPMENT REFURBISHMENT & SHIPBOARD TESTING	A		-	-	9.710	-	-	1.093	-	-	0.791	-	-	0.502	-	-	-	-	-	0.502
Subtotal: 2) HH012 EQUIPMENT HM&E TRIDENT ENGINEERING AVAILABILITY			-	-	42.196	-	-	4.555	-	-	3.296	-	-	2.092	-	-	-	-	-	2.092
3) HH0GN SSGN MODIFICATIONS																				
3.1) SOF UPGRADES	A		-	-	3.838	-	-	0.548	-	-	0.558	-	-	0.570	-	-	-	-	-	0.570

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Exhibit P-40a, Budget Item Justification For Aggregated Items: PB 2020 Navy															Date: March 2019					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9							P-1 Line Item Number / Title: 0950 / Strategic Platform Support Equip								Aggregated Items Title: Strategic Platform Support Equip					
Item Number / Title [DODIC]	ID CD	MDAP/MAIS Code	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 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: 3) HH0GN SSGN MODIFICATIONS			-	-	3.838	-	-	0.548	-	-	0.558	-	-	0.570	-	-	-	-	-	0.570
4) SOF HH0GN																				
4.1) SOF ALTS	A		-	-	3.063	-	-	0.302	-	-	1.508	-	-	0.315	-	-	-	-	-	0.315
Subtotal: 4) SOF HH0GN			-	-	3.063	-	-	0.302	-	-	1.508	-	-	0.315	-	-	-	-	-	0.315
Total			-	-	89.463	-	-	9.483	-	-	12.010	-	-	11.127	-	-	-	-	-	11.127

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

Footnotes:

- (1) Ship Control Station OER Material funds identified are for ancillary material kits required to set up and support shipset installations. The decrease from FY19 to FY20 is due to two fewer kit procurements; FY19 has (3), and FY20 only (1).
- (2) The SCS OER Lab/TTF Equip Upgrade is required to ensure shore maintenance and training facility equipment is similar to ship installation in order support operational issues and ensure training at the TTFs matches the latest installed configuration of Ship Control Systems in the fleet.
- (3) Starting in FY20, funding is for replacement Trim/Drain Pump motors as the current installed motors are obsolete and not supportable to end of life for OHIO Class SSBNs and SSGNs. Leverages VA Class motors as replacements, but requires nonrecurring engineering, qualification funding for arrangement, power and foundation connection, and integrated logistics support changes and install funding as a backfit SHIPALT.
- (4) Starting in FY20, funding is for replacement for High Pressure Air Compressor (HPAC) programmable logic controllers (PLCs) that are obsolete. PLCs on OHIO Class are no longer supported by the stock system and repair parts are not available. Funds support non-recurring engineering to develop a refresh modification and ILS support for the PLC. Upgrade kits will be procured to install on each TRIPER asset during scheduled HPAC overhaul.

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Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019		
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9					P-1 Line Item Number / Title: 0950 / Strategic Platform Support Equip					Modification Number / Title: 1 / EQUIPMENT HM&E SWS/SS ALTERATION SCS SSBN/SSGN PROC		
ID Code (A=Service Ready, B=Not Service Ready) :							MDAP/MAIS Code:					
Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity (<i>Units in Each</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost (<i>\$ in Millions</i>)	22.349	5.243	10.244	3.204	0.000	3.204	5.931	1.488	0.000	0.000	0.000	48.459
Less PY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (<i>\$ in Millions</i>)	22.349	5.243	10.244	3.204	0.000	3.204	5.931	1.488	0.000	0.000	0.000	48.459
Plus CY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority (<i>\$ in Millions</i>)	22.349	5.243	10.244	3.204	0.000	3.204	5.931	1.488	0.000	0.000	0.000	48.459
<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: SSBN Ship Control Obsolete Equipment Replacement - Perform 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. Note: Production lead-time for Ship Control System OER is 17 months. These units in addition to the normal procurement lead-time will be used in the testing and certification program of the design of this safety of ship system. This testing and certification adds an additional 22 months of lead-time. [EQUIPMENT HM&E SWS/SS ALTERATION SCS SSBN/SSGN PROC] Installations of this SHIPALT are accomplished during SSBN refits, SSBN Extended Refit Periods (ERP), SSGN Major Maintenance Periods (MMP), and SSBN Engineered Refueling Overhauls (ERO). Installations do not complete until the availability completes. Thus the installation duration ranges from 90 days for refit installations to 821 days for ERO installations. By design, Ship Control ShipAlt TRID 588B is conjunctive with SSBN Modernization ShipAlt TRID601, which upgrades SSBNs to TI-16 sonar/fire control systems. The TI-16 fielding plan was accelerated by OPNAV and sonar/fire control PARMs. This additional funding for Ship Control ShipAlt TRID 588B allows accelerating installations into FY19, FY21 & FY22 to match the current TI-16 installation scheduled for SSBNs. Installation costs vary due to the number of installations, location and type of installation, e.g. ship or facility. Procurement lead time for SCS OER equipment is 17 months. The three procurements in FY19 support installations in 4th quarter FY20 (1 install) and 2nd quarter FY21 (2 installs) based on ship schedules. The decrease in funding budgeted from FY19 to FY20 is due to fewer ship set procurements and installations being accomplished in FY20. In FY19, (3) procurements and (4) Installations are budgeted. In FY20 there is only (1) procurement and (1) installation. While the per shipset unit procurement and installation costs remain the same across the FYDP, the planned number of shipset procurements and installations is tied to support ships availability schedules. [SCS SSBN/SSGN INSTALLATION DSA] DSA costs vary due to the number of installations, location and type of installation, e.g. ship or facility.												

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Exhibit P-3a, Individual Modification: PB 2020 Navy									Date: March 2019				
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9				P-1 Line Item Number / Title: 0950 / Strategic Platform Support Equip					Modification Number / Title: 1 / EQUIPMENT HM&E SWS/SS ALTERATION SCS SSBN/SSGN PROC				
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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	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)	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> EQUIPMENT HM&E SWS/SS ALTERATION SCS SSBN/SSGN PROC													
B Kits													
Recurring													
1.1.1) EQUIPMENT HM&E SWS/SS ALTERATION SCS SSBN/SSGN PROC - NonOrganic	12 / 14.174	1 / 1.471	3 / 4.497	1 / 1.527	- / -	1 / 1.527	1 / 1.556	- / -	- / -	- / -	- / -	18 / 23.225	
1.1.2) SCS SSBN/SSGN INSTALLATION DSA - NonOrganic	- / 0.315	- / 0.280	- / 0.317	- / 0.162	- / -	- / 0.162	- / 0.247	- / 0.084	- / -	- / -	- / -	- / 1.405	
<i>Subtotal: Recurring</i>	- / 14.489	- / 1.751	- / 4.814	- / 1.689	- / -	- / 1.689	- / 1.803	- / 0.084	- / -	- / -	- / 0.000	- / 24.630	
<i>Subtotal: EQUIPMENT HM&E SWS/SS ALTERATION SCS SSBN/SSGN PROC</i>	12 / 14.489	1 / 1.751	3 / 4.814	1 / 1.689	- / -	1 / 1.689	1 / 1.803	- / 0.084	- / -	- / -	- / -	18 / 24.630	
<i>Subtotal: Procurement, All Modification Items</i>	- / 14.489	- / 1.751	- / 4.814	- / 1.689	- / -	- / 1.689	- / 1.803	- / 0.084	- / -	- / -	- / 0.000	- / 24.630	
Installation													
<i>Modification Item 1 of 1:</i> EQUIPMENT HM&E SWS/SS ALTERATION SCS SSBN/SSGN PROC	- / 7.860	- / 3.492	- / 5.430	- / 1.515	- / 0.000	- / 1.515	- / 4.128	- / 1.404	- / 0.000	- / 0.000	- / 0.000	- / 23.829	
<i>Subtotal: Installation</i>	- / 7.860	- / 3.492	- / 5.430	- / 1.515	- / -	- / 1.515	- / 4.128	- / 1.404	- / -	- / -	- / 0.000	- / 23.829	
Total													
Total Cost (Procurement + Support + Installation)	22.349	5.243	10.244	3.204	0.000	3.204	5.931	1.488	0.000	0.000	0.000	48.459	

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Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019																					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9										P-1 Line Item Number / Title: 0950 / Strategic Platform Support Equip										Modification Number / Title: 1 / EQUIPMENT HM&E SWS/SS ALTERATION SCS SSBN/SSGN PROC											
ID Code (A=Service Ready, B=Not Service Ready) :															MDAP/MAIS Code:																
Modification Item 1 of 1: EQUIPMENT HM&E SWS/SS ALTERATION SCS SSBN/SSGN PROC																															
Manufacturer Information																															
Manufacturer Name: Electric Boat															Manufacturer Location: Groton, CT																
Administrative Leadtime (in Months): 0															Production Leadtime (in Months): 17																
Dates		FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024					
Contract Dates		Feb 2018				Feb 2019				Mar 2020				Oct 2020																	
Delivery Dates		Jul 2019				Jul 2020				Aug 2021				Mar 2022																	
Installation Information																															
Method of Implementation: [none specified]:: Installation Name: EQUIPMENT HM&E SWS/SS ALTERATION SCS SSBN/SSGN PROC																															
Installation Cost		Prior Years	FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total		FY 2021		FY 2022		FY 2023		FY 2024		To Complete		Total								
		Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)								
Prior Years		6 / 7.860		3 / 3.492		3 / 4.073		- / -		- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.000		12 / 15.425							
FY 2018		- / -		- / -		1 / 1.357		- / -		- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.000		1 / 1.357							
FY 2019		- / -		- / -		- / -		1 / 1.515		0 / 0.000		1 / 1.515		2 / 2.752		- / -		- / -		- / -		0 / 0.000		3 / 4.267							
FY 2020		- / -		- / -		- / -		- / -		- / -		- / -		1 / 1.376		- / -		- / -		- / -		0 / 0.000		1 / 1.376							
FY 2021		- / -		- / -		- / -		- / -		- / -		- / -		- / -		1 / 1.404		- / -		- / -		0 / 0.000		1 / 1.404							
FY 2022		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -							
FY 2023		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -							
FY 2024		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -							
To Complete		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -							
Total		6 / 7.860		3 / 3.492		4 / 5.430		1 / 1.515		0 / 0.000		1 / 1.515		3 / 4.128		1 / 1.404		- / -		- / -		0 / 0.000		18 / 23.829							
Installation Schedule																															
	PYS	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				TC	Tot
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4		
In	6	2	1	-	-	1	2	-	1	-	-	-	1	-	2	-	1	-	1	-	-	-	-	-	-	-	-	-	-	-	18
Out	1	-	1	1	1	1	-	3	-	1	-	2	1	1	-	1	2	-	1	-	1	-	-	-	-	-	-	-	-	-	18

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Exhibit P-40, Budget Line Item Justification: PB 2020 Navy										Date: March 2019		
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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity (<i>Units in Each</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost (<i>\$ in Millions</i>)	43.838	4.178	3.629	2.909	0.000	2.909	2.971	3.029	3.091	3.152	Continuing	Continuing
Less PY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (<i>\$ in Millions</i>)	43.838	4.178	3.629	2.909	0.000	2.909	2.971	3.029	3.091	3.152	Continuing	Continuing
Plus CY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority (<i>\$ in Millions</i>)	43.838	4.178	3.629	2.909	0.000	2.909	2.971	3.029	3.091	3.152	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: FY2020 through FY2024 funding levels support procurement of Submarine Rescue Hoses and planned upgrades to 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, 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 certifications, 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. [P40A / HJ030 - RESCUE SUPPORT EQUIPMENT]: INTERVENTION SYSTEMS (REMOTELY OPERATED VEHICLE (ROV)/SRDRS/SUBMARINE RESCUE CHAMBER (SRC) Intervention assets (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 ROV is an unmanned system that reduces operational risk from the previous Intervention Assets that were a manned sytem, ATMOSPHERIC DIVING SYSTEM (ADS); full transition from ADS to ROV is pending availability of funding for a second ROV. SRC provides shallow water rescue capability. SRDRS is the deep water rescue system 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 the Transfer Under Pressure (TUP) or Submarine Rescue System-Submarine Decompression System (SRS-SDS). Full Operational Capability (FOC) was delayed due to efforts associated with Pressurized Rescue Module (PRM) restoration to service; Initial Operating Capability (IOC) in FY2019.												

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Exhibit P-40, Budget Line Item Justification: PB 2020 Navy								Date: March 2019		
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										
Exhibits Schedule					Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Exhibit Type	Title*	Subexhibits	ID CD	MDAP/MAIS Code	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)
P-40a	Deep Subm Sys Proj (DSSP) Equip				- / 43.838	- / 4.178	- / 3.629	- / 2.909	- / -	- / 2.909
P-40	Total Gross/Weapon System Cost				- / 43.838	- / 4.178	- / 3.629	- / 2.909	- / 0.000	- / 2.909
*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.										
Justification: The FY 2020 funding request was reduced by \$0.045 million to reflect the Department of Navy's effort to support the Office of Management and Budget directed reforms for Efficiency and Effectiveness that include a lean, accountable, more efficient government. FY2020 through FY2024 funding levels support procurement of Submarine Rescue Hoses and planned upgrades to Submarine Rescue Diving and Recompression System (SRDRS). FY20 funding is required to complete planned upgrades to the SRDRS.										

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Exhibit P-40a, Budget Item Justification For Aggregated Items: PB 2020 Navy															Date: March 2019					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9						P-1 Line Item Number / Title: 0955 / Deep Subm Sys Proj (DSSP) Equip									Aggregated Items Title: Deep Subm Sys Proj (DSSP) Equip					
Item Number / Title [DODIC]	ID CD	MDAP/ MAIS Code	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 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) HJ030 - RESCUE SUPPORT EQUIPMENT																				
1.1) SRC Materials	A		-	-	3.374	-	-	0.266	-	-	0.271	-	-	0.276	-	-	-	-	-	0.276
1.2) SRDRS System Upgrade and Upgrade Spares	A		-	-	40.464	-	-	3.912	-	-	3.358	-	-	2.633	-	-	-	-	-	2.633
Subtotal: 1) HJ030 - RESCUE SUPPORT EQUIPMENT			-	-	43.838	-	-	4.178	-	-	3.629	-	-	2.909	-	-	-	-	-	2.909
Total			-	-	43.838	-	-	4.178	-	-	3.629	-	-	2.909	-	-	-	-	-	2.909

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: PB 2020 Navy								Date: March 2019				
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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity (Units in Each)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost (\$ in Millions)	2,889.438	299.088	268.509	193.990	0.000	193.990	135.490	54.116	5.079	5.180	-	3,850.890
Less PY Advance Procurement (\$ in Millions)	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (\$ in Millions)	2,889.438	299.088	268.509	193.990	0.000	193.990	135.490	54.116	5.079	5.180	-	3,850.890
Plus CY Advance Procurement (\$ in Millions)	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority (\$ in Millions)	2,889.438	299.088	268.509	193.990	0.000	193.990	135.490	54.116	5.079	5.180	-	3,850.890
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)												
Initial Spares (\$ in Millions)	-	0.680	1.248	0.951	-	0.951	2.339	0.428	0.117	0.097	Continuing	Continuing
Flyaway Unit Cost (\$ in Thousands)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost (\$ in Thousands)	-	-	-	-	-	-	-	-	-	-	-	-

Description:
The FY 2020 funding request was reduced by \$6.885 million to account for the availability of prior year execution balances.

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 an extended service life and pace the multi-mission threats.

The FY20 budget request supports continued installation, engineering support and programmatic support for USS Chosin (CG 65), USS Hue City (CG 66), USS Shiloh (CG 67), USS Anzio (CG 68), USS Vicksburg (CG 69), USS Lake Erie (CG 70), USS Cape St George (CG 71), USS Vella Gulf (CG 72) and USS Port Royal (CG 73).

[P40A / CC013- INSTALLATION /DSA / AIT]: Provides Planning Yard Design Services Allocation (DSA) (design, advance planning, and kitted material), MSR installations and AIT installation support (ILS).

[P40A / CC014 - CONJUNCTIVE COMBAT SYSTEM ALTERATIONS]: Conjunctive Combat System Alterations includes design integration, equipment procurement, recurring equipment engineering, equipment integration, and Integrated Logistics Support.

[P40A / CC015- MULTI-MISSION SIGPRO]: Procures Multi-Mission Signal Processor (MMSP) including equipment procurement, recurring equipment engineering, equipment integration, and Integrated Logistics Support (ILS) products for Ticonderoga Class Ships.

[P40A / CC016- SPY-1B VARIANCE TRANSMITTER UPGRADES]: Provides upgrades to the existing Radio Frequency Monitor (RFM), existing Driver/Pre-Driver (DPD) and modifies existing Deckhouse Wave Guide for Ticonderoga Class Ships.

[P3A / CC001 - SPQ-9B UPGRADE]: Procures SPQ-9B for all CG Modernization ships including equipment procurement, recurring equipment engineering, equipment integration, and Integrated Logistics.

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Exhibit P-40, Budget Line Item Justification: PB 2020 Navy		Date: March 2019
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		
[P3A - 2 / CC003 - COOPERATIVE ENGAGEMENT CAPABILITIES (CEC)]: Procures Cooperative Engagement Capability (CEC) that includes equipment procurement, recurring equipment engineering, equipment integration, and Integrated Logistics Support (ILS) for anti-air capabilities on Ticonderoga Class Ships. [P3A - 3 / CC004 - AN/SQQ-89 A(V) 15 PROCUREMENT]: Procures AN/SQQ-89 A(V) 15 with Multi-Function Towed Array (MFTA) combat systems to replace the installed MIL-STD AN/SQQ-89(V) for Baseline 3 and 4 Ticonderoga Class ships including equipment procurement, recurring equipment engineering, equipment integration, and Integrated Logistics Support (ILS). [P3A - 4 / CC007 - AEGIS WEAPONS SYSTEM (AWS) UPGRADE PROCUREMENT]: Procures AEGIS Weapons System (AWS) upgrade for Ticonderoga Class Ships including equipment procurement, recurring equipment engineering, equipment integration, and Integrated Logistics Support (ILS). [P3A - 5 / CC008 - VERTICAL LAUNCH SYSTEM (VLS)]: 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 for Ticonderoga Class Ships including equipment procurement, recurring equipment engineering, equipment integration, and Integrated Logistics Support (ILS). [P3A - 6 / CC010 - MK34 UPGRADE]: Procures MK34 Gun Weapon System (GWS) upgrade for Ticonderoga Class Ships including equipment procurement, recurring equipment engineering, equipment integration, and Integrated Logistics Support (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 Integrated Logistics Support (ILS).		

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Exhibit P-40, Budget Line Item Justification: PB 2020 Navy				Date: March 2019	
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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Exhibit Type	Title*	Subexhibits	ID CD	MDAP/MAIS Code	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)
P-40a	CG Modernization				- / 1,016.547	- / 166.334	- / 217.968	- / 104.751	- / -	- / 104.751
P-3a	1 / CC001 - SPQ-9B UPGRADE (TBD)				- / 170.449	- / 10.686	- / 2.700	- / 2.452	- / 0.000	- / 2.452
P-3a	2 / CC003 - COOPERATIVE ENGAGEMENT CAPABILITIES (CEC) (TBD)				- / 130.279	- / 6.417	- / 3.062	- / 2.861	- / 0.000	- / 2.861
P-3a	3 / CC004 - AN/SQQ-89 A(V) 15 PROCUREMENT (TBD)				- / 274.322	- / 27.465	- / 4.020	- / 4.608	- / 0.000	- / 4.608
P-3a	4 / CC007 - AEGIS WEAPONS SYSTEM (AWS) UPGRADE PROCUREMENT (TBD)				- / 760.512	- / 51.304	- / 21.204	- / 19.730	- / 0.000	- / 19.730
P-3a	5 / CC008 - VERTICAL LAUNCH SYSTEM (VLS) (TBD)				- / 244.839	- / 6.187	- / 1.110	- / 1.040	- / 0.000	- / 1.040
P-3a	6 / CC010 - MK34 UPGRADE (TBD)				- / 181.737	- / 12.501	- / 6.132	- / 5.746	- / 0.000	- / 5.746
P-3a	7 / CC011 - INTEGRATED SHIP CONTROLS (ISC) (TBD)				- / 110.753	- / 18.194	- / 12.313	- / 52.802	- / 0.000	- / 52.802
P-40	Total Gross/Weapon System Cost				- / 2,889.438	- / 299.088	- / 268.509	- / 193.990	- / 0.000	- / 193.990

Exhibits Schedule					FY 2021	FY 2022	FY 2023	FY 2024	To Complete	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				- / -	- / -	- / -	- / -	- / -	- / -
P-3a	1 / CC001 - SPQ-9B UPGRADE (TBD)				- / 0.279	- / 1.168	- / 0.000	- / 0.000	- / 0.000	- / 187.734
P-3a	2 / CC003 - COOPERATIVE ENGAGEMENT CAPABILITIES (CEC) (TBD)				- / 0.294	- / 1.378	- / 0.000	- / 0.000	- / 0.000	- / 144.291
P-3a	3 / CC004 - AN/SQQ-89 A(V) 15 PROCUREMENT (TBD)				- / 0.845	- / 2.039	- / 0.000	- / 0.000	- / 0.000	- / 313.299
P-3a	4 / CC007 - AEGIS WEAPONS SYSTEM (AWS) UPGRADE PROCUREMENT (TBD)				- / 2.517	- / 9.294	- / 0.000	- / 0.000	- / 0.000	- / 864.561
P-3a	5 / CC008 - VERTICAL LAUNCH SYSTEM (VLS) (TBD)				- / 0.110	- / 0.500	- / 0.000	- / 0.000	- / 0.000	- / 253.786
P-3a	6 / CC010 - MK34 UPGRADE (TBD)				- / 0.602	- / 2.750	- / 0.000	- / 0.000	- / 0.000	- / 209.468
P-3a	7 / CC011 - INTEGRATED SHIP CONTROLS (ISC) (TBD)				- / 38.361	- / 9.033	- / 0.000	- / 0.000	- / 0.000	- / 241.456
P-40	Total Gross/Weapon System Cost				- / 135.490	- / 54.116	- / 5.079	- / 5.180	- / -	- / 3,850.890

*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: PB 2020 Navy															Date: March 2019					
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 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 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) CC013- INSTALLATION / DSA / AIT	A		-	-	419.282	-	-	126.034	-	-	111.268	-	-	104.751	-	-	-	-	-	104.751
Subtotal: 4) CC013 - INSTALLATION / DSA / AIT			-	-	419.282	-	-	126.034	-	-	111.268	-	-	104.751	-	-	-	-	-	104.751
5) CC014 - CONJUNCTIVE COMBAT SYSTEM ALTERATIONS																				
5.1) CONJUNCTIVE COMBAT SYSTEM ALTERATION EQUIPMENT	A		100,359.500	4	401.438	-	-	40.300	-	-	106.700	-	-	-	-	-	-	-	-	-
Subtotal: 5) CC014 - CONJUNCTIVE COMBAT SYSTEM ALTERATIONS			-	-	401.438	-	-	40.300	-	-	106.700	-	-	-	-	-	-	-	-	-
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	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
8) CC015- MULTI-MISSION SIGPRO																				
8.1) CC015- MULTI-MISSION SIGPRO	A		-	-	66.000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

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Exhibit P-40a, Budget Item Justification For Aggregated Items: PB 2020 Navy															Date: March 2019					
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 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 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)
Subtotal: 8) CC015- MULTI-MISSION SIGPRO			-	-	66.000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
9) CC016-SPY-1B VARIANCE TRANSMITTER UPGRADES																				
9.1) CC016-SPY-1B VARIANCE TRANSMITTER UPGRADES		A																		
			-	-	30.780	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: 9) CC016-SPY-1B VARIANCE TRANSMITTER UPGRADES			-	-	30.780	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total			-	-	1,016.547	-	-	166.334	-	-	217.968	-	-	104.751	-	-	-	-	-	104.751

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

Footnotes:

⁽¹⁾ (1) 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. (2) FY15 and FY16 funding was provided via SMOSF transfer for procurements and installation for CG 63 Cowpens, CG 64 Gettysburg, CG 65 Chosin, and CG 69 Vicksburg. (3) SMOSF was rescinded in FY17 and placed in the Navy budget.

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Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019		
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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity (Units in Each)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost (\$ in Millions)	170.449	10.686	2.700	2.452	0.000	2.452	0.279	1.168	0.000	0.000	0.000	187.734
Less PY Advance Procurement (\$ in Millions)	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (\$ in Millions)	170.449	10.686	2.700	2.452	0.000	2.452	0.279	1.168	0.000	0.000	0.000	187.734
Plus CY Advance Procurement (\$ in Millions)	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority (\$ in Millions)	170.449	10.686	2.700	2.452	0.000	2.452	0.279	1.168	0.000	0.000	0.000	187.734
(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 Thousands)	-	-	-	-	-	-	-	-	-	-	-	-
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: PB 2020 Navy										Date: March 2019			
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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total	
	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	
Procurement													
<i>Modification Item 1 of 1: CC001 - SPQ-9B UPGRADE</i>													
B Kits													
Recurring													
1.1.1) CC001 - SPQ-9B EQUIPMENT - NonOrganic ⁽²⁾	16 / 135.954	1 / 7.140	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	17 / 143.094	
1.1.2) CC001 - SPQ-9B ENGINEERING SERVICES - Organic	- / 12.458	- / 0.800	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / 13.258	
<i>Subtotal: Recurring</i>	<i>- / 148.412</i>	<i>- / 7.940</i>	<i>- / -</i>	<i>- / -</i>	<i>- / -</i>	<i>- / -</i>	<i>- / -</i>	<i>- / -</i>	<i>- / -</i>	<i>- / -</i>	<i>- / 0.000</i>	<i>- / 156.352</i>	
<i>Subtotal: CC001 - SPQ-9B UPGRADE</i>	<i>16 / 148.412</i>	<i>1 / 7.940</i>	<i>- / -</i>	<i>- / -</i>	<i>- / -</i>	<i>- / -</i>	<i>- / -</i>	<i>- / -</i>	<i>- / -</i>	<i>- / -</i>	<i>- / -</i>	<i>17 / 156.352</i>	
<i>Subtotal: Procurement, All Modification Items</i>	<i>- / 148.412</i>	<i>- / 7.940</i>	<i>- / -</i>	<i>- / -</i>	<i>- / -</i>	<i>- / -</i>	<i>- / -</i>	<i>- / -</i>	<i>- / -</i>	<i>- / -</i>	<i>- / 0.000</i>	<i>- / 156.352</i>	
Installation													
<i>Modification Item 1 of 1: CC001 - SPQ-9B UPGRADE</i>	<i>- / 22.037</i>	<i>- / 2.746</i>	<i>- / 2.700</i>	<i>- / 2.452</i>	<i>- / 0.000</i>	<i>- / 2.452</i>	<i>- / 0.279</i>	<i>- / 1.168</i>	<i>- / 0.000</i>	<i>- / 0.000</i>	<i>- / 0.000</i>	<i>- / 31.382</i>	
<i>Subtotal: Installation</i>	<i>- / 22.037</i>	<i>- / 2.746</i>	<i>- / 2.700</i>	<i>- / 2.452</i>	<i>- / -</i>	<i>- / 2.452</i>	<i>- / 0.279</i>	<i>- / 1.168</i>	<i>- / -</i>	<i>- / -</i>	<i>- / 0.000</i>	<i>- / 31.382</i>	
Total													
Total Cost (Procurement + Support + Installation)	170.449	10.686	2.700	2.452	0.000	2.452	0.279	1.168	0.000	0.000	0.000	187.734	

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Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019																					
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 SYSTEMS CORP.															Manufacturer Location: Melville, New York																
Administrative Leadtime (<i>in Months</i>): 6															Production Leadtime (<i>in Months</i>): 18																
Dates		FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024					
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 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total		FY 2021		FY 2022		FY 2023		FY 2024		To Complete		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>)		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 / 22.037		2 / 2.746		2 / 2.700		2 / 2.352		0 / 0.000		2 / 2.352		- / -		- / -		- / -		- / -		0 / 0.000		16 / 29.835							
FY 2018		- / -		- / -		- / -		0 / 0.100		0 / 0.000		0 / 0.100		0 / 0.279		1 / 1.168		- / -		- / -		0 / 0.000		1 / 1.547							
FY 2019		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -							
FY 2020		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -							
FY 2021		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -							
FY 2022		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -							
FY 2023		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -							
FY 2024		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -							
To Complete		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -							
Total		10 / 22.037		2 / 2.746		2 / 2.700		2 / 2.452		0 / 0.000		2 / 2.452		0 / 0.279		1 / 1.168		- / -		- / -		0 / 0.000		17 / 31.382							
Installation Schedule																															
	PYS	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				TC	Tot
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4		
In	10	-	-	-	2	-	2	-	-	-	2	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	17
Out	10	-	-	-	-	-	-	-	-	-	2	-	2	-	-	-	2	-	-	-	-	-	-	-	1	-	-	-	-	-	17
Footnotes:																															
(2) FY 15 combat system for the USS Cowpens (CG 63), USS Gettysburg (CG 64). FY16 procurement for USS Chosin (CG 65) and USS Vicksburg (CG 69) were funded by SMOSF. Installation funding for a ship is divided over a three-year period. Installation execution funding in the year of availability, and Design Service Allocation (DSA) two years prior to availability, and DSA in the year prior to the availability. This includes ship checks, ship installation drawing (SID) development, logistic document development and long lead time material procurements (LLTM). Installation costs across the FYDP may vary depending																															

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Exhibit P-3a, Individual Modification: PB 2020 Navy		Date: March 2019
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:
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: PB 2020 Navy										Date: March 2019		
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9					P-1 Line Item Number / Title: 0960 / CG Modernization					Modification Number / Title: 2 / CC003 - COOPERATIVE ENGAGEMENT CAPABILITIES (CEC)		
ID Code (A=Service Ready, B=Not Service Ready) :							MDAP/MAIS Code:					
Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity (Units in Each)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost (\$ in Millions)	130.279	6.417	3.062	2.861	0.000	2.861	0.294	1.378	0.000	0.000	0.000	144.291
Less PY Advance Procurement (\$ in Millions)	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (\$ in Millions)	130.279	6.417	3.062	2.861	0.000	2.861	0.294	1.378	0.000	0.000	0.000	144.291
Plus CY Advance Procurement (\$ in Millions)	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority (\$ in Millions)	130.279	6.417	3.062	2.861	0.000	2.861	0.294	1.378	0.000	0.000	0.000	144.291
(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 Thousands)	-	-	-	-	-	-	-	-	-	-	-	-
Description: Procure and install Cooperative Engagement Capability (CEC). Supports DSA and Planning for installation.												

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Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019			
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9				P-1 Line Item Number / Title: 0960 / CG Modernization						Modification Number / Title: 2 / CC003 - COOPERATIVE ENGAGEMENT CAPABILITIES (CEC)			
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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total	
	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	
Procurement													
<i>Modification Item 1 of 1:</i> CC003 - COOPERATIVE ENGAGEMENT CAPABILITIES (CEC)													
B Kits													
Recurring													
1.1.1) CC003 - CEC EQUIPMENT - NonOrganic ⁽³⁾	16 / 98.609	1 / 4.180	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	17 / 102.789	
1.1.2) CC003 - CEC ENGINEERING SERVICES - NonOrganic	- / 9.238	- / 0.470	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / 9.708	
<i>Subtotal: Recurring</i>	- / 107.847	- / 4.650	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / 0.000	- / 112.497	
<i>Subtotal: CC003 - COOPERATIVE ENGAGEMENT CAPABILITIES (CEC)</i>	16 / 107.847	1 / 4.650	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	17 / 112.497	
<i>Subtotal: Procurement, All Modification Items</i>	- / 107.847	- / 4.650	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / 0.000	- / 112.497	
Installation													
<i>Modification Item 1 of 1:</i> CC003 - COOPERATIVE ENGAGEMENT CAPABILITIES (CEC)	- / 22.432	- / 1.767	- / 3.062	- / 2.861	- / 0.000	- / 2.861	- / 0.294	- / 1.378	- / 0.000	- / 0.000	- / 0.000	- / 31.794	
<i>Subtotal: Installation</i>	- / 22.432	- / 1.767	- / 3.062	- / 2.861	- / -	- / 2.861	- / 0.294	- / 1.378	- / -	- / -	- / 0.000	- / 31.794	
Total													
Total Cost (Procurement + Support + Installation)	130.279	6.417	3.062	2.861	0.000	2.861	0.294	1.378	0.000	0.000	0.000	144.291	

UNCLASSIFIED

Exhibit P-3a, Individual Modification: PB 2020 Navy												Date: March 2019																			
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9										P-1 Line Item Number / Title: 0960 / CG Modernization										Modification Number / Title: 2 / CC003 - COOPERATIVE ENGAGEMENT CAPABILITIES (CEC)											
ID Code (A=Service Ready, B=Not Service Ready) :														MDAP/MAIS Code:																	
Modification Item 1 of 1: CC003 - COOPERATIVE ENGAGEMENT CAPABILITIES (CEC)																															
Manufacturer Information																															
Manufacturer Name: RAYTHEON														Manufacturer Location: ST. PETERSBURG, FL																	
Administrative Leadtime (<i>in Months</i>): 6														Production Leadtime (<i>in Months</i>): 18																	
Dates		FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024					
Contract Dates		Jul 2018																													
Delivery Dates		Jan 2020																													
Installation Information																															
Method of Implementation: [none specified]:: Installation Name: CC003 - CEC EQUIPMENT																															
Installation Cost		Prior Years		FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total		FY 2021		FY 2022		FY 2023		FY 2024		To Complete		Total							
		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>)		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 / 22.432		2 / 1.767		2 / 3.062		2 / 2.756		0 / 0.000		2 / 2.756		- / -		- / -		- / -		- / -		0 / 0.000		16 / 30.017							
FY 2018		- / -		- / -		- / -		0 / 0.105		0 / 0.000		0 / 0.105		0 / 0.294		1 / 1.378		- / -		- / -		0 / 0.000		1 / 1.777							
FY 2019		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -							
FY 2020		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -							
FY 2021		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -							
FY 2022		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -							
FY 2023		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -							
FY 2024		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -							
To Complete		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -							
Total		10 / 22.432		2 / 1.767		2 / 3.062		2 / 2.861		0 / 0.000		2 / 2.861		0 / 0.294		1 / 1.378		- / -		- / -		0 / 0.000		17 / 31.794							
Installation Schedule																															
	PYS	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				TC	Tot
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4		
In	10	-	-	-	2	-	2	-	-	-	2	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	17
Out	10	-	-	-	-	-	-	-	-	-	2	-	2	-	-	-	2	-	-	-	-	-	-	-	1	-	-	-	-	-	17
Footnotes:																															
⁽³⁾ FY 15 combat system for the USS Cowpens (CG 63), USS Gettysburg (CG 64), USS Chosin (CG 65) and USS Vicksburg (CG 69) were funded by SMOSF. FY 18 procurement for USS Hue City (CG 66). Installation execution funding in the year of availability, and Design Service Allocation (DSA) two years prior to availability, and DSA in the year prior to the availability. This includes ship checks, ship installation drawing (SID) development, logistic document development and long lead time material procurements (LLTM). Installation costs across the FYDP may vary depending on current port rates. Port rates																															

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Exhibit P-3a, Individual Modification: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	P-1 Line Item Number / Title: 0960 / CG Modernization	Modification Number / Title: 2 / CC003 - COOPERATIVE ENGAGEMENT CAPABILITIES (CEC)
ID Code (A=Service Ready, B=Not Service Ready) :		MDAP/MAIS Code:
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: PB 2020 Navy										Date: March 2019		
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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity (<i>Units in Each</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost (<i>\$ in Millions</i>)	274.322	27.465	4.020	4.608	0.000	4.608	0.845	2.039	0.000	0.000	0.000	313.299
Less PY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (<i>\$ in Millions</i>)	274.322	27.465	4.020	4.608	0.000	4.608	0.845	2.039	0.000	0.000	0.000	313.299
Plus CY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority (<i>\$ in Millions</i>)	274.322	27.465	4.020	4.608	0.000	4.608	0.845	2.039	0.000	0.000	0.000	313.299
<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. [CC004 - AN/SQQ-89 A(V) 15 EQUIPMENT]												

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Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019			
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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total	
	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	
Procurement													
<i>Modification Item 1 of 1:</i> CC004 - AN/SQQ-89 A(V) 15 PROCUREMENT													
B Kits													
Recurring													
1.1.1) CC004 - AN/SQQ-89 A(V) 15 EQUIPMENT - NonOrganic ⁽⁴⁾	16 / 210.926	1 / 21.140	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	17 / 232.066	
1.1.2) CC004 - AN/SQQ-89 A(V) 15 ENGINEERING SERVICES - NonOrganic	- / 45.875	- / 2.380	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / 48.255	
<i>Subtotal: Recurring</i>	- / 256.801	- / 23.520	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / 0.000	- / 280.321	
<i>Subtotal: CC004 - AN/SQQ-89 A(V) 15 PROCUREMENT</i>	16 / 256.801	1 / 23.520	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	17 / 280.321	
<i>Subtotal: Procurement, All Modification Items</i>	- / 256.801	- / 23.520	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / 0.000	- / 280.321	
Installation													
<i>Modification Item 1 of 1:</i> CC004 - AN/SQQ-89 A(V) 15 PROCUREMENT	- / 17.521	- / 3.945	- / 4.020	- / 4.608	- / 0.000	- / 4.608	- / 0.845	- / 2.039	- / 0.000	- / 0.000	- / 0.000	- / 32.978	
<i>Subtotal: Installation</i>	- / 17.521	- / 3.945	- / 4.020	- / 4.608	- / -	- / 4.608	- / 0.845	- / 2.039	- / -	- / -	- / 0.000	- / 32.978	
Total													
Total Cost (Procurement + Support + Installation)	274.322	27.465	4.020	4.608	0.000	4.608	0.845	2.039	0.000	0.000	0.000	313.299	

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Exhibit P-3a, Individual Modification: PB 2020 Navy											Date: March 2019																					
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 (in Months): 6														Production Leadtime (in Months): 18																		
Dates		FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024						
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 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total		FY 2021		FY 2022		FY 2023		FY 2024		To Complete		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)		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 / 17.521		2 / 3.945		2 / 4.020		2 / 4.307		0 / 0.000		2 / 4.307		- / -		- / -		- / -		- / -		0 / 0.000		16 / 29.793								
FY 2018		- / -		- / -		- / -		0 / 0.301		0 / 0.000		0 / 0.301		0 / 0.845		1 / 2.039		- / -		- / -		0 / 0.000		1 / 3.185								
FY 2019		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -								
FY 2020		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -								
FY 2021		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -								
FY 2022		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -								
FY 2023		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -								
FY 2024		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -								
To Complete		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -								
Total		10 / 17.521		2 / 3.945		2 / 4.020		2 / 4.608		0 / 0.000		2 / 4.608		0 / 0.845		1 / 2.039		- / -		- / -		0 / 0.000		17 / 32.978								
Installation Schedule																																
	PYS	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				TC	Tot	
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4			
In	10	-	-	-	2	-	2	-	-	-	2	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	17	
Out	10	-	-	-	-	-	-	-	-	-	2	-	2	-	-	-	2	-	-	-	-	-	-	-	1	-	-	-	-	-	17	
Footnotes:																																
(4) FY 15 combat system for the USS Cowpens (CG 63), USS Gettysburg (CG 64), USS Chosin (CG 65) and USS Vicksburg (CG 69) were funded by SMOSF. FY 18 Combat System procurements for USS Hue City (CG 66). Installation execution funding in the year of availability, and Design Service Allocation (DSA) two years prior to availability, and DSA in the year prior to the availability. This includes ship checks, ship installation drawing (SID) development, logistic document development and long lead time material procurements (LLTM). Installation costs across the FYDP may vary depending on current port rates. Port																																

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Exhibit P-3a, Individual Modification: PB 2020 Navy		Date: March 2019
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:
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: PB 2020 Navy										Date: March 2019		
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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity (Units in Each)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost (\$ in Millions)	760.512	51.304	21.204	19.730	0.000	19.730	2.517	9.294	0.000	0.000	0.000	864.561
Less PY Advance Procurement (\$ in Millions)	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (\$ in Millions)	760.512	51.304	21.204	19.730	0.000	19.730	2.517	9.294	0.000	0.000	0.000	864.561
Plus CY Advance Procurement (\$ in Millions)	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority (\$ in Millions)	760.512	51.304	21.204	19.730	0.000	19.730	2.517	9.294	0.000	0.000	0.000	864.561
(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 Thousands)	-	-	-	-	-	-	-	-	-	-	-	-
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: PB 2020 Navy										Date: March 2019			
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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	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)	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> CC007 - AEGIS WEAPONS SYSTEM (AWS) UPGRADE PROCUREMENT													
B Kits													
Recurring													
1.1.1) CC007 - AWS EQUIPMENT - NonOrganic ⁽⁵⁾	16 / 516.220	1 / 24.220	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	17 / 540.440	
1.1.2) CC007 - AWS ENGINEERING SERVICES - NonOrganic	- / 43.447	- / 2.720	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / 46.167	
<i>Subtotal: Recurring</i>	- / 559.667	- / 26.940	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / 0.000	- / 586.607	
<i>Subtotal: CC007 - AEGIS WEAPONS SYSTEM (AWS) UPGRADE PROCUREMENT</i>	16 / 559.667	1 / 26.940	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	17 / 586.607	
<i>Subtotal: Procurement, All Modification Items</i>	- / 559.667	- / 26.940	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / 0.000	- / 586.607	
Installation													
<i>Modification Item 1 of 1:</i> CC007 - AEGIS WEAPONS SYSTEM (AWS) UPGRADE PROCUREMENT	- / 200.845	- / 24.364	- / 21.204	- / 19.730	- / 0.000	- / 19.730	- / 2.517	- / 9.294	- / 0.000	- / 0.000	- / 0.000	- / 277.954	
<i>Subtotal: Installation</i>	- / 200.845	- / 24.364	- / 21.204	- / 19.730	- / -	- / 19.730	- / 2.517	- / 9.294	- / -	- / -	- / 0.000	- / 277.954	
Total													
Total Cost (Procurement + Support + Installation)	760.512	51.304	21.204	19.730	0.000	19.730	2.517	9.294	0.000	0.000	0.000	864.561	

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Exhibit P-3a, Individual Modification: PB 2020 Navy											Date: March 2019																					
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 (in Months): 6														Production Leadtime (in Months): 20																		
Dates		FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024						
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 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total		FY 2021		FY 2022		FY 2023		FY 2024		To Complete		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)		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 / 200.845		2 / 24.364		2 / 21.204		2 / 18.599		0 / 0.000		2 / 18.599		- / -		- / -		- / -		- / -		0 / 0.000		16 / 265.012								
FY 2018		- / -		- / -		- / -		0 / 1.131		0 / 0.000		0 / 1.131		0 / 2.517		1 / 9.294		- / -		- / -		0 / 0.000		1 / 12.942								
FY 2019		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -								
FY 2020		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -								
FY 2021		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -								
FY 2022		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -								
FY 2023		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -								
FY 2024		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -								
To Complete		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -								
Total		10 / 200.845		2 / 24.364		2 / 21.204		2 / 19.730		0 / 0.000		2 / 19.730		0 / 2.517		1 / 9.294		- / -		- / -		0 / 0.000		17 / 277.954								
Installation Schedule																																
	PYS	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				TC	Tot	
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4			
In	10	-	-	-	2	-	2	-	-	-	2	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	17	
Out	10	-	-	-	-	-	-	-	-	-	2	-	2	-	-	-	2	-	-	-	-	-	-	-	1	-	-	-	-	-	17	
Footnotes: ⁽⁵⁾ FY 15 combat system for the USS Cowpens (CG 63), USS Gettysburg (CG 64), USS Chosin (CG 65) and USS Vicksburg (CG 69) were funded by SMOSF. FY 18 Combat System procurements for USS Hue City (CG 66). Installation execution funding in the year of availability, and Design Service Allocation (DSA) two years prior to availability, and DSA in the year prior to the availability. This includes ship checks, ship installation drawing (SID) development, logistic document development and long lead time material procurements (LLTM). Installation costs across the FYDP may vary depending on current port rates. Port																																

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Exhibit P-3a, Individual Modification: PB 2020 Navy		Date: March 2019
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:
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: PB 2020 Navy										Date: March 2019		
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9				P-1 Line Item Number / Title: 0960 / CG Modernization						Modification Number / Title: 5 / CC008 - VERTICAL LAUNCH SYSTEM (VLS)		
ID Code (A=Service Ready, B=Not Service Ready) :							MDAP/MAIS Code:					
Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity (Units in Each)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost (\$ in Millions)	244.839	6.187	1.110	1.040	0.000	1.040	0.110	0.500	0.000	0.000	0.000	253.786
Less PY Advance Procurement (\$ in Millions)	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (\$ in Millions)	244.839	6.187	1.110	1.040	0.000	1.040	0.110	0.500	0.000	0.000	0.000	253.786
Plus CY Advance Procurement (\$ in Millions)	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority (\$ in Millions)	244.839	6.187	1.110	1.040	0.000	1.040	0.110	0.500	0.000	0.000	0.000	253.786
(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 Thousands)	-	-	-	-	-	-	-	-	-	-	-	-
Description: Provides VLS upgrades one module forward and one module aft to support evolved sea sparrow missile system capability.												

UNCLASSIFIED

Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019			
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9					P-1 Line Item Number / Title: 0960 / CG Modernization					Modification Number / Title: 5 / CC008 - VERTICAL LAUNCH SYSTEM (VLS)			
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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total	
	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	
Procurement													
<i>Modification Item 1 of 1:</i> CC008 - VERTICAL LAUNCH SYSTEM (VLS)													
B Kits													
Recurring													
1.1.1) CC008 - VLS EQUIPMENT - NonOrganic ⁽⁶⁾	16 / 221.236	1 / 4.520	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	17 / 225.756	
1.1.2) CC008 - VLS ENGINEERING SERVICES - Organic	- / 8.319	- / 0.510	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / 8.829	
<i>Subtotal: Recurring</i>	- / 229.555	- / 5.030	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / 0.000	- / 234.585	
<i>Subtotal: CC008 - VERTICAL LAUNCH SYSTEM (VLS)</i>	16 / 229.555	1 / 5.030	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	17 / 234.585	
<i>Subtotal: Procurement, All Modification Items</i>	- / 229.555	- / 5.030	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / 0.000	- / 234.585	
Installation													
<i>Modification Item 1 of 1:</i> CC008 - VERTICAL LAUNCH SYSTEM (VLS)	- / 15.284	- / 1.157	- / 1.110	- / 1.040	- / 0.000	- / 1.040	- / 0.110	- / 0.500	- / 0.000	- / 0.000	- / 0.000	- / 19.201	
<i>Subtotal: Installation</i>	- / 15.284	- / 1.157	- / 1.110	- / 1.040	- / -	- / 1.040	- / 0.110	- / 0.500	- / -	- / -	- / 0.000	- / 19.201	
Total													
Total Cost (Procurement + Support + Installation)	244.839	6.187	1.110	1.040	0.000	1.040	0.110	0.500	0.000	0.000	0.000	253.786	

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Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019																					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9										P-1 Line Item Number / Title: 0960 / CG Modernization										Modification Number / Title: 5 / CC008 - VERTICAL LAUNCH SYSTEM (VLS)											
ID Code (A=Service Ready, B=Not Service Ready) :															MDAP/MAIS Code:																
Modification Item 1 of 1: CC008 - VERTICAL LAUNCH SYSTEM (VLS)																															
Manufacturer Information																															
Manufacturer Name: LOCKHEED MARTIN															Manufacturer Location: MOORESTOWN, NJ																
Administrative Leadtime (in Months): 6															Production Leadtime (in Months): 18																
Dates		FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024					
Contract Dates		Jul 2018																													
Delivery Dates		Jan 2020																													
Installation Information																															
Method of Implementation: [none specified]:: Installation Name: CC008 - VLS EQUIPMENT																															
Installation Cost		Prior Years		FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total		FY 2021		FY 2022		FY 2023		FY 2024		To Complete		Total							
		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)							
Prior Years		10 / 15.284		2 / 1.157		2 / 1.110		2 / 1.000		0 / 0.000		2 / 1.000		- / -		- / -		- / -		- / -		0 / 0.000		16 / 18.551							
FY 2018		- / -		- / -		- / -		0 / 0.040		0 / 0.000		0 / 0.040		0 / 0.110		1 / 0.500		- / -		- / -		0 / 0.000		1 / 0.650							
FY 2019		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -							
FY 2020		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -							
FY 2021		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -							
FY 2022		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -							
FY 2023		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -							
FY 2024		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -							
To Complete		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -							
Total		10 / 15.284		2 / 1.157		2 / 1.110		2 / 1.040		0 / 0.000		2 / 1.040		0 / 0.110		1 / 0.500		- / -		- / -		0 / 0.000		17 / 19.201							
Installation Schedule																															
	PYS	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				TC	Tot
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4		
In	10	-	-	-	2	-	2	-	-	-	2	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	17
Out	10	-	-	-	-	-	-	-	-	-	2	-	2	-	-	-	2	-	-	-	-	-	-	-	1	-	-	-	-	-	17
Footnotes:																															
⁽⁶⁾ FY 15 combat system for the USS Cowpens (CG 63), USS Gettysburg (CG 64), USS Chosin (CG 65) and USS Vicksburg (CG 69) were funded by SMOSF. FY 18 Combat System procurements for USS Hue City (CG 66). FY 18 Combat System procurements for USS Hue City (CG 66). Installation execution funding in the year of availability, and Design Service Allocation (DSA) two years prior to availability, and DSA in the year prior to the availability. This includes ship checks, ship installation drawing (SID) development, logistic document development and long lead time material procurements (LLTM). Installation																															

UNCLASSIFIED

Exhibit P-3a, Individual Modification: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	P-1 Line Item Number / Title: 0960 / CG Modernization	Modification Number / Title: 5 / CC008 - VERTICAL LAUNCH SYSTEM (VLS)
ID Code (A=Service Ready, B=Not Service Ready) :		MDAP/MAIS Code:
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: PB 2020 Navy									Date: March 2019			
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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity (Units in Each)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost (\$ in Millions)	181.737	12.501	6.132	5.746	0.000	5.746	0.602	2.750	0.000	0.000	0.000	209.468
Less PY Advance Procurement (\$ in Millions)	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (\$ in Millions)	181.737	12.501	6.132	5.746	0.000	5.746	0.602	2.750	0.000	0.000	0.000	209.468
Plus CY Advance Procurement (\$ in Millions)	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority (\$ in Millions)	181.737	12.501	6.132	5.746	0.000	5.746	0.602	2.750	0.000	0.000	0.000	209.468
(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 Thousands)	-	-	-	-	-	-	-	-	-	-	-	-
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: PB 2020 Navy									Date: March 2019				
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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total	
	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	
Procurement													
<i>Modification Item 1 of 1: CC010 - MK34 UPGRADE</i>													
B Kits													
Recurring													
1.1.1) CC010 - MK34 EQUIPMENT - NonOrganic ⁽⁷⁾	16 / 121.379	1 / 5.560	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	17 / 126.939	
1.1.2) CC010 - MK34 ENGINEERING SERVICES - NonOrganic	- / 22.813	- / 0.630	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / 23.443	
<i>Subtotal: Recurring</i>	<i>- / 144.192</i>	<i>- / 6.190</i>	<i>- / -</i>	<i>- / -</i>	<i>- / -</i>	<i>- / -</i>	<i>- / -</i>	<i>- / -</i>	<i>- / -</i>	<i>- / -</i>	<i>- / 0.000</i>	<i>- / 150.382</i>	
<i>Subtotal: CC010 - MK34 UPGRADE</i>	<i>16 / 144.192</i>	<i>1 / 6.190</i>	<i>- / -</i>	<i>- / -</i>	<i>- / -</i>	<i>- / -</i>	<i>- / -</i>	<i>- / -</i>	<i>- / -</i>	<i>- / -</i>	<i>- / -</i>	<i>17 / 150.382</i>	
<i>Subtotal: Procurement, All Modification Items</i>	<i>- / 144.192</i>	<i>- / 6.190</i>	<i>- / -</i>	<i>- / -</i>	<i>- / -</i>	<i>- / -</i>	<i>- / -</i>	<i>- / -</i>	<i>- / -</i>	<i>- / -</i>	<i>- / 0.000</i>	<i>- / 150.382</i>	
Installation													
<i>Modification Item 1 of 1: CC010 - MK34 UPGRADE</i>	<i>- / 37.545</i>	<i>- / 6.311</i>	<i>- / 6.132</i>	<i>- / 5.746</i>	<i>- / 0.000</i>	<i>- / 5.746</i>	<i>- / 0.602</i>	<i>- / 2.750</i>	<i>- / 0.000</i>	<i>- / 0.000</i>	<i>- / 0.000</i>	<i>- / 59.086</i>	
<i>Subtotal: Installation</i>	<i>- / 37.545</i>	<i>- / 6.311</i>	<i>- / 6.132</i>	<i>- / 5.746</i>	<i>- / -</i>	<i>- / 5.746</i>	<i>- / 0.602</i>	<i>- / 2.750</i>	<i>- / -</i>	<i>- / -</i>	<i>- / 0.000</i>	<i>- / 59.086</i>	
Total													
Total Cost (Procurement + Support + Installation)	181.737	12.501	6.132	5.746	0.000	5.746	0.602	2.750	0.000	0.000	0.000	209.468	

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Exhibit P-3a, Individual Modification: PB 2020 Navy											Date: March 2019																					
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 (in Months): 6														Production Leadtime (in Months): 18																		
Dates		FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024						
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 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total		FY 2021		FY 2022		FY 2023		FY 2024		To Complete		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)		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 / 37.545		2 / 6.311		2 / 6.132		2 / 5.540		0 / 0.000		2 / 5.540		- / -		- / -		- / -		- / -		0 / 0.000		16 / 55.528								
FY 2018		- / -		- / -		- / -		0 / 0.206		0 / 0.000		0 / 0.206		0 / 0.602		1 / 2.750		- / -		- / -		0 / 0.000		1 / 3.558								
FY 2019		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -								
FY 2020		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -								
FY 2021		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -								
FY 2022		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -								
FY 2023		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -								
FY 2024		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -								
To Complete		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -								
Total		10 / 37.545		2 / 6.311		2 / 6.132		2 / 5.746		0 / 0.000		2 / 5.746		0 / 0.602		1 / 2.750		- / -		- / -		0 / 0.000		17 / 59.086								
Installation Schedule																																
	PYS	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				TC	Tot	
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4			
In	10	-	-	-	2	-	2	-	-	-	2	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	17	
Out	10	-	-	-	-	-	-	-	-	-	2	-	2	-	-	-	2	-	-	-	-	-	-	-	1	-	-	-	-	-	17	
Footnotes: ⁽⁷⁾ FY 15 combat system for the USS Cowpens (CG 63), USS Gettysburg (CG 64), USS Chosin (CG 65) and USS Vicksburg (CG 69) were funded by SMOSF. FY 18 Combat System procurements for USS Hue City (CG 66). CG Modernization Installation execution funding in the year of availability, and Design Service Allocation (DSA) two years prior to availability, and DSA in the year prior to the availability. This includes ship checks, ship installation drawing (SID) development, logistic document development and long lead time material procurements (LLTM). Installation costs across the FYDP may vary depending on																																

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Exhibit P-3a, Individual Modification: PB 2020 Navy		Date: March 2019
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:
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: PB 2020 Navy										Date: March 2019		
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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity (Units in Each)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost (\$ in Millions)	110.753	18.194	12.313	52.802	0.000	52.802	38.361	9.033	0.000	0.000	0.000	241.456
Less PY Advance Procurement (\$ in Millions)	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (\$ in Millions)	110.753	18.194	12.313	52.802	0.000	52.802	38.361	9.033	0.000	0.000	0.000	241.456
Plus CY Advance Procurement (\$ in Millions)	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority (\$ in Millions)	110.753	18.194	12.313	52.802	0.000	52.802	38.361	9.033	0.000	0.000	0.000	241.456
(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 Thousands)	-	-	-	-	-	-	-	-	-	-	-	-
Description: Procure and Install Smartship Integrated Ship Control (ISC) for CG Modernization.												

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Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019			
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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total	
	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	
Procurement													
<i>Modification Item 1 of 1:</i> CC011 - INTEGRATED SHIP CONTROLS (ISC)													
B Kits													
Recurring													
1.1.1) CC011 - ISC EQUIPMENT - NonOrganic ⁽⁸⁾	10 / 68.786	1 / 6.840	- / -	4 / 30.560	- / -	4 / 30.560	- / -	- / -	- / -	- / -	- / -	15 / 106.186	
1.1.2) CC011 - ISC ENGINEERING SERVICES - Organic	- / 4.690	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / 4.690	
<i>Subtotal: Recurring</i>	- / 73.476	- / 6.840	- / -	- / 30.560	- / -	- / 30.560	- / -	- / -	- / -	- / -	- / 0.000	- / 110.876	
<i>Subtotal: CC011 - INTEGRATED SHIP CONTROLS (ISC)</i>	10 / 73.476	1 / 6.840	- / -	4 / 30.560	- / -	4 / 30.560	- / -	- / -	- / -	- / -	- / -	15 / 110.876	
<i>Subtotal: Procurement, All Modification Items</i>	- / 73.476	- / 6.840	- / -	- / 30.560	- / -	- / 30.560	- / -	- / -	- / -	- / -	- / 0.000	- / 110.876	
Installation													
<i>Modification Item 1 of 1:</i> CC011 - INTEGRATED SHIP CONTROLS (ISC)	- / 37.277	- / 11.354	- / 12.313	- / 22.242	- / 0.000	- / 22.242	- / 38.361	- / 9.033	- / 0.000	- / 0.000	- / 0.000	- / 130.580	
<i>Subtotal: Installation</i>	- / 37.277	- / 11.354	- / 12.313	- / 22.242	- / -	- / 22.242	- / 38.361	- / 9.033	- / -	- / -	- / 0.000	- / 130.580	
Total													
Total Cost (Procurement + Support + Installation)	110.753	18.194	12.313	52.802	0.000	52.802	38.361	9.033	0.000	0.000	0.000	241.456	

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Exhibit P-3a, Individual Modification: PB 2020 Navy												Date: March 2019																			
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 (in Months): 6														Production Leadtime (in Months): 12																	
Dates		FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024					
Contract Dates		Jan 2019								Jan 2020																					
Delivery Dates		Jan 2020								Jan 2021																					
Installation Information																															
Method of Implementation: [none specified]:: Installation Name: CC011 - ISC EQUIPMENT																															
Installation Cost		Prior Years		FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total		FY 2021		FY 2022		FY 2023		FY 2024		To Complete		Total							
		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)							
Prior Years		6 / 37.277		1 / 11.354		1 / 11.563		2 / 19.222		0 / 0.000		2 / 19.222		- / -		- / -		- / -		- / -		0 / 0.000		10 / 79.416							
FY 2018		- / -		- / -		- / -		0 / 0.798		0 / 0.000		0 / 0.798		0 / 2.239		1 / 9.033		- / -		- / -		0 / 0.000		1 / 12.070							
FY 2019		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -							
FY 2020		- / -		- / -		0 / 0.750		0 / 2.222		0 / 0.000		0 / 2.222		4 / 36.122		- / -		- / -		- / -		0 / 0.000		4 / 39.094							
FY 2021		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -							
FY 2022		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -							
FY 2023		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -							
FY 2024		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -							
To Complete		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -							
Total		6 / 37.277		1 / 11.354		1 / 12.313		2 / 22.242		0 / 0.000		2 / 22.242		4 / 38.361		1 / 9.033		- / -		- / -		0 / 0.000		15 / 130.580							
Installation Schedule																															
	PYS	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				TC	Tot
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4		
In	6	-	-	-	1	-	1	-	-	-	2	-	-	-	4	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	15
Out	6	-	-	-	-	-	-	-	-	-	1	-	1	-	-	-	2	-	4	-	-	-	-	-	1	-	-	-	-	-	15
Footnotes: ⁽⁸⁾ The ISC unit cost growth is associated with Windows 10 system upgrade addressing current obsolescence issues on CG 67/70/72/71, in compliance with CNO cybersecurity mandate. FY 15 procurement for the USS Cowpens (CG 63), USS Vicksburg (CG 69) were funded by SMOSF. FY18 procurements for USS Hue City (CG 66). FY20 procurement for USS Shiloh (CG 67), USS Lake Erie (CG 70), USS Vella Gulf (CG 72) and USS Port Royal (CG 73). Installation execution funding in the year of availability, and Design Service Allocation (DSA) two years prior to availability, and DSA in the year prior to the availability. This																															

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Exhibit P-3a, Individual Modification: PB 2020 Navy			Date: March 2019
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:	
includes ship checks, ship installation drawing (SID) development, logistic document development and long lead time material procurements (LLTM). 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-40, Budget Line Item Justification: PB 2020 Navy										Date: March 2019		
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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity (<i>Units in Each</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost (<i>\$ in Millions</i>)	118.519	5.507	3.709	3.392	0.000	3.392	6.758	20.889	20.958	21.381	-	201.113
Less PY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (<i>\$ in Millions</i>)	118.519	5.507	3.709	3.392	0.000	3.392	6.758	20.889	20.958	21.381	-	201.113
Plus CY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority (<i>\$ in Millions</i>)	118.519	5.507	3.709	3.392	0.000	3.392	6.758	20.889	20.958	21.381	-	201.113
<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 FY 2020 funding request was reduced by \$1.920 million to account for the availability of prior year execution balances. 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 procurement and installation of components required to maintain acceptable levels of fleet operational readiness. LCAC System Upgrade Program will also provide materials to support systems upgrades. Equipment removal and installation will take place at Assault Craft Unit FOUR (ACU 4), ACU 5 and Naval Beach Unit SEVEN (NBU 7). 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. 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 to meet operational needs. 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 fleet 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 keeping the craft operational during deployments.												

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Exhibit P-40, Budget Line Item Justification: PB 2020 Navy		Date: March 2019
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		
LC009 - PERSONNEL TRANSPORT MODULE The Personnel Transport Module (PTM) provides 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: PB 2020 Navy								Date: March 2019		
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										
Exhibits Schedule					Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Exhibit Type	Title*	Subexhibits	ID CD	MDAP/MAIS Code	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)
P-40a	LCAC				- / 118.519	- / 5.507	- / 3.709	- / 3.392	- / -	- / 3.392
P-40	Total Gross/Weapon System Cost				- / 118.519	- / 5.507	- / 3.709	- / 3.392	- / 0.000	- / 3.392
*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: PB 2020 Navy															Date: March 2019				
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9								P-1 Line Item Number / Title: 0970 / LCAC							Aggregated Items Title: LCAC				

Item Number / Title [DODIC]	ID CD	MDAP/MAIS Code	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 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) LCAC																				
1.1) LC001 LCAC SYSTEMS UPGRADE (1)	A		3,742K	16	59.865	688,122.00	3	2.064	688,150.00	2	1.376	827,333.00	3	2.482	-	-	-	827,333.00	3	2.482
1.2) LC002 ENGINES	A		2,049K	23	47.138	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.3) LC007 LIGHTWEIGHT ARMOR	A		610,545.45	11	6.716	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.4) LC008 COLD WEATHER KITS	A		-	-	-	515,000.00	3	1.545	513,000.00	1	0.513	-	-	-	-	-	-	-	-	-
1.5) LC009 PERSONNEL TRANSPORT MODULE	A		800,000.00	6	4.800	949,000.00	2	1.898	910,000.00	2	1.820	910,000.00	1	0.910	-	-	-	910,000.00	1	0.910
Subtotal: 1) LCAC			-	-	118.519	-	-	5.507	-	-	3.709	-	-	3.392	-	-	-	-	-	3.392
Total			-	-	118.519	-	-	5.507	-	-	3.709	-	-	3.392	-	-	-	-	-	3.392

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

Footnotes:

(1) LC001 - Unit cost increase per Navy Supply system in FY 2020 and out.

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Exhibit P-40, Budget Line Item Justification: PB 2020 Navy										Date: March 2019		
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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity (<i>Units in Each</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost (<i>\$ in Millions</i>)	262.417	68.270	82.200	71.240	5.800	77.040	71.371	66.325	77.040	59.443	-	764.106
Less PY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (<i>\$ in Millions</i>)	262.417	68.270	82.200	71.240	5.800	77.040	71.371	66.325	77.040	59.443	-	764.106
Plus CY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority (<i>\$ in Millions</i>)	262.417	68.270	82.200	71.240	5.800	77.040	71.371	66.325	77.040	59.443	-	764.106
<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>)	-	5.355	2.424	9.255	-	9.255	6.472	4.162	4.871	1.999	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 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 as well as Mobile Diving and Salvage Units (MDSUs) across the globe. 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 and defined by the JROC approved ExMCM ICD. Naval Special Warfare (NSW) - FY 2020 continues procurement of a service-common systems program for Naval Special Warfare's (NSW) Unmanned Undersea Vehicles (UUVs). NSW 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: PB 2020 Navy								Date: March 2019		
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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Exhibit Type	Title*	Subexhibits	ID CD	MDAP/MAIS Code	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)
P-5	1 / Underwater EOD Programs	P-5a, P-21			- / 244.641	- / 43.258	- / 35.986	- / 34.795	- / 5.800	- / 40.595
P-5	2 / Expeditionary Mine Countermeasures (ExMCM)	P-5a, P-21			- / 17.776	- / 20.062	- / 40.340	- / 34.760	- / 0.000	- / 34.760
P-5	3 / Naval Special Warfare Forces	P-5a			- / 0.000	- / 4.950	- / 5.874	- / 1.685	- / 0.000	- / 1.685
P-40	Total Gross/Weapon System Cost				- / 262.417	- / 68.270	- / 82.200	- / 71.240	- / 5.800	- / 77.040
*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 2020 funding is required to continue procurement and fielding of Underwater EOD program systems and equipment to outfit Expeditionary MCM Companies, EOD and Mobile Salvage units with advanced sensors and 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. Additionally, FY 2020 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 through procurement of the Mod 1 Block C upgrade kits; MOTS ROV enhancements will be procured to provide EOD Response capabilities 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: Underwater EOD Programs - FY 2020 Overseas Contingency Operations (OCO) funding is for Operation Freedom Sentinel - In Theater (OFS-T) to procure 3 MK 18 Mod 2 vehicles in support of the C5F operations by ExMCM companies in theater.										

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Exhibit P-5, Cost Analysis: PB 2020 Navy												Date: March 2019						
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 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total				
Procurement Quantity <i>(Units in Each)</i>				-		-		-		-		-		-				
Gross/Weapon System Cost <i>(\$ in Millions)</i>				244.641		43.258		35.986		34.795		5.800		40.595				
Less PY Advance Procurement <i>(\$ in Millions)</i>				-		-		-		-		-		-				
Net Procurement (P-1) <i>(\$ in Millions)</i>				244.641		43.258		35.986		34.795		5.800		40.595				
Plus CY Advance Procurement <i>(\$ in Millions)</i>				-		-		-		-		-		-				
Total Obligation Authority <i>(\$ in Millions)</i>				244.641		43.258		35.986		34.795		5.800		40.595				
(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 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 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⁾	-	-	2.178	-	-	0.309	-	-	0.315	-	-	0.321	-	-	0.000	-	-	0.321
Subtotal: Recurring Cost	-	-	2.178	-	-	0.309	-	-	0.315	-	-	0.321	-	-	0.000	-	-	0.321
Subtotal: Hardware - UQ019-MINE WARFARE VULENERABILITY IDENTIFICATION PROGRAM (MIW-VIP) Cost	-	-	2.178	-	-	0.309	-	-	0.315	-	-	0.321	-	-	0.000	-	-	0.321
Hardware - UQ034 - U/W EOD & MCM SYSTEMS/EQUIPMENT Cost																		
Recurring Cost																		
2.1.1) MODIFIED OFF-THE-SHELF (MOTS) REMOTELY OPERATED VEHICLE (ROV) ^{(†) (2)}	-	-	0.000	175,000.00	14	2.450	205,555.00	9	1.850	-	-	0.000	-	-	0.000	-	-	0.000
2.1.2) UW DIVER INTEGRATION SENSORS ^{(†) (3)}	155,846.77	124	19.325	220,000.00	5	1.100	-	-	0.000	230,000.00	5	1.150	-	-	0.000	230,000.00	5	1.150
2.1.3) ADVANCED FIRING SYSTEM ⁽⁴⁾	22,708.33	240	5.450	-	-	0.000	-	-	0.000	4,000.00	50	0.200	-	-	0.000	4,000.00	50	0.200
2.1.4) INFLUENCE SIGNATURE REDUCTION ⁽⁵⁾	-	-	0.000	-	-	1.586	-	-	1.350	-	-	0.316	-	-	0.000	-	-	0.316
Subtotal: Recurring Cost	-	-	24.775	-	-	5.136	-	-	3.200	-	-	1.666	-	-	0.000	-	-	1.666

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Exhibit P-5, Cost Analysis: PB 2020 Navy												Date: March 2019						
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 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 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: Hardware - UQ034 - U/W EOD & MCM SYSTEMS/EQUIPMENT Cost	-	-	24.775	-	-	5.136	-	-	3.200	-	-	1.666	-	-	0.000	-	-	1.666
Hardware - UQ035 - OUTFIT EOD/UMCM TOOLS & EQUIPMENT Cost																		
Recurring Cost																		
3.1.1) UW INTEGRATED SYSTEM INTERFACE (6)	-	-	1.721	-	-	0.345	-	-	0.395	-	-	0.430	-	-	0.000	-	-	0.430
Subtotal: Recurring Cost	-	-	1.721	-	-	0.345	-	-	0.395	-	-	0.430	-	-	0.000	-	-	0.430
Subtotal: Hardware - UQ035 - OUTFIT EOD/UMCM TOOLS & EQUIPMENT Cost	-	-	1.721	-	-	0.345	-	-	0.395	-	-	0.430	-	-	0.000	-	-	0.430
Hardware - UQ036 - DIVER SAFETY LIFE SUPPORT EQUIPMENT Cost																		
Recurring Cost																		
4.1.1) DIVER SAFETY LIFE SUPPORT EQUIPMENT (7)	-	-	3.949	-	-	0.475	-	-	0.660	-	-	0.660	-	-	0.000	-	-	0.660
Subtotal: Recurring Cost	-	-	3.949	-	-	0.475	-	-	0.660	-	-	0.660	-	-	0.000	-	-	0.660
Subtotal: Hardware - UQ036 - DIVER SAFETY LIFE SUPPORT EQUIPMENT Cost	-	-	3.949	-	-	0.475	-	-	0.660	-	-	0.660	-	-	0.000	-	-	0.660
Hardware - UQ037 - MARINE MAMMAL SYSTEM/EQUIPMENT Cost																		
Recurring Cost																		
5.1.1) MMS UMCM (8)	-	-	23.264	-	-	1.878	-	-	1.885	-	-	1.925	-	-	0.000	-	-	1.925
5.1.2) MMS ALLOWANCE (9)	-	-	2.189	-	-	0.235	-	-	0.245	-	-	0.262	-	-	0.000	-	-	0.262
5.1.3) MEDICAL OUTFITTING (10)	-	-	3.502	-	-	0.400	-	-	0.400	-	-	0.412	-	-	0.000	-	-	0.412
5.1.4) UW LOW MAGNETIC TEST EQUIPM UPGRADE (11)	-	-	0.982	-	-	0.157	-	-	0.165	-	-	0.170	-	-	0.000	-	-	0.170
5.1.5) MMS LITTORAL PORT & HARBOR DEFENSE OPERATIONS (12)	-	-	7.050	-	-	0.274	-	-	0.250	-	-	0.250	-	-	0.000	-	-	0.250

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Exhibit P-5, Cost Analysis: PB 2020 Navy												Date: March 2019						
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 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 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: Recurring Cost	-	-	36.987	-	-	2.944	-	-	2.945	-	-	3.019	-	-	0.000	-	-	3.019
Subtotal: Hardware - UQ037 - MARINE MAMMAL SYSTEM/EQUIPMENT Cost	-	-	36.987	-	-	2.944	-	-	2.945	-	-	3.019	-	-	0.000	-	-	3.019
Hardware - UQ040 MK 18 UUV Cost																		
Recurring Cost																		
6.1.1) MK 18 MOD 2 UUV (0204224N) ⁽¹³⁾	970,947.37	19	18.448	1,413K	8	11.302	1,050K	3	3.150	1,054K	12	12.645	-	-	0.000	1,054K	12	12.645
6.1.2) MK 18 MOD 1 UCMC UUV INCREMENTAL (CIP) Retrofit Kit (0204224N) ⁽¹⁴⁾	1,060K	12	12.720	1,060K	6	6.360	1,060K	2	2.120	1,072K	3	3.216	-	-	0.000	1,072K	3	3.216
6.1.3) MK 18 MOD 2 RETROFIT KITS (SSAM) (0204224N) ⁽¹⁵⁾	958,750.00	8	7.670	-	-	0.000	600,000.00	6	3.600	-	-	0.000	-	-	0.000	-	-	0.000
6.1.4) MK18 MOD 2 RETROFIT KITS (ATLAS) (0204224N) ⁽¹⁶⁾	-	-	0.000	400,000.00	15	6.000	400,000.00	22	8.800	400,000.00	8	3.200	-	-	0.000	400,000.00	8	3.200
6.1.5) MK18 MOD 2 RETROFIT KITS (INC I) (0204224N) ⁽¹⁷⁾	-	-	0.000	73,750.00	24	1.770	73,750.00	24	1.770	73,750.00	12	0.885	-	-	0.000	73,750.00	12	0.885
6.1.7) MK18 MOD 2 UUV OCO RESET ⁽¹⁸⁾	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000	-	-	5.800	-	-	5.800
Subtotal: Recurring Cost	-	-	38.838	-	-	25.432	-	-	19.440	-	-	19.946	-	-	5.800	-	-	25.746
Subtotal: Hardware - UQ040 MK 18 UUV Cost	-	-	38.838	-	-	25.432	-	-	19.440	-	-	19.946	-	-	5.800	-	-	25.746
Support - UQ830 - PRODUCTION ENGINEERING Cost																		
7.1) PRODUCTION ENGINEERING ⁽¹⁹⁾	-	-	20.474	-	-	4.553	-	-	4.786	-	-	4.405	-	-	0.000	-	-	4.405
Subtotal: Support - UQ830 - PRODUCTION ENGINEERING Cost	-	-	20.474	-	-	4.553	-	-	4.786	-	-	4.405	-	-	0.000	-	-	4.405
Support - UQ850 - PRODUCT IMPROVEMENT Cost																		
8.1) PRODUCT IMPROVEMENT ⁽²⁰⁾	-	-	16.046	-	-	3.639	-	-	3.710	-	-	3.793	-	-	0.000	-	-	3.793

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Exhibit P-5, Cost Analysis: PB 2020 Navy										Date: March 2019								
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 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 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 - UQ850 - PRODUCT IMPROVEMENT Cost	-	-	16.046	-	-	3.639	-	-	3.710	-	-	3.793	-	-	0.000	-	-	3.793
Support - UQTNG - INITIAL TRAINING Cost																		
9.1) INITIAL TRAINING (21)	-	-	1.797	-	-	0.425	-	-	0.535	-	-	0.555	-	-	0.000	-	-	0.555
Subtotal: Support - UQTNG - INITIAL TRAINING Cost	-	-	1.797	-	-	0.425	-	-	0.535	-	-	0.555	-	-	0.000	-	-	0.555
Support - PRIOR YEARS CUMULATIVE FUNDING Cost																		
10.1) PRIOR YEARS CUMULATIVE FUNDING	-	-	97.876	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000
Subtotal: Support - PRIOR YEARS CUMULATIVE FUNDING Cost	-	-	97.876	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000
Gross/Weapon System Cost	-	-	244.641	-	-	43.258	-	-	35.986	-	-	34.795	-	-	5.800	-	-	40.595

(†) indicates the presence of a P-5a

Footnotes:

(1) CE 1.1.1 MIW-VIP: 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). FY2020 efforts will focus on ranging various system components and sub-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.

(2) CE 2.1.1 MODIFIED OFF-THE-SHELF (MOTS) REMOTELY OPERATED VEHICLE (ROV): Provides for procurement funding for OPNAV approved fleet outfitting of a modified-off-the-shelf Remotely Operated Vehicle. This capability will significantly reduce operational risk to divers when investigation and interdiction of an underwater threat is required, i.e. sea mine or underwater Improved Explosive Device.

(3) CE 2.1.2 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.

(4) CE 2.1.3 ADVANCED FIRING SYSTEMS: Provides for the procurement of improved transmitters and receivers to provide safe stand-off command detonation capabilities to Explosive Ordnance Disposal (EOD) divers. The improved firing systems will address the current capability shortfalls of the legacy MK 12 Acoustic Firing System.

(5) CE 2.1.4 INFLUENCE SIGNATURE REDUCTION: Funding procures reduction of acoustic, magnetic and seismic signatures for equipment used in a suspected minefield.

(6) CE 3.1.1. UNDERWATER (UW) INTEGRATED SYSTEM INTERFACE: 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 will ensure interoperability with legacy MCM assets and that the fielding of the advanced sensors will meet interoperability performance requirements.

(7) 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.

(t) indicates the presence of a P-5a

Footnotes:

- (1) CE 1.1.1 MIW-VIP: 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). FY2020 efforts will focus on ranging various system components and sub-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.
- (2) CE 2.1.1 MODIFIED OFF-THE-SHELF (MOTS) REMOTELY OPERATED VEHICLE (ROV): Provides for procurement funding for OPNAV approved fleet outfitting of a modified-off-the-shelf Remotely Operated Vehicle. This capability will significantly reduce operational risk to divers when investigation and interdiction of an underwater threat is required, i.e. sea mine or underwater Improved Explosive Device.
- (3) CE 2.1.2 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.
- (4) CE 2.1.3 ADVANCED FIRING SYSTEMS: Provides for the procurement of improved transmitters and receivers to provide safe stand-off command detonation capabilities to Explosive Ordnance Disposal (EOD) divers. The improved firing systems will address the current capability shortfalls of the legacy MK 12 Acoustic Firing System.
- (5) CE 2.1.4 INFLUENCE SIGNATURE REDUCTION: Funding procures reduction of acoustic, magnetic and seismic signatures for equipment used in a suspected minefield.
- (6) CE 3.1.1. UNDERWATER (UW) INTEGRATED SYSTEM INTERFACE: 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 will ensure interoperability with legacy MCM assets and that the fielding of the advanced sensors will meet interoperability performance requirements.
- (7) 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.

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Exhibit P-5, Cost Analysis: PB 2020 Navy		Date: March 2019
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:
⁽⁸⁾ CE 5.1.1 MMS UCMC: 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. ⁽⁹⁾ CE 5.1.2 MMS ALLOWANCE: 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. ⁽¹⁰⁾ CE 5.1.3 MEDICAL OUTFITTING: Provides funding to procure necessary medical equipment for Navy MMS in accordance with SECNAVINST 3900.41 ⁽¹¹⁾ CE 5.1.4 UW LOW MAGNETIC TEST EQUIPMENT UPGRADE: Upgrades existing equipment which measures acoustic, magnetic and seismic signatures for that equipment used in a suspected minefield. ⁽¹²⁾ 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. ⁽¹³⁾ CE 6.1.1 MK 18 MOD 2 UUV (0204224N): Provides for procurement of UUV MK 18 Mod 1 and 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. ⁽¹⁴⁾ CE 6.1.2 MK 18 MOD 1 UCMC UUV INCREMENTAL (CIP) Retrofit Kit (0204224N): 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 ⁽¹⁵⁾ CE 6.1.3 MK18 MOD2 RETROFIT KITS (SSAM) (0204224N): 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. ⁽¹⁶⁾ CE 6.1.4 MK 18 Mod 2 Retrofit Kits (ATLAS forward look sonar) (0204224N): 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. ⁽¹⁷⁾ CE 6.1.5 MK 18 MOD 2 RETROFIT KITS INCREMENT:(Autonomy and Automated Target Recognition): 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. ⁽¹⁸⁾ CE 6.1.7 MK18 MOD2 UUV OCO RESET: Reset funding is for replacement of UUV significantly damaged during fleet operations in support of C5F missions. OCO resources will restore deployed systems to full operational readiness to meet C5F AoR mission needs. ⁽¹⁹⁾ CE 7.1 Production Engineering: Funding supports the increased production of MK 18, MK 19 Family of Systems, and the Marine Mammals Systems (MMS) requiring additional production support to include production contract award, first article tests, and factory acceptance tests. ⁽²⁰⁾ CE 8.1 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. ⁽²¹⁾ CE 9.1 INITIAL TRAINING: Funding provides resources needed due to the increase in training requirements due to expanded employment of fleet systems (i.e. mainly MK 18, Mk 19 Family of Systems, and MMS) also 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: PB 2020 Navy								Date: March 2019				
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) MODIFIED OFF-THE-SHELF (MOTS) REMOTELY OPERATED VEHICLE (ROV)		2018	OSD/DIUX / NSWC, IH	C / TBD	NSWCIH, MD	Oct 2017	Oct 2018	14	175,000.00	Y		
2.1.1) MODIFIED OFF-THE-SHELF (MOTS) REMOTELY OPERATED VEHICLE (ROV)		2019	OSD/DIUX / NSWC, IH	C / TBD	NSWCIH, MD	Mar 2019	Mar 2020	9	205,555.00	Y		
2.1.2) UW DIVER INTEGRATION SENSORS		2018	VARIOUS / VARIOUS	C / FFP	NAVSEA, HQ	May 2018	May 2019	5	220,000.00	Y		
2.1.2) UW DIVER INTEGRATION SENSORS		2020	TBD / TBD	C / FFP	TBD	Oct 2019	Oct 2020	5	230,000.00	Y		
6.1.1) MK 18 MOD 2 UUV (0204224N) ^(†)		2018	VARIOUS / VARIOUS	C / TBD	NSWCIH, MD	Jan 2018	Jan 2019	8	990,000.00	Y		
6.1.1) MK 18 MOD 2 UUV (0204224N) ^(†)		2019	VARIOUS / VARIOUS	C / TBD	NSWCIH, MD	Jan 2019	Jan 2020	3	1,050K	Y		
6.1.1) MK 18 MOD 2 UUV (0204224N) ^(†)		2020	VARIOUS / VARIOUS	C / TBD	NSWCIH, MD	Jan 2020	Jan 2021	12	1,054K	Y		
6.1.2) MK 18 MOD 1 UCMC UUV INCREMENTAL (CIP) Retrofit Kit (0204224N)		2018	VARIOUS / VARIOUS	C / TBD	NSWCIH, MD	Oct 2017	Oct 2018	6	1,060K	Y		
6.1.2) MK 18 MOD 1 UCMC UUV INCREMENTAL (CIP) Retrofit Kit (0204224N)		2019	VARIOUS / VARIOUS	C / TBD	NSWCIH, MD	Oct 2018	Oct 2019	2	1,060K	Y		
6.1.2) MK 18 MOD 1 UCMC UUV INCREMENTAL (CIP) Retrofit Kit (0204224N)		2020	VARIOUS / VARIOUS	C / TBD	NSWCIH, MD	Oct 2019	Oct 2020	3	1,072K	Y		
6.1.3) MK 18 MOD 2 RETROFIT KITS (SSAM) (0204224N)		2019	VARIOUS / VARIOUS	C / FFP	Various	Jan 2019	Jan 2020	6	600,000.00	Y		
6.1.4) MK18 MOD 2 RETROFIT KITS (ATLAS) (0204224N) ^(†)		2018	VARIOUS / VARIOUS	C / FFP	Various	Apr 2018	Apr 2019	15	400,000.00	Y		
6.1.4) MK18 MOD 2 RETROFIT KITS (ATLAS) (0204224N) ^(†)		2019	VARIOUS / VARIOUS	C / FFP	Various	Apr 2019	Apr 2020	22	400,000.00	Y		
6.1.4) MK18 MOD 2 RETROFIT KITS (ATLAS) (0204224N)		2020	VARIOUS / VARIOUS	C / TBD	Various	Apr 2020	Apr 2021	8	400,000.00	Y		
6.1.5) MK18 MOD 2 RETROFIT KITS (INC I) (0204224N)		2018	VARIOUS / VARIOUS	C / FFP	Various	Apr 2018	Apr 2019	24	73,750.00	Y		
6.1.5) MK18 MOD 2 RETROFIT KITS (INC I) (0204224N)		2019	VARIOUS / VARIOUS	C / FFP	Various	Apr 2019	Apr 2020	24	73,750.00	Y		

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Exhibit P-5a, Procurement History and Planning: PB 2020 Navy								Date: March 2019				
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 <i>(Each)</i>	Unit Cost <i>(\$)</i>	Specs Avail Now?	Date Revision Available	RFP Issue Date
6.1.5) MK18 MOD 2 RETROFIT KITS (INC I) (0204224N)		2020	VARIOIUS / VARIOUS	C / FFP	Various	Apr 2020	Apr 2021	12	73,750.00	Y		

(†) indicates the presence of a P-21

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Exhibit P-21, Production Schedule: PB 2020 Navy																				Date: March 2019															
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 (Units in Each)							Fiscal Year 2018												Fiscal Year 2019												BALANCE				
OCCO	MFR#	FY	SERVICE	PROCQTY	ACCEPT PRIOR TO 1 OCT 2017	BAL DUE AS OF 1 OCT	Calendar Year 2018												Calendar Year 2019																
							OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP					
6.1.1) MK 18 MOD 2 UUV (0204224N) ⁽¹³⁾																																			
Prior Years Deliveries: 19																																			
	1	2018	NAVY	8	0	8			A -	-	-	-	-	-	-	-	-	-	-	-	-	1	1	1	1	1	1	1	1	1	0				
	1	2019	NAVY	3	0	3																A -	-	-	-	-	-	-	-	-	-	-	-	-	3
	1	2020	NAVY	12	0	12																											12		
6.1.4) MK18 MOD 2 RETROFIT KITS (ATLAS) (0204224N) ⁽¹⁶⁾																																			
	2	2018	NAVY	15	0	15						A -	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	1	1	1	1	9			
	2	2019	NAVY	22	0	22																A -	-	-	-	-	-	-	-	-	-	-	-	22	
							OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP					

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Exhibit P-21, Production Schedule: PB 2020 Navy																				Date: March 2019																
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 <i>(Units in Each)</i>							Fiscal Year 2020										Fiscal Year 2021														BALANCE					
OCO	MFR#	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2019	BAL DUE AS OF 1 OCT	Calendar Year 2020										Calendar Year 2021																			
							OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP						
6.1.1) MK 18 MOD 2 UUV (0204224N) ⁽¹³⁾																																				
Prior Years Deliveries: 19																																				
	1	2018	NAVY	8	8	0																													0	
	1	2019	NAVY	3	0	3	-	-	-	1	-	-	1	-	-	1																				0
	1	2020	NAVY	12	0	12				A	-	-	-	-	-	-	-	-	-	-	1	1	1	1	1	1	1	1	1	1	3					
6.1.4) MK18 MOD 2 RETROFIT KITS (ATLAS) (0204224N) ⁽¹⁶⁾																																				
	2	2018	NAVY	15	6	9	1	1	1	1	1	1	1	1																					0	
	2	2019	NAVY	22	0	22	-	-	-	-	-	-	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	4					
							OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP						

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Exhibit P-21, Production Schedule: PB 2020 Navy																							Date: March 2019										
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 <i>(Units in Each)</i>							Fiscal Year 2022												Fiscal Year 2023												BALANCE		
OCO	MFR #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2021	BAL DUE AS OF 1 OCT	Calendar Year 2022												Calendar Year 2023														
							OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP			
6.1.1) MK 18 MOD 2 UUV (0204224N) ⁽¹³⁾																																	
Prior Years Deliveries: 19																																	
	1	2018	NAVY	8	8	0																										0	
	1	2019	NAVY	3	3	0																										0	
	1	2020	NAVY	12	9	3	1	1	1																								0
6.1.4) MK18 MOD 2 RETROFIT KITS (ATLAS) (0204224N) ⁽¹⁶⁾																																	
	2	2018	NAVY	15	15	0																										0	
	2	2019	NAVY	22	18	4	1	1	1	1	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP											0

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Exhibit P-21, Production Schedule: PB 2020 Navy									Date: March 2019				
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			
MFR Ref #	Manufacturer Name - Location	Production Rates (Each / Year)			Procurement Leadtime (Months)								
		MSR For 2020	1-8-5 For 2020	MAX For 2020	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	VARIOUS - VARIOUS			TBD	0	0	0	0	0	0	0	0	
2	VARIOUS - VARIOUS			TBD	0	0	0	0	0	0	0	0	

"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-5, Cost Analysis: PB 2020 Navy													Date: March 2019					
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 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total				
Procurement Quantity <i>(Units in Each)</i>				-		-		-		-		-		-				
Gross/Weapon System Cost <i>(\$ in Millions)</i>				17.776		20.062		40.340		34.760		0.000		34.760				
Less PY Advance Procurement <i>(\$ in Millions)</i>				-		-		-		-		-		-				
Net Procurement (P-1) <i>(\$ in Millions)</i>				17.776		20.062		40.340		34.760		0.000		34.760				
Plus CY Advance Procurement <i>(\$ in Millions)</i>				-		-		-		-		-		-				
Total Obligation Authority <i>(\$ in Millions)</i>				17.776		20.062		40.340		34.760		0.000		34.760				
(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 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 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) ExMCM MK 18 MOD 2 UUV ^(†) (22)	-	-	0.000	1,049K	6	6.296	1,050K	6	6.300	-	-	0.000	-	-	0.000	-	-	0.000
1.1.2) MK18 MOD 1 UUV (0207404N) ^(†) (23)	398,818.18	11	4.387	-	-	0.000	440,000.00	12	5.280	449,000.00	12	5.388	-	-	0.000	449,000.00	12	5.388
1.1.3) MK18 MOD 1 UCMC UUV INCREMENTAL (CIP) Retrofit Kit (0207404N) ^(†) (24)	-	-	0.000	-	-	0.000	-	-	0.000	1,072K	5	5.360	-	-	0.000	1,072K	5	5.360
1.1.4) MK18 MOD 2 RETROFIT KITS (SSAM) (0207404N) ^(†) (25)	-	-	0.000	-	-	0.000	-	-	0.000	600,000.00	15	9.000	-	-	0.000	600,000.00	15	9.000
1.1.5) MK18 MOD 2 RETROFIT KITS (ATLAS) (0207404N) ^(†) (26)	-	-	0.000	-	-	0.000	-	-	0.000	400,000.00	4	1.600	-	-	0.000	400,000.00	4	1.600
1.1.6) ExMCM Aux/Support/Maint/MSE Kits ^(†) (27)	371,916.67	36	13.389	390,000.00	25	9.750	416,142.86	35	14.565	413,545.45	11	4.549	-	-	0.000	413,545.45	11	4.549

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Exhibit P-5, Cost Analysis: PB 2020 Navy										Date: March 2019							
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:							

Note: Subtotals or Totals in this Exhibit P-5 may not be exact or sum exactly due to rounding.

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)
1.1.7) ExMCM Diver Sensor/Nav Systems ^(†) (28)	-	-	0.000	-	-	0.000	225,000.00	5	1.125	-	-	0.000	-	-	0.000	-	-	0.000
1.1.8) ExMCM EOD Response Remotely Operated Vehicle (ROV) ^(†) (29)	-	-	0.000	-	-	0.000	-	-	0.000	259,133.33	15	3.887	-	-	0.000	259,133.33	15	3.887
1.1.9) ExMCM TOA Equipment ⁽³⁰⁾	-	-	0.000	-	-	0.000	-	-	0.000	-	-	2.526	-	-	0.000	-	-	2.526
1.1.10) ExMCM Open Water Transport Sys/ Shipboard Charging Container OWTS/ SCC ^(†) (31)	-	-	0.000	-	-	0.000	289,545.45	22	6.370	-	-	0.000	-	-	0.000	-	-	0.000
1.1.11) ExMCM Procurement C6F OCO ⁽³²⁾	-	-	0.000	-	-	4.016	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000
1.1.12) ExMCM Diver Equipment ⁽³³⁾	-	-	0.000	-	-	0.000	-	-	6.700	-	-	2.450	-	-	0.000	-	-	2.450
<i>Subtotal: Recurring Cost</i>	-	-	17.776	-	-	20.062	-	-	40.340	-	-	34.760	-	-	0.000	-	-	34.760
<i>Subtotal: Hardware - UQ038 Expeditionary Mine Countermeasures (ExMCM) Cost</i>	-	-	17.776	-	-	20.062	-	-	40.340	-	-	34.760	-	-	0.000	-	-	34.760
Gross/Weapon System Cost	-	-	17.776	-	-	20.062	-	-	40.340	-	-	34.760	-	-	0.000	-	-	34.760

Remarks:

[Hardware/Recurring] ExMCM Outfitting: This funding resources the procurement of Expeditionary UUV-based systems and support equipment. 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.

(†) indicates the presence of a P-5a

Footnotes:

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Exhibit P-5, Cost Analysis: PB 2020 Navy		Date: March 2019
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:
⁽²²⁾ CE 1.1.1 Expeditionary MCM (ExMCM) MK 18 MOD 2 UUV: 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. ⁽²³⁾ CE 1.1.2 MK18 MOD 1 UUV (0207404N): Provides for procurement of UUV MK18 Mod 1 and 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. ⁽²⁴⁾ CE 1.1.3 MK18 MOD 1 UCM UUV INCREMENTAL (CIP) RETROFIT KITS (0207404N): Unit cost of individual retrofit kits may vary based on the number and type of technologies included and systems bein upgraded and are identified as incremental Block Upgrades (e.g., current increment Block C retrofit kit is an upgrade in capability for the MK18 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 number of systems/vehicles fielded. ⁽²⁵⁾ CE 1.1.4 MK18 MOD 2 RTROFIT KITS SYNTHETIC APERTURE SONAR (SSAM) (0207404N): Provides for procurement of UUV MK18 MOD 2 retrofit kits, which will be employed in operational mission 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 MK18 Mod 2 system. Unit costs of the advanced sensor retrofit kits can vary based on the number and type of sensor upgrades. ⁽²⁶⁾ CE 1.1.5 MK 18 Mod 2 Retrofit Kits (ATLAS forward look sonar) (0207404N): 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. ⁽²⁷⁾ CE 1.1.6 ExMCM Auxiliary, Support, Maintenance, and Mission Support Equipment Kits: The ExMCM Aux Kits includes equipment required for ExMCM deployment, pre-mission planning and post mission analysis. 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. Items include those required to deploy the ExMCM equipment such as transport carts, transport cases, test equipment, pre-mission planning equipment not covered in the support or maintenance kits The ExMCM Support Kit comprises GETACs, PMA stations, cross-domain modules, and other support items that comprise a portion of the ExMCM system outfitting. The Maintenance Kit comprises special tool kits, calibration equipment, fly away maintenance modules, and other maintenance items. Unit cost of individual kits may vary based on number and type of technology included in each kit. ⁽²⁸⁾ CE 1.1.7 ExMCM Diver Sensor/Navigation Systems: Provides for the procurement of the next generation of integrated ExMCM diver-based acoustic sensor precise navigation system to perform re-acquisition, inspection and identification of underwater threat objects to include limpet mines, underwater UXO, and underwater IEDs. ⁽²⁹⁾ CE 1.1.8 ExMCM EOD Response ROVs: Procurement of EOD Response vehicles and associated sub-systems to 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 EOD response systems will enable more rapid reacquisition, identification and neutralization of mine like targets found by other search assets. ⁽³⁰⁾ CE 1.1.9 ExMCM TOA Equipment: Procurement of EXMCM Company Table of Allowance (TOA) equipment for the sixteen EXMCM companies supporting USFIFTHFLT and USSEVENTHFLET Expeditionary MCM operations. ⁽³¹⁾ CE 1.1.10 ExMCM OWTS/SCC: Supports initial fielding of hardware of the Open Water Transport equipment and shipboard charging containers. Anticipated delivery schedule 2 per month. ⁽³²⁾ CE 1.1.11 ExMCM Procurement (C6F): Funding will procure critical ExMCM equipment needed to outfit deploying CTF 68 forces in support of ongoing USN operations in USSIXTHFLT AoR. ⁽³³⁾ CE 1.1.12 ExMCM Diver Equipment: Funding for procurement of Underwater Breathing Apparatus (UBA) and associated diver support equipment in support of EXMCM Dive Platoons, EOD and Expeditionary Salvage Divers and.		

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Exhibit P-5a, Procurement History and Planning: PB 2020 Navy								Date: March 2019				
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 <i>(Each)</i>	Unit Cost <i>(\$)</i>	Specs Avail Now?	Date Revision Available	RFP Issue Date
1.1.1) ExMCM MK 18 MOD 2 UUV		2018	VARIOUS / VARIOUS	C / FFP	NSWCIH, MD	Jan 2018	Jan 2019	6	1,049K	Y		
1.1.1) ExMCM MK 18 MOD 2 UUV		2019	VARIOUS / VARIOUS	C / FFP	NSWCIH, MD	Jan 2019	Jan 2020	6	1,050K	Y		
1.1.2) MK18 MOD 1 UUV (0207404N) ^(†)		2019	VARIOIUS / VARIOUS	C / FFP	NSWCIH, MD	Nov 2018	Nov 2019	12	440,000.00	Y		
1.1.2) MK18 MOD 1 UUV (0207404N) ^(†)		2020	VARIOIUS / VARIOUS	C / FFP	NSWCIH, MD	Jan 2020	Jan 2021	12	449,000.00	Y		
1.1.3) MK18 MOD 1 UMCM UUV INCREMENTAL (CIP) Retrofit Kit (0207404N) ^(†)		2020	VARIOIUS / VARIOUS	C / FFP	NSWCIH, MD	Nov 2019	Nov 2020	5	1,072K	Y		
1.1.4) MK18 MOD 2 RETROFIT KITS (SSAM) (0207404N) ^(†)		2020	VARIOIUS / VARIOUS	C / FFP	NSWCIH, MD	Mar 2020	Mar 2021	15	600,000.00	Y		
1.1.5) MK18 MOD 2 RETROFIT KITS (ATLAS) (0207404N)		2020	VARIOUS / VARIOUS	C / FFP	NSWCIH, MD	Mar 2020	Mar 2021	4	400,000.00	Y		
1.1.6) ExMCM Aux/Support/Maint/ MSE Kits		2018	VARIOUS / VARIOUS	C / FFP	NSWCIH, MD	Oct 2017	Oct 2017	25	390,000.00	Y		
1.1.6) ExMCM Aux/Support/Maint/ MSE Kits		2019	VARIOUS / VARIOUS	C / FFP	NSWCIH, MD	Mar 2019	Mar 2020	35	416,142.86	Y		
1.1.6) ExMCM Aux/Support/Maint/ MSE Kits		2020	VARIOUS / VARIOUS	C / FFP	NSWCIH, MD	Oct 2019	Oct 2019	11	413,545.45	Y		
1.1.7) ExMCM Diver Sensor/Nav Systems		2019	TBD / TBD	C / TBD	TBD	Oct 2018	Oct 2018	5	225,000.00	Y		
1.1.8) ExMCM EOD Response Remotely Operated Vehicle (ROV)		2020	TBD / TBD	C / TBD	TBD	Mar 2020	Mar 2021	15	259,133.33	Y		
1.1.10) ExMCM Open Water Transport Sys/Shipboard Charging Container OWTS/SCC		2019	VARIOUS / VARIOUS	C / FFP	NSWCIH, MD	Mar 2019	Mar 2020	22	289,545.45	Y		
^(†) indicates the presence of a P-21												

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Exhibit P-21, Production Schedule: PB 2020 Navy																							Date: March 2019										
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 (Units in Each)							Fiscal Year 2018													Fiscal Year 2019													B A L A N C E
O C C #	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			
1.1.2) MK18 MOD 1 UUV (0207404N) ⁽²³⁾																																	
Prior Years Deliveries: 11																																	
	1	2019	NAVY	12	0	12														A -	-	-	-	-	-	-	-	-	-	-	-	12	
	1	2020	NAVY	12	0	12																								12			
1.1.3) MK18 MOD 1 UMCM UUV INCREMENTAL (CIP) Retrofit Kit (0207404N) ⁽²⁴⁾																																	
	2	2020	NAVY	5	0	5																								5			
1.1.4) MK18 MOD 2 RETROFIT KITS (SSAM) (0207404N) ⁽²⁵⁾																																	
	3	2020	NAVY	15	0	15																								15			
						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: PB 2020 Navy																				Date: March 2019												
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 <i>(Units in Each)</i>							Fiscal Year 2020										Fiscal Year 2021													BALANCE		
O C C #	M F R #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2019	BAL DUE AS OF 1 OCT	Calendar Year 2020										Calendar Year 2021															
							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	
1.1.2) MK18 MOD 1 UUV (0207404N) ⁽²³⁾																																
Prior Years Deliveries: 11																																
	1	2019	NAVY	12	0	12	-	1	1	1	1	1	1	1	1	1	1	1														0
	1	2020	NAVY	12	0	12				A -	-	-	-	-	-	-	-	-	-	-	1	1	1	1	1	1	1	1	1	1	3	
1.1.3) MK18 MOD 1 UMCM UUV INCREMENTAL (CIP) Retrofit Kit (0207404N) ⁽²⁴⁾																																
	2	2020	NAVY	5	0	5		A -	-	-	-	-	-	-	-	-	-	-	-	1	1	1	1	1								0
1.1.4) MK18 MOD 2 RETROFIT KITS (SSAM) (0207404N) ⁽²⁵⁾																																
	3	2020	NAVY	15	0	15						A -	-	-	-	-	-	-	-	-	-	-	-	1	1	1	1	1	1	1	8	
							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: PB 2020 Navy																								Date: March 2019											
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 <i>(Units in Each)</i>							Fiscal Year 2022														Fiscal Year 2023														BALANCE
OCO	MFR #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2021	BAL DUE AS OF 1 OCT	Calendar Year 2022														Calendar Year 2023														
							OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP					
1.1.2) MK18 MOD 1 UUV (0207404N) ⁽²³⁾																																			
Prior Years Deliveries: 11																																			
	1	2019	NAVY	12	12	0																										0			
	1	2020	NAVY	12	9	3	1	1	1																							0			
1.1.3) MK18 MOD 1 UMCM UUV INCREMENTAL (CIP) Retrofit Kit (0207404N) ⁽²⁴⁾																																			
	2	2020	NAVY	5	5	0																										0			
1.1.4) MK18 MOD 2 RETROFIT KITS (SSAM) (0207404N) ⁽²⁵⁾																																			
	3	2020	NAVY	15	7	8	1	1	2	2	2																					0			
							OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP					

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Exhibit P-21, Production Schedule: PB 2020 Navy				Date: March 2019			
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)	

MFR Ref #	Manufacturer Name - Location	Production Rates (Each / Year)			Procurement Leadtime (Months)							
		MSR For 2020	1-8-5 For 2020	MAX For 2020	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	VARIOUS - VARIOUS			TBD	0	0	0	0	0	0	0	0
2	VARIOUS - VARIOUS			TBD	0	0	0	0	0	0	0	0
3	VARIOUS - VARIOUS			TBD	0	0	0	0	0	0	0	0

"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-5, Cost Analysis: PB 2020 Navy												Date: March 2019							
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 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total					
Procurement Quantity (Units in Each)				-		-		-		-		-		-					
Gross/Weapon System Cost (\$ in Millions)				0.000		4.950		5.874		1.685		0.000		1.685					
Less PY Advance Procurement (\$ in Millions)				-		-		-		-		-		-					
Net Procurement (P-1) (\$ in Millions)				0.000		4.950		5.874		1.685		0.000		1.685					
Plus CY Advance Procurement (\$ in Millions)				-		-		-		-		-		-					
Total Obligation Authority (\$ in Millions)				0.000		4.950		5.874		1.685		0.000		1.685					
(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)				-		-		-		-		-		-					
Note: Subtotals or Totals in this Exhibit P-5 may not be exact or sum exactly due to rounding.																			
Cost Elements		Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
		Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	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 ^(†) (34)		-	-	0.000	4,950K	1	4.950	2,937K	2	5.874	1,685K	1	1.685	-	-	0.000	1,685K	1	1.685
Subtotal: Recurring Cost		-	-	0.000	-	-	4.950	-	-	5.874	-	-	1.685	-	-	0.000	-	-	1.685
Subtotal: Hardware - UQ039 NSW Common Equipment Cost		-	-	0.000	-	-	4.950	-	-	5.874	-	-	1.685	-	-	0.000	-	-	1.685
Gross/Weapon System Cost		-	-	0.000	-	-	4.950	-	-	5.874	-	-	1.685	-	-	0.000	-	-	1.685
Remarks:																			
[Hardware/Recurring] MK 18 UUV outfitting in support of Naval Special Operation Forces.																			
(†) indicates the presence of a P-5a																			
Footnotes:																			
⁽³⁴⁾ CE:1.1.1 MK18 MOD1 UUV: Baseline and OCO funding provides for the replacement procurement of (4) 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.																			

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Exhibit P-5a, Procurement History and Planning: PB 2020 Navy		Date: March 2019
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 (Each)	Unit Cost (\$)	Specs Avail Now?	Date Revision Available	RFP Issue Date
1.1.1) NSW MK18 MOD 1		2018	VARIOIUS / VARIOUS	C / TBD	** NO PCO **	Oct 2017	Oct 2017	1	4,950K	N		
1.1.1) NSW MK18 MOD 1		2019	VARIOIUS / VARIOUS	C / FFP	NSWCIH, MD	Mar 2019	Mar 2020	1	3,374K	Y		
1.1.1) NSW MK18 MOD 1	✓	2019	VARIOIUS / VARIOUS	C / FFP	NSWCIH, MD	Mar 2019	Mar 2019	1	2,500K	Y		

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

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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity (<i>Units in Each</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost (<i>\$ in Millions</i>)	605.930	92.451	123.685	102.543	0.000	102.543	109.553	86.288	67.465	61.606	6.900	1,256.421
Less PY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (<i>\$ in Millions</i>)	605.930	92.451	123.685	102.543	0.000	102.543	109.553	86.288	67.465	61.606	6.900	1,256.421
Plus CY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority (<i>\$ in Millions</i>)	605.930	92.451	123.685	102.543	0.000	102.543	109.553	86.288	67.465	61.606	6.900	1,256.421

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

Initial Spares (<i>\$ in Millions</i>)	-	-	-	0.015	-	0.015	-	-	-	-	-	0.015
Flyaway Unit Cost (<i>\$ in Dollars</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost (<i>\$ in Dollars</i>)	-	-	-	-	-	-	-	-	-	-	-	-

Description:

The FY 2019 funding request was reduced by \$0.594 million to reflect the Department of Navy's effort to support the Office of Management and Budget directed reforms for Efficiency and Effectiveness that include a lean, accountable, more efficient government.

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) internal equipment and system improvements on in-service surface ships. The components are required to support units in the Fleet during the Continuous Maintenance Availability (CMAV) and other windows of opportunity (WOO). 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 (DDG 51)]: 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, LHD 8 and following (AF), LPD and LHA 6 AF class ships. These spares are required to meet DDG 51, LHD 8 AF, LPD and LHA 6 AF 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 fleet and insufficiency of the current number of DDG 51, LHD 8 AF, LPD and LHA 6 AF class spares to meet upcoming change-out demand per CNO availability schedules 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.

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Exhibit P-40, Budget Line Item Justification: PB 2020 Navy		Date: March 2019
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 / 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.		
[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 / 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 / LT330 - CVN Cybersecurity]: CVN Cyber Security enables the development and installation of Ship Change Documents (SCDs) for Boundary Defense Capability (BDC), Situational Awareness and Physical Security. It will increase the Defense in Depth and improve the Cyber Security aspects of the CVN Nimitz Class HM&E Networks. Funding will be used to update hardware and software applications and system configurations required to be compatible with and meet DoD CYBER requirements, Security Technical Implementation Guide and other CYBER requirements. Funding will also be used to update system cybersecurity Certification and Accreditation. Add capability to protect, detect, and respond/recover to internal system events, and add additional defense in depth and monitoring to external interfaces.		
[P40A / LT 331 CVN78]: CVN78 will transition to an PMS 312 in-service asset with modernization planning and execution requirements. Modernization is required during the FY20 planned incremental availability (PIA) to upgrade the configuration of Machinery Control and Monitoring System (MCMS) valve operator architecture from Ring to star configuration, upgrade the Aircrew Survival Equipment maintenance shops and flight/survival gear storage rooms, install increased waste handling/management equipment upgrades to support Plasma Arc Waste Destruction System (PAWDS and update the Dual Band Radar (DBR) Power Quality Data Acquisition System (PQDAS).		
[P40A / LT332-CVN Mobile Cleaning, Recovery & Recycling 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 CVN platforms. Funding will procure units and spares.		
[P3A / LT160 - Machinery Plant Upgrades]: 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 - 2 / LT306 - Automated Voltage Regulator (AVR)]: LT306 - AUTOMATED VOLTAGE REGULATOR		

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Exhibit P-40, Budget Line Item Justification: PB 2020 Navy		Date: March 2019
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		
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. [P3A - 3 / 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. [P3A - 4 / 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. [P3A - 5 / 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. [P3A - 6 / 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. [P3A - 7 / LT318 - Carriers Passive Countermeasures System (PCMS)]: classified effort [P3A - 8 / 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)). [P3A - 9 / LT321 ESB SOF Backfit]: Funds provided for ESB 3 and 4 Special Operation Forces (SOF) components. Efforts include ship changes necessary to 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. [P3A - 10 / 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 18 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 - 10 / Modular Reefer System]: Initial Modular Refrigeration System (MRS) installation completed Dec 2018 (during CVN71 FY18 Planned Incremental Availability). Changes from PB19.: No MRS funding in FY19. \$2.6M increase from FY19 to FY20: Future Modular Refrigeration System (MRS) installations currently planned for 1 hull per year starting in FY21 (procurement in FY20).		

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Exhibit P-40, Budget Line Item Justification: PB 2020 Navy								Date: March 2019	
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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Exhibit Type	Title*	Subexhibits	ID CD	MDAP/MAIS Code	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)
P-40a	Items Less than \$5M Programs	P-5a			- / 155.639	- / 11.356	- / 58.328	- / 61.025	- / -	- / 61.025
P-3a	1 / LT160 - Machinery Plant Upgrades (TBD)				- / 208.044	- / 17.249	- / 13.044	- / 22.771	- / 0.000	- / 22.771
P-3a	2 / LT306 - Automated Voltage Regulator (AVR) (TBD)				- / 59.654	- / 3.700	- / 1.855	- / 0.000	- / 0.000	- / 0.000
P-3a	3 / LT307 - Carrier Canned Lube Oil Pump (TBD)				- / 24.145	- / 2.950	- / 6.750	- / 0.000	- / 0.000	- / 0.000
P-3a	4 / LT308 - LHD/LHA Davits (TBD)				- / 22.037	- / 6.359	- / 0.529	- / 3.378	- / 0.000	- / 3.378
P-3a	5 / LT309 - Solid-State Lighting (SSL) (TBD)				- / 23.951	- / 0.678	- / 6.406	- / 0.000	- / 0.000	- / 0.000
P-3a	6 / LT314 - Carrier Oil Water Separator (TBD)				- / 9.572	- / 5.000	- / 5.000	- / 3.400	- / 0.000	- / 3.400
P-3a	7 / LT318 - Carriers Passive Countermeasures System (PCMS) (TBD)				- / 62.326	- / 19.225	- / 19.450	- / 3.400	- / 0.000	- / 3.400
P-3a	8 / LT322 - LSD Boat Davit (TBD)				- / 14.903	- / 7.963	- / 8.490	- / 5.969	- / 0.000	- / 5.969
P-3a	9 / LT321 ESB SOF Backfit (TBD)				- / 22.259	- / 15.404	- / 3.833	- / 0.000	- / 0.000	- / 0.000
P-3a	10 / LT327 - Modular Refrigeration System. (TBD)				- / 3.400	- / 2.567	- / 0.000	- / 2.600	- / 0.000	- / 2.600
P-40	Total Gross/Weapon System Cost				- / 605.930	- / 92.451	- / 123.685	- / 102.543	- / 0.000	- / 102.543

Exhibits Schedule					FY 2021	FY 2022	FY 2023	FY 2024	To Complete	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	P-5a			- / -	- / -	- / -	- / -	- / -	- / -
P-3a	1 / LT160 - Machinery Plant Upgrades (TBD)				- / 30.898	- / 24.471	- / 26.651	- / 31.897	- / 0.000	- / 375.025
P-3a	2 / LT306 - Automated Voltage Regulator (AVR) (TBD)				- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 65.209
P-3a	3 / LT307 - Carrier Canned Lube Oil Pump (TBD)				- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 33.845
P-3a	4 / LT308 - LHD/LHA Davits (TBD)				- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 32.303
P-3a	5 / LT309 - Solid-State Lighting (SSL) (TBD)				- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 31.035
P-3a	6 / LT314 - Carrier Oil Water Separator (TBD)				- / 1.600	- / 5.000	- / 3.400	- / 0.000	- / 0.000	- / 32.972
P-3a	7 / LT318 - Carriers Passive Countermeasures System (PCMS) (TBD)				- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 104.401
P-3a	8 / LT322 - LSD Boat Davit (TBD)				- / 6.781	- / 3.032	- / 2.710	- / 0.000	- / 0.000	- / 49.848
P-3a	9 / LT321 ESB SOF Backfit (TBD)				- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 41.496
P-3a	10 / LT327 - Modular Refrigeration System. (TBD)				- / 4.500	- / 4.500	- / 4.500	- / 4.500	- / 6.900	- / 33.467
P-40	Total Gross/Weapon System Cost				- / 109.553	- / 86.288	- / 67.465	- / 61.606	- / 6.900	- / 1,256.421

*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:
This line item funds baseline programs for items less than \$5M.

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Exhibit P-40a, Budget Item Justification For Aggregated Items: PB 2020 Navy															Date: March 2019					
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 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 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		-	-	17.199	-	-	0.323	-	-	0.649	-	-	0.618	-	-	-	-	-	0.618
1.2) MACHALTs (Surface Ships) ⁽¹⁾	A		-	-	77.854	-	-	5.416	-	-	7.087	-	-	9.181	-	-	-	-	-	9.181
Subtotal: 1) LT060 - MACHALTs			-	-	95.053	-	-	5.739	-	-	7.736	-	-	9.799	-	-	-	-	-	9.799
2) LT110 - Propellers and Shafts (DDG 51) ⁽²⁾																				
2.1) Blade Set Port/STBD, DDG 51 CL ^(†)	B		838,750.00	4	3.355	-	-	-	1,300K	2	2.599	1,246K	1	1.246	-	-	-	1,246K	1	1.246
2.2) Hub Port DDG51 CL ^(†)	A		1,027K	7	7.186	-	-	-	1,094K	1	1.094	-	-	-	-	-	-	-	-	-
2.3) Hub STBD DDG51 CL ^(†)	A		908,000.00	9	8.172	-	-	-	-	-	-	1,080K	1	1.080	-	-	-	1,080K	1	1.080
2.4) Prop Shaft DDG51 CL ^(†)	A		1,520K	7	10.639	1,619K	1	1.619	-	-	-	1,336K	2	2.672	-	-	-	1,336K	2	2.672
2.5) Stern Tube DDG51 CL ^(†)	A		1,211K	14	16.959	-	-	-	-	-	-	1,098K	4	4.392	-	-	-	1,098K	4	4.392
2.6) Oil Distribution (OD) Box, STBD DDG 51 CL CPP ^(†)	A		230,416.67	12	2.765	279,000.00	1	0.279	285,000.00	1	0.285	287,001.00	1	0.287	-	-	-	287,001.00	1	0.287
2.7) Oil Distribution (OD) Box, Port DDG 51 CL CPP ^(†)	A		214,600.00	5	1.073	279,000.00	1	0.279	-	-	-	287,000.00	2	0.574	-	-	-	287,000.00	2	0.574
Subtotal: 2) LT110 - Propellers and Shafts (DDG 51)			-	-	50.149	-	-	2.177	-	-	3.978	-	-	10.251	-	-	-	-	-	10.251
3) LT110 - Propellers and Shafts - LHD 8 ⁽³⁾																				
3.1) Propeller Shaft - LHD 8 ^(†)	A		-	-	-	-	-	-	-	-	-	1,505K	1	1.505	-	-	-	1,505K	1	1.505
3.2) Stern Tube Shaft - LHD 8 ^(†)	A		-	-	-	-	-	-	-	-	-	934,500.00	2	1.869	-	-	-	934,500.00	2	1.869
3.3) CPP OD Box - LHD 8 ^(†)	A		-	-	-	-	-	-	-	-	-	463,000.00	2	0.926	-	-	-	463,000.00	2	0.926
Subtotal: 3) LT110 - Propellers and Shafts - LHD 8			-	-	0.000	-	-	-	-	-	-	-	-	4.300	-	-	-	-	-	4.300
5) LT120 - Carrier Propulsion Plant Inspection																				
5.1) Propulsion Plant Inspection	A		-	-	1.713	-	-	0.170	-	-	0.170	-	-	0.170	-	-	-	-	-	0.170
Subtotal: 5) LT120 - Carrier Propulsion Plant Inspection			-	-	1.713	-	-	0.170	-	-	0.170	-	-	0.170	-	-	-	-	-	0.170
6) LT130 - Steam Propulsion Items																				

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Exhibit P-40a, Budget Item Justification For Aggregated Items: PB 2020 Navy																Date: March 2019					
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 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 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)	
6.1) Steam Propulsion Items ⁽⁴⁾	A		-	-	2.846	-	-	0.224	-	-	0.189	-	-	1.127	-	-	-	-	-	1.127	
Subtotal: 6) LT130 - Steam Propulsion Items			-	-	2.846	-	-	0.224	-	-	0.189	-	-	1.127	-	-	-	-	-	1.127	
7) LT830 - Carrier Production Engineering																					
7.1) Production Engineering	A		-	-	0.398	-	-	0.040	-	-	0.040	-	-	0.040	-	-	-	-	-	0.040	
Subtotal: 7) LT830 - Carrier Production Engineering			-	-	0.398	-	-	0.040	-	-	0.040	-	-	0.040	-	-	-	-	-	0.040	
8) LT322 - LSD Davit 3rd Cradle																					
8.1) LSD Davit 3rd Cradle ⁽⁵⁾	A		-	-	-	-	-	-	-	-	-	-	-	0.786	-	-	-	-	-	0.786	
Subtotal: 8) LT322 - LSD Davit 3rd Cradle			-	-	0.000	-	-	-	-	-	-	-	-	0.786	-	-	-	-	-	0.786	
9) LT328 - Mobile Cleaning Recovery and Recycle System (MCRRS)																					
9.1) MCRRS Production Units ^(†)	A		806,666.67	3	2.420	857,000.00	3	2.571	874,000.00	6	5.244	891,000.00	2	1.782	-	-	-	891,000.00	2	1.782	
9.2) MCRRS Upgrades ^(†)	A		375,000.00	4	1.500	138,000.00	3	0.414	140,000.00	5	0.700	-	-	-	-	-	-	-	-	-	
9.3) MCRRS Engineering Support	A		-	-	1.560	-	-	0.021	-	-	0.091	-	-	0.036	-	-	-	-	-	0.036	
Subtotal: 9) LT328 - Mobile Cleaning Recovery and Recycle System (MCRRS)			-	-	5.480	-	-	3.006	-	-	6.035	-	-	1.818	-	-	-	-	-	1.818	
10) LT330 - CVN Cybersecurity																					
10.1) LT330 - CVN Cybersecurity ⁽⁶⁾	A		-	-	-	-	-	-	-	-	7.280	-	-	15.295	-	-	-	-	-	15.295	
Subtotal: 10) LT330 - CVN Cybersecurity			-	-	0.000	-	-	-	-	-	7.280	-	-	15.295	-	-	-	-	-	15.295	
11) LT331 CVN78 ⁽⁷⁾																					
11.1) LT 331 CVN78	A		-	-	-	-	-	-	-	-	32.900	-	-	8.700	-	-	-	-	-	8.700	
Subtotal: 11) LT331 CVN78			-	-	0.000	-	-	-	-	-	32.900	-	-	8.700	-	-	-	-	-	8.700	
12) LT332-CVN Mobile Cleaning, Recovery & Recycling System (MCRRS)																					
12.1) LT332-CVN Mobile Cleaning, Recovery & Recycling System (MCRRS) ⁽⁸⁾	A		-	-	-	-	-	-	-	-	-	-	-	8.739	-	-	-	-	-	8.739	
Subtotal: 12) LT332-CVN Mobile Cleaning, Recovery & Recycling System (MCRRS)			-	-	0.000	-	-	-	-	-	-	-	-	8.739	-	-	-	-	-	8.739	
Total			-	-	155.639	-	-	11.356	-	-	58.328	-	-	61.025	-	-	-	-	-	61.025	
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: PB 2020 Navy		Date: March 2019
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

(†) indicates the presence of a P-5a

Footnotes:

- (1) The FY20 \$2M increase provides required funding for the re-baselined MACHALT program to address and field MANDATORY SAFETY Alterations for improved system readiness and reduced life cycle cost for in-service surface ships.
- (2) LT110 - The FY 2020 funding request for Surface Ships (DDG 51 class) was increased to reflect the Department of Navy's effort to address the insufficiency of the current number of spares to meet upcoming change-out demand per CNO availability schedules. The projected propeller shaft and Oil Distribution (OD) box prices used to generate the FY 2020 budget are based upon actual escalation rates calculated from past contract awards where available and from rough order of magnitude (ROM) price estimates provided by the vendor where actual award data is not available. These escalation rates typically are in the range of approximately 4.25% to 5.5%. It also should be noted that many of these controllable pitch propeller (CPP) assets are purchased from Rolls Royce Naval Marine (RRNM). The 2S COG program also procures marine gas turbine engines from RRNM, and the latest ROM estimates (letter dated 10/30/2015) provided by Rolls-Royce for gas turbines includes escalation rates of roughly 4% per year, similar to the escalation rates for CPP and shaft assets. Any pricing anomaly, such as an unexpectedly low bid from a shaft vendor to win a competitively bid contract, must be factored into the comprehensive historical data and trends. In order to ensure sufficient funds are available to execute scheduled procurements, budget requirements must be generated consistent with these escalation rates.
- (3) The FY 2020 funding request for Amphibious Ships (LHD 8 class) was increased to reflect the Department of Navy's effort to address the insufficiency of the current number of spares to meet upcoming change-out demand per CNO availability schedules.
- (4) Growth funds additional steam safety requirements.
- (5) LSD 41/49 Class boat mix of a 3rd Cradle funds the requirement for LSD 41/49 Class ships to upgrade the boat mixture to support a third Rigid Inflatable Boat (RIB). FY 2020 funding addresses procurement and system engineering in support of FY 2021 installation.
- (6) Funds were added in FY19 to provide cybersecurity of carrier assets and infrastructure with emphasis to prevent network intrusion on CVNs. Efforts consists of (1) boundary defense mods, (2)situational awareness mods and (3) physical security mods. Quantities vary per hull and are fundamentally different; therefore not shown since not suited for comparison. Hulls will receive different mods in varying combinations; so each hull cost is mutually exclusive of others costs. \$8M Cybersecurity increase from FY19 to FY20 due to phasing of Cybersecurity solutions for CVNs and current maintenance/modernization availability schedule. Two hulls scheduled for Cybersecurity upgrades in FY20 compared to one hull in FY19.
- (7) CVN78 will transition to a PMS 312 in-service asset with modernization planning and execution requirements. Modernization is required during the FY20 planned incremental availability (PIA) to upgrade the configuration of Machinery Control and Monitoring System (MCMS) valve operator architecture from Ring to star configuration, upgrade the Aircrew Survival Equipment maintenance shops and flight/survival gear storage rooms, install increased waste handling/ management equipment upgrades to support Plasma Arc Waste Destruction System (PAWDS and update the Dual Band Radar (DBR) Power Quality Data Acquisition System (PQDAS).
- (8) Funding added in FY20 for procurement of MCRRS for Aircraft Carriers.

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Exhibit P-5a, Procurement History and Planning: PB 2020 Navy									Date: March 2019			
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9			P-1 Line Item Number / Title: 0981 / Items less than \$5 Million						Aggregated Items: Items Less than \$5M Programs			
Item Number / Title [DODIC]	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) LT110 - Propellers and Shafts (DDG 51)												
2.1) Blade Set Port/STBD, DDG 51 CL		2016	Rolls Royce / MS	C / FP	NAVSUP	May 2017	Apr 2019	1	1,218K	Y		
2.1) Blade Set Port/STBD, DDG 51 CL		2017	Rolls Royce / MS	C / FP	NAVSUP	Jun 2018	Dec 2019	1	1,004K	Y		
2.1) Blade Set Port/STBD, DDG 51 CL		2019	Rolls Royce / MS	C / FP	NAVSUP	Jun 2019	May 2021	2	1,300K	Y		
2.1) Blade Set Port/STBD, DDG 51 CL		2020	Rolls Royce / MS	C / TBD	NAVSUP	Jun 2020	May 2022	1	1,246K	Y		
2.2) Hub Port DDG51 CL		2017	Rolls Royce / MS	C / FP	NAVSUP	Jan 2018	Jan 2020	1	1,016K	Y		
2.2) Hub Port DDG51 CL		2019	Rolls Royce / MS	C / FP	NAVSUP	Sep 2019	Sep 2021	1	1,094K	Y		
2.3) Hub STBD DDG51 CL		2017	Rolls Royce / MS	C / FP	NAVSUP	Jan 2018	Jan 2020	1	1,016K	Y		
2.4) Prop Shaft DDG51 CL		2016	Erie Forge / PA	C / FP	NAVSUP	Sep 2016	Aug 2018	1	1,066K	Y		
2.4) Prop Shaft DDG51 CL		2018	Erie Forge / PA	C / FP	NAVSUP	Sep 2018	Aug 2020	1	1,619K	Y		
2.4) Prop Shaft DDG51 CL		2020	Erie Forge / PA	C / TBD	NAVSUP	Sep 2020	Aug 2022	2	1,336K	Y		
2.5) Stern Tube DDG51 CL		2015	Erie Forge / PA	C / FP	NAVSUP	Jul 2015	Sep 2018	2	1,243K	Y		
2.5) Stern Tube DDG51 CL		2016	Erie Forge / PA	C / FP	NAVSUP	Sep 2016	Aug 2018	1	870,631.00	Y		
2.5) Stern Tube DDG51 CL		2020	Erie Forge / PA	C / TBD	NAVSUP	Apr 2020	Mar 2022	4	1,098K	Y		
2.6) Oil Distribution (OD) Box, STBD DDG 51 CL CPP		2018	Rolls Royce / MS	C / FP	NAVSUP	Sep 2018	Sep 2020	1	279,000.00	Y		
2.6) Oil Distribution (OD) Box, STBD DDG 51 CL CPP		2019	Rolls Royce / MS	C / FP	NAVSUP	May 2019	Nov 2020	1	285,000.00	Y		
2.6) Oil Distribution (OD) Box, STBD DDG 51 CL CPP		2020	Rolls Royce / MS	C / TBD	NAVSUP	May 2020	Nov 2021	1	287,001.00	Y		
2.7) Oil Distribution (OD) Box, Port DDG 51 CL CPP		2018	Rolls Royce / MS	C / FP	NAVSUP	Sep 2018	Sep 2020	1	279,000.00	Y		
2.7) Oil Distribution (OD) Box, Port DDG 51 CL CPP		2020	Rolls Royce / MS	C / TBD	NAVSUP	Oct 2019	Apr 2021	2	287,000.00	Y		
3) LT110 - Propellers and Shafts - LHD 8												
3.1) Propeller Shaft - LHD 8		2020	TBD / TBD	C / TBD	NAVSUP	Jun 2020	Jun 2022	1	1,505K	Y		
3.2) Stern Tube Shaft - LHD 8		2020	TBD / TBD	C / TBD	NAVSUP	Jun 2020	Jun 2022	2	934,500.00	Y		
3.3) CPP OD Box - LHD 8		2020	ROLLS ROYCE / MS	C / TBD	NAVSUP	Apr 2020	Apr 2022	2	463,000.00	Y		
9) LT328 - Mobile Cleaning Recovery and Recycle System (MCRRS)												
9.1) MCRRS Production Units		2017 ⁽⁹⁾	Triverus, LLC / Palmer, AK	C / FFP	Palmer, AK	Jul 2018	Jul 2019	2	835,000.00	Y		
9.1) MCRRS Production Units		2018	Triverus, LLC / Palmer, AK	C / FFP	Palmer, AK	Jul 2018	Jul 2019	3	857,000.00	Y		
9.1) MCRRS Production Units		2019	Triverus, LLC / Palmer, AK	C / FFP	Palmer, AK	Feb 2019	Feb 2020	6	874,000.00	Y		

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Exhibit P-5a, Procurement History and Planning: PB 2020 Navy								Date: March 2019				
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9				P-1 Line Item Number / Title: 0981 / Items less than \$5 Million				Aggregated Items: Items Less than \$5M Programs				

Item Number / Title [DODIC]	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
9.1) MCRRS Production Units		2020	Triverus, LLC / Palmer, AK	C / FFP	Palmer, AK	Oct 2019	Oct 2020	2	891,000.00	Y		
9.2) MCRRS Upgrades		2017 ⁽¹⁰⁾	Triverus, LLC / Palmer, AK	C / FFP	Palmer, AK	Jul 2018	Jul 2019	2	135,000.00	Y		
9.2) MCRRS Upgrades		2018	Triverus, LLC / Palmer, AK	C / FFP	Palmer, AK	Jul 2018	Jul 2019	3	138,000.00	Y		
9.2) MCRRS Upgrades		2019	Triverus, LLC / Palmer, AK	C / FFP	Palmer, AK	Feb 2019	Feb 2020	5	140,000.00	Y		

Footnotes:

⁽⁹⁾ Date of First Scheduled Delivery is 2018-8 (4 months)

⁽¹⁰⁾ Date of First Scheduled Delivery is 2018-8 (4 months)

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Exhibit P-3a, Individual Modification: PB 2020 Navy						Date: March 2019					
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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity <i>(Units in Each)</i>	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost <i>(\$ in Millions)</i>	208.044	17.249	13.044	22.771	0.000	22.771	30.898	24.471	26.651	31.897	0.000	375.025
Less PY Advance Procurement <i>(\$ in Millions)</i>	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) <i>(\$ in Millions)</i>	208.044	17.249	13.044	22.771	0.000	22.771	30.898	24.471	26.651	31.897	0.000	375.025
Plus CY Advance Procurement <i>(\$ in Millions)</i>	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority <i>(\$ in Millions)</i>	208.044	17.249	13.044	22.771	0.000	22.771	30.898	24.471	26.651	31.897	0.000	375.025
<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:

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 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: PB 2020 Navy								Date: March 2019					
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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	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)	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: LT160 - Machinery Plant Upgrades													
B Kits													
Recurring													
1.1.1) Machinery Plant Upgrades - NonOrganic ⁽¹¹⁾	34 / 79.313	3 / 6.704	3 / 5.418	4 / 6.898	- / -	4 / 6.898	4 / 11.977	4 / 9.561	4 / 10.168	5 / 12.815	- / -	61 / 142.854	
Subtotal: Recurring	- / 79.313	- / 6.704	- / 5.418	- / 6.898	- / -	- / 6.898	- / 11.977	- / 9.561	- / 10.168	- / 12.815	- / 0.000	- / 142.854	
Subtotal: LT160 - Machinery Plant Upgrades	34 / 79.313	3 / 6.704	3 / 5.418	4 / 6.898	- / -	4 / 6.898	4 / 11.977	4 / 9.561	4 / 10.168	5 / 12.815	- / -	61 / 142.854	
Subtotal: Procurement, All Modification Items	- / 79.313	- / 6.704	- / 5.418	- / 6.898	- / -	- / 6.898	- / 11.977	- / 9.561	- / 10.168	- / 12.815	- / 0.000	- / 142.854	
Installation													
Modification Item 1 of 1: LT160 - Machinery Plant Upgrades	- / 128.731	- / 10.545	- / 7.626	- / 15.873	- / 0.000	- / 15.873	- / 18.921	- / 14.910	- / 16.483	- / 19.082	- / 0.000	- / 232.171	
Subtotal: Installation	- / 128.731	- / 10.545	- / 7.626	- / 15.873	- / -	- / 15.873	- / 18.921	- / 14.910	- / 16.483	- / 19.082	- / 0.000	- / 232.171	
Total													
Total Cost (Procurement + Support + Installation)	208.044	17.249	13.044	22.771	0.000	22.771	30.898	24.471	26.651	31.897	0.000	375.025	

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Exhibit P-3a, Individual Modification: PB 2020 Navy												Date: March 2019																							
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 <i>(in Months)</i> : 2												Production Leadtime <i>(in Months)</i> : 5																							
Dates		FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024									
Contract Dates		Nov 2017				Nov 2018				Dec 2020																									
Delivery Dates		Apr 2018				Apr 2019				Oct 2021																									
Installation Information																																			
Method of Implementation: ALT:: Installation Name: Machinery Plant Upgrades																																			
Installation Cost		Prior Years		FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total		FY 2021		FY 2022		FY 2023		FY 2024		To Complete		Total											
		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)											
Prior Years		31 / 127.231		3 / 6.600		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.000		34 / 133.831											
FY 2018		0 / 1.500		1 / 2.532		2 / 3.851		- / -		- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.000		3 / 7.883											
FY 2019		- / -		0 / 1.413		1 / 2.375		2 / 6.903		0 / 0.000		2 / 6.903		- / -		- / -		- / -		- / -		0 / 0.000		3 / 10.691											
FY 2020		- / -		- / -		0 / 1.400		2 / 6.970		0 / 0.000		2 / 6.970		2 / 7.341		- / -		- / -		- / -		0 / 0.000		4 / 15.711											
FY 2021		- / -		- / -		- / -		0 / 2.000		0 / 0.000		0 / 2.000		2 / 7.175		2 / 4.764		- / -		- / -		0 / 0.000		4 / 13.939											
FY 2022		- / -		- / -		- / -		- / -		- / -		- / -		0 / 4.405		2 / 4.770		2 / 5.815		- / -		0 / 0.000		4 / 14.990											
FY 2023		- / -		- / -		- / -		- / -		- / -		- / -		- / -		0 / 5.376		2 / 5.814		2 / 9.622		0 / 0.000		4 / 20.812											
FY 2024		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		0 / 4.854		2 / 9.460		3 / 0.000		5 / 14.314											
To Complete		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -											
Total		31 / 128.731		4 / 10.545		3 / 7.626		4 / 15.873		0 / 0.000		4 / 15.873		4 / 18.921		4 / 14.910		4 / 16.483		4 / 19.082		3 / 0.000		61 / 232.171											
Installation Schedule																																			
	PYS	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				TC	Tot				
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4						
In	31	-	3	1	-	1	1	1	-	1	1	2	-	1	1	2	-	-	2	-	2	-	2	1	1	-	1	2	1	3	61				
Out	30	-	1	1	-	1	1	2	-	-	1	2	2	1	1	1	-	1	-	2	-	1	1	1	1	-	1	1	-	8	61				
Footnotes:																																			
⁽¹¹⁾ 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																																			

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Exhibit P-3a, Individual Modification: PB 2020 Navy		Date: March 2019
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:
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.		

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Exhibit P-3a, Individual Modification: PB 2020 Navy						Date: March 2019					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9				P-1 Line Item Number / Title: 0981 / Items less than \$5 Million				Modification Number / Title: 2 / LT306 - Automated Voltage Regulator (AVR)			

ID Code (A=Service Ready, B=Not Service Ready) :						MDAP/MAIS Code:						
Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity <i>(Units in Each)</i>	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost <i>(\$ in Millions)</i>	59.654	3.700	1.855	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	65.209
Less PY Advance Procurement <i>(\$ in Millions)</i>	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) <i>(\$ in Millions)</i>	59.654	3.700	1.855	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	65.209
Plus CY Advance Procurement <i>(\$ in Millions)</i>	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority <i>(\$ in Millions)</i>	59.654	3.700	1.855	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	65.209
<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 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.

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Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019			
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9					P-1 Line Item Number / Title: 0981 / Items less than \$5 Million					Modification Number / Title: 2 / LT306 - Automated Voltage Regulator (AVR)			
ID Code (A=Service Ready, B=Not Service Ready) :								MDAP/MAIS Code:					
Models of Systems Affected: Auto Voltage Regulator					Modification Type: TBD					Related RDT&E PEs:			
Financial Plan	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total	
	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	
Procurement													
<i>Modification Item 1 of 1:</i> LT306 - Automated Voltage Regulator (AVR)													
B Kits													
Recurring													
1.1.1) AVR - NonOrganic ⁽¹²⁾	62 / 29.975	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	62 / 29.975	
1.1.2) Field Engineering Services - NonOrganic	- / 1.547	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / 1.547	
<i>Subtotal: Recurring</i>	- / 31.522	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / 0.000	- / 31.522	
<i>Subtotal: LT306 - Automated Voltage Regulator (AVR)</i>	62 / 31.522	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	62 / 31.522	
<i>Subtotal: Procurement, All Modification Items</i>	- / 31.522	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / 0.000	- / 31.522	
Installation													
<i>Modification Item 1 of 1:</i> LT306 - Automated Voltage Regulator (AVR)	- / 28.132	- / 3.700	- / 1.855	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 33.687	
<i>Subtotal: Installation</i>	- / 28.132	- / 3.700	- / 1.855	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / 0.000	- / 33.687	
Total													
Total Cost (Procurement + Support + Installation)	59.654	3.700	1.855	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	65.209	

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Exhibit P-3a, Individual Modification: PB 2020 Navy											Date: March 2019																				
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9										P-1 Line Item Number / Title: 0981 / Items less than \$5 Million										Modification Number / Title: 2 / LT306 - Automated Voltage Regulator (AVR)											
ID Code (A=Service Ready, B=Not Service Ready) :															MDAP/MAIS Code:																
Modification Item 1 of 1: LT306 - Automated Voltage Regulator (AVR)																															
Manufacturer Information																															
Manufacturer Name: NG P/CS															Manufacturer Location: MD																
Administrative Leadtime (<i>in Months</i>): 6															Production Leadtime (<i>in Months</i>): 18																
Dates		FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024					
Contract Dates																															
Delivery Dates																															
Installation Information																															
Method of Implementation: SHIPYARD:: Installation Name: AVR																															
Installation Cost		Prior Years		FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total		FY 2021		FY 2022		FY 2023		FY 2024		To Complete		Total							
		Qty (<i>Each</i>) / Total Cost (\$ M)		Qty (<i>Each</i>) / Total Cost (\$ M)		Qty (<i>Each</i>) / Total Cost (\$ M)		Qty (<i>Each</i>) / Total Cost (\$ M)		Qty (<i>Each</i>) / Total Cost (\$ M)		Qty (<i>Each</i>) / Total Cost (\$ M)		Qty (<i>Each</i>) / Total Cost (\$ M)		Qty (<i>Each</i>) / Total Cost (\$ M)		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		49 / 28.132		8 / 3.700		4 / 1.855		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.000		61 / 33.687					
FY 2018		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
FY 2019		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
FY 2020		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
FY 2021		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
FY 2022		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
FY 2023		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
FY 2024		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
To Complete		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
Total		49 / 28.132		8 / 3.700		4 / 1.855		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.000		61 / 33.687					
Installation Schedule																															
	PYS	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				TC	Tot
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4		
In	49	-	-	-	8	-	-	-	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	61
Out	49	-	-	-	-	-	-	-	-	8	-	-	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	61
Footnotes: ⁽¹²⁾ 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-3a, Individual Modification: PB 2020 Navy						Date: March 2019					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9				P-1 Line Item Number / Title: 0981 / Items less than \$5 Million				Modification Number / Title: 3 / LT307 - Carrier Canned Lube Oil Pump			

ID Code (A=Service Ready, B=Not Service Ready) :						MDAP/MAIS Code:						
Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity <i>(Units in Each)</i>	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost <i>(\$ in Millions)</i>	24.145	2.950	6.750	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	33.845
Less PY Advance Procurement <i>(\$ in Millions)</i>	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) <i>(\$ in Millions)</i>	24.145	2.950	6.750	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	33.845
Plus CY Advance Procurement <i>(\$ in Millions)</i>	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority <i>(\$ in Millions)</i>	24.145	2.950	6.750	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	33.845
<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 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.

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Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019			
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9					P-1 Line Item Number / Title: 0981 / Items less than \$5 Million					Modification Number / Title: 3 / LT307 - Carrier Canned Lube Oil Pump			
ID Code (A=Service Ready, B=Not Service Ready) :							MDAP/MAIS Code:						
Models of Systems Affected: Carrier Canned Lube Oil Pump					Modification Type: TBD					Related RDT&E PEs:			
Financial Plan	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total	
	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	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: LT307 - Carrier Canned Lube Oil Pump													
B Kits													
Recurring													
1.1.1) Canned Lube Oil Pump - NonOrganic ⁽¹³⁾	16 / 5.000	8 / 2.200	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	24 / 7.200	
<i>Subtotal: Recurring</i>	- / 5.000	- / 2.200	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / 0.000	- / 7.200	
<i>Subtotal: LT307 - Carrier Canned Lube Oil Pump</i>	16 / 5.000	8 / 2.200	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	24 / 7.200	
<i>Subtotal: Procurement, All Modification Items</i>	- / 5.000	- / 2.200	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / 0.000	- / 7.200	
Installation													
Modification Item 1 of 1: LT307 - Carrier Canned Lube Oil Pump	- / 19.145	- / 0.750	- / 6.750	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 26.645	
<i>Subtotal: Installation</i>	- / 19.145	- / 0.750	- / 6.750	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / 0.000	- / 26.645	
Total													
Total Cost (Procurement + Support + Installation)	24.145	2.950	6.750	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	33.845	

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Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019																					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9										P-1 Line Item Number / Title: 0981 / Items less than \$5 Million										Modification Number / Title: 3 / LT307 - Carrier Canned Lube Oil Pump											
ID Code (A=Service Ready, B=Not Service Ready) :															MDAP/MAIS Code:																
Modification Item 1 of 1: LT307 - Carrier Canned Lube Oil Pump																															
Manufacturer Information																															
Manufacturer Name: IMO Pumps															Manufacturer Location: Monroe, NC																
Administrative Leadtime (<i>in Months</i>): 2															Production Leadtime (<i>in Months</i>): 12																
Dates		FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024					
Contract Dates		Apr 2018																													
Delivery Dates		Apr 2019																													
Installation Information																															
Method of Implementation: Shipyard:: Installation Name: Canned Lube Oil Pump																															
Installation Cost		Prior Years	FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total		FY 2021		FY 2022		FY 2023		FY 2024		To Complete		Total								
		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>)		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 / 19.145		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.000		16 / 19.145							
FY 2018		- / -		0 / 0.750		8 / 6.750		- / -		- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.000		8 / 7.500							
FY 2019		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -							
FY 2020		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -							
FY 2021		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -							
FY 2022		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -							
FY 2023		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -							
FY 2024		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -							
To Complete		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -							
Total		16 / 19.145		0 / 0.750		8 / 6.750		- / -		- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.000		24 / 26.645							
Installation Schedule																															
	PYS	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				TC	Tot
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4		
In	16	-	-	-	-	-	-	-	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	24
Out	16	-	-	-	-	-	-	-	-	-	-	-	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	24
Footnotes: ⁽¹³⁾ 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-3a, Individual Modification: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	P-1 Line Item Number / Title: 0981 / Items less than \$5 Million	Modification Number / Title: 4 / LT308 - LHD/LHA Davits

ID Code (A=Service Ready, B=Not Service Ready) :						MDAP/MAIS Code:						
Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity (Units in Each)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost (\$ in Millions)	22.037	6.359	0.529	3.378	0.000	3.378	0.000	0.000	0.000	0.000	0.000	32.303
Less PY Advance Procurement (\$ in Millions)	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (\$ in Millions)	22.037	6.359	0.529	3.378	0.000	3.378	0.000	0.000	0.000	0.000	0.000	32.303
Plus CY Advance Procurement (\$ in Millions)	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority (\$ in Millions)	22.037	6.359	0.529	3.378	0.000	3.378	0.000	0.000	0.000	0.000	0.000	32.303
(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:

This shipalt installs Boat (RIB) Davits replacing Land Craft Personnel (LCPL) Davits on the LHA/LHD Class Ships. FY 2019 funding is for LHD 1 design service allocation (DSA) and planning for FY 2020 install. FY 2020 \$2.849M increase is for LHD 1 install.

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Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019			
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9					P-1 Line Item Number / Title: 0981 / Items less than \$5 Million					Modification Number / Title: 4 / LT308 - LHD/LHA Davits			
ID Code (A=Service Ready, B=Not Service Ready) :								MDAP/MAIS Code:					
Models of Systems Affected: Boat (RIB) Davits				Modification Type: TBD				Related RDT&E PEs:					
Financial Plan	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total	
	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	
Procurement													
<i>Modification Item 1 of 1: LT308 - LHD/LHA Davits</i>													
B Kits													
Recurring													
1.1.1) Boat (RIB) Davits - NonOrganic	9 / 7.725	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	9 / 7.725	
<i>Subtotal: Recurring</i>	- / 7.725	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / 0.000	- / 7.725	
<i>Subtotal: LT308 - LHD/LHA Davits</i>	9 / 7.725	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	9 / 7.725	
<i>Subtotal: Procurement, All Modification Items</i>	- / 7.725	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / 0.000	- / 7.725	
Installation													
<i>Modification Item 1 of 1: LT308 - LHD/LHA Davits</i>	- / 14.312	- / 6.359	- / 0.529	- / 3.378	- / 0.000	- / 3.378	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 24.578	
<i>Subtotal: Installation</i>	- / 14.312	- / 6.359	- / 0.529	- / 3.378	- / -	- / 3.378	- / -	- / -	- / -	- / -	- / 0.000	- / 24.578	
Total													
Total Cost (Procurement + Support + Installation)	22.037	6.359	0.529	3.378	0.000	3.378	0.000	0.000	0.000	0.000	0.000	32.303	

UNCLASSIFIED

Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019																					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9										P-1 Line Item Number / Title: 0981 / Items less than \$5 Million										Modification Number / Title: 4 / LT308 - LHD/LHA Davits											
ID Code (A=Service Ready, B=Not Service Ready) :															MDAP/MAIS Code:																
Modification Item 1 of 1: LT308 - LHD/LHA Davits																															
Manufacturer Information																															
Manufacturer Name: Not Specified.															Manufacturer Location: Not Specified..																
Administrative Leadtime (in Months): 0															Production Leadtime (in Months): 0																
Dates		FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024					
Contract Dates																															
Delivery Dates																															
Installation Information																															
Method of Implementation: AIT:: Installation Name: Boat (RIB) Davits																															
Installation Cost		Prior Years		FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total		FY 2021		FY 2022		FY 2023		FY 2024		To Complete		Total							
		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)							
Prior Years		6 / 14.312		2 / 6.359		0 / 0.529		1 / 3.378		0 / 0.000		1 / 3.378		- / -		- / -		- / -		- / -		0 / 0.000		9 / 24.578							
FY 2018		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -							
FY 2019		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -							
FY 2020		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -							
FY 2021		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -							
FY 2022		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -							
FY 2023		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -							
FY 2024		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -							
To Complete		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -							
Total		6 / 14.312		2 / 6.359		0 / 0.529		1 / 3.378		0 / 0.000		1 / 3.378		- / -		- / -		- / -		- / -		0 / 0.000		9 / 24.578							
Installation Schedule																															
	PYS	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				TC	Tot
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4		
In	6	1	-	1	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	9
Out	5	-	-	1	1	-	1	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	9

UNCLASSIFIED

Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019		
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9				P-1 Line Item Number / Title: 0981 / Items less than \$5 Million						Modification Number / Title: 5 / LT309 - Solid-State Lighting (SSL)		
ID Code (A=Service Ready, B=Not Service Ready) :							MDAP/MAIS Code:					
Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity (Units in Each)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost (\$ in Millions)	23.951	0.678	6.406	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	31.035
Less PY Advance Procurement (\$ in Millions)	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (\$ in Millions)	23.951	0.678	6.406	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	31.035
Plus CY Advance Procurement (\$ in Millions)	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority (\$ in Millions)	23.951	0.678	6.406	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	31.035
(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: Procure/Install solid state lighting fixtures to replace fluorescent and incandescent lighting fixtures installed on Amphibious Class ships.												

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Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019			
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9				P-1 Line Item Number / Title: 0981 / Items less than \$5 Million						Modification Number / Title: 5 / LT309 - Solid-State Lighting (SSL)			
ID Code (A=Service Ready, B=Not Service Ready) :								MDAP/MAIS Code:					
Models of Systems Affected: Solid State Lighting				Modification Type: TBD				Related RDT&E PEs:					
Financial Plan	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total	
	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	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: LT309 - Solid-State Lighting (SSL)													
B Kits													
Recurring													
1.1.1) Solid State Lighting - NonOrganic	29 / 12.349	- / -	8 / 3.208	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	37 / 15.557	
<i>Subtotal: Recurring</i>	- / 12.349	- / -	- / 3.208	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / 0.000	- / 15.557	
<i>Subtotal: LT309 - Solid-State Lighting (SSL)</i>	29 / 12.349	- / -	8 / 3.208	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	37 / 15.557	
<i>Subtotal: Procurement, All Modification Items</i>	- / 12.349	- / -	- / 3.208	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / 0.000	- / 15.557	
Support (All Modification Items)													
2.1) Engineering Services	- / 0.750	- / -	- / 0.625	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / 1.375	
<i>Subtotal: Support</i>	- / 0.750	- / -	- / 0.625	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / 0.000	- / 1.375	
Installation													
Modification Item 1 of 1: LT309 - Solid-State Lighting (SSL)	- / 10.852	- / 0.678	- / 2.573	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 14.103	
<i>Subtotal: Installation</i>	- / 10.852	- / 0.678	- / 2.573	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / 0.000	- / 14.103	
Total													
Total Cost (Procurement + Support + Installation)	23.951	0.678	6.406	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	31.035	

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Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019																					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9										P-1 Line Item Number / Title: 0981 / Items less than \$5 Million										Modification Number / Title: 5 / LT309 - Solid-State Lighting (SSL)											
ID Code (A=Service Ready, B=Not Service Ready) :															MDAP/MAIS Code:																
Modification Item 1 of 1: LT309 - Solid-State Lighting (SSL)																															
Manufacturer Information																															
Manufacturer Name: Energy Focus Inc															Manufacturer Location: Solon, OH																
Administrative Leadtime (in Months): 3															Production Leadtime (in Months): 6																
Dates		FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024					
Contract Dates						Dec 2018																									
Delivery Dates						Jun 2019																									
Installation Information																															
Method of Implementation: ALT:: Installation Name: Solid State Lighting																															
Installation Cost		Prior Years		FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total		FY 2021		FY 2022		FY 2023		FY 2024		To Complete		Total							
		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)							
Prior Years		27 / 10.852		2 / 0.678		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.000		29 / 11.530					
FY 2018		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
FY 2019		- / -		- / -		8 / 2.573		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.000		8 / 2.573					
FY 2020		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
FY 2021		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
FY 2022		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
FY 2023		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
FY 2024		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
To Complete		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
Total		27 / 10.852		2 / 0.678		8 / 2.573		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.000		37 / 14.103					
Installation Schedule																															
	PYS	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				TC	Tot
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4		
In	27	2	-	-	-	-	-	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	37
Out	27	-	2	-	-	-	-	-	-	-	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	37

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Exhibit P-3a, Individual Modification: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	P-1 Line Item Number / Title: 0981 / Items less than \$5 Million	Modification Number / Title: 6 / LT314 - Carrier Oil Water Separator

ID Code (A=Service Ready, B=Not Service Ready) :							MDAP/MAIS Code:					
Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity <i>(Units in Each)</i>	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost <i>(\$ in Millions)</i>	9.572	5.000	5.000	3.400	0.000	3.400	1.600	5.000	3.400	0.000	0.000	32.972
Less PY Advance Procurement <i>(\$ in Millions)</i>	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) <i>(\$ in Millions)</i>	9.572	5.000	5.000	3.400	0.000	3.400	1.600	5.000	3.400	0.000	0.000	32.972
Plus CY Advance Procurement <i>(\$ in Millions)</i>	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority <i>(\$ in Millions)</i>	9.572	5.000	5.000	3.400	0.000	3.400	1.600	5.000	3.400	0.000	0.000	32.972
<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:

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.

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Exhibit P-3a, Individual Modification: PB 2020 Navy								Date: March 2019					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9				P-1 Line Item Number / Title: 0981 / Items less than \$5 Million				Modification Number / Title: 6 / LT314 - Carrier Oil Water Separator					
ID Code (A=Service Ready, B=Not Service Ready) :							MDAP/MAIS Code:						
Models of Systems Affected: Carrier Oil Water Separator				Modification Type: TBD				Related RDT&E PEs:					
Financial Plan	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total	
	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	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: LT314 - Carrier Oil Water Separator													
B Kits													
Recurring													
1.1.1) Oil Water Separator - NonOrganic ⁽¹⁴⁾	4 / 2.360	2 / 1.200	2 / 1.200	- / -	- / -	- / -	2 / 1.200	2 / 1.200	- / -	- / -	- / -	12 / 7.160	
Subtotal: Recurring	- / 2.360	- / 1.200	- / 1.200	- / -	- / -	- / -	- / 1.200	- / 1.200	- / -	- / -	- / 0.000	- / 7.160	
Subtotal: LT314 - Carrier Oil Water Separator	4 / 2.360	2 / 1.200	2 / 1.200	- / -	- / -	- / -	2 / 1.200	2 / 1.200	- / -	- / -	- / -	12 / 7.160	
Subtotal: Procurement, All Modification Items	- / 2.360	- / 1.200	- / 1.200	- / -	- / -	- / -	- / 1.200	- / 1.200	- / -	- / -	- / 0.000	- / 7.160	
Installation													
Modification Item 1 of 1: LT314 - Carrier Oil Water Separator	- / 7.212	- / 3.800	- / 3.800	- / 3.400	- / 0.000	- / 3.400	- / 0.400	- / 3.800	- / 3.400	- / 0.000	- / 0.000	- / 25.812	
Subtotal: Installation	- / 7.212	- / 3.800	- / 3.800	- / 3.400	- / -	- / 3.400	- / 0.400	- / 3.800	- / 3.400	- / -	- / 0.000	- / 25.812	
Total													
Total Cost (Procurement + Support + Installation)	9.572	5.000	5.000	3.400	0.000	3.400	1.600	5.000	3.400	0.000	0.000	32.972	

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Exhibit P-3a, Individual Modification: PB 2020 Navy											Date: March 2019																					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9											P-1 Line Item Number / Title: 0981 / Items less than \$5 Million											Modification Number / Title: 6 / LT314 - Carrier Oil Water Separator										
ID Code (A=Service Ready, B=Not Service Ready) :																MDAP/MAIS Code:																
Modification Item 1 of 1: LT314 - Carrier Oil Water Separator																																
Manufacturer Information																																
Manufacturer Name: TBD														Manufacturer Location: TBD																		
Administrative Leadtime <i>(in Months)</i> : 2														Production Leadtime <i>(in Months)</i> : 12																		
Dates		FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024						
Contract Dates		Nov 2017				Nov 2018								Nov 2020																		
Delivery Dates		Nov 2018				Nov 2019								Nov 2021																		
Installation Information																																
Method of Implementation: AIT:: Installation Name: Oil Water Separator																																
Installation Cost		Prior Years		FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total		FY 2021		FY 2022		FY 2023		FY 2024		To Complete		Total								
		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)								
Prior Years		2 / 7.212		2 / 3.400		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.000		4 / 10.612						
FY 2018		- / -		0 / 0.400		2 / 3.300		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.000		2 / 3.700						
FY 2019		- / -		- / -		0 / 0.500		2 / 3.400		0 / 0.000		2 / 3.400		- / -		- / -		- / -		- / -		- / -		0 / 0.000		2 / 3.900						
FY 2020		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -						
FY 2021		- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.400		2 / 3.400		- / -		- / -		- / -		0 / 0.000		2 / 3.800						
FY 2022		- / -		- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.400		2 / 3.400		- / -		- / -		0 / 0.000		2 / 3.800						
FY 2023		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -						
FY 2024		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -						
To Complete		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -						
Total		2 / 7.212		2 / 3.800		2 / 3.800		2 / 3.400		0 / 0.000		2 / 3.400		0 / 0.400		2 / 3.800		2 / 3.400		- / -		0 / 0.000		12 / 25.812								
Installation Schedule																																
	PYS	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				TC	Tot	
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4			
In	2	-	-	2	-	-	-	-	2	-	-	-	2	-	-	-	-	-	2	-	-	-	-	2	-	-	-	-	-	-	12	
Out	2	-	-	-	-	-	-	-	2	-	-	-	2	-	2	-	-	-	-	-	2	-	-	-	-	-	-	-	-	2	12	
Footnotes: ⁽¹⁴⁾ 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). No Changes from PB19																																

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Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019		
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9					P-1 Line Item Number / Title: 0981 / Items less than \$5 Million					Modification Number / Title: 7 / LT318 - Carriers Passive Countermeasures System (PCMS)		
ID Code (A=Service Ready, B=Not Service Ready) :							MDAP/MAIS Code:					
Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity (<i>Units in Each</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost (<i>\$ in Millions</i>)	62.326	19.225	19.450	3.400	0.000	3.400	0.000	0.000	0.000	0.000	0.000	104.401
Less PY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (<i>\$ in Millions</i>)	62.326	19.225	19.450	3.400	0.000	3.400	0.000	0.000	0.000	0.000	0.000	104.401
Plus CY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority (<i>\$ in Millions</i>)	62.326	19.225	19.450	3.400	0.000	3.400	0.000	0.000	0.000	0.000	0.000	104.401
<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: PB 2020 Navy										Date: March 2019			
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9					P-1 Line Item Number / Title: 0981 / Items less than \$5 Million					Modification Number / Title: 7 / 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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total	
	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	
Procurement													
<i>Modification Item 1 of 1: LT318 - Carriers Passive Countermeasures System (PCMS)</i>													
<i>B Kits</i>													
<i>Recurring</i>													
1.1.1) PCMS - Organic	- / 62.326	- / 19.225	- / 19.450	- / 3.400	- / -	- / 3.400	- / -	- / -	- / -	- / -	- / -	- / 104.401	
<i>Subtotal: Recurring</i>	- / 62.326	- / 19.225	- / 19.450	- / 3.400	- / -	- / 3.400	- / -	- / -	- / -	- / -	- / 0.000	- / 104.401	
<i>Subtotal: LT318 - Carriers Passive Countermeasures System (PCMS)</i>	- / 62.326	- / 19.225	- / 19.450	- / 3.400	- / -	- / 3.400	- / -	- / -	- / -	- / -	- / -	- / 104.401	
<i>Subtotal: Procurement, All Modification Items</i>	- / 62.326	- / 19.225	- / 19.450	- / 3.400	- / -	- / 3.400	- / -	- / -	- / -	- / -	- / 0.000	- / 104.401	
Installation													
<i>Subtotal: Installation</i>	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	
Total													
Total Cost (Procurement + Support + Installation)	62.326	19.225	19.450	3.400	0.000	3.400	0.000	0.000	0.000	0.000	0.000	104.401	

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Exhibit P-3a, Individual Modification: PB 2020 Navy						Date: March 2019	
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9				P-1 Line Item Number / Title: 0981 / Items less than \$5 Million		Modification Number / Title: 7 / 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 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024
Contract Dates							
Delivery Dates							

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Exhibit P-3a, Individual Modification: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	P-1 Line Item Number / Title: 0981 / Items less than \$5 Million	Modification Number / Title: 8 / LT322 - LSD Boat Davit

ID Code (A=Service Ready, B=Not Service Ready) :						MDAP/MAIS Code:						
Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity <i>(Units in Each)</i>	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost <i>(\$ in Millions)</i>	14.903	7.963	8.490	5.969	0.000	5.969	6.781	3.032	2.710	0.000	0.000	49.848
Less PY Advance Procurement <i>(\$ in Millions)</i>	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) <i>(\$ in Millions)</i>	14.903	7.963	8.490	5.969	0.000	5.969	6.781	3.032	2.710	0.000	0.000	49.848
Plus CY Advance Procurement <i>(\$ in Millions)</i>	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority <i>(\$ in Millions)</i>	14.903	7.963	8.490	5.969	0.000	5.969	6.781	3.032	2.710	0.000	0.000	49.848
<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:

[FMP Ship Units - LSD Davit] 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.

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Exhibit P-3a, Individual Modification: PB 2020 Navy									Date: March 2019				
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9				P-1 Line Item Number / Title: 0981 / Items less than \$5 Million					Modification Number / Title: 8 / LT322 - LSD Boat Davit				
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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	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)	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> LT322 - LSD Boat Davit													
B Kits													
Recurring													
1.1.1) FMP Ship Units - LSD Davit - NonOrganic ⁽¹⁵⁾	6 / 6.934	2 / 2.381	1 / 1.125	- / -	- / -	- / -	1 / 1.261	- / -	- / -	- / -	- / -	10 / 11.701	
1.1.2) End Item Spares - Organic - Organic	- / -	- / -	- / -	- / -	- / -	- / -	- / -	2 / 2.572	- / -	- / -	- / -	2 / 2.572	
<i>Subtotal: Recurring</i>	- / 6.934	- / 2.381	- / 1.125	- / -	- / -	- / -	- / 1.261	- / 2.572	- / -	- / -	- / 0.000	- / 14.273	
<i>Subtotal: LT322 - LSD Boat Davit</i>	6 / 6.934	2 / 2.381	1 / 1.125	- / -	- / -	- / -	1 / 1.261	2 / 2.572	- / -	- / -	- / -	12 / 14.273	
<i>Subtotal: Procurement, All Modification Items</i>	- / 6.934	- / 2.381	- / 1.125	- / -	- / -	- / -	- / 1.261	- / 2.572	- / -	- / -	- / 0.000	- / 14.273	
Support (All Modification Items)													
2.1) Engineering/Contract/Testing (Nonrecurring)	- / 1.734	- / -	- / 0.027	- / 0.061	- / -	- / 0.061	- / -	- / -	- / -	- / -	- / -	- / 1.822	
<i>Subtotal: Support</i>	- / 1.734	- / -	- / 0.027	- / 0.061	- / -	- / 0.061	- / -	- / -	- / -	- / -	- / 0.000	- / 1.822	
Installation													
<i>Modification Item 1 of 1:</i> LT322 - LSD Boat Davit	- / 6.235	- / 5.582	- / 7.338	- / 5.908	- / 0.000	- / 5.908	- / 5.520	- / 0.460	- / 2.710	- / 0.000	- / 0.000	- / 33.753	
<i>Subtotal: Installation</i>	- / 6.235	- / 5.582	- / 7.338	- / 5.908	- / -	- / 5.908	- / 5.520	- / 0.460	- / 2.710	- / -	- / 0.000	- / 33.753	
Total													
Total Cost (Procurement + Support + Installation)	14.903	7.963	8.490	5.969	0.000	5.969	6.781	3.032	2.710	0.000	0.000	49.848	

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Exhibit P-3a, Individual Modification: PB 2020 Navy											Date: March 2019																					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9											P-1 Line Item Number / Title: 0981 / Items less than \$5 Million											Modification Number / Title: 8 / LT322 - LSD Boat Davit										
ID Code (A=Service Ready, B=Not Service Ready) :																MDAP/MAIS Code:																
Modification Item 1 of 1: LT322 - LSD Boat Davit																																
Manufacturer Information																																
Manufacturer Name: Oldenburg Group Inc														Manufacturer Location: Iron River, MI																		
Administrative Leadtime <i>(in Months)</i> : 3														Production Leadtime <i>(in Months)</i> : 20																		
Dates		FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024						
Contract Dates		Feb 2018				Aug 2019								Dec 2020																		
Delivery Dates		Oct 2019				Apr 2021								Aug 2022																		
Installation Information																																
Method of Implementation: Industrial/AIT:: Installation Name: FMP Ship Units - LSD Davit																																
Installation Cost		Prior Years		FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total		FY 2021		FY 2022		FY 2023		FY 2024		To Complete		Total								
		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)								
Prior Years		1 / 5.661		1 / 3.921		3 / 7.338		1 / 2.555		0 / 0.000		1 / 2.555		- / -		- / -		- / -		- / -		0 / 0.000		6 / 19.475								
FY 2018		0 / 0.574		0 / 1.362		- / -		1 / 2.555		0 / 0.000		1 / 2.555		1 / 2.606		- / -		- / -		- / -		0 / 0.000		2 / 7.097								
FY 2019		- / -		0 / 0.299		- / -		0 / 0.798		0 / 0.000		0 / 0.798		1 / 2.606		- / -		- / -		- / -		0 / 0.000		1 / 3.703								
FY 2020		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -								
FY 2021		- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.308		0 / 0.460		1 / 2.710		- / -		0 / 0.000		1 / 3.478								
FY 2022		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -								
FY 2023		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -								
FY 2024		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -								
To Complete		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -								
Total		1 / 6.235		1 / 5.582		3 / 7.338		2 / 5.908		0 / 0.000		2 / 5.908		2 / 5.520		0 / 0.460		1 / 2.710		- / -		0 / 0.000		10 / 33.753								
Installation Schedule																																
	PYS	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				TC	Tot	
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4			
In	1	-	-	1	-	-	1	1	1	-	1	1	-	-	-	2	-	-	-	-	-	-	-	-	1	-	-	-	-	-	10	
Out	-	-	1	-	-	1	-	1	-	-	2	-	1	-	-	-	1	1	1	-	-	-	-	-	-	-	-	-	1	-	10	
Method of Implementation (Organic): End Item Spares - Organic																																
																Installation Quantity: 2																
Footnotes:																																

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Exhibit P-3a, Individual Modification: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	P-1 Line Item Number / Title: 0981 / Items less than \$5 Million	Modification Number / Title: 8 / LT322 - LSD Boat Davit
ID Code (A=Service Ready, B=Not Service Ready) :		MDAP/MAIS Code:
(15) 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). LSD 48 FY18 SRA installation was deferred so that unit will now be installed in FY20 onboard LSD 49. The SLAD unit previously procured in FY18 for LSD 49 will now be installed in FY21 onboard LSD 42. Installation costs vary depending on current port rates.		

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Exhibit P-3a, Individual Modification: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	P-1 Line Item Number / Title: 0981 / Items less than \$5 Million	Modification Number / Title: 9 / LT321 ESB SOF Backfit

ID Code (A=Service Ready, B=Not Service Ready) :						MDAP/MAIS Code:						
Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity (Units in Each)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost (\$ in Millions)	22.259	15.404	3.833	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	41.496
Less PY Advance Procurement (\$ in Millions)	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (\$ in Millions)	22.259	15.404	3.833	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	41.496
Plus CY Advance Procurement (\$ in Millions)	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority (\$ in Millions)	22.259	15.404	3.833	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	41.496
(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:

Funds provided for ESB 3 and 4 Special Operation Forces (SOF) components. Efforts include ship changes necessary to 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: PB 2020 Navy										Date: March 2019			
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9				P-1 Line Item Number / Title: 0981 / Items less than \$5 Million						Modification Number / Title: 9 / 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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	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)	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 ⁽¹⁶⁾	2 / 15.059	1 / 11.642	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	3 / 26.701	
Subtotal: Recurring	- / 15.059	- / 11.642	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / 0.000	- / 26.701	
Subtotal: LT321 ESB SOF Backfit	2 / 15.059	1 / 11.642	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	3 / 26.701	
Subtotal: Procurement, All Modification Items	- / 15.059	- / 11.642	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / 0.000	- / 26.701	
Installation													
Modification Item 1 of 1: LT321 ESB SOF Backfit	- / 7.200	- / 3.762	- / 3.833	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 14.795	
Subtotal: Installation	- / 7.200	- / 3.762	- / 3.833	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / 0.000	- / 14.795	
Total													
Total Cost (Procurement + Support + Installation)	22.259	15.404	3.833	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	41.496	

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Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019																					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9										P-1 Line Item Number / Title: 0981 / Items less than \$5 Million										Modification Number / Title: 9 / 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 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024					
Contract Dates																															
Delivery Dates																															
Installation Information																															
Method of Implementation: [none specified]:: Installation Name: LT321 ESB SOF .																															
Installation Cost		Prior Years	FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total		FY 2021		FY 2022		FY 2023		FY 2024		To Complete		Total								
		Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)								
Prior Years		1 / 7.200		1 / 3.762		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.000		2 / 10.962							
FY 2018		- / -		- / -		1 / 3.833		- / -		- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.000		1 / 3.833							
FY 2019		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -							
FY 2020		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -							
FY 2021		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -							
FY 2022		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -							
FY 2023		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -							
FY 2024		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -							
To Complete		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -							
Total		1 / 7.200		1 / 3.762		1 / 3.833		- / -		- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.000		3 / 14.795							
Installation Schedule																															
	PYS	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				TC	Tot
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4		
In	1	-	-	1	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3
Out	1	-	-	-	1	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3
Footnotes: ⁽¹⁶⁾ LT321- The funding 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-3a, Individual Modification: PB 2020 Navy										Date: March 2019		
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 / LT327 - Modular Refrigeration System.		
ID Code (A=Service Ready, B=Not Service Ready) :							MDAP/MAIS Code:					
Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity <i>(Units in Each)</i>	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost <i>(\$ in Millions)</i>	3.400	2.567	0.000	2.600	0.000	2.600	4.500	4.500	4.500	4.500	6.900	33.467
Less PY Advance Procurement <i>(\$ in Millions)</i>	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) <i>(\$ in Millions)</i>	3.400	2.567	0.000	2.600	0.000	2.600	4.500	4.500	4.500	4.500	6.900	33.467
Plus CY Advance Procurement <i>(\$ in Millions)</i>	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority <i>(\$ in Millions)</i>	3.400	2.567	0.000	2.600	0.000	2.600	4.500	4.500	4.500	4.500	6.900	33.467
<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: Initial Modular Refrigeration System (MRS) installation completed Dec 2018 (during CVN71 FY18 Planned Incremental Availability). Changes from PB19.: No MRS funding in FY19. \$2.6M increase from FY19 to FY20: Future Modular Refrigeration System (MRS) installations currently planned for 1 hull per year starting in FY21 (procurement in FY20). [Modular Reefer 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 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 18 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.												

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Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019			
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 / LT327 - Modular Refrigeration System.			
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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total	
	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	
Procurement													
<i>Modification Item 1 of 1: LT327 - Modular Refrigeration System.</i>													
<i>B Kits</i>													
<i>Recurring</i>													
1.1.1) Modular Reefer System - NonOrganic ⁽¹⁷⁾	15 / 3.400	- / -	- / -	18 / 2.300	- / -	18 / 2.300	18 / 2.300	18 / 2.300	18 / 2.300	18 / 2.300	18 / 2.300	123 / 17.200	
<i>Subtotal: Recurring</i>	- / 3.400	- / -	- / -	- / 2.300	- / -	- / 2.300	- / 2.300	- / 2.300	- / 2.300	- / 2.300	- / 2.300	- / 17.200	
<i>Subtotal: LT327 - Modular Refrigeration System.</i>	15 / 3.400	- / -	- / -	18 / 2.300	- / -	18 / 2.300	18 / 2.300	18 / 2.300	18 / 2.300	18 / 2.300	18 / 2.300	123 / 17.200	
<i>Subtotal: Procurement, All Modification Items</i>	- / 3.400	- / -	- / -	- / 2.300	- / -	- / 2.300	- / 2.300	- / 2.300	- / 2.300	- / 2.300	- / 2.300	- / 17.200	
Installation													
<i>Modification Item 1 of 1: LT327 - Modular Refrigeration System.</i>													
<i>Subtotal: Installation</i>	- / 0.000	- / 2.567	- / 0.000	- / 0.300	- / 0.000	- / 0.300	- / 2.200	- / 2.200	- / 2.200	- / 2.200	- / 4.600	- / 16.267	
Total													
Total Cost (Procurement + Support + Installation)	3.400	2.567	0.000	2.600	0.000	2.600	4.500	4.500	4.500	4.500	6.900	33.467	

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Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019																					
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 / LT327 - Modular Refrigeration System.											
ID Code (A=Service Ready, B=Not Service Ready) :															MDAP/MAIS Code:																
Modification Item 1 of 1: LT327 - Modular Refrigeration System.																															
Manufacturer Information																															
Manufacturer Name: DRS Marlo Coil															Manufacturer Location: High Ridge, MO																
Administrative Leadtime <i>(in Months)</i> : 2															Production Leadtime <i>(in Months)</i> : 10																
Dates		FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024					
Contract Dates						Dec 2018				Dec 2019				Dec 2020																	
Delivery Dates						Oct 2019				Oct 2020				Oct 2021																	
Installation Information																															
Method of Implementation: AIT:: Installation Name: Modular Reefer System																															
Installation Cost		Prior Years		FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total		FY 2021		FY 2022		FY 2023		FY 2024		To Complete		Total							
		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)							
Prior Years		- / -		15 / 2.567		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.000		15 / 2.567							
FY 2018		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -							
FY 2019		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -							
FY 2020		- / -		- / -		- / -		0 / 0.300		0 / 0.000		0 / 0.300		18 / 1.900		- / -		- / -		- / -		0 / 0.000		18 / 2.200							
FY 2021		- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.300		18 / 1.900		- / -		- / -		0 / 0.000		18 / 2.200							
FY 2022		- / -		- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.300		18 / 1.900		- / -		0 / 0.000		18 / 2.200							
FY 2023		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.300		18 / 1.900		0 / 0.000		18 / 2.200							
FY 2024		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.300		18 / 1.900		18 / 2.200							
To Complete		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		18 / 2.700		18 / 2.700							
Total		- / -		15 / 2.567		- / -		0 / 0.300		0 / 0.000		0 / 0.300		18 / 2.200		18 / 2.200		18 / 2.200		18 / 2.200		36 / 4.600		123 / 16.267							
Installation Schedule																															
	PYS	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				TC	Tot
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4		
In	-	-	15	-	-	-	-	-	-	-	-	-	-	-	-	18	-	-	18	-	-	-	18	-	-	-	-	-	18	36	123
Out	-	-	-	-	-	-	-	15	-	-	-	-	-	-	-	-	-	18	-	-	18	-	-	-	-	-	-	-	-	72	123
Footnotes: ⁽¹⁷⁾ 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) No changes from PB19.																															

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Exhibit P-40, Budget Line Item Justification: PB 2020 Navy										Date: March 2019		
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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity (<i>Units in Each</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost (<i>\$ in Millions</i>)	50.601	2.656	2.966	2.961	0.000	2.961	3.042	3.094	3.155	3.219	60.528	132.222
Less PY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (<i>\$ in Millions</i>)	50.601	2.656	2.966	2.961	0.000	2.961	3.042	3.094	3.155	3.219	60.528	132.222
Plus CY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority (<i>\$ in Millions</i>)	50.601	2.656	2.966	2.961	0.000	2.961	3.042	3.094	3.155	3.219	60.528	132.222
<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, Enhanced Maritime Biological Detection (EMBD) system and Dismounted Reconnaissance Sets, and Outfits (DRSKO) has been validated by CNO in associated Joint Operational Requirements Documents and/or Capability Production 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 / 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 127. [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 - 4 / JBPD BLK 1]: The JBPD Block I will provide the Navy with automated, knowledge-based capability to detect and identify biological warfare agents in less than 20 minutes. The inventory objective for shipboard installations is 76.												

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Exhibit P-40, Budget Line Item Justification: PB 2020 Navy		Date: March 2019	
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			
[P3A - 5 / 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 183. [P3A - 6 / EMBD]: The Enhanced Maritime Biological Detection (EMBD) is a new acquisition program, which will provide lifecycle replacement kits for existing JBPDS system installations. Seven (7) ships require backfit of JBPDS, but Navy is awaiting JBPDS shells from Joint CBDP before installations can occur. EMBD Whole system is intended to install a JBPDS frame/shell with EMBD upgrade kit onto ships still requiring JBPDS. The inventory objective for shipboard installations is 7. [P3A - 7 / IPDS-LR Heater]: The IPDS-LR Heater Upgrade provides the ability for IPDS-LR to function in various extreme environmental conditions that may cause system degradation and ultimately failure. This is a new, emergent requirement to ensure automated chemical agent detection is operationally available. The equipment development and procurement for this upgrade is funded out of the Joint Service CBDP Budget and is expected to be provided to Navy by mid FY19. The Navy is required to fund the integration and installation. Inventory objective for shipboard installations is 89. [P3A - 8 / CW001 CHEMICAL WARFARE PROGRAM DRSKO STOWAGE]: The CBRN Dismounted Reconnaissance Sets, Kits, and Outfits (DRSKO) consists of portable, commercial and government off-the-shelf equipment which provides Visit Board Search and Seizure (VBSS) forces with the capability to detect or deny the presence of Weapons of Mass Destruction (WMD) in support of WMD Interdiction (WMD-I) missions. This installation will install shelving and provide controlled access to support proper stowage of the Joint developed CBRN DRSKO system. The inventory objective for shipboard installations is 4. [P3A - 9 / CW001 CHEMICAL WARFARE PROGRAM EMBD UPGRADE KIT]: OPNAVINST 3400.10G articulates U.S. Navy Chemical, Biological and Radiological Defense (CBRD) policy and establishes functional responsibilities to ensure the highest level of the Fleet readiness and warfighting sustainability in a CBR environment. The Enhanced Maritime Biological Detection (EMBD) kit is intended as a lifecycle replacement for the JBPDS system, and will include improved detection and identification capabilities. The equipment procurement is funded out of the Joint Service Chemical Biological Defense Program Budget.			

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Exhibit P-40, Budget Line Item Justification: PB 2020 Navy								Date: March 2019		
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										
Exhibits Schedule					Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Exhibit Type	Title*	Subexhibits	ID CD	MDAP/MAIS Code	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)
P-3a	1 / CW001 CHEMICAL WARFARE PROGRAM IPDS/LR (TBD)				- / 19.110	- / 2.255	- / 1.873	- / 1.411	- / 0.000	- / 1.411
P-3a	2 / CW001 CHEMICAL WARFARE PROGRAM JBAIDS (TBD)				- / 5.126	- / 0.000	- / 0.000	- / 0.090	- / 0.000	- / 0.090
P-3a	3 / CW001 CHEMICAL WARFARE PROGRAM JBAIDS REFRIGERATION UPGRADE (TBD)				- / 1.780	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000
P-3a	4 / CW001 CHEMICAL WARFARE PROGRAM JBPDS BLK 1 (TBD)				- / 24.585	- / 0.000	- / 0.000	- / 0.200	- / 0.000	- / 0.200
P-3a	5 / CW001 CHEMICAL WARFARE PROGRAM NGCD (TBD)				- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000
P-3a	6 / CW001 CHEMICAL WARFARE PROGRAM EMBD WHOLE SYSTEM (TBD)				- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000
P-3a	7 / CW001 CHEMICAL WARFARE PROGRAM IPDS-LR HEATER UPGRADE (TBD)				- / 0.000	- / 0.000	- / 0.663	- / 1.108	- / 0.000	- / 1.108
P-3a	8 / CW001 CHEMICAL WARFARE PROGRAM DRSKO STOWAGE (TBD)				- / 0.000	- / 0.401	- / 0.430	- / 0.152	- / 0.000	- / 0.152
P-3a	9 / CW001 CHEMICAL WARFARE PROGRAM EMBD UPGRADE KIT (TBD)				- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000
P-40	Total Gross/Weapon System Cost				- / 50.601	- / 2.656	- / 2.966	- / 2.961	- / 0.000	- / 2.961
Exhibits Schedule					FY 2021	FY 2022	FY 2023	FY 2024	To Complete	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-3a	1 / CW001 CHEMICAL WARFARE PROGRAM IPDS/LR (TBD)				- / 0.410	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 25.059
P-3a	2 / CW001 CHEMICAL WARFARE PROGRAM JBAIDS (TBD)				- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 5.216
P-3a	3 / CW001 CHEMICAL WARFARE PROGRAM JBAIDS REFRIGERATION UPGRADE (TBD)				- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 1.780
P-3a	4 / CW001 CHEMICAL WARFARE PROGRAM JBPDS BLK 1 (TBD)				- / 0.910	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 25.695
P-3a	5 / CW001 CHEMICAL WARFARE PROGRAM NGCD (TBD)				- / 0.000	- / 0.435	- / 2.377	- / 2.762	- / 57.048	- / 62.622
P-3a	6 / CW001 CHEMICAL WARFARE PROGRAM EMBD WHOLE SYSTEM (TBD)				- / 0.400	- / 2.087	- / 0.370	- / 0.407	- / 0.000	- / 3.264
P-3a	7 / CW001 CHEMICAL WARFARE PROGRAM IPDS-LR HEATER UPGRADE (TBD)				- / 1.322	- / 0.226	- / 0.000	- / 0.000	- / 0.000	- / 3.319
P-3a	8 / CW001 CHEMICAL WARFARE PROGRAM DRSKO STOWAGE (TBD)				- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.983
P-3a	9 / CW001 CHEMICAL WARFARE PROGRAM EMBD UPGRADE KIT (TBD)				- / 0.000	- / 0.346	- / 0.408	- / 0.050	- / 3.480	- / 4.284
P-40	Total Gross/Weapon System Cost				- / 3.042	- / 3.094	- / 3.155	- / 3.219	- / 60.528	- / 132.222
*Title represents 1) the Number / Title for Items; 2) the Number / Title [DODIC] for Ammunition; and/or 3) the Number / Title (Modification Type) for Modifications.										
Note: Totals in this Exhibit P-40 set may not be exact or sum exactly due to rounding.										

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Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019		
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9					P-1 Line Item Number / Title: 0989 / Chemical Warfare Detectors					Modification Number / Title: 1 / CW001 CHEMICAL WARFARE PROGRAM IPDS/LR		
ID Code (A=Service Ready, B=Not Service Ready) :							MDAP/MAIS Code:					
Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity (<i>Units in Each</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost (<i>\$ in Millions</i>)	19.110	2.255	1.873	1.411	0.000	1.411	0.410	0.000	0.000	0.000	0.000	25.059
Less PY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (<i>\$ in Millions</i>)	19.110	2.255	1.873	1.411	0.000	1.411	0.410	0.000	0.000	0.000	0.000	25.059
Plus CY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority (<i>\$ in Millions</i>)	19.110	2.255	1.873	1.411	0.000	1.411	0.410	0.000	0.000	0.000	0.000	25.059
<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: OPNAVINST 3400.10G articulates U.S. Navy Chemical, Biological and Radiological Defense (CBRD) policy and establishes functional responsibilities to ensure the highest level of the Fleet readiness and warfighting sustainability in a CBR environment. CBRD Improved Point Detection System/Lifecycle Replacement (IPDS/LR) provides shipboard point detection system for detecting and identifying nerve and blister agent contamination presence. The equipment procurement is funded out of the Joint Service Chemical Biological Defense Program Budget. [IPDS/LR] Remarks: A total of one hundred and seven (107) completed. DDG-106 started Q1 FY18, but will not officially finish until late Q3 FY18 when the system operational verification test (SOVT) can be accomplished. Planned installations have increased from 125 at PB19 submission to 127. Removed the two (2) previously planned installations at the Aegis Ashore facilities in Romania and Poland since it was determined these facilities would keep their current capability until NGCD is fielded. Added four (4) CG-47 Class ships back into the planned schedule due to delays in the Joint developed NGCD. CGs added back into plan are CG-67, 68, 70, and 71.												

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Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019			
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9					P-1 Line Item Number / Title: 0989 / Chemical Warfare Detectors					Modification Number / Title: 1 / CW001 CHEMICAL WARFARE PROGRAM IPDS/LR			
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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total	
	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	
Procurement													
<i>Modification Item 1 of 1:</i> CW001 CHEMICAL WARFARE PROGRAM IPDS/LR													
B Kits													
Recurring													
1.1.1) IPDS/LR - NonOrganic ⁽¹⁾	104 / 0.000	9 / 0.000	7 / 0.000	5 / 0.000	- / -	5 / 0.000	2 / 0.000	- / -	- / -	- / -	- / -	127 / 0.000	
<i>Subtotal: Recurring</i>	- / 0.000	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / 0.000	
<i>Subtotal: CW001 CHEMICAL WARFARE PROGRAM IPDS/LR</i>	104 / 0.000	9 / 0.000	7 / 0.000	5 / 0.000	- / -	5 / 0.000	2 / 0.000	- / -	- / -	- / -	- / -	127 / 0.000	
<i>Subtotal: Procurement, All Modification Items</i>	- / 0.000	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / 0.000	
Installation													
<i>Modification Item 1 of 1:</i> CW001 CHEMICAL WARFARE PROGRAM IPDS/LR	- / 19.110	- / 2.255	- / 1.873	- / 1.411	- / 0.000	- / 1.411	- / 0.410	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 25.059	
<i>Subtotal: Installation</i>	- / 19.110	- / 2.255	- / 1.873	- / 1.411	- / -	- / 1.411	- / 0.410	- / -	- / -	- / -	- / 0.000	- / 25.059	
Total													
Total Cost (Procurement + Support + Installation)	19.110	2.255	1.873	1.411	0.000	1.411	0.410	0.000	0.000	0.000	0.000	25.059	

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Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019																					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9										P-1 Line Item Number / Title: 0989 / Chemical Warfare Detectors										Modification Number / Title: 1 / CW001 CHEMICAL WARFARE PROGRAM IPDS/LR											
ID Code (A=Service Ready, B=Not Service Ready) :															MDAP/MAIS Code:																
Modification Item 1 of 1: CW001 CHEMICAL WARFARE PROGRAM IPDS/LR																															
Manufacturer Information																															
Manufacturer Name: TBD															Manufacturer Location: TBD																
Administrative Leadtime (in Months): 0															Production Leadtime (in Months): 0																
Dates		FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024					
Contract Dates																															
Delivery Dates																															
Installation Information																															
Method of Implementation: AIT:: Installation Name: IPDS/LR																															
Installation Cost		Prior Years	FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total		FY 2021		FY 2022		FY 2023		FY 2024		To Complete		Total								
		Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)										
Prior Years		104 / 19.110		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.000		104 / 19.110							
FY 2018		- / -		9 / 2.255		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.000		9 / 2.255							
FY 2019		- / -		- / -		7 / 1.873		- / -		- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.000		7 / 1.873							
FY 2020		- / -		- / -		- / -		5 / 1.411		0 / 0.000		5 / 1.411		- / -		- / -		- / -		- / -		0 / 0.000		5 / 1.411							
FY 2021		- / -		- / -		- / -		- / -		- / -		- / -		2 / 0.410		- / -		- / -		- / -		0 / 0.000		2 / 0.410							
FY 2022		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -							
FY 2023		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -							
FY 2024		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -							
To Complete		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -							
Total		104 / 19.110		9 / 2.255		7 / 1.873		5 / 1.411		0 / 0.000		5 / 1.411		2 / 0.410		- / -		- / -		- / -		0 / 0.000		127 / 25.059							
Installation Schedule																															
	PYS	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				TC	Tot
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4		
In	104	1	1	3	4	1	1	2	3	-	1	2	2	-	1	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Out	104	-	1	4	4	1	1	2	3	-	1	2	2	-	1	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Footnotes:																															
⁽¹⁾ IPDS-LR plan - The procurement costs are specifically referring to Installation and Design Service Allocation (DSA) costs as there are no equipment procurement costs with any detector system installed. DSA costs are for government engineering oversight/support in preparation for ship installation and ship class planning yards for engineering services which include ship check, development and approval of ship installation drawings (SIDs), Ship Selected Record changes, Bill of Material (BOM), onsite planning yard engineering support during installation to answer liaison action record (LARs), and other engineering																															

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Exhibit P-3a, Individual Modification: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	P-1 Line Item Number / Title: 0989 / Chemical Warfare Detectors	Modification Number / Title: 1 / CW001 CHEMICAL WARFARE PROGRAM IPDS/LR
ID Code (A=Service Ready, B=Not Service Ready) :		MDAP/MAIS Code:
services depending on the planning yard. DSA costs are generally funded up to one year prior to planned installation due to drawing development lead time and installation preparation efforts. These costs are ship specific since drawings are developed for each ship, not class of ship, excluding IPDS-LR for DDG Class ships which are class-wide drawings. - FY18 installations total nine (9) vice previously planned eleven (11). Congressional mark in FY18 of \$380K necessitated need to lower planned installation quantities by two (2). Ships to include three (3) LSD-41 Class ships at \$207K each, three (3) CG-47 Class ships at \$220K each, and three (3) DDG-51 Class ships at \$190K each. Total installation cost for IPDS-LR in FY18 is \$1,851K for nine (9) ships plus \$403.8K for DSA costs. - FY19 installations total seven (7) ships to include two (2) LSD-49 Class ships at \$200K each, two (2) CG-47 Class ships at \$220K each, one (1) DDG-51 Class ship at \$190K each, and two (2) LCS-2 Class ship at \$249.2K each. Total installation costs for FY19 is \$1,528.4K plus \$345K for DSA costs. - FY20 installations total five(5) ships to include one (1) LDS-49 Class at \$197K and four (4) CG-47 Class ships at \$203.5K each. Total installation costs for IPDS-LR in FY20 is \$1,011K plus \$400K for DSA costs.		

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Exhibit P-3a, Individual Modification: PB 2020 Navy						Date: March 2019					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9				P-1 Line Item Number / Title: 0989 / Chemical Warfare Detectors				Modification Number / Title: 2 / CW001 CHEMICAL WARFARE PROGRAM JBAIDS			

ID Code (A=Service Ready, B=Not Service Ready) :						MDAP/MAIS Code:						
Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity (Units in Each)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost (\$ in Millions)	5.126	0.000	0.000	0.090	0.000	0.090	0.000	0.000	0.000	0.000	0.000	5.216
Less PY Advance Procurement (\$ in Millions)	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (\$ in Millions)	5.126	0.000	0.000	0.090	0.000	0.090	0.000	0.000	0.000	0.000	0.000	5.216
Plus CY Advance Procurement (\$ in Millions)	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority (\$ in Millions)	5.126	0.000	0.000	0.090	0.000	0.090	0.000	0.000	0.000	0.000	0.000	5.216
(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:

OPNAVINST 3400.10G articulates U.S. Navy Chemical, Biological and Radiological Defense (CBRD) policy and establishes functional responsibilities to ensure the highest level of the Fleet readiness and warfighting sustainability in a CBR environment. JBAIDS systems will identify and quantify biological organisms of operational concern and other pathogens of clinical significance for confirmatory and prognostic purposes. The CENTCOM HR urgent need (dated Aug 2009) modifies the JBAIDS ORD (dated May 2003) with the addition of detection capability for the 2009/A/H1N1 influenza. The equipment procurement is funded out of the Joint Service CBDP Budget P-1 Item Nomenclature: JBAIDS. Beginning in FY13, system will install with refrigeration unit.

[JBAIDS] Remarks: A total of twenty two (22) completed of twenty three (23) planned. The LHA 7 installation will occur during PSA in FY20. LHA 8 has successfully added JBAIDS to the baseline and should have the system installed during construction.

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Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019			
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9					P-1 Line Item Number / Title: 0989 / Chemical Warfare Detectors					Modification Number / Title: 2 / CW001 CHEMICAL WARFARE PROGRAM JBAIDS			
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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total	
	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	
Procurement													
<i>Modification Item 1 of 1:</i> CW001 CHEMICAL WARFARE PROGRAM JBAIDS													
B Kits													
Non-Recurring													
1.1.1) JBAIDS - NonOrganic ⁽²⁾	22 / 0.000	- / -	- / -	1 / 0.000	- / -	1 / 0.000	- / -	- / -	- / -	- / -	- / -	23 / 0.000	
<i>Subtotal: Non-Recurring</i>	- / 0.000	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / 0.000	
<i>Subtotal: CW001 CHEMICAL WARFARE PROGRAM JBAIDS</i>	22 / 0.000	- / -	- / -	1 / 0.000	- / -	1 / 0.000	- / -	- / -	- / -	- / -	- / -	23 / 0.000	
<i>Subtotal: Procurement, All Modification Items</i>	- / 0.000	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / 0.000	
Installation													
<i>Modification Item 1 of 1:</i> CW001 CHEMICAL WARFARE PROGRAM JBAIDS	- / 5.126	- / 0.000	- / 0.000	- / 0.090	- / 0.000	- / 0.090	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 5.216	
<i>Subtotal: Installation</i>	- / 5.126	- / -	- / -	- / 0.090	- / -	- / 0.090	- / -	- / -	- / -	- / -	- / 0.000	- / 5.216	
Total													
Total Cost (Procurement + Support + Installation)	5.126	0.000	0.000	0.090	0.000	0.090	0.000	0.000	0.000	0.000	0.000	5.216	

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Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019																					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9										P-1 Line Item Number / Title: 0989 / Chemical Warfare Detectors										Modification Number / Title: 2 / CW001 CHEMICAL WARFARE PROGRAM JBAIDS											
ID Code (A=Service Ready, B=Not Service Ready) :															MDAP/MAIS Code:																
Modification Item 1 of 1: CW001 CHEMICAL WARFARE PROGRAM JBAIDS																															
Manufacturer Information																															
Manufacturer Name: TBD															Manufacturer Location: TBD																
Administrative Leadtime (in Months): 0															Production Leadtime (in Months): 0																
Dates		FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024					
Contract Dates																															
Delivery Dates																															
Installation Information																															
Method of Implementation: AIT:: Installation Name: JBAIDS																															
Installation Cost		Prior Years	FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total		FY 2021		FY 2022		FY 2023		FY 2024		To Complete		Total								
		Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)								
Prior Years		22 / 5.126		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.000		22 / 5.126							
FY 2018		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -							
FY 2019		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -							
FY 2020		- / -		- / -		- / -		1 / 0.090		0 / 0.000		1 / 0.090		- / -		- / -		- / -		- / -		0 / 0.000		1 / 0.090							
FY 2021		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -							
FY 2022		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -							
FY 2023		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -							
FY 2024		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -							
To Complete		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -							
Total		22 / 5.126		- / -		- / -		1 / 0.090		0 / 0.000		1 / 0.090		- / -		- / -		- / -		- / -		- / -		23 / 5.216							
Installation Schedule																															
	PYS	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				TC	Tot
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4		
In	22	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	23
Out	22	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	23
Footnotes:																															
(2) There are no equipment procurement costs with any detector system installed. The Design Service Allocation (DSA) costs are for government engineering oversight/support in preparation for ship installation and ship class planning yards for engineering services which include ship check, development and approval of ship installation drawings (SIDs), Ship Selected Record changes, Bill of Material (BOM), onsite planning yard engineering support during installation to answer liaison action record (LARs), and other engineering services depending on the planning yard. DSA costs are generally funded up to one year prior																															

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Exhibit P-3a, Individual Modification: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	P-1 Line Item Number / Title: 0989 / Chemical Warfare Detectors	Modification Number / Title: 2 / CW001 CHEMICAL WARFARE PROGRAM JBAIDS
ID Code (A=Service Ready, B=Not Service Ready) :		MDAP/MAIS Code:
to planned installation due to drawing development lead time and installation preparation efforts. These costs are ship specific since drawings are developed for each ship, not class of ship. - FY20 installations include one (1) LHA-6 Class ship at \$90K.		

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Exhibit P-3a, Individual Modification: PB 2020 Navy						Date: March 2019					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9				P-1 Line Item Number / Title: 0989 / Chemical Warfare Detectors				Modification Number / Title: 3 / CW001 CHEMICAL WARFARE PROGRAM JBAIDS REFRIGERATION UPGRADE			

ID Code (A=Service Ready, B=Not Service Ready) :						MDAP/MAIS Code:						
Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity (<i>Units in Each</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost (<i>\$ in Millions</i>)	1.780	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.780
Less PY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (<i>\$ in Millions</i>)	1.780	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.780
Plus CY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority (<i>\$ in Millions</i>)	1.780	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.780
(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>)	-	-	-	-	-	-	-	-	-	-	-	-

Description:

OPNAVINST 3400.10G articulates U.S. Navy Chemical, Biological and Radiological Defense (CBRD) policy and establishes functional responsibilities to ensure the highest level of Fleet readiness and warfighting sustainability in a CBR environment. JBAIDS systems will detect and identify biological organisms of operational concern and other pathogens of clinical significance for confirmatory and prognostic purposes. The CENTCOM HR urgent need (dated Aug 2009) modifies the JBAIDS ORD (dated May 2003) with the addition of detection capability for the 2009/A/H1N1 influenza. This requires the installation of added support equipment, hard-wired freezers. The equipment procurement is funded out of the Joint Service CBDP Budget P-1 Item Nomenclature: JBAIDS.

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Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019			
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9					P-1 Line Item Number / Title: 0989 / Chemical Warfare Detectors					Modification Number / Title: 3 / CW001 CHEMICAL WARFARE PROGRAM JBAIDS REFRIGERATION 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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total	
	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	
Procurement													
<i>Modification Item 1 of 1:</i> CW001 CHEMICAL WARFARE PROGRAM JBAIDS REFRIGERATION UPGRADE													
B Kits													
Recurring													
1.1.1) CHEMICAL WARFARE PROGRAM JBAIDS REFRIGERATION UPGRADE - Organic	- / 1.780	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / 1.780	
<i>Subtotal: Recurring</i>	- / 1.780	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / 0.000	- / 1.780	
<i>Subtotal: CW001 CHEMICAL WARFARE PROGRAM JBAIDS REFRIGERATION UPGRADE</i>	- / 1.780	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / 1.780	
<i>Subtotal: Procurement, All Modification Items</i>	- / 1.780	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / 0.000	- / 1.780	
Installation													
<i>Subtotal: Installation</i>	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	
Total													
Total Cost (Procurement + Support + Installation)	1.780	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.780	

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Exhibit P-3a, Individual Modification: PB 2020 Navy								Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9				P-1 Line Item Number / Title: 0989 / Chemical Warfare Detectors			Modification Number / Title: 3 / CW001 CHEMICAL WARFARE PROGRAM JBAIDS REFRIGERATION UPGRADE	
ID Code (A=Service Ready, B=Not Service Ready) :						MDAP/MAIS Code:		
Modification Item 1 of 1: CW001 CHEMICAL WARFARE PROGRAM JBAIDS REFRIGERATION UPGRADE								
Manufacturer Information								
Manufacturer Name: TBD					Manufacturer Location: TBD			
Administrative Leadtime (<i>in Months</i>): 0					Production Leadtime (<i>in Months</i>): 0			
Dates	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	
Contract Dates								
Delivery Dates								

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Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019		
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9					P-1 Line Item Number / Title: 0989 / Chemical Warfare Detectors					Modification Number / Title: 4 / CW001 CHEMICAL WARFARE PROGRAM JBPDS BLK 1		
ID Code (A=Service Ready, B=Not Service Ready) :							MDAP/MAIS Code:					
Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity (<i>Units in Each</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost (<i>\$ in Millions</i>)	24.585	0.000	0.000	0.200	0.000	0.200	0.910	0.000	0.000	0.000	0.000	25.695
Less PY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (<i>\$ in Millions</i>)	24.585	0.000	0.000	0.200	0.000	0.200	0.910	0.000	0.000	0.000	0.000	25.695
Plus CY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority (<i>\$ in Millions</i>)	24.585	0.000	0.000	0.200	0.000	0.200	0.910	0.000	0.000	0.000	0.000	25.695
<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: OPNAVINST 3400.10F articulates U.S. Navy CBRD policy and establishes functional responsibilities to ensure the highest level of Fleet Readiness and warfighting sustainability in a CBR environment. JBPDS BLK I provides for improved biological agent detection and reporting. The JBPDS ORD (J2-B001-Revision 1, dated 7 January, 2002) validates the modification. The equipment procurement is funded out of the Joint CDBP Budget P-1 Item Nomenclature: (JP0100) JBPDS. [JBPDS BLK 1] Remarks: A total of 74 completed. The last two planned installations are for LCS-2 and LCS-4. Both hulls had JBPDS partially installed by the ship builder during construction, but the system is inoperable. The LCS 2 & 4 JBPDS require removal and relocation to function properly. Previously, LCS-2 and LCS-4 were planned for installation in FY18 and FY19, but installations have since been rescheduled to FY21 to allow for higher priority ship alterations to occur, such as Fleet requested DRSKO stowage alterations on four (4) ships and IPDS-LR heater upgrade to prevent condensation in the system which could cause degradation of system performance and damage. JBPDS are now planned for removal and relocation in FY21 to make functional.												

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Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019			
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9				P-1 Line Item Number / Title: 0989 / Chemical Warfare Detectors						Modification Number / Title: 4 / CW001 CHEMICAL WARFARE PROGRAM JBPDS BLK 1			
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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total	
	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	
Procurement													
<i>Modification Item 1 of 1:</i> CW001 CHEMICAL WARFARE PROGRAM JBPDS BLK 1													
B Kits													
Non-Recurring													
1.1.1) JBPDS BLK 1 - NonOrganic ⁽³⁾	74 / 0.000	- / -	- / -	2 / 0.000	- / -	2 / 0.000	- / -	- / -	- / -	- / -	- / -	76 / 0.000	
<i>Subtotal: Non-Recurring</i>	- / 0.000	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / 0.000	
<i>Subtotal: CW001 CHEMICAL WARFARE PROGRAM JBPDS BLK 1</i>	74 / 0.000	- / -	- / -	2 / 0.000	- / -	2 / 0.000	- / -	- / -	- / -	- / -	- / -	76 / 0.000	
<i>Subtotal: Procurement, All Modification Items</i>	- / 0.000	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / 0.000	
Installation													
<i>Modification Item 1 of 1:</i> CW001 CHEMICAL WARFARE PROGRAM JBPDS BLK 1	- / 24.585	- / 0.000	- / 0.000	- / 0.200	- / 0.000	- / 0.200	- / 0.910	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 25.695	
<i>Subtotal: Installation</i>	- / 24.585	- / -	- / -	- / 0.200	- / -	- / 0.200	- / 0.910	- / -	- / -	- / -	- / 0.000	- / 25.695	
Total													
Total Cost (Procurement + Support + Installation)	24.585	0.000	0.000	0.200	0.000	0.200	0.910	0.000	0.000	0.000	0.000	25.695	

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Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019																					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9										P-1 Line Item Number / Title: 0989 / Chemical Warfare Detectors										Modification Number / Title: 4 / CW001 CHEMICAL WARFARE PROGRAM JBPDS BLK 1											
ID Code (A=Service Ready, B=Not Service Ready) :															MDAP/MAIS Code:																
Modification Item 1 of 1: CW001 CHEMICAL WARFARE PROGRAM JBPDS BLK 1																															
Installation Information																															
Method of Implementation: AIT:: Installation Name: JBPDS BLK 1																															
Installation Cost		Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total																		
		<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>																	
Prior Years		74 / 24.585	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	74 / 24.585																		
FY 2018		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -																		
FY 2019		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -																		
FY 2020		- / -	- / -	- / -	0 / 0.200	0 / 0.000	0 / 0.200	2 / 0.910	- / -	- / -	- / -	0 / 0.000	2 / 1.110																		
FY 2021		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -																		
FY 2022		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -																		
FY 2023		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -																		
FY 2024		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -																		
To Complete		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -																		
Total		74 / 24.585	- / -	- / -	0 / 0.200	0 / 0.000	0 / 0.200	2 / 0.910	- / -	- / -	- / -	0 / 0.000	76 / 25.695																		
Installation Schedule																															
	PYS	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				TC	Tot
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4		
In	74	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	76
Out	74	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	76
Footnotes: ⁽³⁾ The procurement costs are specifically referring to Installation and Design Service Allocation (DSA) costs as there are no equipment procurement costs with any detector system installed. DSA costs are for government engineering oversight/support in preparation for ship installation and ship class planning yards for engineering services which include ship check, development and approval of ship installation drawings (SIDs), Ship Selected Record changes, Bill of Material (BOM), onsite planning yard engineering support during installation to answer liaison action record (LARs), and other engineering services depending on the planning yard. DSA costs are generally funded up to one year prior to planned installation due to drawing development lead time and installation preparation efforts. These costs are ship specific since drawings are developed for each ship, not class of ship. The LCS 4 and LCS 2 installs are expected to be more expensive than other JBPDS installs because both have partially installed systems that will need to be ripped out and relocated. - FY20 \$200K for DSAs in preparation of installation in FY21 onboard LCS-4 and LCS-2. - FY21 Installations include two (2) LCS-2 Class ships at \$455K each.																															

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Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019		
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9					P-1 Line Item Number / Title: 0989 / Chemical Warfare Detectors					Modification Number / Title: 5 / CW001 CHEMICAL WARFARE PROGRAM NGCD		
ID Code (A=Service Ready, B=Not Service Ready) :							MDAP/MAIS Code:					
Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity <i>(Units in Each)</i>	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost <i>(\$ in Millions)</i>	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.435	2.377	2.762	57.048	62.622
Less PY Advance Procurement <i>(\$ in Millions)</i>	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) <i>(\$ in Millions)</i>	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.435	2.377	2.762	57.048	62.622
Plus CY Advance Procurement <i>(\$ in Millions)</i>	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority <i>(\$ in Millions)</i>	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.435	2.377	2.762	57.048	62.622
<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: OPNAVINST 3400.10G articulates U.S. Navy Chemical, Biological and Radiological Defense (CBRD) policy and establishes functional responsibilities to ensure the highest level of the Fleet readiness and warfighting sustainability in a CBR environment. The Next Generation Chemical Detector (NGCD) provides shipboard point detection system for detecting and identifying nerve and blister agent contamination presence. The equipment procurement is funded out of the Joint Service Chemical Biological Defense Program Budget. [NGCD] Remarks: 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. Previously, installations were expected to start in FY22 with advance planning activities (DSA) to start in FY21, but recent Joint program delays now expect NGCD fielding to Navy to commence FY22, necessitating Navy change planned installations to start FY23.												

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Exhibit P-3a, Individual Modification: PB 2020 Navy									Date: March 2019				
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9				P-1 Line Item Number / Title: 0989 / Chemical Warfare Detectors					Modification Number / Title: 5 / CW001 CHEMICAL WARFARE PROGRAM NGCD				
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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	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)	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: CW001 CHEMICAL WARFARE PROGRAM NGCD													
B Kits													
Recurring													
1.1.1) NGCD - NonOrganic ⁽⁴⁾	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	9 / 0.000	12 / 0.000	162 / 0.000	183 / 0.000	
<i>Subtotal: Recurring</i>	- / 0.000	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / 0.000	
<i>Subtotal: CW001 CHEMICAL WARFARE PROGRAM NGCD</i>	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	9 / 0.000	12 / 0.000	162 / 0.000	183 / 0.000	
<i>Subtotal: Procurement, All Modification Items</i>	- / 0.000	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / 0.000	
Installation													
Modification Item 1 of 1: CW001 CHEMICAL WARFARE PROGRAM NGCD	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.435	- / 2.377	- / 2.762	- / 57.048	- / 62.622	
<i>Subtotal: Installation</i>	- / 0.000	- / -	- / -	- / -	- / -	- / -	- / -	- / 0.435	- / 2.377	- / 2.762	- / 57.048	- / 62.622	
Total													
Total Cost (Procurement + Support + Installation)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.435	2.377	2.762	57.048	62.622	

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Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019																					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9										P-1 Line Item Number / Title: 0989 / Chemical Warfare Detectors										Modification Number / Title: 5 / CW001 CHEMICAL WARFARE PROGRAM NGCD											
ID Code (A=Service Ready, B=Not Service Ready) :															MDAP/MAIS Code:																
Modification Item 1 of 1: CW001 CHEMICAL WARFARE PROGRAM NGCD																															
Manufacturer Information																															
Manufacturer Name: TBD															Manufacturer Location: TBD																
Administrative Leadtime (in Months): 0															Production Leadtime (in Months): 0																
Dates		FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024					
Contract Dates																															
Delivery Dates																															
Installation Information																															
Method of Implementation: [none specified]:: Installation Name: NGCD																															
Installation Cost		Prior Years	FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total		FY 2021		FY 2022		FY 2023		FY 2024		To Complete		Total								
		Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)								
Prior Years		- / -	- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -						
FY 2018		- / -	- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -						
FY 2019		- / -	- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -						
FY 2020		- / -	- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -						
FY 2021		- / -	- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -						
FY 2022		- / -	- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -						
FY 2023		- / -	- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.435		9 / 2.377		- / -		0 / 0.000		9 / 2.812								
FY 2024		- / -	- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		12 / 2.762		0 / 0.000		12 / 2.762								
To Complete		- / -	- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		162 / 57.048		162 / 57.048								
Total		- / -	- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.435		9 / 2.377		12 / 2.762		162 / 57.048		183 / 62.622								
Installation Schedule																															
	PYS	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				TC	Tot
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4		
In	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	2	3	3	3	3	3	3	162	183
Out	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	2	3	3	3	3	3	3	162	183
Footnotes:																															
(4) There are no equipment procurement costs with any detector system installed. The Design Service Allocation (DSA) costs are for government engineering oversight/support in preparation for ship installation and ship class planning yards for engineering services which include ship check, development and approval of ship installation drawings (SIDs), Ship Selected Record changes, Bill of Material (BOM), onsite																															

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Exhibit P-3a, Individual Modification: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	P-1 Line Item Number / Title: 0989 / Chemical Warfare Detectors	Modification Number / Title: 5 / CW001 CHEMICAL WARFARE PROGRAM NGCD
ID Code (A=Service Ready, B=Not Service Ready) :		MDAP/MAIS Code:
planning yard engineering support during installation to answer liaison action record (LARs), and other engineering services depending on the planning yard. DSA costs are generally funded up to one year prior to planned installation due to drawing development lead time and installation preparation efforts. These costs are ship specific since drawings are developed for each ship, not class of ship.		

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Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019		
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9					P-1 Line Item Number / Title: 0989 / Chemical Warfare Detectors					Modification Number / Title: 6 / CW001 CHEMICAL WARFARE PROGRAM EMBD WHOLE SYSTEM		
ID Code (A=Service Ready, B=Not Service Ready) :							MDAP/MAIS Code:					
Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity (<i>Units in Each</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost (<i>\$ in Millions</i>)	0.000	0.000	0.000	0.000	0.000	0.000	0.400	2.087	0.370	0.407	0.000	3.264
Less PY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (<i>\$ in Millions</i>)	0.000	0.000	0.000	0.000	0.000	0.000	0.400	2.087	0.370	0.407	0.000	3.264
Plus CY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority (<i>\$ in Millions</i>)	0.000	0.000	0.000	0.000	0.000	0.000	0.400	2.087	0.370	0.407	0.000	3.264
<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: OPNAVINST 3400.10G articulates U.S. Navy Chemical, Biological and Radiological Defense (CBRD) policy and establishes functional responsibilities to ensure the highest level of the Fleet readiness and warfighting sustainability in a CBR environment. The Enhanced Maritime Biological Detection (EMBD) system is intended as a lifecycle replacement for the JBPDS system, and will include improved detection and identification capabilities. The equipment procurement is funded out of the Joint Service Chemical Biological Defense Program Budget. [EMBD] Remarks: EMBD is a new acquisition program, which will provide lifecycle replacement kits for existing JBPDS system installations. The EMBD kit is intended to install within the existing JBPDS frame, reducing overall installation complexity and refurbishment unit costs. Labor for refurbishment of ships already equipped with the JBPDS system will be funded by the Joint Service Chemical Biological Program. However, there are seven (7) ships, previously nine (9), that were planned to receive JBPDS, but will not prior to EMBD entering the fleet. Therefore these seven (7) ships will receive EMBD Whole Systems, consisting of both the EMBD refurbishment kit and the overall EMBD/JBPDS shell. LCS-2 and LCS-4 were previously included in the EMBD count, but delays in EMBD development by the Joint program necessitate removal and installation of JBPDS on these hulls to mitigate Warfighter risk. Installation of these EMBD Whole systems is now projected to start in FY22 instead of FY21 as previously planned due to Joint CDBP EMBD Kit program delays. DSA costs will start to be incurred in FY21 for installation planning and drawing development.												

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Exhibit P-3a, Individual Modification: PB 2020 Navy									Date: March 2019				
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9				P-1 Line Item Number / Title: 0989 / Chemical Warfare Detectors					Modification Number / Title: 6 / CW001 CHEMICAL WARFARE PROGRAM EMBD WHOLE SYSTEM				
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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total	
	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	
Procurement													
<i>Modification Item 1 of 1:</i> CW001 CHEMICAL WARFARE PROGRAM EMBD WHOLE SYSTEM													
B Kits													
Recurring													
1.1.1) EMBD - NonOrganic ⁽⁵⁾	- / -	- / -	- / -	- / -	- / -	- / -	- / -	5 / 0.000	1 / 0.000	1 / 0.000	- / -	7 / 0.000	
<i>Subtotal: Recurring</i>	- / 0.000	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / 0.000	
<i>Subtotal: CW001 CHEMICAL WARFARE PROGRAM EMBD WHOLE SYSTEM</i>	- / -	- / -	- / -	- / -	- / -	- / -	- / -	5 / 0.000	1 / 0.000	1 / 0.000	- / -	7 / 0.000	
<i>Subtotal: Procurement, All Modification Items</i>	- / 0.000	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / 0.000	
Installation													
<i>Modification Item 1 of 1:</i> CW001 CHEMICAL WARFARE PROGRAM EMBD WHOLE SYSTEM	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.400	- / 2.087	- / 0.370	- / 0.407	- / 0.000	- / 3.264	
<i>Subtotal: Installation</i>	- / 0.000	- / -	- / -	- / -	- / -	- / -	- / 0.400	- / 2.087	- / 0.370	- / 0.407	- / 0.000	- / 3.264	
Total													
Total Cost (Procurement + Support + Installation)	0.000	0.000	0.000	0.000	0.000	0.000	0.400	2.087	0.370	0.407	0.000	3.264	

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Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019																					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9										P-1 Line Item Number / Title: 0989 / Chemical Warfare Detectors										Modification Number / Title: 6 / CW001 CHEMICAL WARFARE PROGRAM EMBD WHOLE SYSTEM											
ID Code (A=Service Ready, B=Not Service Ready) :															MDAP/MAIS Code:																
Modification Item 1 of 1: CW001 CHEMICAL WARFARE PROGRAM EMBD WHOLE SYSTEM																															
Manufacturer Information																															
Manufacturer Name: TBD															Manufacturer Location: TBD																
Administrative Leadtime (in Months): 0															Production Leadtime (in Months): 0																
Dates		FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024					
Contract Dates																															
Delivery Dates																															
Installation Information																															
Method of Implementation: [none specified]:: Installation Name: EMBD																															
Installation Cost		Prior Years	FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total		FY 2021		FY 2022		FY 2023		FY 2024		To Complete		Total								
		Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)								
Prior Years		- / -	- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -								
FY 2018		- / -	- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -								
FY 2019		- / -	- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -								
FY 2020		- / -	- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -								
FY 2021		- / -	- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -								
FY 2022		- / -	- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.400		5 / 2.087		- / -		- / -		0 / 0.000								
FY 2023		- / -	- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		1 / 0.370		- / -		0 / 0.000								
FY 2024		- / -	- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		1 / 0.407		0 / 0.000								
To Complete		- / -	- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -								
Total		- / -	- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.400		5 / 2.087		1 / 0.370		1 / 0.407		0 / 0.000								
Installation Schedule																															
	PYS	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				TC	Tot
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4		
In	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	2	2	-	-	-	1	-	-	1	-	-	7
Out	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	2	2	-	-	-	1	-	-	1	-	-	7
Footnotes: ⁽⁵⁾ There are no equipment procurement costs with any detector system installed. The Design Service Allocation (DSA) costs are for government engineering oversight/support in preparation for ship installation and ship class planning yards for engineering services which include ship check, development and approval of Ship Installation Drawings (SIDs), Ship Selected Record changes, Bill of Material (BOM), onsite																															

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Exhibit P-3a, Individual Modification: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	P-1 Line Item Number / Title: 0989 / Chemical Warfare Detectors	Modification Number / Title: 6 / CW001 CHEMICAL WARFARE PROGRAM EMBD WHOLE SYSTEM
ID Code (A=Service Ready, B=Not Service Ready) :		MDAP/MAIS Code:
planning yard engineering support during installation to answer liaison action record (LARs), and other engineering services depending on the planning yard. DSA costs are generally funded up to one year prior to planned installation due to drawing development lead time and installation preparation efforts. These costs are ship specific since drawings are developed for each ship, not class of ship.		

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Exhibit P-3a, Individual Modification: PB 2020 Navy						Date: March 2019					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9				P-1 Line Item Number / Title: 0989 / Chemical Warfare Detectors				Modification Number / Title: 7 / CW001 CHEMICAL WARFARE PROGRAM IPDS-LR HEATER UPGRADE			

ID Code (A=Service Ready, B=Not Service Ready) :						MDAP/MAIS Code:						
Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity <i>(Units in Each)</i>	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost <i>(\$ in Millions)</i>	0.000	0.000	0.663	1.108	0.000	1.108	1.322	0.226	0.000	0.000	0.000	3.319
Less PY Advance Procurement <i>(\$ in Millions)</i>	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) <i>(\$ in Millions)</i>	0.000	0.000	0.663	1.108	0.000	1.108	1.322	0.226	0.000	0.000	0.000	3.319
Plus CY Advance Procurement <i>(\$ in Millions)</i>	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority <i>(\$ in Millions)</i>	0.000	0.000	0.663	1.108	0.000	1.108	1.322	0.226	0.000	0.000	0.000	3.319
<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:

OPNAVINST 3400.10G articulates U.S. Navy CBRD policy and establishes functional responsibilities to ensure the highest level of the Fleet readiness and warfighting sustainability in a CBR environment. CBRD Improved Point Detection System Heater Upgrade (IPDS-LR HU) provides the ability for IPDS-LR to function in various extreme environmental conditions that may cause system degradation and ultimately failure. This is a new, emergent requirement to ensure automated chemical agent detection is operationally available. The equipment development and procurement for this upgrade is funded out of the Joint Service CBDP Budget and is expected to be provided to Navy by early FY19. Navy must fund integration and installation. DSA costs are expected to start early FY19 with installations to start in FY19.

[IPDS-LR Heater] Remarks: Eighty-nine (89) heater upgrades are currently planned and budgeted. Other ships will receive this capability when NGCD replaces IPDS-LR, which is expected to start fielding in FY23. Once heater upgrade is fully developed by the Joint Service CBDP, further refinement of integration and installation costs can be accomplished and inventory objective may be adjusted. Heater upgrade is currently in prototyping and testing stage. A procurement contract is expected to be awarded by the Joint Service CBDP shortly after system testing is complete.

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Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019			
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9				P-1 Line Item Number / Title: 0989 / Chemical Warfare Detectors						Modification Number / Title: 7 / CW001 CHEMICAL WARFARE PROGRAM IPDS-LR HEATER 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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	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)	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: CW001 CHEMICAL WARFARE PROGRAM IPDS-LR HEATER UPGRADE													
B Kits													
Recurring													
1.1.1) IPDS-LR Heater - NonOrganic ⁽⁶⁾	- / -	- / -	7 / 0.000	33 / 0.000	- / -	33 / 0.000	42 / 0.000	7 / 0.000	- / -	- / -	- / -	89 / 0.000	
<i>Subtotal: Recurring</i>	- / 0.000	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / 0.000	
<i>Subtotal: CW001 CHEMICAL WARFARE PROGRAM IPDS-LR HEATER UPGRADE</i>	- / -	- / -	7 / 0.000	33 / 0.000	- / -	33 / 0.000	42 / 0.000	7 / 0.000	- / -	- / -	- / -	89 / 0.000	
<i>Subtotal: Procurement, All Modification Items</i>	- / 0.000	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / 0.000	
Installation													
Modification Item 1 of 1: CW001 CHEMICAL WARFARE PROGRAM IPDS-LR HEATER UPGRADE	- / 0.000	- / 0.000	- / 0.663	- / 1.108	- / 0.000	- / 1.108	- / 1.322	- / 0.226	- / 0.000	- / 0.000	- / 0.000	- / 3.319	
<i>Subtotal: Installation</i>	- / 0.000	- / -	- / 0.663	- / 1.108	- / -	- / 1.108	- / 1.322	- / 0.226	- / -	- / -	- / 0.000	- / 3.319	
Total													
Total Cost (Procurement + Support + Installation)	0.000	0.000	0.663	1.108	0.000	1.108	1.322	0.226	0.000	0.000	0.000	3.319	

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Exhibit P-3a, Individual Modification: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	P-1 Line Item Number / Title: 0989 / Chemical Warfare Detectors	Modification Number / Title: 7 / CW001 CHEMICAL WARFARE PROGRAM IPDS-LR HEATER UPGRADE

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

Modification Item 1 of 1: CW001 CHEMICAL WARFARE PROGRAM IPDS-LR HEATER UPGRADE

Installation Information

Method of Implementation: [none specified]:: Installation Name: IPDS-LR Heater

Installation Cost	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)
Prior Years	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2018	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2019	- / -	- / -	7 / 0.663	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	7 / 0.663
FY 2020	- / -	- / -	- / -	33 / 1.108	0 / 0.000	33 / 1.108	- / -	- / -	- / -	- / -	0 / 0.000	33 / 1.108
FY 2021	- / -	- / -	- / -	- / -	- / -	- / -	42 / 1.322	- / -	- / -	- / -	0 / 0.000	42 / 1.322
FY 2022	- / -	- / -	- / -	- / -	- / -	- / -	- / -	7 / 0.226	- / -	- / -	0 / 0.000	7 / 0.226
FY 2023	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2024	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
To Complete	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
Total	- / -	- / -	7 / 0.663	33 / 1.108	0 / 0.000	33 / 1.108	42 / 1.322	7 / 0.226	- / -	- / -	0 / 0.000	89 / 3.319

Installation Schedule

	PYS	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				TC	Tot
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4		
In	-	-	-	-	-	-	-	3	4	8	8	8	9	9	11	11	11	-	1	2	4	-	-	-	-	-	-	-	-	-	89
Out	-	-	-	-	-	-	-	3	4	8	8	8	9	9	11	11	11	-	1	2	4	-	-	-	-	-	-	-	-	-	89

Footnotes:

⁽⁶⁾ IPDS-LR Heater Upgrade plan - The procurement costs are specifically referring to Installation and Design Service Allocation (DSA) costs as there are no equipment procurement costs with any detector system installed. DSA costs are for government engineering oversight/support in preparation for ship installation and ship class planning yards for engineering services which include ship check, development and approval of ship installation drawings (SIDs), Ship Selected Record changes, Bill of Material (BOM), onsite planning yard engineering support during installation to answer liaison action record (LARs), and other engineering services depending on the planning yard. DSA costs are generally funded up to one year prior to planned installation due to drawing development lead time and installation preparation efforts. These costs are ship specific since drawings are developed for each ship, not class of ship. - FY19 installations include seven (7) DDG-51 Class ships at \$30K each plus \$452.6K for DSA costs. - FY20 funded installations total thirty-three (33). Costs include two (2) LHD-1 Class ships at \$31K each, three (3) LPD-17 Class ships at \$31K each, two (2) LSD-41 Class ships at \$31K each, four (4) LSD-49 Class ships at \$31K each, ten (10) CG-47 Class ships at \$31K each, six (6) DDG-51 Class ships at \$31k each, two (2) LCS-1 Class ships at \$31k each, and four (4) CVN-69 Class ships at \$31K each. Total installations funded using FY20 OPN equals \$1,023K plus \$120K for DSA.

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Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019		
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9					P-1 Line Item Number / Title: 0989 / Chemical Warfare Detectors					Modification Number / Title: 8 / CW001 CHEMICAL WARFARE PROGRAM DRSKO STOWAGE		
ID Code (A=Service Ready, B=Not Service Ready) :							MDAP/MAIS Code:					
Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity <i>(Units in Each)</i>	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost <i>(\$ in Millions)</i>	0.000	0.401	0.430	0.152	0.000	0.152	0.000	0.000	0.000	0.000	0.000	0.983
Less PY Advance Procurement <i>(\$ in Millions)</i>	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) <i>(\$ in Millions)</i>	0.000	0.401	0.430	0.152	0.000	0.152	0.000	0.000	0.000	0.000	0.000	0.983
Plus CY Advance Procurement <i>(\$ in Millions)</i>	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority <i>(\$ in Millions)</i>	0.000	0.401	0.430	0.152	0.000	0.152	0.000	0.000	0.000	0.000	0.000	0.983
<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>	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost <i>(\$ in Dollars)</i>	-	-	-	-	-	-	-	-	-	-	-	-
Description: OPNAVINST 3400.10G articulates U.S. Navy Chemical, Biological and Radiological Defense (CBRD) policy and establishes functional responsibilities to ensure the highest level of the Fleet readiness and warfighting sustainability in a CBR environment. Chemical Biological Radiological Nuclear Dismounted Reconnaissance Sets, Kits, and Outfits (CBRN DRSKO) provides Navy Boarding Teams personnel protection from current and emerging CBRN hazards through detection, identification, sample collection, decontamination, marking, and hazard reporting for CBRN threats. Due to system size and storage requirements of equipment and materials, a ship alteration must be accomplished for adequate shelving, electrical power, ventilation, and stowage space security. The equipment procurement is funded out of the Joint Service Chemical Biological Defense Program Budget. [CW001 CHEMICAL WARFARE PROGRAM DRSKO STOWAGE] Remarks: A total of four (4) installations are currently planned. One (1) for each of the following ship classes: DDG-51, LPD-17, LSD-41, and CG-47. This alteration will install shelving and provide controlled access to support proper stowage of the Joint developed CBRN DRSKO system. DDG class SIDs were previously developed and approved. SIDs for the other three (3) classes will be developed to support FY19 and FY20 installations.												

UNCLASSIFIED

Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019			
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9					P-1 Line Item Number / Title: 0989 / Chemical Warfare Detectors					Modification Number / Title: 8 / CW001 CHEMICAL WARFARE PROGRAM DRSKO STOWAGE			
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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total	
	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	
Procurement													
<i>Modification Item 1 of 1:</i> CW001 CHEMICAL WARFARE PROGRAM DRSKO STOWAGE													
B Kits													
Recurring													
1.1.1) CW001 CHEMICAL WARFARE PROGRAM DRSKO STOWAGE - NonOrganic ⁽⁷⁾	- / -	1 / 0.000	2 / 0.000	1 / 0.000	- / -	1 / 0.000	- / -	- / -	- / -	- / -	- / -	4 / 0.000	
<i>Subtotal: Recurring</i>	<i>- / 0.000</i>	<i>- / -</i>	<i>- / -</i>	<i>- / -</i>	<i>- / -</i>	<i>- / -</i>	<i>- / -</i>	<i>- / -</i>	<i>- / -</i>	<i>- / -</i>	<i>- / -</i>	<i>- / 0.000</i>	
<i>Subtotal: CW001 CHEMICAL WARFARE PROGRAM DRSKO STOWAGE</i>	<i>- / -</i>	<i>1 / 0.000</i>	<i>2 / 0.000</i>	<i>1 / 0.000</i>	<i>- / -</i>	<i>1 / 0.000</i>	<i>- / -</i>	<i>- / -</i>	<i>- / -</i>	<i>- / -</i>	<i>- / -</i>	<i>4 / 0.000</i>	
<i>Subtotal: Procurement, All Modification Items</i>	<i>- / 0.000</i>	<i>- / -</i>	<i>- / -</i>	<i>- / -</i>	<i>- / -</i>	<i>- / -</i>	<i>- / -</i>	<i>- / -</i>	<i>- / -</i>	<i>- / -</i>	<i>- / -</i>	<i>- / 0.000</i>	
Installation													
<i>Modification Item 1 of 1:</i> CW001 CHEMICAL WARFARE PROGRAM DRSKO STOWAGE	<i>- / 0.000</i>	<i>- / 0.401</i>	<i>- / 0.430</i>	<i>- / 0.152</i>	<i>- / 0.000</i>	<i>- / 0.152</i>	<i>- / 0.000</i>	<i>- / 0.000</i>	<i>- / 0.000</i>	<i>- / 0.000</i>	<i>- / 0.000</i>	<i>- / 0.983</i>	
<i>Subtotal: Installation</i>	<i>- / 0.000</i>	<i>- / 0.401</i>	<i>- / 0.430</i>	<i>- / 0.152</i>	<i>- / -</i>	<i>- / 0.152</i>	<i>- / -</i>	<i>- / -</i>	<i>- / -</i>	<i>- / -</i>	<i>- / 0.000</i>	<i>- / 0.983</i>	
Total													
Total Cost (Procurement + Support + Installation)	0.000	0.401	0.430	0.152	0.000	0.152	0.000	0.000	0.000	0.000	0.000	0.983	

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Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019																					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9										P-1 Line Item Number / Title: 0989 / Chemical Warfare Detectors										Modification Number / Title: 8 / CW001 CHEMICAL WARFARE PROGRAM DRSKO STOWAGE											
ID Code (A=Service Ready, B=Not Service Ready) :															MDAP/MAIS Code:																
Modification Item 1 of 1: CW001 CHEMICAL WARFARE PROGRAM DRSKO STOWAGE																															
Installation Information																															
Method of Implementation: [none specified]:: Installation Name: CW001 CHEMICAL WARFARE PROGRAM DRSKO STOWAGE																															
Installation Cost		Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total																		
		<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>																	
Prior Years		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -																		
FY 2018		- / -	1 / 0.401	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	1 / 0.401																		
FY 2019		- / -	- / -	2 / 0.430	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	2 / 0.430																		
FY 2020		- / -	- / -	- / -	1 / 0.152	0 / 0.000	1 / 0.152	- / -	- / -	- / -	- / -	0 / 0.000	1 / 0.152																		
FY 2021		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -																		
FY 2022		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -																		
FY 2023		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -																		
FY 2024		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -																		
To Complete		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -																		
Total		- / -	1 / 0.401	2 / 0.430	1 / 0.152	0 / 0.000	1 / 0.152	- / -	- / -	- / -	- / -	0 / 0.000	4 / 0.983																		
Installation Schedule																															
	PYS	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				TC	Tot
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4		
In	-	-	-	-	1	-	-	1	1	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4
Out	-	-	-	-	1	-	-	1	1	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4
Footnotes: ⁽⁷⁾ Dismounted Reconnaissance Sets, Kits, and Outfits (DRSKO) Stowage plan - The procurement costs are specifically referring to Installation and Design Service Allocation (DSA) costs as there are no equipment procurement costs with any detector system installed. DSA costs are for government engineering oversight/support in preparation for ship installation and ship class planning yards for engineering services which include ship check, development and approval of ship installation drawings (SIDs), Ship Selected Record changes, Bill of Material (BOM), onsite planning yard engineering support during installation to answer liaison action record (LARs), and other engineering services depending on the planning yard. DSA costs are generally funded up to one year prior to planned installation due to drawing development lead time and installation preparation efforts. These costs are ship specific since drawings are developed for each ship, not class of ship. - FY18 installation includes one (1) DDG-51 Class at \$141.2K. Planned DSA cost are \$260K. - FY19 installations include one (1) LPD-17 Class ship and one (1) CG-47 Class ship at \$150K each plus \$130K for DSA costs. - FY20 installation includes one (1) LSD-41 Class ship at \$152K.																															

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Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019		
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9					P-1 Line Item Number / Title: 0989 / Chemical Warfare Detectors					Modification Number / Title: 9 / CW001 CHEMICAL WARFARE PROGRAM EMBD UPGRADE KIT		
ID Code (A=Service Ready, B=Not Service Ready) :							MDAP/MAIS Code:					
Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity (<i>Units in Each</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost (<i>\$ in Millions</i>)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.346	0.408	0.050	3.480	4.284
Less PY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (<i>\$ in Millions</i>)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.346	0.408	0.050	3.480	4.284
Plus CY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority (<i>\$ in Millions</i>)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.346	0.408	0.050	3.480	4.284
<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: [CW001 CHEMICAL WARFARE PROGRAM EMBD UPGRADE KIT] Remarks: EMBD is a new acquisition program, which will provide lifecycle replacement kits for existing JBPDS system installations. The EMBD kit is intended to install within the existing JBPDS frame, reducing overall installation complexity and refurbishment unit costs. Labor for refurbishment of ships already equipped with the JBPDS system will be funded by the Joint Service Chemical Biological Program, however Navy must fund DSA and other incidental costs, to include planning yard and ship yard costs, to complete planned backfit upgrades. Due to delays in Joint developed EMBD kit, Navy is not expected to receive sufficient quantities of upgrade kits and be ready to install the equipment until FY23. DSA costs will start to be incurred in FY22 for installation planning and drawing development.												

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Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019			
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9				P-1 Line Item Number / Title: 0989 / Chemical Warfare Detectors						Modification Number / Title: 9 / CW001 CHEMICAL WARFARE PROGRAM EMBD UPGRADE KIT			
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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total	
	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	
Procurement													
<i>Modification Item 1 of 1:</i> CW001 CHEMICAL WARFARE PROGRAM EMBD UPGRADE KIT													
B Kits													
Recurring													
1.1.1) CW001 CHEMICAL WARFARE PROGRAM EMBD UPGRADE KIT - NonOrganic	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	17 / 0.000	2 / 0.000	116 / 0.000	135 / 0.000	
<i>Subtotal: Recurring</i>	- / 0.000	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / 0.000	
<i>Subtotal: CW001 CHEMICAL WARFARE PROGRAM EMBD UPGRADE KIT</i>	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	17 / 0.000	2 / 0.000	116 / 0.000	135 / 0.000	
<i>Subtotal: Procurement, All Modification Items</i>	- / 0.000	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / 0.000	
Installation													
<i>Modification Item 1 of 1:</i> CW001 CHEMICAL WARFARE PROGRAM EMBD UPGRADE KIT	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.346	- / 0.408	- / 0.050	- / 3.480	- / 4.284	
<i>Subtotal: Installation</i>	- / 0.000	- / -	- / -	- / -	- / -	- / -	- / -	- / 0.346	- / 0.408	- / 0.050	- / 3.480	- / 4.284	
Total													
Total Cost (Procurement + Support + Installation)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.346	0.408	0.050	3.480	4.284	

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Exhibit P-3a, Individual Modification: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	P-1 Line Item Number / Title: 0989 / Chemical Warfare Detectors	Modification Number / Title: 9 / CW001 CHEMICAL WARFARE PROGRAM EMBD UPGRADE KIT

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

Modification Item 1 of 1: CW001 CHEMICAL WARFARE PROGRAM EMBD UPGRADE KIT

Installation Information

Method of Implementation: [none specified]:: Installation Name: CW001 CHEMICAL WARFARE PROGRAM EMBD UPGRADE KIT

Installation Cost	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)
Prior Years	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2018	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2019	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2020	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2021	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2022	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2023	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.346	17 / 0.408	- / -	0 / 0.000	17 / 0.754
FY 2024	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	2 / 0.050	0 / 0.000	2 / 0.050
To Complete	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	116 / 3.480	116 / 3.480
Total	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.346	17 / 0.408	2 / 0.050	116 / 3.480	135 / 4.284

Installation Schedule

	PYS	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				TC	Tot
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4		
In	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	5	5	6	-	-	1	1	116	135	
Out	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	5	5	6	-	-	1	1	116	135	

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Exhibit P-40, Budget Line Item Justification: PB 2020 Navy										Date: March 2019		
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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity (<i>Units in Each</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost (<i>\$ in Millions</i>)	90.840	4.882	6.924	6.635	0.000	6.635	11.488	6.777	2.129	2.172	6.510	138.357
Less PY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (<i>\$ in Millions</i>)	90.840	4.882	6.924	6.635	0.000	6.635	11.488	6.777	2.129	2.172	6.510	138.357
Plus CY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority (<i>\$ in Millions</i>)	90.840	4.882	6.924	6.635	0.000	6.635	11.488	6.777	2.129	2.172	6.510	138.357
<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: Submarine Life Support System procures Low Pressure Electrolyzer (LPE) oxygen generators to fulfill the Program of Record requirement to replace the legacy obsolete high pressure Electrolytic Oxygen Generator (EOG) on SSBNs. The LPE is critical to the OHIO Class to achieve service life extension to 42 years. Procurements are tied to specific submarine availabilities since a major ship alteration is required for installation. [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 - 2 / LOW PRESSURE ELECTROLYZER]: 5D010 - THE LOW PRESSURE ELECTROLYZER (LPE) The LPE will replace the EOG currently being used on SSBN/SSGN 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. EOG's must be replaced by LPE's on OHIO SSBNs to ensure they can sustain current operational availability requirements through their 42 yr service life. Oxygen Generators are necessary to maintain submarine stealth while on mission. Therefore, procurements are driven by the OHIO Class maintenance period schedule. The replacement of the EOG with the LPE must be done during a major maintenance availability due to the time to complete the installation. As OHIO Class submarine approach the end of service life there are fewer major maintenance periods remaining, increasing the number of concurrent procurements required. Differences in unit costs above inflation are due to the number of units being procured each fiscal year. Unit costs are impacted by quantities of scale.												

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Exhibit P-40, Budget Line Item Justification: PB 2020 Navy								Date: March 2019		
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										
Exhibits Schedule					Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Exhibit Type	Title*	Subexhibits	ID CD	MDAP/MAIS Code	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)
P-40a	SUBMARINE LIFE SUPPORT SYSTEM				- / 6.973	- / 0.329	- / 0.329	- / 0.320	- / -	- / 0.320
P-3a	2 / 5D010 LOW PRESSURE ELECTROLYZER (TBD)				- / 83.867	- / 4.553	- / 6.595	- / 6.315	- / 0.000	- / 6.315
P-40	Total Gross/Weapon System Cost				- / 90.840	- / 4.882	- / 6.924	- / 6.635	- / 0.000	- / 6.635
Exhibits Schedule					FY 2021	FY 2022	FY 2023	FY 2024	To Complete	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 LIFE SUPPORT SYSTEM				- / -	- / -	- / -	- / -	- / -	- / -
P-3a	2 / 5D010 LOW PRESSURE ELECTROLYZER (TBD)				- / 11.152	- / 6.131	- / 0.000	- / 1.858	- / 6.110	- / 126.581
P-40	Total Gross/Weapon System Cost				- / 11.488	- / 6.777	- / 2.129	- / 2.172	- / 6.510	- / 138.357
*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: Contract used to procure LPEs was awarded in FY16. This is a five-year fixed price contract to achieve a better price with higher quantity orders. LPE units orders are timed to support LPE installations during a refit that supports extending the service life of the submarine. Installations are also aligned when current oxygen generators would receive required replacement of cells which are necessary for continued operation of legacy oxygen generators, thus avoiding an approximate \$2M/ship additional maintenance cost.										

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Exhibit P-40a, Budget Item Justification For Aggregated Items: PB 2020 Navy															Date: March 2019					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9								P-1 Line Item Number / Title: 0990 / Submarine Life Support System							Aggregated Items Title: SUBMARINE LIFE SUPPORT SYSTEM					
Item Number / Title [DODIC]	ID CD	MDAP/ MAIS Code	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 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) 5D830 PRODUCTION ENGINEERING																				
1.1) PRODUCTION ENGINEERING	A		-	-	6.973	-	-	0.329	-	-	0.329	-	-	0.320	-	-	-	-	-	0.320
Subtotal: 1) 5D830 PRODUCTION ENGINEERING			-	-	6.973	-	-	0.329	-	-	0.329	-	-	0.320	-	-	-	-	-	0.320
Total			-	-	6.973	-	-	0.329	-	-	0.329	-	-	0.320	-	-	-	-	-	0.320

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-3a, Individual Modification: PB 2020 Navy						Date: March 2019					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9				P-1 Line Item Number / Title: 0990 / Submarine Life Support System				Modification Number / Title: 2 / 5D010 LOW PRESSURE ELECTROLYZER			

ID Code (A=Service Ready, B=Not Service Ready) :						MDAP/MAIS Code:						
Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity (Units in Each)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost (\$ in Millions)	83.867	4.553	6.595	6.315	0.000	6.315	11.152	6.131	0.000	1.858	6.110	126.581
Less PY Advance Procurement (\$ in Millions)	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (\$ in Millions)	83.867	4.553	6.595	6.315	0.000	6.315	11.152	6.131	0.000	1.858	6.110	126.581
Plus CY Advance Procurement (\$ in Millions)	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority (\$ in Millions)	83.867	4.553	6.595	6.315	0.000	6.315	11.152	6.131	0.000	1.858	6.110	126.581
(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:

[LOW PRESSURE ELECTROLYZER] The LPE will replace the EOG currently being used on SSBN/SSGN 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. EOG's must be replaced by LPE's on OHIO SSBNs to ensure they can sustain current operational availability requirements through their 42 yr service life. Oxygen Generators are necessary to maintain submarine stealth while on mission. Therefore, procurements are driven by the OHIO Class maintenance period schedule. The replacement of the EOG with the LPE must be done during a major maintenance availability due to the time to complete the installation. As OHIO Class submarine approach the end of service life there are fewer major maintenance periods remaining, increasing the number of concurrent procurements required. Differences in unit costs above inflation are due to the number of units being procured each fiscal year. Unit costs are impacted by quantities of scale.

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Exhibit P-3a, Individual Modification: PB 2020 Navy									Date: March 2019				
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9				P-1 Line Item Number / Title: 0990 / Submarine Life Support System					Modification Number / Title: 2 / 5D010 LOW PRESSURE ELECTROLYZER				
ID Code (A=Service Ready, B=Not Service Ready) :							MDAP/MAIS Code:						
Models of Systems Affected: Low Pressure Electrolyzer				Modification Type: TBD				Related RDT&E PEs:					
Financial Plan	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total	
	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	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: 5D010 LOW PRESSURE ELECTROLYZER													
B Kits													
Recurring													
1.1.1) LOW PRESSURE ELECTROLYZER - NonOrganic ⁽¹⁾	26 / 81.367	2 / 4.053	2 / 5.045	2 / 5.275	- / -	2 / 5.275	4 / 10.090	1 / 2.885	- / -	1 / 1.858	2 / 3.790	40 / 114.363	
<i>Subtotal: Recurring</i>	- / 81.367	- / 4.053	- / 5.045	- / 5.275	- / -	- / 5.275	- / 10.090	- / 2.885	- / -	- / 1.858	- / 3.790	- / 114.363	
<i>Subtotal: 5D010 LOW PRESSURE ELECTROLYZER</i>	26 / 81.367	2 / 4.053	2 / 5.045	2 / 5.275	- / -	2 / 5.275	4 / 10.090	1 / 2.885	- / -	1 / 1.858	2 / 3.790	40 / 114.363	
<i>Subtotal: Procurement, All Modification Items</i>	- / 81.367	- / 4.053	- / 5.045	- / 5.275	- / -	- / 5.275	- / 10.090	- / 2.885	- / -	- / 1.858	- / 3.790	- / 114.363	
Installation													
Modification Item 1 of 1: 5D010 LOW PRESSURE ELECTROLYZER	- / 2.500	- / 0.500	- / 1.550	- / 1.040	- / 0.000	- / 1.040	- / 1.062	- / 3.246	- / 0.000	- / 0.000	- / 2.320	- / 12.218	
<i>Subtotal: Installation</i>	- / 2.500	- / 0.500	- / 1.550	- / 1.040	- / -	- / 1.040	- / 1.062	- / 3.246	- / -	- / -	- / 2.320	- / 12.218	
Total													
Total Cost (Procurement + Support + Installation)	83.867	4.553	6.595	6.315	0.000	6.315	11.152	6.131	0.000	1.858	6.110	126.581	

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Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019																					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9										P-1 Line Item Number / Title: 0990 / Submarine Life Support System										Modification Number / Title: 2 / 5D010 LOW PRESSURE ELECTROLYZER											
ID Code (A=Service Ready, B=Not Service Ready) :															MDAP/MAIS Code:																
Modification Item 1 of 1: 5D010 LOW PRESSURE ELECTROLYZER																															
Manufacturer Information																															
Manufacturer Name: HAMILTON SUNDSTRAND															Manufacturer Location: CT																
Administrative Leadtime (<i>in Months</i>): 3															Production Leadtime (<i>in Months</i>): 15																
Dates		FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024					
Contract Dates		Dec 2017				Jul 2019				Jul 2020				Dec 2020				Jul 2022								Jan 2024					
Delivery Dates		Mar 2019				Oct 2020				Oct 2021				Mar 2022				Jan 2024								Apr 2025					
Installation Information																															
Method of Implementation: Method:: Installation Name: Installation Group Name																															
Installation Cost		Prior Years		FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total		FY 2021		FY 2022		FY 2023		FY 2024		To Complete		Total							
		Qty (<i>Each</i>) / Total Cost (\$ M)		Qty (<i>Each</i>) / Total Cost (\$ M)		Qty (<i>Each</i>) / Total Cost (\$ M)		Qty (<i>Each</i>) / Total Cost (\$ M)		Qty (<i>Each</i>) / Total Cost (\$ M)		Qty (<i>Each</i>) / Total Cost (\$ M)		Qty (<i>Each</i>) / Total Cost (\$ M)		Qty (<i>Each</i>) / Total Cost (\$ M)		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		22 / 2.500		1 / 0.500		3 / 1.550		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.000		26 / 4.550					
FY 2018		- / -		- / -		- / -		2 / 1.040		0 / 0.000		2 / 1.040		- / -		- / -		- / -		- / -		- / -		0 / 0.000		2 / 1.040					
FY 2019		- / -		- / -		- / -		- / -		- / -		- / -		2 / 1.062		- / -		- / -		- / -		- / -		0 / 0.000		2 / 1.062					
FY 2020		- / -		- / -		- / -		- / -		- / -		- / -		- / -		2 / 1.082		- / -		- / -		- / -		0 / 0.000		2 / 1.082					
FY 2021		- / -		- / -		- / -		- / -		- / -		- / -		- / -		4 / 2.164		- / -		- / -		- / -		0 / 0.000		4 / 2.164					
FY 2022		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		1 / 0.580		1 / 0.580					
FY 2023		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
FY 2024		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		1 / 0.580		1 / 0.580					
To Complete		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		2 / 1.160		2 / 1.160					
Total		22 / 2.500		1 / 0.500		3 / 1.550		2 / 1.040		0 / 0.000		2 / 1.040		2 / 1.062		6 / 3.246		- / -		- / -		- / -		4 / 2.320		40 / 12.218					
Installation Schedule																															
	PYS	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				TC	Tot
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4		
In	22	-	-	-	1	1	2	-	-	2	-	-	-	2	-	-	-	2	2	2	-	-	-	-	-	-	-	-	-	4	40
Out	22	-	-	-	1	1	2	-	-	2	-	-	-	2	-	-	-	2	2	2	-	-	-	-	-	-	-	-	-	4	40
Footnotes: ⁽¹⁾ Current LPE procurement contract expires in FY21. A new contract will be competed and initial first article unit will be ordered. Estimated contract award mid FY22, manufacture time 15 months plus 3 months of qualification unit is why cost of units higher than previous years. Unit requires refurbishment after qualification testing. Second unit will be ordered after qualification testing in FY24 with expected install of units in FY25. Final two units procured in FY25, with expected delivery in FY26.																															

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Exhibit P-40, Budget Line Item Justification: PB 2020 Navy								Date: March 2019				
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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity (<i>Units in Each</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost (<i>\$ in Millions</i>)	1,449.897	0.000	346.325	5.340	0.000	5.340	5.305	3.270	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	346.325	5.340	0.000	5.340	5.305	3.270	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	346.325	5.340	0.000	5.340	5.305	3.270	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 Other Procurement, Navy, Reactor Power Units budget provides for the procurement of reactor refueling cores including naval nuclear fuel work (and the completion of core assembly to support select SSN and CVN refueling). Reactor refueling cores are the assemblies of nuclear fuel and associated structural and reactivity control equipment required for the refueling of nuclear powered ships. The procurement of these units is accomplished by the Department of Energy (DOE) using the Economy Act of 1932, as amended and codified in 31 USC 1535. The DOE has developed production lines to fabricate these units at the sole remaining core manufacturer. Reactor refueling core procurements are required to support scheduled refueling of operational ships and are budgeted on a lead-time basis while preserving workload stability and efficiency.

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Exhibit P-40, Budget Line Item Justification: PB 2020 Navy								Date: March 2019		
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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Exhibit Type	Title*	Subexhibits	ID CD	MDAP/MAIS Code	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)
P-40a	Reactor Power Units				- / 1,449.897	- / -	- / 346.325	- / 5.340	- / -	- / 5.340
P-40	Total Gross/Weapon System Cost				- / 1,449.897	- / 0.000	- / 346.325	- / 5.340	- / 0.000	- / 5.340
*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:

Funding in FY20 through FY22 is included for completion of five refueling cores for use in LOS ANGELES-Class refueling overhauls.

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Exhibit P-40a, Budget Item Justification For Aggregated Items: PB 2020 Navy															Date: March 2019					
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 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 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	-	-	-	-	-	346.325	-	-	5.340	-	-	-	-	-	5.340
Subtotal: 1) Reactor Power Units			-	-	1,449.897	-	-	-	-	-	346.325	-	-	5.340	-	-	-	-	-	5.340
Total			-	-	1,449.897	-	-	-	-	-	346.325	-	-	5.340	-	-	-	-	-	5.340

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: PB 2020 Navy	Date: March 2019

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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity (<i>Units in Each</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost (<i>\$ in Millions</i>)	1,976.966	534.468	497.063	465.726	0.000	465.726	410.304	457.237	418.989	377.484	Continuing	Continuing
Less PY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (<i>\$ in Millions</i>)	1,976.966	534.468	497.063	465.726	0.000	465.726	410.304	457.237	418.989	377.484	Continuing	Continuing
Plus CY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority (<i>\$ in Millions</i>)	1,976.966	534.468	497.063	465.726	0.000	465.726	410.304	457.237	418.989	377.484	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: PB 2020 Navy	Date: March 2019

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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Exhibit Type	Title*	Subexhibits	ID CD	MDAP/MAIS Code	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)
P-40a	Reactor Components				- / 1,976.966	- / 534.468	- / 497.063	- / 465.726	- / -	- / 465.726
P-40	Total Gross/Weapon System Cost				- / 1,976.966	- / 534.468	- / 497.063	- / 465.726	- / 0.000	- / 465.726

*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: PB 2020 Navy															Date: March 2019					
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 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 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		-	-	1,976.966	-	-	534.468	-	-	497.063	-	-	465.726	-	-	-	-	-	465.726
Subtotal: 1) Reactor Components			-	-	1,976.966	-	-	534.468	-	-	497.063	-	-	465.726	-	-	-	-	-	465.726
Total			-	-	1,976.966	-	-	534.468	-	-	497.063	-	-	465.726	-	-	-	-	-	465.726

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: PB 2020 Navy										Date: March 2019		
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, 0603713N				
Line Item MDAP/MAIS Code: N/A												
Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity (<i>Units in Each</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost (<i>\$ in Millions</i>)	51.103	10.619	10.706	11.854	0.000	11.854	10.654	10.881	11.078	11.299	-	128.194
Less PY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (<i>\$ in Millions</i>)	51.103	10.619	10.706	11.854	0.000	11.854	10.654	10.881	11.078	11.299	-	128.194
Plus CY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority (<i>\$ in Millions</i>)	51.103	10.619	10.706	11.854	0.000	11.854	10.654	10.881	11.078	11.299	-	128.194
<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>)	-	-	-	-	-	-	-	-	-	-	-	-
Flyaway Unit Cost (<i>\$ in Dollars</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost (<i>\$ in Dollars</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Description: DIVING AND SALVAGE EQUIPMENT: The equipment procured from this Diving and Salvage OPN line item provides critical diving and salvage equipment that enables planned/emergent waterborne submarine/ship repairs, salvage and battle damage repair operations, search and recovery to water depths up to 20,000 feet of seawater and Undersea Clandestine Insertion of Special Operations Forces (UCI-SOF) (service common equipment) to keep our Navy fleet operational and enable national priority missions. 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. FY20 Program Growth is to acquire a service common recompression chamber for Naval Special Warfare Forces. All other project diving and salvage project areas will see 3% to 4% negative growth. Despite 4% reduction in diving equipment, we will continue to upgrade the Navy's Ocean Simulation Facility, a unique national asset that provides important capability to improve diving performance and safety across all aspects of Navy diving. Additionally, we will continue to upgrade diving air compressors, air filtration systems, diving helmets, control systems and SCUBA regulators, which serve as the workhorse of Navy diving. Finally in the diving area, we will introduce a lightweight, flexible recompression chamber to begin phasing out older, large, heavy portable chambers. Absorbing a 3% reduction in salvage and underwater ship husbandry (UWSH) equipment acquisitions, we will continue our focus to close the gap in salvage equipment inventory needed to support Fleet operational plans. This includes patching kits and compressors, deck hydraulic systems, winches, portable salvage cranes, pumps and towing monitoring systems. In the UWSH area, we will replace aging kits such as underwater rigging kits, underwater video systems, and hydraulic chain hoists. Additionally, we will introduce equipment to support new capability for Littoral Combat Ship such as large cofferdams and pier-side support vans. Return on Investment: The demand for divers' services for salvage, ship husbandry, underwater construction, EOD and special warfare is rapidly increasing. Salvage and national operations where this critical and rapidly deployable equipment has been utilized includes the USS FITZGERALD (DDG62) and USS JOHN S. MCCAIN collisions, USS GUARDIAN salvage from the Tubbataha Reef, Fukushima nuclear power plant casualty, Ehime Maru deep water salvage operation, El Faro search/voyage data recorder recovery, Deep Water Horizon oil spill operations, Hurricanes Katrina/Sandy recovery efforts, countless military and civilian waterborne aircraft recoveries and nearly every military diving operation conducted to name but a few. Our UWSH and diving equipment acquisitions of specialized equipment allow divers to make underwater repairs to ships and submarines around the world (cofferdams, propeller repair kits, submarine and surface ship support kits), thereby eliminating the need for emergent dry-docking, saving millions of dollars in ship maintenance funds and returning ships to service faster than if dry-docking was required. Major underwater repair operations avoided approximately 65 dry-dockings, thereby returning over 700 ship operational days to the Fleet Commanders.												

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Exhibit P-40, Budget Line Item Justification: PB 2020 Navy		Date: March 2019
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, 0603713N
Line Item MDAP/MAIS Code: N/A		
[P40A / DIVING (N97)]: The DIVING EQUIPMENT to be procured in FY20 in the amount of \$3.420M includes modernization of the Navy Experimental Diving Unit's Ocean Simulation Facility, purification units for diver's breathing air, surface supplied diving helmets, surface supplied diving life support consoles and associated air storage flasks, SCUBA equipment, dive computers (wrist mounted for calculating decompression requirements), and a flexible recompression chamber. More detailed descriptions are provided below: [P40A / HY176 - HP AIR COMPRESSORS]: (1 @ \$72,630) 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]: (8 @ \$44,330 each) 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 76 units. [P40A / HY179 - NAVY EXPERIMENTAL DIVING UNIT]: (\$638,000) 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 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 / HY193 - SURFACE SUPPLIED DIVING HELMET]: (12 @ \$6,940 each) 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 / HY199 - NAVY DIVE COMPUTER]: (63 @ \$1,560 each) 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 100. [P40A / HY212 - PORTABLE DIVE SYSTEM CONTROL CONSOLE ASSEMBLY (CCA)]: (3 @ \$112,320 each) 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]: (80 @ \$4,950 each) 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 / HY224 - SCUBA REGULATORS]: (49 @ \$1,040 each) 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: PB 2020 Navy		Date: March 2019
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, 0603713N
Line Item MDAP/MAIS Code: N/A		
[P40A / HY226 - FLEX CHAMBER]: (3 @ \$331,760 each) 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]: (2 @ \$106,990 each) 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 EQUIPMENT to be procured in FY20 in the amount of \$3.116M includes SCUBA and hand-held sonar and diver visualization systems. More detailed descriptions are provided below:		
[P40A / HY235 - NSW SERVICE COMMON SCUBA/SONAR KIT]: (14 @ \$106,500 each) 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]: (1 @ \$1,625,000) 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 (N97)]: The SALVAGE EQUIPMENT to be procured in FY20 in the amount of \$5.498M includes high strength synthetic lines for lifting/mooring/towing etc., towing equipment including tow monitoring systems and tow line tension monitoring equipment, portable salvage cranes, salvage winch upgrades, underwater cutting equipment, underwater power tools, jetting pumps, patching kits, compressors, sonar systems, a deep water recovery system and salvage support systems. Also included are underwater ship husbandry equipment (rigging kit, video kit, a cofferdam kit, surface ship support systems) to permit divers to make underwater repairs to ships and submarines afloat. More detailed descriptions are provided below:		
[P40A / HY050 - SYNTHETIC LINES]: (5 @ \$207,900 each) 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 / 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).		
[P40A / HY140 ROV CONTROL PACKAGE]: The ROV Control Package is used to control the various functions of the SWISS, DEEP DRONE, ORION, and CURV-21 ROVs. Required I/O is 6 (3 operational plus 3 spares).		

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Exhibit P-40, Budget Line Item Justification: PB 2020 Navy		Date: March 2019
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, 0603713N
Line Item MDAP/MAIS Code: N/A		
[P40A / HY145 - COFFERDAM SYSTEM]: (1 @ \$145,000) 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 / HY153 - TENSIO METERS]: Tensiometers 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 / HY155 - POWER GENERATORS]: They are used aboard a ship and shore-side to provide general purpose electrical power during salvage and debatching operations. There are two different sizes of power generators, 5 KW and 30 KW The generators are a system consisting of a diesel powered, portable generating unit, a power distribution panel, and associated distribution apparatus. Required I/O is 25 (7 KW) and 22 (30 KW) for a total of 47. [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 / HY169 - UWSH POWER TOOLS]: (1 @ \$129,000) 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]: (1 @ \$156,495) 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 8. [P40A / HY190 - VIDEO/CAMERA EQUIPMENT]: (1 @ \$72,000) 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]: (1 @ \$189,000) 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. [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]: (1 @ \$223,000) 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.		

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Exhibit P-40, Budget Line Item Justification: PB 2020 Navy		Date: March 2019
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, 0603713N
Line Item MDAP/MAIS Code: N/A		
[P40A / HY201 - JETTING PUMPS]: (1 @ \$224,100) 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 / HY203 - HYDRAULIC U/W TOOL KIT]: (7 @ \$63,000 each) 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 27. [P40A / HY 204 - 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 27. [P40A / HY205 - LIGHTING KIT SYSTEM]: (2 @ \$17,500 each) 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 27. [P40A / HY206 - KERRIE CABLE UNDERWATER CUTTING SYSTEM]: (3 @ \$17,325 each) 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 / 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 6. [P40A / HY219 - PORTABLE SALVAGE CRANE]: (1 @ \$199,800) A portable crane system for use on a vessel of opportunity to provide a lifting force during salvage operations. I/O is 8. [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]: (1 @ \$720,000) 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]: (2 @ \$106,500 each) 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 20. [P40A / HY229 - AC SOLAR CELL DEPLOYMENT KIT]: (2 @ \$63,900 each) 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 10. [P40A / HY230 - NEXGEN HYDRAULIC POWER UNIT, MOD 6B]: (1 @ \$99,000) 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.		

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Exhibit P-40, Budget Line Item Justification: PB 2020 Navy		Date: March 2019
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, 0603713N
Line Item MDAP/MAIS Code: N/A		
[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. [P40A / HY232 - DECK SYSTEMS HYDRAULIC POWER UNIT UPGRADE]: (1 @ \$25,200) Deck Systems Hydraulic Power Unit Upgrade: The Hydraulic Power Units the provide hydraulic fluid to operate the Portable Capstan are at the end of their service life and are no longer supported by the manufacturer. New HPU is more reliable, simpler to maintain, and is sound silenced for enhanced personnel safety. Required I/O is 22. [P40A / HY237 - COMMAND CONFERENCE CENTER]: Provides a large expandable office area that is attached to the Salvage Command Van or can operate independently. Space will be environmentally controlled, able to be quickly unpacked with hard sides, and when repacked the shipping foot print will be a 20 ft connex box. Required I/O is 8. [P40A / HY238 - SALVAGE EQUIPMENT TRANSPORT AND LANDING CRAFT]: A cargo vessel designed to operate with a two person crew, cargo capacity of at least 5000 lbs, articulating crane to pick up and load cargo from the pier, A-frame to load or unload cargo, bow ramp to drive on or off, and is capable of road transportation or airlift. Cruise speed is 25 knots at full load, a pusher bow attachment, and a tow bar. Required I/O is 8 [P40A / HY239 - 600 CFM SALVAGE AIR COMPRESSOR]: (1 @ \$82,800) 600 CFM Salvage Air Compressors are utilized to provide large quantities of compressed air for restoration of lost buoyancy in very large spaces shipboard (i.e. Engine Room, Aux Machinery Room #1, etc.) Required I/O is 8. [P40A / HY240 - SALVAGE PATCHING AND RIGGING VAN]: (1 @ \$77,000) 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. Required I/O is 8. [P40A / HY241 - DEEP OCEAN SALVAGE SYSTEM]: (1 @ \$751,495) Heave compensated lift system with power unit and ancillary equipment for executing deep water recovery operations. Required I/O is 2. [P40A / HY243 - WORK CLASS ROV]: Industrial capacity ROV capable of +100HP work and rated in depth to at least 6500 meters. Required I/O is 1. [P40A / HY 244 - EXTREME PERFORMANCE LIFT LINE]: Deep ocean lift line. Jacketed line with internal continuous synthetic fiber core, length of 36kft, diameter at 2 inches, and breaking strength at +200,000 lbs. Required I/O is 10. [P40A / HY245 - HYDRAULIC CHAIN HOIST (6 TON)]: (2 @ \$38,000 each) This system provides a means to lift loads utilizing rigging points under water. These Hydraulic Chain Hoists are specially designed for underwater use and are sized to safely lift 6 tons. Required I/O is 15. [P40A / HY 246 - HYDRAULIC CHAIN HOIST (12 TON)]: (2 @ \$40,000 each) This system provides a means to lift loads utilizing rigging points under water. These Hydraulic Chain Hoists are specially designed for underwater use and are sized to safely lift 12 tons. Required I/O is 15. [P40A / HY247 - HYDRAULIC CHAIN HOIST (25 TON)]: (1 @ \$90,000) This system provides a means to lift loads utilizing rigging points under water. These Hydraulic Chain Hoists are specially designed for underwater use and are sized to safely lift 25 tons. Required I/O is 15. [P40A / HY248 - HYDRAULIC CHAIN HOIST (50 TON)]: (2 @ \$125,000 each) This system provides a means to lift loads utilizing rigging points under water. These Hydraulic Chain Hoists are specially designed for underwater use and are sized to safely lift 50 tons. Required I/O is 15.		

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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, 0603713N				
Line Item MDAP/MAIS Code: N/A										
Exhibits Schedule					Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Exhibit Type	Title*	Subexhibits	ID CD	MDAP/MAIS Code	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)
P-40a	Diving and Salvage Equipment	P-5a			- / 51.103	- / 10.619	- / 10.706	- / 11.854	- / -	- / 11.854
P-40	Total Gross/Weapon System Cost				- / 51.103	- / 10.619	- / 10.706	- / 11.854	- / 0.000	- / 11.854
*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: FY20 Program Growth (\$933K) is to acquire a service common recompression system (HY-236) for Navy Special Warfare Forces. Smaller, highly portable flex-chambers (HY-226) have been introduced in FY-20 to provide expeditionary diving forces a recompression chamber that reduces the logistics associated with transporting large steel chambers in the field. These acquisitions are essential to mitigate the real risks of decompression sickness an arterial gas embolism is high risk diving profiles.										

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Exhibit P-40a, Budget Item Justification For Aggregated Items: PB 2020 Navy																Date: March 2019				
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 11								P-1 Line Item Number / Title: 1130 / Diving and Salvage Equipment								Aggregated Items Title: Diving and Salvage Equipment				
Item Number / Title [DODIC]	ID CD	MDAP/MAIS Code	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 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) DIVING (N97)																				
1.1) HY176 - HP AIR COMPRESSORS ^(†)	A		38,333.33	15	0.575	74,000.00	1	0.074	-	-	-	72,630.00	1	0.073	-	-	-	72,630.00	1	0.073
1.2) HY177 - AIR PURIFICATION UNITS ^(†)	A		70,000.00	32	2.240	45,166.67	12	0.542	45,100.00	13	0.586	44,330.00	8	0.355	-	-	-	44,330.00	8	0.355
1.3) HY179 - NAVY EXPERIMENTAL DIVING UNIT ^(†)	A		945,125.00	8	7.561	619,000.00	1	0.619	627,000.00	1	0.627	638,000.00	1	0.638	-	-	-	638,000.00	1	0.638
1.4) HY193 - SURFACE SUPPLIED DIVING HELMET ^(†)	A		16,357.14	42	0.687	7,142.86	7	0.050	7,076.00	6	0.042	6,940.00	12	0.083	-	-	-	6,940.00	12	0.083
1.5) HY199 - NAVY DIVE COMPUTER ^(†)	A		1,641.54	703	1.154	1,586.67	75	0.119	1,590.00	51	0.081	1,560.00	63	0.098	-	-	-	1,560.00	63	0.098
1.6) HY210 - COMPACT DIVER LIFE SUPPORT SYSTEM AIR SUPPLY ^(†)	A		41,129.03	31	1.275	20,750.00	12	0.249	20,720.00	10	0.207	-	-	-	-	-	-	-	-	-
1.7) HY212 - PORTABLE DIVE SYSTEM CONTROL CONSOLE ASSEMBLY (CCA) ^(†)	A		123,333.33	18	2.220	114,428.57	9	1.030	114,280.00	8	0.914	112,320.00	3	0.337	-	-	-	112,320.00	3	0.337
1.8) HY213 - HP COMPOSITE FLASK REPLACEMENT ^(†)	A		4,689.66	551	2.584	5,037.50	80	0.403	5,032.00	80	0.403	4,950.00	80	0.396	-	-	-	4,950.00	80	0.396
1.9) HY224 - SCUBA REGULATORS ^(†)	A		1,028.04	107	0.110	1,056.60	53	0.056	1,060.00	69	0.073	1,040.00	49	0.051	-	-	-	1,040.00	49	0.051
1.10) HY225 - PRESSURE TEST CHAMBERS ^(†)	A		12,288.89	45	0.553	12,700.00	10	0.127	-	-	-	-	-	-	-	-	-	-	-	-
1.11) HY226 - FLEX CHAMBER ^{(1)(†)}	A		-	-	-	-	-	-	-	-	-	331,760.00	3	0.995	-	-	-	331,760.00	3	0.995
1.12) HY233 - SURFACE SUPPLY AUGMENTED SCUBA SYSTEM ^(†)	A		-	-	-	109,000.00	1	0.109	108,860.00	4	0.435	106,990.00	2	0.214	-	-	-	106,990.00	2	0.214
Subtotal: 1) DIVING (N97)			-	-	18.959	-	-	3.378	-	-	3.368	-	-	3.240	-	-	-	-	-	3.240
2) NSW SERVICE-COMMON EQUIPMENT (N95)																				
2.1) HY235 - NSW SERVICE COMMON	A		-	-	-	100,176.47	17	1.703	105,125.00	16	1.682	106,500.00	14	1.491	-	-	-	106,500.00	14	1.491

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Exhibit P-40a, Budget Item Justification For Aggregated Items: PB 2020 Navy															Date: March 2019					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 11								P-1 Line Item Number / Title: 1130 / Diving and Salvage Equipment							Aggregated Items Title: Diving and Salvage Equipment					
Item Number / Title [DODIC]	ID CD	MDAP/MAIS Code	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 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)
SCUBA/SONAR KIT ^(†)																				
2.2) HY236 - NSW SERVICE COMMON STANDARD DOUBLE LOCK RECOMPRESSION CHAMBER ^{(2)(†)}	A		-	-	-	-	-	-	-	-	-	1,625K	1	1.625	-	-	-	1,625K	1	1.625
Subtotal: 2) NSW SERVICE-COMMON EQUIPMENT (N95)			-	-	0.000	-	-	1.703	-	-	1.682	-	-	3.116	-	-	-	-	-	3.116
3) SALVAGE (N97)																				
3.1) HY050 - SYNTHETIC LINES ^{(3)(†)}	A		203,500.00	2	0.407	-	-	-	198,000.00	2	0.396	207,900.00	5	1.040	-	-	-	207,900.00	5	1.040
3.2) HY116 - PORTABLE SUBMERSIBLE PUMPS ^(†)	A		148,352.94	17	2.522	123,333.33	3	0.370	-	-	-	-	-	-	-	-	-	-	-	-
3.3) HY131 - ROV HANDLING SYSTEM ^(†)	A		-	-	-	1,084K	1	1.084	-	-	-	-	-	-	-	-	-	-	-	-
3.5) HY145 - COFFERDAM SYSTEM ^(†)	A		251,583.33	12	3.019	-	-	-	-	-	-	145,000.00	1	0.145	-	-	-	145,000.00	1	0.145
3.6) HY146 - PROPELLER REPAIR KIT ^(†)	A		306,000.00	5	1.530	249,000.00	2	0.498	228,400.00	1	0.228	-	-	-	-	-	-	-	-	-
3.7) HY153 - TENSIO METERS ^(†)	A		15,785.71	28	0.442	16,250.00	4	0.065	14,850.00	2	0.030	-	-	-	-	-	-	-	-	-
3.9) HY156 - SALVAGE VANS ^(†)	A		169,250.00	8	1.354	211,000.00	1	0.211	-	-	-	-	-	-	-	-	-	-	-	-
3.10) HY169 - UWSH POWER TOOLS ^(†)	A		130,666.67	6	0.784	-	-	-	-	-	-	129,000.00	1	0.129	-	-	-	129,000.00	1	0.129
3.11) HY184 - SALVAGE SUPPORT SYSTEMS ^(†)	A		332,500.00	8	2.660	224,000.00	1	0.224	215,100.00	1	0.215	-	-	-	-	-	-	-	-	-
3.12) HY186 - SMART TOW SYSTEMS ^(†)	A		120,333.33	3	0.361	168,000.00	1	0.168	153,900.00	1	0.154	156,495.00	1	0.156	-	-	-	156,495.00	1	0.156
3.13) HY190 - VIDEO/CAMERA EQUIPMENT ^(†)	A		114,142.86	7	0.799	-	-	-	-	-	-	72,000.00	1	0.072	-	-	-	72,000.00	1	0.072
3.14) HY195 - UNDERWATER	A		233,818.18	11	2.572	-	-	-	186,975.00	1	0.187	189,000.00	1	0.189	-	-	-	189,000.00	1	0.189

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Item Number / Title [DODIC]	ID CD	MDAP/MAIS Code	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 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)
RIGGING SUPPORT SYSTEM ^(†)																				
3.15) HY196 - UWSH SUBMARINE SUPPORT SYSTEM ^(†)	A		561,230.77	13	7.296	502,000.00	1	0.502	-	-	-	-	-	-	-	-	-	-	-	-
3.16) HY197 - UWSH PIERSIDE SUPPORT VANS ^(†)	A		314,250.00	4	1.257	-	-	-	-	-	-	223,000.00	1	0.223	-	-	-	223,000.00	1	0.223
3.17) HY198 - UWSH SURFACE SHIP SUPPORT SYSTEMS ^(†)	A		161,380.95	21	3.389	125,000.00	3	0.375	115,200.00	4	0.461	-	-	-	-	-	-	-	-	-
3.18) HY201 - JETTING PUMPS ^(†)	A		200,818.18	11	2.209	240,000.00	2	0.480	219,600.00	2	0.439	224,100.00	1	0.224	-	-	-	224,100.00	1	0.224
3.19) HY203 - HYDRAULIC U/W TOOL KIT ^(†)	A		61,000.00	17	1.037	-	-	-	63,000.00	1	0.063	63,000.00	7	0.441	-	-	-	63,000.00	7	0.441
3.21) HY205 - LIGHTING KIT SYSTEM ^(†)	A		15,200.00	20	0.304	-	-	-	17,100.00	2	0.034	17,500.00	2	0.035	-	-	-	17,500.00	2	0.035
3.22) HY206 - KERRIE CABLE UNDERWATER CUTTING SYSTEM ^(†)	A		-	-	-	18,500.00	6	0.111	16,875.00	7	0.118	17,325.00	3	0.052	-	-	-	17,325.00	3	0.052
3.23) HY216 - SALVAGE/BDR MATERIAL KIT ^(†)	A		50,500.00	4	0.202	60,000.00	2	0.120	-	-	-	-	-	-	-	-	-	-	-	-
3.24) HY219 - PORTABLE SALVAGE CRANE ^(†)	A		-	-	-	216,000.00	1	0.216	197,100.00	1	0.197	199,800.00	1	0.200	-	-	-	199,800.00	1	0.200
3.26) HY223 - 3D SONAR ^(†)	A		-	-	-	-	-	-	583,200.00	1	0.583	-	-	-	-	-	-	-	-	-
3.27) HY227 - COMPLEX AND/OR LARGE UWSH REPAIR COFFERDAM SUPPORT SYSTEMS ^(†)	A		-	-	-	780,000.00	1	0.780	713,700.00	1	0.714	720,000.00	1	0.720	-	-	-	720,000.00	1	0.720
3.28) HY228 - CLYDE WINCH UPGRADE MODIFICATIONS ^(†)	A		-	-	-	114,000.00	2	0.228	104,850.00	6	0.629	106,500.00	2	0.213	-	-	-	106,500.00	2	0.213

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Item Number / Title [DODIC]	ID CD	MDAP/MAIS Code	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 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)
3.29) HY229 - AC SOLAR CELL DEPLOYMENT KIT ^(†)	A		-	-	-	-	-	-	63,000.00	1	0.063	63,900.00	2	0.128	-	-	-	63,900.00	2	0.128
3.30) HY230 - NEXGEN HYDRAULIC POWER UNIT, MOD 6B ^(†)	A		-	-	-	106,000.00	1	0.106	97,200.00	1	0.097	99,000.00	1	0.099	-	-	-	99,000.00	1	0.099
3.32) HY232 - DECK SYSTEMS HYDRAULIC POWER UNIT UPGRADE ^(†)	A		-	-	-	-	-	-	25,200.00	3	0.076	25,200.00	1	0.025	-	-	-	25,200.00	1	0.025
3.35) HY239 - 600 CFM SALVAGE AIR COMPRESSOR ^(†)	A		-	-	-	-	-	-	81,900.00	1	0.082	82,800.00	1	0.083	-	-	-	82,800.00	1	0.083
3.36) HY240 - SALVAGE PATCHING AND RIGGING VAN ^(†)	A		-	-	-	-	-	-	75,600.00	2	0.151	77,000.00	1	0.077	-	-	-	77,000.00	1	0.077
3.37) HY241 - DEEP OCEAN SALVAGE SYSTEM ^(†)	A		-	-	-	-	-	-	738,900.00	1	0.739	751,495.00	1	0.751	-	-	-	751,495.00	1	0.751
3.40) HY245 - HYDRAULIC CHAIN HOIST (6 TON) ^(†)	A		-	-	-	-	-	-	-	-	-	38,000.00	2	0.076	-	-	-	38,000.00	2	0.076
3.41) HY 246 - HYDRAULIC CHAIN HOIST (12 TON) ^(†)	A		-	-	-	-	-	-	-	-	-	40,000.00	2	0.080	-	-	-	40,000.00	2	0.080
3.42) HY247 - HYDRAULLIC CHAIN HOIST (25 TON) ^(†)	A		-	-	-	-	-	-	-	-	-	90,000.00	1	0.090	-	-	-	90,000.00	1	0.090
3.43) HY248 - HYDRAULIC CHAIN HOIST (50 TON) ^(†)	A		-	-	-	-	-	-	-	-	-	125,000.00	2	0.250	-	-	-	125,000.00	2	0.250
Subtotal: 3) SALVAGE (N97)			-	-	32.144	-	-	5.538	-	-	5.656	-	-	5.498	-	-	-	-	-	5.498
Total			-	-	51.103	-	-	10.619	-	-	10.706	-	-	11.854	-	-	-	-	-	11.854

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

(†) indicates the presence of a P-5a

Footnotes:

(1) HY226 FLEX CHAMBER introduces lightweight fabric recompression chambers to replace some aging steel chambers. Flex chambers reduce size and weight of steel chambers and are ideally suited for expeditionary diving forces. The fabric used on the chambers is the result of several years of development and testing.

(2) HY-236 NSW SERVICE COMMON STANDARD DOUBLE LOCK RECOMPRESSION CHAMBER. Designed as a fixed (non-portable) recompression chamber operated at a NSW Command as the primary medical treatment chamber to treat decompression sickness and arterial gas embolism, both of which are potentially deadly conditions if not properly treated.

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Exhibit P-40a, Budget Item Justification For Aggregated Items: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 11	P-1 Line Item Number / Title: 1130 / Diving and Salvage Equipment	Aggregated Items Title: Diving and Salvage Equipment
⁽³⁾ Unit cost increase from FY19 is being driven by the cost of new materials due to performance enhancements as well as material changes driven by certification factors (i.e. environmental) and manufacturing improvements.		

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Exhibit P-5a, Procurement History and Planning: PB 2020 Navy									Date: March 2019			
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 11				P-1 Line Item Number / Title: 1130 / Diving and Salvage Equipment					Aggregated Items: Diving and Salvage Equipment			
Item Number / Title [DODIC]	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) DIVING (N97)												
1.1) HY176 - HP AIR COMPRESSORS		2018	GLOBAL PCCI / IRVINE CA	C / CPFF	WASHINGTON, DC	Jun 2018	Jun 2019	1	74,000.00	Y		
1.1) HY176 - HP AIR COMPRESSORS		2020	Unknown / TBD	C / TBD	WASHINGTON, DC	Oct 2019	Oct 2019	1	72,630.00	Y		
1.2) HY177 - AIR PURIFICATION UNITS		2018	GLOBAL PCCI / IRVINE CA	C / CPFF	WASHINGTON, DC	Jun 2018	Jun 2019	12	45,166.67	Y		
1.2) HY177 - AIR PURIFICATION UNITS		2019	Unknown / TBD	C / TBD	WASHINGTON, DC	Oct 2018	Oct 2019	13	45,100.00	Y		
1.2) HY177 - AIR PURIFICATION UNITS		2020	Unknown / TBD	C / TBD	WASHINGTON, DC	Oct 2019	Oct 2020	8	44,330.00	Y		
1.3) HY179 - NAVY EXPERIMENTAL DIVING UNIT		2018	Navy Experimental Diving Unit / Panama City, FL	Various	Panama City, FL	Apr 2018	Apr 2019	1	619,000.00	Y		
1.3) HY179 - NAVY EXPERIMENTAL DIVING UNIT		2019	TBD / TBD	C / TBD	Panama City, FL	Oct 2018	Oct 2019	1	627,000.00	Y		
1.3) HY179 - NAVY EXPERIMENTAL DIVING UNIT		2020	TBD / TBD	C / TBD	Panama City, FL	Oct 2019	Oct 2019	1	638,000.00	Y		
1.4) HY193 - SURFACE SUPPLIED DIVING HELMET		2018	GLOBAL PCCI / IRVINE CA	C / CPFF	WASHINGTON, DC	Jun 2018	Jun 2019	7	7,142.86	Y		
1.4) HY193 - SURFACE SUPPLIED DIVING HELMET		2019	Unknown / TBD	TBD	WASHINGTON, DC	Oct 2018	Oct 2019	6	7,076.00	Y		
1.4) HY193 - SURFACE SUPPLIED DIVING HELMET		2020	Unknown / TBD	TBD	WASHINGTON, DC	Oct 2019	Apr 2020	12	6,940.00	Y		
1.5) HY199 - NAVY DIVE COMPUTER		2018	GLOBAL PCCI / IRVINE CA	C / FFP	WASHINGTON, DC	Jun 2018	Jun 2019	75	1,586.67	Y		
1.5) HY199 - NAVY DIVE COMPUTER		2019	Unknown / TBD	TBD	WASHINGTON, DC	Oct 2018	Oct 2019	51	1,590.00	Y		
1.5) HY199 - NAVY DIVE COMPUTER		2020	Unknown / TBD	TBD	WASHINGTON, DC	Oct 2019	Oct 2019	63	1,560.00	Y		
1.6) HY210 - COMPACT DIVER LIFE SUPPORT SYSTEM AIR SUPPLY		2018	GLOBAL PCCI / IRVINE CA	C / CPFF	WASHINGTON, DC	Jun 2018	Jun 2019	12	20,750.00	Y		
1.6) HY210 - COMPACT DIVER LIFE SUPPORT SYSTEM AIR SUPPLY		2019	Unknown / TBD	C / TBD	WASHINGTON, DC	Oct 2018	Oct 2019	10	20,720.00	Y		
1.7) HY212 - PORTABLE DIVE SYSTEM CONTROL CONSOLE ASSEMBLY (CCA)		2018	GLOBAL PCCI / IRVINE CA	C / CPFF	WASHINGTON, DC	Jun 2018	Jun 2019	9	114,428.57	Y		

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Exhibit P-5a, Procurement History and Planning: PB 2020 Navy									Date: March 2019			
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 11			P-1 Line Item Number / Title: 1130 / Diving and Salvage Equipment						Aggregated Items: Diving and Salvage Equipment			
Item Number / Title [DODIC]	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
1.7) HY212 - PORTABLE DIVE SYSTEM CONTROL CONSOLE ASSEMBLY (CCA)		2019	Unknown / TBD	C / TBD	WASHINGTON, DC	Oct 2018	Oct 2019	8	114,280.00	Y		
1.7) HY212 - PORTABLE DIVE SYSTEM CONTROL CONSOLE ASSEMBLY (CCA)		2020	Unknown / TBD	C / TBD	WASHINGTON, DC	Oct 2019	Oct 2019	3	112,320.00	Y		
1.8) HY213 - HP COMPOSITE FLASK REPLACEMENT		2018	GLOBAL PCCI / IRVINE CA	C / CPFF	WASHINGTON, DC	Jun 2018	Jun 2019	80	5,037.50	Y		
1.8) HY213 - HP COMPOSITE FLASK REPLACEMENT		2019	Unknown / TBD	C / TBD	WASHINGTON, DC	Oct 2018	Oct 2019	80	5,032.00	Y		
1.8) HY213 - HP COMPOSITE FLASK REPLACEMENT		2020	Unknown / TBD	C / TBD	WASHINGTON, DC	Oct 2019	Oct 2020	80	4,950.00	Y		
1.9) HY224 - SCUBA REGULATORS		2018	GLOBAL PCCI / IRVINE CA	C / CPFF	WASHINGTON, DC	Jun 2018	Jun 2019	53	1,056.60	Y		
1.9) HY224 - SCUBA REGULATORS		2019	Unknown / Unknown	C / TBD	WASHINGTON, DC	Oct 2018	Oct 2018	69	1,060.00	Y		
1.9) HY224 - SCUBA REGULATORS		2020	Unknown / Unknown	C / TBD	WASHINGTON, DC	Oct 2019	Oct 2020	49	1,040.00	Y		
1.10) HY225 - PRESSURE TEST CHAMBERS		2018	GLOBAL PCCI / IRVINE CA	C / CPFF	WASHINGTON, DC	Jun 2018	Jun 2018	10	12,700.00	Y		
1.11) HY226 - FLEX CHAMBER ⁽¹⁾		2020	Unknown / Unknown	C / TBD	WASHINGTON, DC	Oct 2019	Oct 2019	3	331,760.00	Y		
1.12) HY233 - SURFACE SUPPLY AUGMENTED SCUBA SYSTEM		2018	GLOBAL PCCI / IRVINE CA	C / CPFF	WASHINGTON, DC	Apr 2018	Apr 2019	1	109,000.00	Y		
1.12) HY233 - SURFACE SUPPLY AUGMENTED SCUBA SYSTEM		2019	TBD / TBD	C / TBD	WASHINGTON, DC	Oct 2018	Oct 2019	4	108,860.00	Y		
1.12) HY233 - SURFACE SUPPLY AUGMENTED SCUBA SYSTEM		2020	TBD / TBD	C / TBD	WASHINGTON, DC	Oct 2019	Oct 2020	2	106,990.00	Y		
2) NSW SERVICE-COMMON EQUIPMENT (N95)												
2.1) HY235 - NSW SERVICE COMMON SCUBA/SONAR KIT		2018	GLOBAL PCCI / IRVINE CA	C / CPFF	WASHINGTON, DC	Jun 2018	Jun 2019	17	100,176.47	Y		
2.1) HY235 - NSW SERVICE COMMON SCUBA/SONAR KIT		2019	TBD / TBD	C / TBD	WASHINGTON, DC	Oct 2018	Oct 2019	16	105,125.00	Y		
2.1) HY235 - NSW SERVICE COMMON SCUBA/SONAR KIT		2020	TBD / TBD	C / TBD	WASHINGTON, DC	Oct 2019	Oct 2019	14	106,500.00	Y		
2.2) HY236 - NSW SERVICE COMMON STANDARD DOUBLE LOCK RECOMPRESSION CHAMBER ⁽²⁾		2020	TBD / TBD	C / TBD	WASHINGTON, DC	Oct 2019	Oct 2019	1	1,625K	Y		
3) SALVAGE (N97)												

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Exhibit P-5a, Procurement History and Planning: PB 2020 Navy									Date: March 2019			
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 11				P-1 Line Item Number / Title: 1130 / Diving and Salvage Equipment					Aggregated Items: Diving and Salvage Equipment			
Item Number / Title [DODIC]	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
3.1) HY050 - SYNTHETIC LINES (3)		2019	TBD / UNKNOWN	C / TBD	WASHINGTON, DC	Oct 2018	Oct 2019	2	198,000.00	Y		
3.1) HY050 - SYNTHETIC LINES (3)		2020	TBD / UNKNOWN	C / TBD	WASHINGTON, DC	Oct 2019	Oct 2019	5	207,900.00	Y		
3.2) HY116 - PORTABLE SUBMERSIBLE PUMPS		2018	GLOBAL PCCI / IRVINE CA	C / CPFF	WASHINGTON, DC	Jun 2018	Jun 2019	3	123,333.33	Y		
3.3) HY131 - ROV HANDLING SYSTEM		2018	PHOENIX INTL / LARGO MD	C / CPAF	WASHINGTON, DC	Oct 2017	Oct 2018	1	1,084K	Y		
3.5) HY145 - COFFERDAM SYSTEM		2020	Unknown / Unknown	TBD	WASHINGTON, DC	Oct 2019	Oct 2019	1	145,000.00	Y		
3.6) HY146 - PROPELLER REPAIR KIT		2018	GLOBAL PCCI / IRVINE CA	C / CPFF	WASHINGTON, DC	Jun 2018	Jun 2019	2	249,000.00	Y		
3.6) HY146 - PROPELLER REPAIR KIT		2019	TBD / TBD	C / TBD	WASHINGTON, DC	Oct 2018	Oct 2019	1	228,400.00	Y		
3.7) HY153 - TENSIMETERS		2018	GLOBAL PCCI / IRVINE CA	C / TBD	WASHINGTON, DC	Apr 2018	Apr 2019	4	16,250.00	Y		
3.7) HY153 - TENSIMETERS		2019	TBD / TBD	C / TBD	WASHINGTON, DC	Oct 2018	Oct 2019	2	14,850.00	Y		
3.9) HY156 - SALVAGE VANS		2018	GLOBAL PCCI / IRVINE CA	C / CPFF	WASHINGTON, DC	Jun 2018	May 2019	1	211,000.00	Y		
3.10) HY169 - UWSH POWER TOOLS		2020	TBD / UNKNOWN	TBD	WASHINGTON, DC	Oct 2019	Oct 2019	1	129,000.00	Y		
3.11) HY184 - SALVAGE SUPPORT SYSTEMS		2018	GLOBAL PCCI / IRVINE CA	C / CPFF	WASHINGTON, DC	Jun 2018	Jun 2019	1	224,000.00	Y		
3.11) HY184 - SALVAGE SUPPORT SYSTEMS		2019	Unknown / Unknown	C / TBD	WASHINGTON, DC	Oct 2018	Oct 2019	1	215,100.00	Y		
3.12) HY186 - SMART TOW SYSTEMS		2018	GLOBAL PCCI / IRVINE CA	C / CPFF	WASHINGTON, DC	Jun 2018	Jun 2019	1	168,000.00	Y		
3.12) HY186 - SMART TOW SYSTEMS		2019	Unknown / TBD	C / TBD	WASHINGTON, DC	Oct 2018	Oct 2019	1	153,900.00	Y		
3.12) HY186 - SMART TOW SYSTEMS		2020	Unknown / TBD	C / TBD	WASHINGTON, DC	Oct 2019	Oct 2019	1	156,495.00	Y		
3.13) HY190 - VIDEO/CAMERA EQUIPMENT		2020	TBD / TBD	C / TBD	WASHINGTON, DC	Oct 2019	Oct 2019	1	72,000.00	Y		
3.14) HY195 - UNDERWATER RIGGING SUPPORT SYSTEM		2019	Unknown / TBD	C / TBD	WASHINGTON, DC	Oct 2018	Oct 2018	1	186,975.00	Y		
3.14) HY195 - UNDERWATER RIGGING SUPPORT SYSTEM		2020	Unknown / TBD	C / TBD	WASHINGTON, DC	Oct 2019	Oct 2019	1	189,000.00	Y		
3.15) HY196 - UWSH SUBMARINE SUPPORT SYSTEM		2018	GLOBAL PCCI / IRVINE CA	C / CPFF	WASHINGTON, DC	Jun 2018	Jun 2019	1	502,000.00	Y		
3.16) HY197 - UWSH PIERSIDE SUPPORT VANS		2020	Unknown / Unknown	C / TBD	WASHINGTON, DC	Oct 2019	Oct 2019	1	223,000.00	Y		

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Exhibit P-5a, Procurement History and Planning: PB 2020 Navy									Date: March 2019			
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 11				P-1 Line Item Number / Title: 1130 / Diving and Salvage Equipment					Aggregated Items: Diving and Salvage Equipment			
Item Number / Title [DODIC]	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
3.17) HY198 - UWSH SURFACE SHIP SUPPORT SYSTEMS		2018	GLOBAL PCCI / IRVINE CA	C / CPFF	WASHINGTON, DC	Apr 2018	Apr 2019	3	125,000.00	Y		
3.17) HY198 - UWSH SURFACE SHIP SUPPORT SYSTEMS		2019	Unknown / TBD	C / TBD	WASHINGTON, DC	Oct 2018	Oct 2019	4	115,200.00	Y		
3.18) HY201 - JETTING PUMPS		2018	GLOBAL PCCI / IRVINE CA	C / CPFF	WASHINGTON, DC	Jun 2018	Jun 2019	2	240,000.00	Y		
3.18) HY201 - JETTING PUMPS		2019	Unknown / TBD	C / TBD	WASHINGTON, DC	Oct 2018	Oct 2019	2	219,600.00	Y		
3.18) HY201 - JETTING PUMPS		2020	Unknown / TBD	C / TBD	WASHINGTON, DC	Oct 2019	Oct 2019	1	224,100.00	Y		
3.19) HY203 - HYDRAULIC U/W TOOL KIT		2019	Unknown / TBD	TBD	WASHINGTON, DC	Oct 2018	Oct 2019	1	63,000.00	Y		
3.19) HY203 - HYDRAULIC U/W TOOL KIT		2020	Unknown / TBD	C / TBD	WASHINGTON, DC	Oct 2019	Oct 2019	7	63,000.00	Y		
3.21) HY205 - LIGHTING KIT SYSTEM		2019	Unknown / TBD	C / TBD	WASHINGTON, DC	Oct 2018	Oct 2018	2	17,100.00	Y		
3.21) HY205 - LIGHTING KIT SYSTEM		2020	Unknown / TBD	C / TBD	WASHINGTON, DC	Oct 2019	Oct 2019	2	17,500.00	Y		
3.22) HY206 - KERRIE CABLE UNDERWATER CUTTING SYSTEM		2018	GLOBAL PCCI / IRVINE CA	C / CPFF	WASHINGTON, DC	Jun 2018	Jun 2018	6	18,500.00	Y		
3.22) HY206 - KERRIE CABLE UNDERWATER CUTTING SYSTEM		2019	Unknown / Unknown	C / TBD	WASHINGTON, DC	Oct 2018	Oct 2019	7	16,875.00	Y		
3.22) HY206 - KERRIE CABLE UNDERWATER CUTTING SYSTEM		2020	Unknown / Unknown	C / TBD	WASHINGTON, DC	Oct 2019	Oct 2019	3	17,325.00	Y		
3.23) HY216 - SALVAGE/BDR MATERIAL KIT		2018	GLOBAL PCCI / IRVINE CA	C / CPFF	WASHINGTON, DC	Jun 2018	Jun 2019	2	60,000.00	Y		
3.24) HY219 - PORTABLE SALVAGE CRANE		2018	GLOBAL PCCI / IRVINE CA	C / CPFF	WASHINGTON, DC	Jun 2018	Jun 2019	1	216,000.00	Y		
3.24) HY219 - PORTABLE SALVAGE CRANE		2019	TBD / TBD	C / TBD	WASHINGTON, DC	Oct 2018	Oct 2019	1	197,100.00	Y		
3.24) HY219 - PORTABLE SALVAGE CRANE		2020	TBD / TBD	C / TBD	WASHINGTON, DC	Oct 2019	Oct 2019	1	199,800.00	Y		
3.26) HY223 - 3D SONAR		2019	TBD / TBD	C / TBD	WASHINGTON, DC	Oct 2018	Oct 2019	1	583,200.00	Y		
3.27) HY227 - COMPLEX AND/OR LARGE UWSH REPAIR COFFERDAM SUPPORT SYSTEMS		2018	GLOBAL PCCI / WASHINGTON, DC	C / CPFF	WASHINGTON, DC	Jun 2018	Jun 2019	1	780,000.00	Y		

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Exhibit P-5a, Procurement History and Planning: PB 2020 Navy									Date: March 2019			
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 11				P-1 Line Item Number / Title: 1130 / Diving and Salvage Equipment					Aggregated Items: Diving and Salvage Equipment			
Item Number / Title [DODIC]	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
3.27) HY227 - COMPLEX AND/ OR LARGE UWSH REPAIR COFFERDAM SUPPORT SYSTEMS		2019	TBD / TBD	C / TBD	WASHINGTON, DC	Oct 2018	Oct 2019	1	713,700.00	Y		
3.27) HY227 - COMPLEX AND/ OR LARGE UWSH REPAIR COFFERDAM SUPPORT SYSTEMS		2020	TBD / TBD	C / TBD	WASHINGTON, DC	Oct 2019	Oct 2019	1	720,000.00	Y		
3.28) HY228 - CLYDE WINCH UPGRADE MODIFICATIONS		2018	GLOBAL PCCI / IRVINE CA	C / CPFF	WASHINGTON, DC	Jun 2018	Jun 2019	2	114,000.00	Y		
3.28) HY228 - CLYDE WINCH UPGRADE MODIFICATIONS		2019	TBD / TBD	C / TBD	WASHINGTON, DC	Oct 2018	Oct 2019	6	104,850.00	Y		
3.28) HY228 - CLYDE WINCH UPGRADE MODIFICATIONS		2020	TBD / TBD	C / TBD	WASHINGTON, DC	Oct 2019	Oct 2019	2	106,500.00	Y		
3.29) HY229 - AC SOLAR CELL DEPLOYMENT KIT		2019	TBD / TBD	TBD	WASHINGTON, DC	Oct 2018	Oct 2019	1	63,000.00	Y		
3.29) HY229 - AC SOLAR CELL DEPLOYMENT KIT		2020	TBD / TBD	C / TBD	WASHINGTON, DC	Oct 2019	Oct 2019	2	63,900.00	Y		
3.30) HY230 - NEXGEN HYDRAULIC POWER UNIT, MOD 6B		2018	GLOBAL PCCI / WASHINGTON, DC	C / CPFF	WASHINGTON, DC	Jun 2018	Jun 2019	1	106,000.00	Y		
3.30) HY230 - NEXGEN HYDRAULIC POWER UNIT, MOD 6B		2019	TBD / TBD	TBD	WASHINGTON, DC	Oct 2018	Oct 2019	1	97,200.00	Y		
3.30) HY230 - NEXGEN HYDRAULIC POWER UNIT, MOD 6B		2020	TBD / TBD	TBD	WASHINGTON, DC	Oct 2019	Oct 2019	1	99,000.00	Y		
3.32) HY232 - DECK SYSTEMS HYDRAULIC POWER UNIT UPGRADE		2019	TBD / TBD	C / TBD	WASHINGTON, DC	Oct 2018	Oct 2019	3	25,200.00	Y		
3.32) HY232 - DECK SYSTEMS HYDRAULIC POWER UNIT UPGRADE		2020	TBD / TBD	C / TBD	WASHINGTON, DC	Oct 2019	Oct 2019	1	25,200.00	Y		
3.35) HY239 - 600 CFM SALVAGE AIR COMPRESSOR		2019	TBD / TBD	C / TBD	WASHINGTON, DC	Oct 2018	Oct 2019	1	81,900.00	Y		
3.35) HY239 - 600 CFM SALVAGE AIR COMPRESSOR		2020	TBD / TBD	C / TBD	WASHINGTON, DC	Oct 2019	Oct 2019	1	82,800.00	Y		
3.36) HY240 - SALVAGE PATCHING AND RIGGING VAN		2019	TBD / TBD	C / TBD	WASHINGTON, DC	Oct 2018	Oct 2019	2	75,600.00	Y		
3.36) HY240 - SALVAGE PATCHING AND RIGGING VAN		2020	TBD / TBD	C / TBD	WASHINGTON, DC	Oct 2019	Oct 2019	1	77,000.00	Y		

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Exhibit P-5a, Procurement History and Planning: PB 2020 Navy									Date: March 2019			
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 11				P-1 Line Item Number / Title: 1130 / Diving and Salvage Equipment					Aggregated Items: Diving and Salvage Equipment			
Item Number / Title [DODIC]	OCO	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
3.37) HY241 - DEEP OCEAN SALVAGE SYSTEM		2019	TBD / TBD	C / TBD	WASHINGTON, DC	Oct 2018	Oct 2019	1	738,900.00	Y		
3.37) HY241 - DEEP OCEAN SALVAGE SYSTEM		2020	TBD / TBD	C / TBD	WASHINGTON, DC	Oct 2019	Oct 2019	1	751,495.00	Y		
3.40) HY245 - HYDRAULIC CHAIN HOIST (6 TON)		2020	TBD / TBD	C / TBD	WASHINGTON, DC	Oct 2019	Oct 2019	2	38,000.00	Y		
3.41) HY 246 - HYDRAULIC CHAIN HOIST (12 TON)		2020	TBD / TBD	C / TBD	WASHINGTON, DC	Oct 2019	Oct 2020	2	40,000.00	Y		
3.42) HY247 - HYDRAULIC CHAIN HOIST (25 TON)		2020	TBD / TBD	C / TBD	WASHINGTON, DC	Oct 2019	Oct 2019	1	90,000.00	Y		
3.43) HY248 - HYDRAULIC CHAIN HOIST (50 TON)		2020	TBD / TBD	C / TBD	WASHINGTON, DC	Oct 2019	Oct 2019	2	125,000.00	Y		

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

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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity (<i>Units in Each</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost (<i>\$ in Millions</i>)	595.895	61.789	68.831	79.102	0.000	79.102	58.803	47.244	49.117	52.134	Continuing	Continuing
Less PY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (<i>\$ in Millions</i>)	595.895	61.789	68.831	79.102	0.000	79.102	58.803	47.244	49.117	52.134	Continuing	Continuing
Plus CY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority (<i>\$ in Millions</i>)	595.895	61.789	68.831	79.102	0.000	79.102	58.803	47.244	49.117	52.134	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: PB 2020 Navy		Date: March 2019
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		
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.		
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		

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Exhibit P-40, Budget Line Item Justification: PB 2020 Navy		Date: March 2019
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		
40PB (formerly 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., Special Operations Forces (SOF), EOD, United States Coast Guard (USCG) Law Enforcement Detachment 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.		
CRF Boat Simulator - Funding will be used to procure integrated virtual training simulators. These virtual simulators will provide training for MK VI and 40PB coxswains, navigators, engineers, and weapons personnel.		
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		

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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		
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		
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		

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ID Code (A=Service Ready, B=Not Service Ready): A	Program Elements for Code B Items: N/A	Other Related Program Elements: N/A
Line Item MDAP/MAIS Code: N/A		
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) 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) 40PB (formerly 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. 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. Rigid Inflatable Boats (RIB) ISO Global Mine Warfare (MIW) Operations - FY19 OCO funding to support the purchase of (2) 8.5M Rigid Hull Inflatable Boats (RHIBs) to replace the Combat Rubber Rating Crafts (CRRCs) currently being utilized for global Unmanned Underwater Vehicle (UUV) inshore surveys. The larger RIBs are required due to the CRRCs not being designed for offshore use thus unsafe/unreliable in offshore maritime conditions, and severely limit maneuverability through most sea-states which is unsuitable for the majority of UUV surveys. RIBs are designed for offshore UUV survey requests. The RHIBs will greatly improve the ability to provide mission critical information aimed at protecting the Navy from underwater threats and support the increased naval demand in offshore operations. The project is in Geographic area for MIW operations in support of a USCENTCOM requirement ("SPARTAN SHIELD"/FTN # 1190C066396 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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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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Exhibit Type	Title*	Subexhibits	ID CD	MDAP/MAIS Code	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)
P-40a	Standard Boats	P-5a			- / 595.895	- / 61.789	- / 68.831	- / 79.102	- / -	- / 79.102
P-40	Total Gross/Weapon System Cost				- / 595.895	- / 61.789	- / 68.831	- / 79.102	- / 0.000	- / 79.102
*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:

Funds baseline programs to provide boats established by CNO and NAVSEA.

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Exhibit P-40a, Budget Item Justification For Aggregated Items: PB 2020 Navy																Date: March 2019					
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 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 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		382,090.91	11	4.203	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
1.3) CNIC Force Protection Medium (1)(t)	A		516,636.36	77	39.781	475,625.00	8	3.805	484,000.00	9	4.356	493,000.00	11	5.423	-	-	-	493,000.00	11	5.423	
1.4) CNIC Force Protection Large	A		11,379K	3	34.136	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
1.5) CNIC Workboat Medium(t)	A		1,012K	19	19.225	938,000.00	3	2.814	954,333.33	3	2.863	972,000.00	2	1.944	-	-	-	972,000.00	2	1.944	
1.6) CNIC Workboat Large (t)	A		1,590K	6	9.540	1,681K	3	5.043	1,707K	3	5.121	1,738K	3	5.214	-	-	-	1,738K	3	5.214	
Subtotal: 1) H0001 - Base Operating Forces			-	-	117.046	-	-	11.662	-	-	12.340	-	-	12.581	-	-	-	-	-	12.581	
2) H0002 - Amphibious Assault Ships																					
2.1) 7M (24FT) Rigid Inflatable Boat (RIB) (2)(t)	A		-	-	-	-	-	-	-	-	-	212,000.00	7	1.484	-	-	-	212,000.00	7	1.484	
2.2) 11M (36FT) Rigid Inflatable Boat (RIB)	A		956,277.78	18	17.213	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Subtotal: 2) H0002 - Amphibious Assault Ships			-	-	17.213	-	-	-	-	-	-	-	-	1.484	-	-	-	-	-	1.484	
3) H0003 - Explosive Ordnance Forces																					
3.1) EOD Support Craft (RIB)(t)	A		361,200.00	50	18.060	-	-	-	281,000.00	10	2.810	286,000.00	8	2.288	-	-	-	286,000.00	8	2.288	
3.2) 11M EOD RIB (3)(t)	A		1,800K	2	3.600	748,000.00	9	6.732	762,000.00	6	4.572	762,000.00	19	14.478	-	-	-	762,000.00	19	14.478	
Subtotal: 3) H0003 - Explosive Ordnance Forces			-	-	21.660	-	-	6.732	-	-	7.382	-	-	16.766	-	-	-	-	-	16.766	
4) H0004 - Naval Special Warfare																					
4.1) NSW Long Range Support Craft(t)	A		361,093.75	32	11.555	341,000.00	3	1.023	347,000.00	6	2.082	353,000.00	6	2.118	-	-	-	353,000.00	6	2.118	
4.2) NSW Short Range Support Craft(t)	A		638,785.71	14	8.943	339,000.00	5	1.695	345,000.00	9	3.105	351,000.00	9	3.159	-	-	-	351,000.00	9	3.159	
4.3) NSW RIB(t)	A		1,006K	10	10.055	1,051K	2	2.102	1,069K	2	2.138	1,089K	2	2.178	-	-	-	1,089K	2	2.178	
Subtotal: 4) H0004 - Naval Special Warfare			-	-	30.553	-	-	4.820	-	-	7.325	-	-	7.455	-	-	-	-	-	7.455	
5) H0005 - Riverine Activities																					

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Exhibit P-40a, Budget Item Justification For Aggregated Items: PB 2020 Navy															Date: March 2019					
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 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 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)
5.1) 40PB ^(†)	A		2,745K	10	27.450	2,794K	3	8.382	2,798K	4	11.192	2,826K	4	11.304	-	-	-	2,826K	4	11.304
5.2) 40PB Spares/ Design rights	A		-	-	-	-	-	1.100	-	-	-	-	-	-	-	-	-	-	-	-
5.3) CRF Boat Simulator ^{(4)(†)}	A		-	-	-	-	-	-	-	-	-	3,000K	6	18.000	-	-	-	3,000K	6	18.000
5.4) Riverine Multi-Mission Craft	A		4,085K	11	44.936	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5.5) MK VI Patrol Boat	A		8,217K	3	24.651	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: 5) H0005 - Riverine Activities			-	-	97.037	-	-	9.482	-	-	11.192	-	-	29.304	-	-	-	-	-	29.304
6) H0006 - Support Forces																				
6.1) 7M (24FT) Rigid Inflatable Boat (RIB) ^(†)	A		285,622.64	106	30.276	204,000.00	14	2.856	208,000.00	13	2.704	212,000.00	13	2.756	-	-	-	212,000.00	13	2.756
Subtotal: 6) H0006 - Support Forces			-	-	30.276	-	-	2.856	-	-	2.704	-	-	2.756	-	-	-	-	-	2.756
7) H0007 - Fleet Logistics Support																				
7.1) 7M (24FT) Rigid Inflatable Boat (RIB) ^(†)	A		329,722.22	18	5.935	204,000.00	3	0.612	208,000.00	3	0.624	212,000.00	3	0.636	-	-	-	212,000.00	3	0.636
Subtotal: 7) H0007 - Fleet Logistics Support			-	-	5.935	-	-	0.612	-	-	0.624	-	-	0.636	-	-	-	-	-	0.636
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		1,899K	7	13.296	1,997K	2	3.994	2,037K	2	4.074	2,077K	2	4.154	-	-	-	2,077K	2	4.154
Subtotal: 9) H0009 - Warfare Integration			-	-	13.296	-	-	3.994	-	-	4.074	-	-	4.154	-	-	-	-	-	4.154
10) H0010 - Pollution Control Equipment																				
10.1) Oilboom Platform ^(†)	A		186,600.00	5	0.933	193,000.00	3	0.579	197,000.00	4	0.788	200,000.00	4	0.800	-	-	-	200,000.00	4	0.800
10.2) Utility Boats ^{(5)(†)}	A		131,857.14	14	1.846	140,000.00	6	0.840	143,000.00	5	0.715	146,000.00	9	1.314	-	-	-	146,000.00	9	1.314
10.3) Rapid Response Skimmer ^(†)	A		387,950.00	20	7.759	408,000.00	3	1.224	416,000.00	4	1.664	424,000.00	2	0.848	-	-	-	424,000.00	2	0.848
10.4) OSR OB Engine ^(†)	A		10,000.00	4	0.040	-	-	-	10,333.33	3	0.031	10,333.33	3	0.031	-	-	-	10,333.33	3	0.031

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Exhibit P-40a, Budget Item Justification For Aggregated Items: PB 2020 Navy															Date: March 2019					
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 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 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: 10) H0010 - Pollution Control Equipment			-	-	10.578	-	-	2.643	-	-	3.198	-	-	2.993	-	-	-	-	-	2.993
11) H0830 - Production Engineering																				
11.1) Production Engineering	A		-	-	8.578	-	-	0.596	-	-	0.547	-	-	0.597	-	-	-	-	-	0.597
11.2) Production Engineering (Naval Coastal Warfare)	A		-	-	0.391	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: 11) H0830 - Production Engineering			-	-	8.969	-	-	0.596	-	-	0.547	-	-	0.597	-	-	-	-	-	0.597
12) H0900 - Consulting Services																				
12.1) Consulting Services	A		-	-	6.577	-	-	0.392	-	-	0.385	-	-	0.376	-	-	-	-	-	0.376
12.2) Consulting Services (Naval Coastal Warfare)	A		-	-	0.289	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: 12) H0900 - Consulting Services			-	-	6.866	-	-	0.392	-	-	0.385	-	-	0.376	-	-	-	-	-	0.376
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	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

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Exhibit P-40a, Budget Item Justification For Aggregated Items: PB 2020 Navy															Date: March 2019				
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 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 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)
16.5) Coastal Riverine Force (CRF) - 40PB (6)(t)	A		-	-	-	2,794K	6	16.764	2,798K	6	16.788	-	-	-	-	-	-	-	-	-
16.6) CRF 40PB Production Support-Logistics-Inventory Mgmt-GFE-Spares (7)	A		-	-	-	-	-	1.236	-	-	1.572	-	-	-	-	-	-	-	-	-
16.7) Rigid Inflatable Boats - Global Mine (8)(t)	A		-	-	-	-	-	-	350,000.00	2	0.700	-	-	-	-	-	-	-	-	-
Subtotal: 16) H0G86 - OCO			-	-	23.706	-	-	18.000	-	-	19.060	-	-	-	-	-	-	-	-	-
17) SSPBV																				
17.1) Blocking Vessels	A		38,230K	4	152.920	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: 17) SSPBV			-	-	152.920	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total			-	-	595.895	-	-	61.789	-	-	68.831	-	-	79.102	-	-	-	-	-	79.102

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

(t) indicates the presence of a P-5a

Footnotes:

- (1) The increase in quantity is to replace the backlog of craft that are beyond economical repair and are past their established service life.
- (2) The increase in quantity is to replace the backlog of craft that are beyond economical repair and are past their established service life.
- (3) The increase in quantity is to replace the backlog of craft that are beyond economical repair and are past their established service life.
- (4) The increase in quantity is to procure training simulators to enhance CRF boats crew operational and tactical qualifications required for CRF missions.
- (5) The increase in quantity is to replace the backlog of craft that are beyond economical repair and are past their established service life.
- (6) The OCO boats being procured (Coastal Riverine Force (CRF) - Patrol Boat (X)) is the same boat type as 40PB (Formerly PB(X) under H0005, 5.1.
- (7) Funding is for Production Engineering (Acquisition/ Integrated Logistics Support (ILS)), Boat Inventory Management (BIM), GFE and spares in support of the PB(X).
- (8) The Naval Oceanography Mine Warfare Center (NOMWC) requires the purchase of two (2) 8.5 meter RIBs to replace the CRRCs currently being utilized for global Unmanned Underwater Vehicle (UUV) inshore surveys, but current inventory is near the end of its service life. Due to increased Fleet demand in offshore operations, larger vessels are required due to the CRRCs being unsafe and unreliable in offshore maritime conditions. Funding will support the purchase of two (2) RIBs. By procuring the 8.5 meter RIBs, it will enable NOMWC to extend survey ranges beyond coastal waters, increased (dual) engine reliability and provide enhanced safety features that are essential to open water UUV surveys.

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Exhibit P-5a, Procurement History and Planning: PB 2020 Navy									Date: March 2019			
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 12				P-1 Line Item Number / Title: 1210 / Standard Boats					Aggregated Items: Standard Boats			
Item Number / Title [DODIC]	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) H0001 - Base Operating Forces												
1.3) CNIC Force Protection Medium (1)		2018	Gravois Aluminum Boats / Jeanerette, LA	C / IDIQ	NAVSEA	Feb 2018	Jul 2018	8	475,625.00	N		
1.3) CNIC Force Protection Medium (1)		2019	TBD / TBD	C / IDIQ	NAVSEA	Jul 2019	Feb 2020	9	484,000.00	N		
1.3) CNIC Force Protection Medium (1)		2020	TBD / TBD	C / IDIQ	NAVSEA	Jun 2020	Jan 2021	11	493,000.00	N		
1.5) CNIC Workboat Medium		2018	Modutech / Tacoma, WA	C / IDIQ	NAVSEA	Jan 2018	Feb 2019	3	938,000.00	N		
1.5) CNIC Workboat Medium		2019	Modutech / Tacoma, WA	C / IDIQ	NAVSEA	Oct 2018	Nov 2019	3	954,333.33	N		
1.5) CNIC Workboat Medium		2020	TBD / TBD	C / IDIQ	NAVSEA	Jun 2020	Dec 2020	2	972,000.00	N		
1.6) CNIC Workboat Large		2017	Snow & Company / Seattle, WA	C / IDIQ	NAVSEA	Sep 2017	Feb 2019	3	1,651K	N		
1.6) CNIC Workboat Large		2018	Snow & Company / Seattle, WA	C / IDIQ	NAVSEA	Mar 2018	Aug 2019	3	1,681K	N		
1.6) CNIC Workboat Large		2019	Snow & Company / Seattle, WA	C / IDIQ	NAVSEA	Nov 2018	Apr 2020	3	1,707K	N		
1.6) CNIC Workboat Large		2020	TBD / TBD	C / IDIQ	NAVSEA	Jun 2020	Sep 2021	3	1,738K	N		
2) H0002 - Amphibious Assault Ships												
2.1) 7M (24FT) Rigid Inflatable Boat (RIB) ⁽²⁾		2020	TBD / TBD	C / IDIQ	NAVSEA	Jul 2020	Feb 2021	7	212,000.00	N		
3) H0003 - Explosive Ordnance Forces												
3.1) EOD Support Craft (RIB)		2019	TBD / TBD	C / IDIQ	NAVSEA	May 2019	Nov 2019	10	281,000.00	N		
3.1) EOD Support Craft (RIB)		2020	TBD / TBD	C / IDIQ	NAVSEA	May 2020	Nov 2020	8	286,000.00	N		
3.2) 11M EOD RIB ⁽³⁾		2018	TBD / TBD	C / IDIQ	NAVSEA	Feb 2019	Oct 2019	9	748,000.00	N		
3.2) 11M EOD RIB ⁽³⁾		2019	TBD / TBD	C / IDIQ	NAVSEA	Jun 2019	Feb 2020	6	762,000.00	N		
3.2) 11M EOD RIB ⁽³⁾		2020	TBD / TBD	C / IDIQ	NAVSEA	Jun 2020	Feb 2021	19	762,000.00	N		
4) H0004 - Naval Special Warfare												
4.1) NSW Long Range Support Craft		2018	Silverships / Theodore, AL	C / IDIQ	NAVSEA	Sep 2018	May 2019	3	341,000.00	N		
4.1) NSW Long Range Support Craft		2019	TBD / TBD	C / IDIQ	NAVSEA	Jun 2019	Dec 2019	6	347,000.00	N		
4.1) NSW Long Range Support Craft		2020	TBD / TBD	C / IDIQ	NAVSEA	Jul 2020	Jan 2021	6	353,000.00	N		
4.2) NSW Short Range Support Craft		2018	Workskiff / Woolley, WA	C / IDIQ	NAVSEA	Jan 2018	Aug 2018	5	339,000.00	N		
4.2) NSW Short Range Support Craft		2019	TBD / TBD	C / IDIQ	NAVSEA	Jun 2019	Jan 2020	9	345,000.00	N		

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Exhibit P-5a, Procurement History and Planning: PB 2020 Navy									Date: March 2019			
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 12				P-1 Line Item Number / Title: 1210 / Standard Boats					Aggregated Items: Standard Boats			
Item Number / Title [DODIC]	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
4.2) NSW Short Range Support Craft		2020	TBD / TBD	C / IDIQ	NAVSEA	Jul 2020	Feb 2021	9	351,000.00	N		
4.3) NSW RIB		2018	USMI / Gulfport, MS	C / IDIQ	NAVSEA	Feb 2018	Mar 2019	2	1,051K	N		
4.3) NSW RIB		2019	TBD / TBD	C / IDIQ	NAVSEA	Jun 2019	Dec 2019	2	1,069K	N		
4.3) NSW RIB		2020	TBD / TBD	C / IDIQ	NAVSEA	Jul 2020	Jan 2021	2	1,089K	N		
5) H0005 - Riverine Activities												
5.1) 40PB		2017	Gravois Aluminum Boats / Jeanerette, LA	C / IDIQ	NAVSEA	Sep 2017	Feb 2019	10	2,745K	N		
5.1) 40PB		2018	Gravois Aluminum Boats / Jeanerette, LA	C / IDIQ	NAVSEA	Jul 2018	Dec 2019	3	2,794K	N		
5.1) 40PB		2019	TBD / TBD	C / IDIQ	NAVSEA	Jun 2019	May 2020	4	2,798K	N		
5.1) 40PB		2020	TBD / TBD	C / IDIQ	NAVSEA	Jun 2020	May 2021	4	2,826K	N		
5.3) CRF Boat Simulator ⁽⁴⁾		2020	TBD / TBD	C / FFP	NAVSEA	Jul 2020	Jul 2021	6	3,000K	N		
6) H0006 - Support Forces												
6.1) 7M (24FT) Rigid Inflatable Boat (RIB)		2018	Willard Marine / Anaheim, CA	C / FFP	NAVSEA	Oct 2017	May 2018	14	204,000.00	N		
6.1) 7M (24FT) Rigid Inflatable Boat (RIB)		2019	RIBCRAFT / Marblehead, MA	C / FFP	NAVSEA	Nov 2018	Jun 2019	13	208,000.00	N		
6.1) 7M (24FT) Rigid Inflatable Boat (RIB)		2020	TBD / TBD	C / IDIQ	NAVSEA	Jul 2020	Feb 2021	13	212,000.00	N		
7) H0007 - Fleet Logistics Support												
7.1) 7M (24FT) Rigid Inflatable Boat (RIB)		2018	Willard Marine / Anaheim, CA	C / FFP	NAVSEA	Oct 2017	May 2018	3	204,000.00	N		
7.1) 7M (24FT) Rigid Inflatable Boat (RIB)		2019	RIBCRAFT / Marblehead, MA	C / FFP	NAVSEA	Nov 2018	Jun 2019	3	208,000.00	N		
7.1) 7M (24FT) Rigid Inflatable Boat (RIB)		2020	TBD / TBD	C / IDIQ	NAVSEA	Jul 2020	Feb 2021	3	212,000.00	N		
9) H0009 - Warfare Integration												
9.1) Dive Boat Replacement		2017	Marine Group / Chula Vista, CA	C / IDIQ	NAVSEA	Jan 2017	Sep 2018	2	1,962K	N		
9.1) Dive Boat Replacement		2018	Marine Group / Chula Vista, CA	C / IDIQ	NAVSEA	Mar 2018	Nov 2019	2	1,997K	N		
9.1) Dive Boat Replacement		2019	TBD / TBD	C / IDIQ	NAVSEA	May 2019	May 2020	2	2,037K	N		
9.1) Dive Boat Replacement		2020	TBD / TBD	C / IDIQ	NAVSEA	Oct 2019	Oct 2020	2	2,077K	N		
10) H0010 - Pollution Control Equipment												
10.1) Oilboom Platform		2018	Metal Craft Marine, Inc. / Cape Vincent NY	C / IDIQ	NAVSEA	Mar 2018	Jan 2019	3	193,000.00	N		
10.1) Oilboom Platform		2019	TBD / TBD	C / IDIQ	NAVSEA	May 2019	Nov 2019	4	197,000.00	N		
10.1) Oilboom Platform		2020	TBD / TBD	C / IDIQ	NAVSEA	Jul 2020	Jan 2021	4	200,000.00	N		

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Exhibit P-5a, Procurement History and Planning: PB 2020 Navy									Date: March 2019			
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 12				P-1 Line Item Number / Title: 1210 / Standard Boats					Aggregated Items: Standard Boats			
Item Number / Title [DODIC]	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
10.2) Utility Boats ⁽⁵⁾		2018	Metal Craft Marine, Inc. / Cape Vincent NY	C / IDIQ	NAVSEA	Mar 2018	Feb 2019	6	140,000.00	N		
10.2) Utility Boats ⁽⁵⁾		2019	TBD / TBD	C / IDIQ	NAVSEA	May 2019	Oct 2019	5	143,000.00	N		
10.2) Utility Boats ⁽⁵⁾		2020	TBD / TBD	C / IDIQ	NAVSEA	Jul 2020	Dec 2020	9	146,000.00	N		
10.3) Rapid Response Skimmer		2018	Kvichak Marine / Seattle, WA	C / IDIQ	NAVSEA	Mar 2018	Jan 2019	3	408,000.00	N		
10.3) Rapid Response Skimmer		2019	TBD / TBD	C / IDIQ	NAVSEA	May 2019	Nov 2019	4	416,000.00	N		
10.3) Rapid Response Skimmer		2020	TBD / TBD	C / IDIQ	NAVSEA	Jul 2020	Jan 2021	2	424,000.00	N		
10.4) OSR OB Engine		2019	TBD / TBD	MIPR	NAVSEA	Jun 2019	Nov 2019	3	10,333.33	N		
10.4) OSR OB Engine		2020	TBD / TBD	MIPR	NAVSEA	Jun 2020	Nov 2020	3	10,333.33	N		
16) H0G86 - OCO												
16.5) Coastal Riverine Force (CRF) - 40PB ⁽⁶⁾	✓	2018	Gravois Aluminum Boats, LLC / Jeanerette, LA	C / IDIQ	NAVSEA	Jul 2018	Aug 2019	6	2,794K	N		
16.5) Coastal Riverine Force (CRF) - 40PB ⁽⁶⁾	✓	2019	TBD / TBD	C / IDIQ	NAVSEA	Jun 2019	May 2020	6	2,798K	N		
16.7) Rigid Inflatable Boats - Global Mine ⁽⁸⁾	✓	2019	TBD / TBD	C / IDIQ	NAVSEA	May 2019	Nov 2019	2	350,000.00	N	Nov 2019	

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Exhibit P-40, Budget Line Item Justification: PB 2020 Navy										Date: March 2019		
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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity (<i>Units in Each</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost (<i>\$ in Millions</i>)	533.992	179.662	297.181	202.238	0.000	202.238	188.170	207.941	225.376	229.882	Continuing	Continuing
Less PY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (<i>\$ in Millions</i>)	533.992	179.662	297.181	202.238	0.000	202.238	188.170	207.941	225.376	229.882	Continuing	Continuing
Plus CY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority (<i>\$ in Millions</i>)	533.992	179.662	297.181	202.238	0.000	202.238	188.170	207.941	225.376	229.882	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 Operating Forces Industrial Plant Equipment (IPE) budget funds 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, including recapitalization of significantly aged Industrial Plant Equipment (IPE), weight handling equipment, and nuclear support equipment infrastructure. 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 and throughput, eliminates workaround and mitigation costs to the Fleet, contributes to decreasing CVN, surface ship, and submarine availability cost and schedule, and improves operational availability. Funding also support new-mission capital equipment requirements, including VIRGINIA Class introduction at NNSY, concurrent VIRGINIA Class availabilities at PNSY and PHNSY, and LOS ANGELES Class service life extension refueling overhauls at PNSY. 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 / 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 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.												

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Exhibit P-40, Budget Line Item Justification: PB 2020 Navy		Date: March 2019
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		
[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 Validation Screening And Brokering (VSB), Regional Maintenance Automated Information System (RMAIS), and Project Sequencing and Scheduling systems (PSS) that are either unsupported or not fulfilling the required functional requirement. [P40A / KN300: SHIPYARD CAPITAL INVESTMENT PROGRAM (CIP)]: Provides funding for the Shipyard Capital Investment Program (CIP) in support of the four mission funded Naval Shipyards and attached and Intermediate Maintenance Facilities (IMF). 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. Continued reliance on an aged capital equipment infrastructure increases submarine and aircraft carrier depot maintenance availability costs and places schedules at risk. Shipyard capital equipment investments are in accordance with the February 2018 Shipyard Infrastructure Optimization Plan Report to Congress as well as supporting new mission requirements, such as LOS ANGELES Class service life extension refueling availabilities at Portsmouth Naval Shipyard. The full FY 2020 request is urgently required to modernize the Naval Shipyard equipment infrastructure to improve depot maintenance throughput in support of their mission. 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)]: Improved maintenance capabilities at the Naval Shipyards are integral to the Nuclear Enterprise. Procurement of new and efficiency-enabling capital equipment to repair CVNs and submarines in accordance with the February 2018 Shipyard Infrastructure Optimization Plan Report to Congress contributes to decreasing availability costs and schedules, ultimately returning mission days to the Fleet and moving the needle on Shipyard throughput. The KN300 Capital Investment Program funding includes the \$150M/year capital equipment modernization requirement provided in the February 2018 Shipyard Infrastructure Optimization Report to Congress, in addition to new mission investments required to execute LOS ANGELES Class refueling service life extensions at PNSY, which is critical to supporting the 355 ship fleet. The Operating Forces IPE Budget for the Shipyard Capital Investment Program has been restructured to identify and break out individual component costs for acquisitions over \$10M that were consolidated within Item Numbers in previous budget submits. [P40A / Portal Crane]: Procures a new high hook speed portal crane 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. 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 / CNC Shaft Lathe]: Procures two Computer Numerically Controlled (CNC) shaft lathes required by NNSY and PSNSY to support depot availability critical path submarine and CVN shaft maintenance as well as the shaft rotatable pool. [P40A / 175 TON HEAVY LIFT PORTAL CRANE]: The FY19 175 ton heavy lift portal crane is required to execute LOS ANGELES Class refueling evolutions at PNSY. Refueling lifts cannot be executed using existing 60 ton portal crane infrastructure.		

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Exhibit P-40, Budget Line Item Justification: PB 2020 Navy			Date: March 2019
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			
FY20 and later 175 ton heavy lift portal crane acquisitions recapitalize existing shipyard assets that are in poor material condition, beyond maximum expected service life, and are experiencing repair parts obsolescence issues. These heavy lift portal cranes are required for critical path submarine and CVN nuclear defueling and refueling weight handling evolutions that can't be executed using the remaining lower capacity portal crane Fleet as well as supporting all depot maintenance lifting and handling requirements. [P40A / REFUELING STORAGE ENCLOSURE]: PNSY Refueling Storage Enclosure that is required to execute LOS ANGELES Class refueling evolutions at PNSY IAW current schedule. [P40A / REFUELING COMPLEX]: Modify PNSY Dry Dock 1 defueling complex to add submarine refueling capabilities. This acquisition is required to execute LOS ANGELES Class refueling evolutions at PNSY IAW current schedule. [P40A / NFPC SU-12 Propeller Profiler Replacement]: Replaces existing Navy Foundry and Propeller Center (NFPC) propeller profiler with a new CNC milling machine. This acquisition is required to support VIRGINIA Class and COLUMBIA Class propulsor manufacture and repair. [P40A / VIRGINIA Class Propulsor Hanlding 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, NNSY 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 / KNCA1: SHIPYARD CAPITAL INVESTMENT PROGRAM (CIP) CONGRESSIONAL ADD]: Provides funding for the Shipyard Capital Investment Program (CIP) in support of the four mission funded Naval Shipyards and attached and Intermediate Maintenance Facilities (IMF). KNCA1 captures FY19 congressional add funding provided to accelerate shipyard infrastructure optimization, breaking out individual component costs for acquisitions over \$10M. 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 OPN 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. Continued reliance on an aged capital equipment infrastructure increases submarine and aircraft carrier depot maintenance availability costs and places schedules at risk. [P40A / SHIPYARD CAPITAL INVESTMENT PROGRAM (CIP) CONGRESSIONAL ADD]: Improved maintenance capabilities at the Naval Shipyards are integral to the Nuclear Enterprise. Procurement of new and efficiency-enabling capital equipment to repair CVNs and submarines in accordance with the February 2018 Shipyard Infrastructure Optimization Plan Report to Congress contributes to decreasing availability costs and schedules, ultimately returning mission days to the Fleet and moving the needle on Shipyard throughput. KNCA1 captures FY19 congressional add funding provided to accelerate shipyard infrastructure optimization. No individual FY19 CA acquisitions exceed \$10M for inclusion as discrete cost elements. [P40A / KN400: SHIP MAINTENANCE INVESTMENT PROGRAM]: Provides funding to support capital investments for the Regional Maintenance Centers (RMCs), including forward deployed RMCs, Trident Refit Facility (TRF) Kings Bay (KB), Naval Submarine Support Facility New London (NSSF NL), and Navy Base Guam. Funds will be used for the procurement and execution of personal property projects (including Industrial Plant Equipment (IPE), IT HW/SW, lifting and handling equipment, 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, NSSF NL, Navy Base Guam, and TRF KB to perform their mission of repairing, conversion, and modernization of fleet ships and submarines. [P40A / KN504: SRF-JRMC Capital Investment Program]: Procures capital investment items required to maintain and modernize the Fleet's ship maintenance industrial base at Ship Repair Facility - Japan Regional Maintenance Center (SRF-JRMC). Funds will be used for the procurement and execution of personal property projects (including Industrial Plant Equipment (IPE), IT HW/SW, lifting and handling equipment, material handling equipment, 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 by SRF-JRMC to support its mission of repairing, conversion, and modernization of fleet surface ships.			

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Exhibit P-40, Budget Line Item Justification: PB 2020 Navy		Date: March 2019
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		
[P40A / KN507: SRF-JRMC Capital Investment Program]: Procures capital investment items required to maintain and modernize the Fleet's ship maintenance industrial base at Ship Repair Facility - Japan Regional Maintenance Center (SRF-JRMC). Funds will be used for the procurement and execution of personal property projects (including Industrial Plant Equipment (IPE), IT HW/SW, lifting and handling equipment, material handling equipment, MILCON collateral equipment, etc.) of a capital nature (greater than \$250K) to maintain and modernize the ship maintenance industrial base, with a focus on reducing total ownership costs. These personal property projects are required by SRF-JRMC to support its mission of repairing, conversion, and modernization of fleet surface ships. [P40A / Portal Cranes]: Replacement of old equipment. Crane support is required to support 7th Fleet ship maintenance and repair. Heavy lift capacity of the portal crane at the dry docks provides capabilities for shaft repair/replacement, rudder/post, propeller, sonar dome, highly political/sensitive lifts involving RAM from USS REAGAN; and setting of dry docks (requires lowering of forklifts, blocks, and mobile cranes into dock); and in extreme cases MRG replacement as accomplished on McCAMPBELL. Two cranes are required at a dock to allow flexibility to (i) keep up with high workloads, (ii) perform heavier lifts (e.g. shaft) which is beyond the capacity of a single crane, and (iii) allow maintenance cycles (50-60 days) on the cranes without impacting ship maintenance. [P40A / KN508: OPERATION FREEDOM SENTINEL VEHICLE PROCUREMENT]: OPERATION FREEDOM SENTINEL - IN THEATER - VEHICLE PROCUREMENT [P40A / VEHICLE PROCUREMENT]: OPERATION FREEDOM SENTINEL VEHICLE PROCUREMENT [P40A / KN800: INTEGRATED CONDITION ASSESSMENT SYSTEM (ICAS) NEW INSTALL]: 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]: 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.		

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Exhibit P-40, Budget Line Item Justification: PB 2020 Navy								Date: March 2019		
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										
Exhibits Schedule					Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Exhibit Type	Title*	Subexhibits	ID CD	MDAP/MAIS Code	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)
P-40a	Operating Forces IPE	P-5a, P-21			- / 533.992	- / 179.662	- / 297.181	- / 202.238	- / -	- / 202.238
P-40	Total Gross/Weapon System Cost				- / 533.992	- / 179.662	- / 297.181	- / 202.238	- / 0.000	- / 202.238
*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 Operating Forces Industrial Plant Equipment (IPE) for the Shipyard Capital Investment Program and NMMES Sustainment have been restructured to identify and break out individual component costs for acquisitions over \$10M that were consolidated within Item Numbers in previous budget submits.

FY18 and later KN300 Capital Investment Program funding includes the \$150M/year capital equipment modernization requirement provided in the February 2018 Shipyard Infrastructure Optimization Report to Congress, in addition to new mission investments such as equipment infrastructure required to execute LOS ANGELES Class refueling service life extensions at PNSY, which is critical to supporting the 355 ship fleet.

FY19 Congressional Add funding provided to accelerate shipyard infrastructure optimization. Additionally, FY19 is the last year OPN BLI 1445 funding is provided for Navy Maintenance Enterprise Solution Technical Refresh (NMMES-TR) program. FY19 and FY20 include additional funding for capital equipment investments required for new mission refueling evolutions at Portsmouth Naval Shipyard (PNSY) (\$49.4M in FY19 and \$30M in FY20).

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Exhibit P-40a, Budget Item Justification For Aggregated Items: PB 2020 Navy															Date: March 2019					
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 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 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) KN200: NAVY MARITIME MAINTENANCE ENTERPRISE SOLUTION SUSTAINMENT																				
1.1) NAVY MARITIME MAINTENANCE ENTERPRISE SOLUTION SUSTAINMENT ⁽¹⁾	A		-	-	7.695	-	-	24.000	-	-	3.355	-	-	8.838	-	-	-	-	-	8.838
Subtotal: 1) KN200: NAVY MARITIME MAINTENANCE ENTERPRISE SOLUTION SUSTAINMENT			-	-	7.695	-	-	24.000	-	-	3.355	-	-	8.838	-	-	-	-	-	8.838
2) KN201: NAVY MARITIME MAINTENANCE ENTERPRISE SOLUTION TECHNICAL REFRESH (NMMES-TR)																				
2.1) NAVY MARITIME MAINTENANCE ENTERPRISE SOLUTION TECHNICAL REFRESH	A		-	-	-	-	-	1.200	-	-	4.103	-	-	-	-	-	-	-	-	-
Subtotal: 2) KN201: NAVY MARITIME MAINTENANCE ENTERPRISE SOLUTION TECHNICAL REFRESH (NMMES-TR)			-	-	0.000	-	-	1.200	-	-	4.103	-	-	-	-	-	-	-	-	-
3) KN300: SHIPYARD CAPITAL INVESTMENT PROGRAM (CIP)																				
3.1) SHIPYARD CAPITAL INVESTMENT PROGRAM (CIP)	A		-	-	477.508	-	-	88.162	-	-	87.869	-	-	88.966	-	-	-	-	-	88.966
3.2) Portal Crane ^{(2)(f)}	A		-	-	-	17,116K	1	17.116	15,924K	1	15.924	-	-	-	-	-	-	-	-	-
3.3) CNC Shaft Lathe ^(f)	A		-	-	-	-	-	-	15,000K	1	15.000	15,250K	1	15.250	-	-	-	15,250K	1	15.250
3.4) 175 TON HEAVY LIFT PORTAL CRANE ^(f)	A		-	-	-	-	-	-	54,929K	1	54.929	56,000K	1	56.000	-	-	-	56,000K	1	56.000
3.5) REFUELING STORAGE ENCLOSURE ^(f)	A		-	-	-	-	-	-	7,000K	1	7.000	-	-	-	-	-	-	-	-	-
3.6) REFUELING COMPLEX ^(f)	A		-	-	-	22,652K	1	22.652	-	-	-	-	-	-	-	-	-	-	-	-
3.7) NFPC SU-12 Propeller Profiler Replacement ^(f)	A		-	-	-	-	-	-	16,500K	1	16.500	-	-	-	-	-	-	-	-	-
3.8) VIRGINIA Class Propulsor Handling System ^{(3)(f)}	A		-	-	-	-	-	-	-	-	-	13,500K	1	13.500	-	-	-	13,500K	1	13.500
Subtotal: 3) KN300: SHIPYARD CAPITAL INVESTMENT PROGRAM (CIP)			-	-	477.508	-	-	127.930	-	-	197.222	-	-	173.716	-	-	-	-	-	173.716

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Exhibit P-40a, Budget Item Justification For Aggregated Items: PB 2020 Navy															Date: March 2019					
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 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 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) KNCA1: SHIPYARD CAPITAL INVESTMENT PROGRAM (CIP) CONGRESSIONAL ADD																				
4.1) SHIPYARD CAPITAL INVESTMENT PROGRAM (CIP) CONGRESSIONAL ADD	A		-	-	-	-	-	-	-	-	75.000	-	-	-	-	-	-	-	-	-
Subtotal: 4) KNCA1: SHIPYARD CAPITAL INVESTMENT PROGRAM (CIP) CONGRESSIONAL ADD			-	-	0.000	-	-	-	-	-	75.000	-	-	-	-	-	-	-	-	-
5) KN400: SHIP MAINTENANCE INVESTMENT PROGRAM																				
5.1) SHIP MAINTENANCE INVESTMENT PROGRAM	A		-	-	24.183	-	-	8.500	-	-	7.181	-	-	7.483	-	-	-	-	-	7.483
Subtotal: 5) KN400: SHIP MAINTENANCE INVESTMENT PROGRAM			-	-	24.183	-	-	8.500	-	-	7.181	-	-	7.483	-	-	-	-	-	7.483
6) KN504: SRF-JRMC Capital Investment Program ⁽⁴⁾																				
6.1) SRF-JRMC Capital Investment Program	A		-	-	-	-	-	3.696	-	-	6.555	-	-	-	-	-	-	-	-	-
Subtotal: 6) KN504: SRF-JRMC Capital Investment Program			-	-	0.000	-	-	3.696	-	-	6.555	-	-	-	-	-	-	-	-	-
7) KN507: SRF-JRMC Capital Investment Program ⁽⁵⁾																				
7.1) SRF-JRMC Capital Investment Program	A		-	-	-	-	-	-	-	-	-	-	-	6.383	-	-	-	-	-	6.383
Subtotal: 7) KN507: SRF-JRMC Capital Investment Program			-	-	0.000	-	-	-	-	-	-	-	-	6.383	-	-	-	-	-	6.383
8) KN508: OPERATION FREEDOM SENTINEL VEHICLE PROCUREMENT ⁽⁶⁾																				
8.1) VEHICLE PROCUREMENT	A		-	-	-	-	-	12.000	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: 8) KN508: OPERATION FREEDOM SENTINEL VEHICLE PROCUREMENT			-	-	0.000	-	-	12.000	-	-	-	-	-	-	-	-	-	-	-	-
9) KN800: INTEGRATED CONDITION ASSESSMENT SYSTEM (ICAS) NEW INSTALL																				
9.1) INTEGRATED CONDITION ASSESSMENT SYSTEM (ICAS) ⁽⁷⁾	A		-	-	10.337	-	-	0.748	-	-	2.185	-	-	4.208	-	-	-	-	-	4.208
Subtotal: 9) KN800: INTEGRATED CONDITION ASSESSMENT SYSTEM (ICAS) NEW INSTALL			-	-	10.337	-	-	0.748	-	-	2.185	-	-	4.208	-	-	-	-	-	4.208
10) KN900: INTEGRATED CONDITION ASSESSMENT SYSTEM (ICAS) TECH REFRESH																				

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Exhibit P-40a, Budget Item Justification For Aggregated Items: PB 2020 Navy															Date: March 2019					
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 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 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)
10.1) INTEGRATED CONDITION ASSESSMENT SYSTEM (ICAS)	A		-	-	14.269	-	-	1.588	-	-	1.580	-	-	1.610	-	-	-	-	-	1.610
Subtotal: 10) KN900: INTEGRATED CONDITION ASSESSMENT SYSTEM (ICAS) TECH REFRESH			-	-	14.269	-	-	1.588	-	-	1.580	-	-	1.610	-	-	-	-	-	1.610
Total			-	-	533.992	-	-	179.662	-	-	297.181	-	-	202.238	-	-	-	-	-	202.238

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

(†) indicates the presence of a P-5a

Footnotes:

(1) FY19 to FY20 increase for KN200 was due to the increased FY20 programming of funds to identified requirements that support hardware and software for ship maintenance systems, including; product data management hardware/ software, enterprise data analytics software, cybersecurity vulnerability software, and increased hardware capacity at Navy data centers.

(2) Portal crane acquisition budgets are based on the negotiated costs of these 25 ton portal cranes in the IDIQ acquisition contract. The first (FY18) PSNS&IMF Bremerton site crane includes site-specific fitup, CDRL deliverables, acceptance testing, and engineering efforts and associated costs that only apply to the first Bremerton site acquisition and are not repeated for the second (FY19) and later Bremerton site acquisitions.

(3) FY20 funding for this requirement is needed to ensure equipment is available at NNSY to execute the FY22 USS JOHN WARNER depot maintenance availability.

(4) Funding ends in FY19 (CFFC). SRF-JRMC Capital Investment Program transitioned from Commander Pacific Fleet to Naval Sea Systems Command PPBE oversight beginning with PB20. Zero-sum tech adjust to change BSO from 70 to 24. Consolidates OPN LI 1445 under BSO 24 for increased management efficiencies in programming and execution for shipyard equipment infrastructure across all government shipyards. The Fleet and NAVSEA will prioritize equipment investments across the enterprise using a standardized process administered by NAVSEA.

(5) Funding starts in FY20 (NAVSEA). SRF-JRMC Capital Investment Program transitioned from Commander Pacific Fleet to Naval Sea Systems Command PPBE oversight beginning with PB20. Zero-sum tech adjust to change BSO from 70 to 24. Consolidates OPN LI 1445 under BSO 24 for increased management efficiencies in programming and execution for shipyard equipment infrastructure across all government shipyards. The Fleet and NAVSEA will prioritize equipment investments across the enterprise using a standardized process administered by NAVSEA.

(6) OPERATION FREEDOM SENTINEL - IN THEATER - VEHICLE PROCUREMENT

(7) FY20 funding increase over FY19 is required to expedite implementation of the next generation tool eRM (enterprise Remote Monitoring).

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Exhibit P-5a, Procurement History and Planning: PB 2020 Navy									Date: March 2019			
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 14				P-1 Line Item Number / Title: 1445 / Operating Forces IPE					Aggregated Items: Operating Forces IPE			
Item Number / Title [DODIC]	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
3) KN300: SHIPYARD CAPITAL INVESTMENT PROGRAM (CIP)												
3.2) Portal Crane ^{(2)(†)}		2018	Konecranes / New Berlin, WI	C / IDIQ	NCC / NAVFAC FE	Nov 2017	Nov 2019	1	17,116K	Y		
3.2) Portal Crane ^{(2)(†)}		2019	Konecranes / New Berlin, WI	C / TBD	NCC / NAVFAC FE	Nov 2018	Nov 2020	1	15,924K	Y		
3.3) CNC Shaft Lathe ^(†)		2019	TBD / tbd	C / TBD	DLA	Jun 2019	Jun 2020	1	15,000K	Y		
3.3) CNC Shaft Lathe ^(†)		2020	TBD / tbd	C / TBD	DLA	Oct 2019	Oct 2020	1	15,250K	Y		
3.4) 175 TON HEAVY LIFT PORTAL CRANE ^(†)		2019	TBD / tbd	C / FFP	NCC / NAVFAC FE	Jan 2019	Jan 2021	1	54,929K	Y		
3.4) 175 TON HEAVY LIFT PORTAL CRANE ^(†)		2020	TBD / tbd	C / FFP	NCC / NAVFAC FE	Jan 2020	Jan 2022	1	56,000K	Y		
3.5) REFUELING STORAGE ENCLOSURE ^(†)		2019	TBD / TBD	C / TBD	NAVFAC	Mar 2019	Mar 2020	1	7,000K	N	Jul 2018	
3.6) REFUELING COMPLEX ^(†)		2018	TBD / tbd	C / TBD	NAVFAC	Apr 2018	Apr 2019	1	22,652K	Y		
3.7) NFPC SU-12 Propeller Profiler Replacement ^(†)		2019	TBD / TBD	C / FFP	DLA	Apr 2019	Apr 2020	1	16,500K	Y		
3.8) VIRGINIA Class Propulsor Hanlding System ^{(3)(†)}		2020	TBD / TBD	C / TBD	DLA	Feb 2020	Feb 2021	1	13,500K	Y		

^(†) indicates the presence of a P-21

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Exhibit P-21, Production Schedule: PB 2020 Navy																				Date: March 2019													
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 14										P-1 Line Item Number / Title: 1445 / Operating Forces IPE												Aggregated Items: Operating Forces IPE											
Items (Units in Each)							Fiscal Year 2018												Fiscal Year 2019												BALANCE		
OCCO	MFR #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2017	BAL DUE AS OF 1 OCT	Calendar Year 2018												Calendar Year 2019														
							OC	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP			
3) KN300: SHIPYARD CAPITAL INVESTMENT PROGRAM (CIP)																																	
3.2) Portal Crane ⁽²⁾																																	
6		2018	NAVY	1	0	1		A -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1		
6		2019	NAVY	1	0	1													A -	-	-	-	-	-	-	-	-	-	-	-	1		
3.3) CNC Shaft Lathe																																	
7		2019	NAVY	1	0	1																					A -	-	-	-	1		
7		2020	NAVY	1	0	1																									1		
3.4) 175 TON HEAVY LIFT PORTAL CRANE																																	
8		2019	NAVY	1	0	1														A -	-	-	-	-	-	-	-	-	-	-	1		
8		2020	NAVY	1	0	1																									1		
3.5) REFUELING STORAGE ENCLOSURE																																	
9		2019	NAVY	1	0	1																			A -	-	-	-	-	-	-	1	
3.6) REFUELING COMPLEX																																	
10		2018	NAVY	1	0	1						A -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1				0		
3.7) NFPC SU-12 Propeller Profiler Replacement																																	
11		2019	NAVY	1	0	1																			A -	-	-	-	-	-	-	1	
3.8) VIRGINIA Class Propulsor Handling System ⁽³⁾																																	
12		2020	NAVY	1	0	1																									1		
							OC	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP			

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Exhibit P-21, Production Schedule: PB 2020 Navy										Date: March 2019									
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 14					P-1 Line Item Number / Title: 1445 / Operating Forces IPE					Aggregated Items: Operating Forces IPE									

Items (Units in Each)							Fiscal Year 2020												Fiscal Year 2021												B A L A N C E				
O C C #	M F R #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2019	BAL DUE AS OF 1 OCT	Calendar Year 2020												Calendar Year 2021																
							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					
3) KN300: SHIPYARD CAPITAL INVESTMENT PROGRAM (CIP)																																			
3.2) Portal Crane ⁽²⁾																																			
	6	2018	NAVY	1	0	1	-	1																											0
	6	2019	NAVY	1	0	1	-	-	-	-	-	-	-	-	-	-	-	-	-	1														0	
3.3) CNC Shaft Lathe																																			
	7	2019	NAVY	1	0	1	-	-	-	-	-	-	-	-	1																			0	
	7	2020	NAVY	1	0	1	A	-	-	-	-	-	-	-	-	-	-	-	1															0	
3.4) 175 TON HEAVY LIFT PORTAL CRANE																																			
	8	2019	NAVY	1	0	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1													0
	8	2020	NAVY	1	0	1				A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1			
3.5) REFUELING STORAGE ENCLOSURE																																			
	9	2019	NAVY	1	0	1	-	-	-	-	-	-	1																					0	
3.6) REFUELING COMPLEX																																			
	10	2018	NAVY	1	1	0																												0	
3.7) NFPC SU-12 Propeller Profiler Replacement																																			
	11	2019	NAVY	1	0	1	-	-	-	-	-	-	1																					0	
3.8) VIRGINIA Class Propulsor Hanlding System ⁽³⁾																																			
	12	2020	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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Exhibit P-21, Production Schedule: PB 2020 Navy																				Date: March 2019														
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 14										P-1 Line Item Number / Title: 1445 / Operating Forces IPE										Aggregated Items: Operating Forces IPE														
Items <i>(Units in Each)</i>							Fiscal Year 2022										Fiscal Year 2023													BALANCE				
OCO	MFR #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2021	BAL DUE AS OF 1 OCT	Calendar Year 2022										Calendar Year 2023																	
							OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG		SEP			
3) KN300: SHIPYARD CAPITAL INVESTMENT PROGRAM (CIP)																																		
3.2) Portal Crane ⁽²⁾																																		
	6	2018	NAVY	1	1	0																												0
	6	2019	NAVY	1	1	0																												0
3.3) CNC Shaft Lathe																																		
	7	2019	NAVY	1	1	0																												0
	7	2020	NAVY	1	1	0																												0
3.4) 175 TON HEAVY LIFT PORTAL CRANE																																		
	8	2019	NAVY	1	1	0																												0
	8	2020	NAVY	1	0	1	-	-	-	1																								0
3.5) REFUELING STORAGE ENCLOSURE																																		
	9	2019	NAVY	1	1	0																												0
3.6) REFUELING COMPLEX																																		
	10	2018	NAVY	1	1	0																												0
3.7) NFPC SU-12 Propeller Profiler Replacement																																		
	11	2019	NAVY	1	1	0																												0
3.8) VIRGINIA Class Propulsor Handling System ⁽³⁾																																		
	12	2020	NAVY	1	1	0	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	0			

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Exhibit P-21, Production Schedule: PB 2020 Navy			Date: March 2019		
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 14		P-1 Line Item Number / Title: 1445 / Operating Forces IPE			Aggregated Items: Operating Forces IPE

MFR Ref #	Manufacturer Name - Location	Production Rates (Each / Year)			Procurement Leadtime (Months)							
		MSR For 2020	1-8-5 For 2020	MAX For 2020	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	Konecranes - New Berlin, WI			TBD	0	1	24	25	0	1	24	25
2	TBD - tbd			TBD	0	8	12	20	0	0	12	12
3	TBD - tbd			TBD	12	3	24	27	0	0	0	0
4	TBD - TBD			TBD	3	5	12	17	0	0	0	0
5	TBD - tbd			TBD	6	6	12	18	0	0	0	0
6	TBD - TBD			TBD	2	6	12	18	0	0	0	0
7	TBD - TBD			TBD	2	4	12	16	0	0	0	0

"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: PB 2020 Navy										Date: March 2019		
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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity (<i>Units in Each</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost (<i>\$ in Millions</i>)	441.065	18.760	33.237	51.553	0.000	51.553	36.657	55.776	29.787	30.382	727.684	1,424.901
Less PY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (<i>\$ in Millions</i>)	441.065	18.760	33.237	51.553	0.000	51.553	36.657	55.776	29.787	30.382	727.684	1,424.901
Plus CY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority (<i>\$ in Millions</i>)	441.065	18.760	33.237	51.553	0.000	51.553	36.657	55.776	29.787	30.382	727.684	1,424.901
<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>)	-	0.118	0.068	1.035	-	1.035	0.451	0.195	0.241	0.204	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 (Surface Warfare (SUW), and a detect-to-engage capability to counter enemy submarines (Anti-Submarine Warfare (ASW)). 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.

This line item funds the procurement of MCM and SUW MP support containers and equipment that is common across the mission packages (Mission Package Computing Environment (MPCE), Technology Refresh of the Multi-Vehicle Communications System (MVCS), and Training Equipment).

The Common Mission Modules Equipment (Line Item Number 1600) by itself or support containers by themselves do not comprise a MP and are only deployable as part of a Mission Module (MM). A MM 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 required mission systems.

Other Related Budgets: BLIs: OPN 1601, OPN 1602, OPN 1603, OPN 4248, OPN 2622, OPN 2624, WPN 4221, WPN 4225, RDT&E 0603596N

[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. In order to support the MPCE Sonar Signal Processing of the Escort Mission Module (EMM), the MPCE needs to be augmented to provide additional processing capabilities. This includes procurement of MPCE Sonar Signal Process equipment racks. These equipment racks will be co-located with the MPCE processing racks. In addition, Mission Package Portable Control Stations (MPPCS) are required to support pre-deployment checkouts, to support shore-based and vessels of opportunity operations of mission packages and off-board vehicles.

[P40A / LM012 - TRAINING EQUIPMENT]: Procurement of LCS Mission Module training systems to train LCS crews in the safe and effective use of assigned equipment at LCS Training Facilities (LTF) located in San Diego and Mayport.

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Exhibit P-40, Budget Line Item Justification: PB 2020 Navy		Date: March 2019
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		
LTF includes tactical watch team training using Common Mission Package Trainer (CMPT) integrated with seaframe Combat Management System (CMS) trainers, a replication of LCS mission bays where LCS MM training systems are moved in and out of the Launch and Recovery (L&R) footprint to train all crews in the safe movement of systems, and revalidate key maintenance skills in the confined mission bay environment. Integrated Team Training (ITT) uses the CMPT trainer, with two CMPTs delivered to LCS-1 ITT trainer and LCS-2 ITT trainer in San Diego. CMPT#3 for LCS-1 ITT trainer in Mayport installed in FY2018 and commenced operations in FY2018. CMPT#4 procured in FY2018 to support second San Diego LCS-2 trainer for installation in FY2019. CMPT#5 procurement is in FY2019 to support third San Diego LCS-2 trainer for installation in FY2020. CMPT#6 procurement is in FY2020 to support third Mayport LCS-1 trainer for installation in FY2021. MCM and SUW integrated team training commenced at San Diego in FY12 and will commence for SUW only in Mayport in FY2018. MCM ITT functions with USV and UUV capability is procured in FY2019 for planned delivery in Mayport by FY2021. ASW ITT capability procurement is planned for FY2021 for delivery into the ITTs in FY2023. CMPTs qualify individuals in a team environment (Train to Qualify) and are also used to certify watch teams (Train to Certify) during off hull periods at LTF. Each mission area will be delivering training systems as follows: MCM: All unmanned vehicles, sensors, and systems in support containers to demonstrate L&R and maintenance tasks. An Integrated Virtual Shipboard Environment (IVSE) (virtual reality) allow sailors to learn and demonstrate crane operator and system remote operations L&R team coordination. Procurements are aligned to system delivery to the fleet and support formal training that has commenced in San Diego and will commence in Mayport in FY2020. SUW: A Mk-46 gun in barrette on a multi-function adapter demonstrates GMM critical maintenance and ammunition loading tasks. MSM AEL equipment is used to support VBSS certification and exercise related shipboard evolutions such as "detainee handling." SSMM module components are used to demonstrate onload tasks. Mission Package Training System (MPTS) is a NAWC TSD PORTS Architecture based training system used in training SUW operators and maintaining gun and missile operator proficiency. Procurements are for incremental system delivery and support formal training that will commence in San Diego and Mayport in FY2022. ASW: Integrated Virtual Shipboard Environment (IVSE) demonstrates ASW system Launch and Recovery (L&R) tasks. Procurements support formal training that will commence in San Diego and Mayport in FY2021. The LCS MM program is also procuring training systems for installation at other shore locations as follows: Mine Warfare Training Center (MWTC) PT Loma, CA: Training for senior ship and MCM watch standers at Pt Loma, CA. Individuals are trained in MCM mission planning, execution, post mission analysis and re-planning (computer classroom) at MWTC. This course commenced formal training at Mine Warfare Training Center in San Diego (single sited) in FY2017. Center for Surface Combat Systems Detachment Dam Neck, VA: Fire Controlman (FC) and Gunners Mate (GM) training at Dam Neck VA. MK-50 Modular Gun Weapons System (MGWS) Operations and Maintenance difference trainer co-located with the MK-46 Operations and Maintenance trainer. SSMM Operations and Maintenance trainer for technician training at LTF San Diego. Course will teach SSMM Console Operator (SCO) actions, and SSMM Weapons Zone maintenance and loading/unloading tasks. MK-50 course formal training commenced in FY2015, and SSMM is expected to commence in FY2022. Fleet ASW Training Center San Diego, CA: Sonar Technician (STG) pipeline training at Pt Loma, CA. Operator training system for AN/SQS-62 operator training using CMPT- like environment. Course will include an AN/SQS-62 maintenance trainer for maintenance and deploy/retrieve tasks. Procurements in FY2020 support formal training that will commence in FY2022. [P40A / COMMON MISSION PACKAGE TRAINER (CMPT)]: CMPT is procured from AAC under SBIR Phase III contract, and when delivered is integrated with ship combat management system (CMS) trainers capable of being connected to the Navy Cooperative Training Environment (NCTE) for participation in Navy and Joint synthetic training events at the LCS Training Facilities in each home port. A total of 6 are required, with 3 in San Diego and 3 in Mayport. The first CMPT was procured using RDT&EN. A CMPT consists of a production Mission Package Computing Environment (MPCE) using one of three mission area Mission Package Application Software (MPAS) and integrated with visualization software (common with ship CMS trainer), models and simulations to stimulate tactical MPAS, scenario generator, and instructor control software. Mission area additions (SUW: GUID, and ASW: EMM processing), and IP communications capability for watchstanders are included.		

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Exhibit P-40, Budget Line Item Justification: PB 2020 Navy		Date: March 2019
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 / CMPT MPTS Tech Refresh/Modernization]: FY18 funding converts CMPT 1 from MPCE baseline 1.8 to 1.9.1 and in FY19 the program converts CMPT 2 from 1.8 to 1.9.1 as well as refresh the display console. Starting in FY20, the program will modernize CMPT to incorporate the ASW SIM/STIM capability. [P40A / MISSION BAY TRAINING DEVICES - MCM]: FY19 procurement is for UISS and Knifefish Technical Training Equipment (TTE). [P40A / LM015 - CONTAINERS (SHIPPING & SUPPORT)]: Each MP variant uses a base Support Container (SC) which is an International Organization for Standardization (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 or aluminum 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. [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 a 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 / Offboard OTH Communications]: The Multi-Vehicle Communications System (MVCS) is a communications management system that provides common line of sight (LOS), over the horizon (OTH), and satellite communications capabilities for simultaneous sensor data transfer and vehicle control of multiple Littoral Combat Ships (LCS) Mission Module Unmanned Surface Vehicles (USV) and Unmanned Underwater Vehicles (UUVs). MVCS is an open architected communications system that can be adapted to support any radio system. This funds procurement and delivery of shipboard and small craft radios and to provide OTH capabilities needed by the Mine Countermeasures (MCM) Mission Package. The Unmanned Aerial Relay (UMAR) extends the existing LOS high bandwidth capability (12 Mbps) range out to 30 nautical mile (NM) through use of a tethered quad-copter air relay. The second solution is the High Frequency Ground Wave (HFGW) radio which provides a direct high bandwidth comms link (452 kbps to 2 vehicles) operating out to 30 NM, without relying on a relay platform. [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: PB 2020 Navy								Date: March 2019		
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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Exhibit Type	Title*	Subexhibits	ID CD	MDAP/MAIS Code	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)
P-40a	LCS MISSION MODULES	P-5a, P-21			- / 441.065	- / 18.760	- / 33.237	- / 51.553	- / -	- / 51.553
P-40	Total Gross/Weapon System Cost				- / 441.065	- / 18.760	- / 33.237	- / 51.553	- / 0.000	- / 51.553
*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 2020 funding in LM008 (MPCE) is to support the continued technology refresh of the MPCE (AN/SYK-32) and the MPPCS (to include both shipboard and vehicle side radios); and MPCE Sonar Signal Processing racks procured in FY 2020 are to support the ASW Escort Mission Module (EMM) processing requirement on LCS 21 and LCS 22. FY 2020 funding in LM012 (Training Equipment) is to support the technology refresh of one Common Mission Package Trainer (CMPT); procure Operator training system for AN/SQS-62 maintenance and deploy/retrieve tasks; procure MCM and ASW training equipment to support the outfitting of the LCS Training Facility (LTF) in San Diego, CA/Mayport, FL to support training of Independence/Freedom variant crews. FY 2020 funding in LM016 (MVCS) supports procurement of Cyber Security and Anti-Jam toolkits, required for each Multiple Vehicle Communications System (MVCS) and is being incorporated and fielded as part of MVCS Technology Refresh. The 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 a common data link and network communication services.										

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Exhibit P-40a, Budget Item Justification For Aggregated Items: PB 2020 Navy															Date: March 2019					
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 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 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		-	-	1.725	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.2) USV - SWEEP	A		-	-	2.410	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.3) RMMV	A		-	-	17.008	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.4) RMMV CRADLE	A		7,604K	2	15.208	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.5) AMNS	A		4,272K	4	17.090	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.6) ALMDS	A		6,622K	3	19.867	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.7) AN/AQS-20A	A		8,769K	3	26.307	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.8) COBRA	A		7,792K	1	7.792	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.9) MCM SUPPORT CONTAINERS	A		1,547K	15	23.203	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.10) SUPPORT EQUIPMENT	A		-	-	9.804	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.11) PRODUCTION ENGINEERING SUPPORT	A		-	-	10.153	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.12) MCM INCREMENTAL WHOLENESS - AQS-20A	A		5,773K	1	5.773	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: 1) LM001 - MCM Mission Package			-	-	156.340	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2) LM002 - ASW MISSION PACKAGE																				
2.1) ASW MISSION PACKAGE	A		-	-	17.008	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: 2) LM002 - ASW MISSION PACKAGE			-	-	17.008	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3) LM003 - SUW MISSION PACKAGE																				
3.1) GUN MODULE	A		4,206K	6	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 - OBSOLESENCES MISSION MODULE ECPs																				

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Exhibit P-40a, Budget Item Justification For Aggregated Items: PB 2020 Navy															Date: March 2019					
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 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 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		-	-	22.558	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4.2) LCS MISSION MODULES RADIO	A		1,540K	8	12.316	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4.3) PRODUCTION ENGINEERING	A		-	-	1.436	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: 4) LM005 - OBSOLESCENCE MISSION MODULE ECPs			-	-	36.310	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5) LM007 - C-HAWKLINK SUPPORT EQUIPMENT																				
5.1) C-HAWKLINK SUPPORT EQUIPMENT	A		-	-	5.885	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: 5) LM007 - C-HAWKLINK SUPPORT EQUIPMENT			-	-	5.885	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6) LM008 - MPCE																				
6.1) Mission Package Portable Control Station ^(†)	A		-	-	-	-	-	-	1,600K	1	1.600	1,637K	1	1.637	-	-	-	1,637K	1	1.637
6.2) MPCE Hardware ^(†)	A		818,300.00	20	16.366	810,000.00	2	1.620	832,000.00	2	1.664	849,000.00	3	2.547	-	-	-	849,000.00	3	2.547
6.3) MPCE Tech Refresh ^(†)	A		726,333.33	3	2.179	778,500.00	4	3.114	798,500.00	4	3.194	813,000.00	4	3.252	-	-	-	813,000.00	4	3.252
6.4) MPCE Sonar Signal Processing ^{(†)(†)}	A		-	-	-	-	-	-	-	-	-	2,292K	2	4.583	-	-	-	2,292K	2	4.583
6.5) PRODUCTION ENGINEERING	A		-	-	1.340	-	-	0.294	-	-	0.335	-	-	0.714	-	-	-	-	-	0.714
Subtotal: 6) LM008 - MPCE			-	-	19.885	-	-	5.028	-	-	6.793	-	-	12.733	-	-	-	-	-	12.733
7) LM009 - DATA MISSION PAYLOAD																				
7.1) DATA MISSION PAYLOAD	A		5,391K	2	10.782	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7.2) PRODUCTION ENGINEERING	A		-	-	1.638	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: 7) LM009 - DATA MISSION PAYLOAD			-	-	12.420	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
8) LM010 - MISSION PACKAGE INTEGRATION																				
8.1) MISSION PACKAGE PRODUCTION ENGINEERING & ASSEMBLY	A		-	-	16.422	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: 8) LM010 - MISSION PACKAGE INTEGRATION			-	-	16.422	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

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Exhibit P-40a, Budget Item Justification For Aggregated Items: PB 2020 Navy																Date: March 2019					
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 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 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)	
9) LM012 - TRAINING EQUIPMENT																					
9.1) COMMON MISSION PACKAGE TRAINER (CMPT) (2)(†)	A		3,571K	3	10.714	-	-	-	3,280K	1	3.280	3,346K	1	3.346	-	-	-	3,346K	1	3.346	
9.2) CMPT MPTS Tech Refresh/ Modernization (3)	A		-	-	4.287	-	-	0.750	-	-	1.857	-	-	3.825	-	-	-	-	-	3.825	
9.3) MISSION PACKAGE TRAINING SYSTEM (MPTS)	A		-	-	0.993	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
9.4) MK-50 GUN WEAPON SYSTEM TTE	A		3,890K	1	3.890	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
9.5) EMM AN/SQS-62 Training Equipment(†)	A		-	-	-	-	-	-	-	-	-	3,692K	1	3.692	-	-	-	3,692K	1	3.692	
9.6) MISSION BAY TRAINING DEVICES - MCM (4)	A		-	-	24.641	-	-	-	-	-	11.804	-	-	2.797	-	-	-	-	-	2.797	
9.7) MISSION BAY TRAINING DEVICES - ASW	A		-	-	-	-	-	-	-	-	-	-	-	7.200	-	-	-	-	-	7.200	
9.8) MISSION BAY TRAINING DEVICES - SUW	A		-	-	0.912	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Subtotal: 9) LM012 - TRAINING EQUIPMENT			-	-	45.437	-	-	0.750	-	-	16.941	-	-	20.860	-	-	-	-	-	20.860	
10) LM013 - MARITIME SECURITY MODULE																					
10.1) MARITIME SECURITY MODULE	A		7,701K	2	15.402	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
10.2) PRODUCTION ENGINEERING	A		-	-	1.279	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Subtotal: 10) LM013 - MARITIME SECURITY MODULE			-	-	16.681	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
11) LM015 - CONTAINERS (SHIPPING & SUPPORT)																					
11.1) MCM SUPPORT CONTAINER(†)	A		1,355K	22	29.806	1,672K	3	5.015	1,590K	1	1.590	1,686K	5	8.433	-	-	-	1,686K	5	8.433	
11.2) SUW SUPPORT CONTAINER(†)	A		612,384.62	26	15.922	737,750.00	8	5.902	-	-	-	-	-	-	-	-	-	-	-	-	
11.3) SUW SHIPPING CONTAINER	A		178,875.00	24	4.293	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
11.4) PRODUCTION ENGINEERING (5)	A		-	-	16.159	-	-	0.565	-	-	1.031	-	-	2.615	-	-	-	-	-	2.615	

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Exhibit P-40a, Budget Item Justification For Aggregated Items: PB 2020 Navy															Date: March 2019					
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 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 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: 11) LM015 - CONTAINERS (SHIPPING & SUPPORT)			-	-	66.180	-	-	11.482	-	-	2.621	-	-	11.048	-	-	-	-	-	11.048
12) LM016 - MVCS																				
12.1) Cyber Security / Anti-Jam	A		-	-	-	-	-	-	-	-	2.818	-	-	-	-	-	-	-	-	-
12.2) Offboard OTH Communications ^{(6)(t)}	A		-	-	-	-	-	-	450,000.00	2	0.900	279,600.00	4	1.118	-	-	-	279,600.00	4	1.118
12.3) MVCS Tech Refresh ^(t)	A		275,000.00	6	1.650	292,000.00	4	1.168	750,000.00	3	2.250	758,000.00	6	4.548	-	-	-	758,000.00	6	4.548
12.4) Production Engineering	A		-	-	0.093	-	-	0.060	-	-	0.634	-	-	0.784	-	-	-	-	-	0.784
Subtotal: 12) LM016 - MVCS			-	-	1.743	-	-	1.228	-	-	6.602	-	-	6.450	-	-	-	-	-	6.450
13) LM900 - CONSULTING SERVICES																				
13.1) CONSULTING SERVICES	A		-	-	12.314	-	-	0.272	-	-	0.280	-	-	0.462	-	-	-	-	-	0.462
Subtotal: 13) LM900 - CONSULTING SERVICES			-	-	12.314	-	-	0.272	-	-	0.280	-	-	0.462	-	-	-	-	-	0.462
Total			-	-	441.065	-	-	18.760	-	-	33.237	-	-	51.553	-	-	-	-	-	51.553
Note: Subtotals or Totals in this Exhibit P-40a may not be exact or sum exactly, due to rounding.																				
^(t) indicates the presence of a P-5a																				
Footnotes:																				
⁽¹⁾ The MPCE Sonar Signal Processing hardware is provided as adjunct HW to the Mission Package Computing Environment (MPCE) and will be fielded to meet in yard need dates for LCS 21 - LCS 28. It requires periodic upgrades to remain effective and to pace threats. To achieve this, will insert maturing ASW technologies and addressing HW obsolescence in incremental upgrades every four years to the production program via the AxB development process.																				
⁽²⁾ Technical Training Equipment that is integrated with Ship Combat Management System to conduct stand-alone MP team training and integrated LCS Team training.																				
⁽³⁾ Procurement of ECP's, Tech Refresh, and Modernization to keep CMPT and MPTS current with delivered baseline.																				
⁽⁴⁾ Procurement of MCM components located in an LCS mission bay to replicate the afloat environment as required to support individual qualification and team certification associated with routine and corrective system maintenance in a constrained environment, transportation in the mission bay, pre- / post- operation system maintenance; system launch and recovery.																				
⁽⁵⁾ Increase in FY20 production engineering funding supports the initial procurement of Unmanned Minesweeping (UMS) Module and Remote Minehunting Module (RMH) containers and associated support.																				
⁽⁶⁾ Quantity reflects total amount of Unmanned Aerial Relay (UMAR) ship-sets, High Frequency Ground Wave (HFGW) ship-sets and HFGW vehicle sets. Unit price is average of all components.																				

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Exhibit P-5a, Procurement History and Planning: PB 2020 Navy									Date: March 2019			
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 15				P-1 Line Item Number / Title: 1600 / LCS Common Mission Modules Equipment					Aggregated Items: LCS MISSION MODULES			
Item Number / Title [DODIC]	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
6) LM008 - MPCE												
6.1) Mission Package Portable Control Station		2019	Advanced Acoustic Concept / Columbia, MD	C / TBD	NAVSEA	Mar 2019	Sep 2020	1	1,600K	Y		Jul 2018
6.1) Mission Package Portable Control Station		2020	Advanced Acoustic Concept / Columbia, MD	C / TBD	NAVSEA	Oct 2019	Apr 2021	1	1,637K	Y		
6.2) MPCE Hardware		2017	Advanced Acoustic Concept / Columbia, MD	SS / CPFF	NAVSEA	Aug 2017	Aug 2018	2	810,000.00	Y		
6.2) MPCE Hardware		2018	Advanced Acoustic Concept / Columbia, MD	SS / CPFF	NAVSEA	Mar 2018	Mar 2019	2	810,000.00	Y		
6.2) MPCE Hardware		2019	Advanced Acoustic Concept / Columbia, MD	TBD	NAVSEA	Mar 2019	Mar 2020	2	832,000.00	Y		Jul 2018
6.2) MPCE Hardware		2020	Advanced Acoustic Concept / Columbia, MD	TBD	NAVSEA	Oct 2019	Oct 2020	3	849,000.00	Y		
6.3) MPCE Tech Refresh		2018	Advanced Acoustic Concept / Columbia, MD	SS / CPFF	NAVSEA	Mar 2018	Mar 2019	4	778,500.00	Y		
6.3) MPCE Tech Refresh		2019	Advanced Acoustic Concept / Columbia, MD	TBD	NAVSEA	Mar 2019	Mar 2020	4	798,500.00	Y		Jul 2018
6.3) MPCE Tech Refresh		2020	Advanced Acoustic Concept / Columbia, MD	TBD	NAVSEA	Oct 2019	Oct 2020	4	813,000.00	Y		
6.4) MPCE Sonar Signal Processing ^{(1)(f)}		2020	Lockheed Martin / Manassas, VA	C / FFP	NAVSEA	Dec 2019	Jun 2021	2	2,292K	Y		
9) LM012 - TRAINING EQUIPMENT												
9.1) COMMON MISSION PACKAGE TRAINER (CMPT) ⁽²⁾		2019	Advanced Acoustic Concept / Columbia, MD	TBD	NAVSEA	Mar 2019	Mar 2020	1	3,280K	Y		Jul 2018
9.1) COMMON MISSION PACKAGE TRAINER (CMPT) ⁽²⁾		2020	Advanced Acoustic Concept / Columbia, MD	C / TBD	** NO PCO **	Oct 2019	Oct 2020	1	3,346K	N		
9.5) EMM AN/SQS-62 Training Equipment		2020	Raytheon / Portsmouth, RI	C / TBD	NUWC Newport	Oct 2019	Apr 2021	1	3,692K	N	Nov 2018	
11) LM015 - CONTAINERS (SHIPPING & SUPPORT)												
11.1) MCM SUPPORT CONTAINER ^(f)		2017 ⁽⁷⁾	NORTHROP GRUMMAN / BETHPAGE, NEW YORK	C / FFP	NAVSEA	Aug 2017	Feb 2019	1	1,662K	Y		
11.1) MCM SUPPORT CONTAINER ^(f)		2018	NORTHROP GRUMMAN / BETHPAGE, NEW YORK	C / FFP	NAVSEA	Mar 2018	Sep 2019	3	1,672K	Y		
11.1) MCM SUPPORT CONTAINER ^(f)		2019	NORTHROP GRUMMAN / BETHPAGE, NEW YORK	C / FFP	NAVSEA	Mar 2019	Sep 2020	1	1,590K	Y		
11.1) MCM SUPPORT CONTAINER ^(f)		2020	NORTHROP GRUMMAN / BETHPAGE, NEW YORK	C / FFP	NAVSEA	Mar 2020	Sep 2021	5	1,686K	Y		

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Exhibit P-5a, Procurement History and Planning: PB 2020 Navy								Date: March 2019			
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 15				P-1 Line Item Number / Title: 1600 / LCS Common Mission Modules Equipment				Aggregated Items: LCS MISSION MODULES			

Item Number / Title [DODIC]	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
11.2) SUW SUPPORT CONTAINER		2016	NORTHROP GRUMMAN / BETHPAGE, NEW YORK	C / FFP	NAVSEA	Aug 2017	Feb 2019	8	706,250.00	Y		
11.2) SUW SUPPORT CONTAINER		2017	NORTHROP GRUMMAN / BETHPAGE, NEW YORK	C / FFP	NAVSEA	Aug 2017	Feb 2019	4	722,750.00	Y		
11.2) SUW SUPPORT CONTAINER		2018	NORTHROP GRUMMAN / BETHPAGE, NEW YORK	C / FFP	NAVSEA	Mar 2018	Sep 2019	8	737,750.00	Y		
12) LM016 - MVCS												
12.2) Offboard OTH Communications ⁽⁶⁾		2019	TBD / TBD	C / TBD	NSWC PC	Jan 2019	Jul 2020	2	450,000.00	N	Aug 2018	
12.2) Offboard OTH Communications ⁽⁶⁾		2020	TBD / TBD	C / TBD	NSWC PC	Jan 2020	Jul 2021	4	279,600.00	N	Aug 2018	
12.3) MVCS Tech Refresh		2018	VARIOUS / VARIOUS	C / FFP	NSWC PC	Mar 2018	Mar 2019	4	292,000.00	Y		
12.3) MVCS Tech Refresh		2019	VARIOUS / VARIOUS	C / TBD	NSWC PC	Feb 2019	Feb 2020	3	750,000.00	Y		
12.3) MVCS Tech Refresh		2020	VARIOUS / VARIOUS	C / TBD	NSWC PC	Feb 2020	Feb 2021	6	758,000.00	Y		

^(†) indicates the presence of a P-21

Footnotes:

⁽⁷⁾ Unit price for the MCM Containers is an average cost that does not reflect the 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-21, Production Schedule: PB 2020 Navy																				Date: March 2019																		
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 15										P-1 Line Item Number / Title: 1600 / LCS Common Mission Modules Equipment										Aggregated Items: LCS MISSION MODULES																		
Items (Units in Each)							Fiscal Year 2017										Fiscal Year 2018										BALANCE											
OCO	MFR #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2016	BAL DUE AS OF 1 OCT	Calendar Year 2017										Calendar Year 2018																					
							OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY		JUN	JUL	AUG	SEP							
6) LM008 - MPCE																																						
6.4) MPCE Sonar Signal Processing ⁽¹⁾																																						
	13	2020	NAVY	2	0	2																										2						
11) LM015 - CONTAINERS (SHIPPING & SUPPORT)																																						
11.1) MCM SUPPORT CONTAINER																																						
Prior Years Deliveries: 21																																						
	14	2017	NAVY	1	0	1											A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1					
	14	2018	NAVY	3	0	3																					A	-	-	-	-	-	-	-	-	-	-	3
	14	2019	NAVY	1	0	1																										1						
	14	2020	NAVY	5	0	5																										5						
							OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP								

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Exhibit P-21, Production Schedule: PB 2020 Navy																				Date: March 2019																					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 15										P-1 Line Item Number / Title: 1600 / LCS Common Mission Modules Equipment										Aggregated Items: LCS MISSION MODULES																					
Items <i>(Units in Each)</i>							Fiscal Year 2019										Fiscal Year 2020													BALANCE											
O C C O	M F R #	FY	SERVICE	PROC QTY	ACCEP T O 1 OCT 2018	BAL DUE AS OF 1 OCT	Calendar Year 2019										Calendar Year 2020																								
							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										
6) LM008 - MPCE																																									
6.4) MPCE Sonar Signal Processing ⁽¹⁾																																									
	13	2020	NAVY	2	0	2														A -	-	-	-	-	-	-	-	-	-	-	-	-	-	2							
11) LM015 - CONTAINERS (SHIPPING & SUPPORT)																																									
11.1) MCM SUPPORT CONTAINER																																									
Prior Years Deliveries: 21																																									
	14	2017	NAVY	1	0	1	-	-	-	-	1																								0						
	14	2018	NAVY	3	0	3	-	-	-	-	-	-	-	-	-	-	3																								0
	14	2019	NAVY	1	0	1						A -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	0									
	14	2020	NAVY	5	0	5																								A -	-	-	-	-	-	-	-	-	-	-	5
							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: PB 2020 Navy																				Date: March 2019												
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 15										P-1 Line Item Number / Title: 1600 / LCS Common Mission Modules Equipment										Aggregated Items: LCS MISSION MODULES												
Items <i>(Units in Each)</i>							Fiscal Year 2021										Fiscal Year 2022										BALANCE					
OCO	MFR #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2020	BAL DUE AS OF 1 OCT	Calendar Year 2021										Calendar Year 2022															
							OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY		JUN	JUL	AUG	SEP	
6) LM008 - MPCE																																
6.4) MPCE Sonar Signal Processing ⁽¹⁾																																
	13	2020	NAVY	2	0	2	-	-	-	-	-	-	-	-	1	1																0
11) LM015 - CONTAINERS (SHIPPING & SUPPORT)																																
11.1) MCM SUPPORT CONTAINER																																
Prior Years Deliveries: 21																																
	14	2017	NAVY	1	1	0																										0
	14	2018	NAVY	3	3	0																										0
	14	2019	NAVY	1	1	0																										0
	14	2020	NAVY	5	0	5	-	-	-	-	-	-	-	-	-	-	5	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	0		

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Exhibit P-21, Production Schedule: PB 2020 Navy									Date: March 2019			
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 15					P-1 Line Item Number / Title: 1600 / LCS Common Mission Modules Equipment				Aggregated Items: LCS MISSION MODULES			
MFR Ref #	Manufacturer Name - Location	Production Rates (Each / Year)			Procurement Leadtime (Months)							
		MSR For 2020	1-8-5 For 2020	MAX For 2020	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	Lockheed Martin - Manassas, VA	1	2	6	0	0	18	18	0	0	18	18
2	NORTHROP GRUMMAN - BETHPAGE, NEW YORK	1	7	20	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: PB 2020 Navy								Date: March 2019				
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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity (Units in Each)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost (\$ in Millions)	179.105	45.146	98.901	197.129	0.000	197.129	222.831	222.523	233.151	243.503	1,213.078	2,655.367
Less PY Advance Procurement (\$ in Millions)	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (\$ in Millions)	179.105	45.146	98.901	197.129	0.000	197.129	222.831	222.523	233.151	243.503	1,213.078	2,655.367
Plus CY Advance Procurement (\$ in Millions)	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority (\$ in Millions)	179.105	45.146	98.901	197.129	0.000	197.129	222.831	222.523	233.151	243.503	1,213.078	2,655.367
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)												
Initial Spares (\$ in Millions)	-	4.304	0.971	7.912	-	7.912	7.475	6.182	2.621	3.395	Continuing	Continuing
Flyaway Unit Cost (\$ in Dollars)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost (\$ in Dollars)	-	-	-	-	-	-	-	-	-	-	-	-
Description:												
The LCS Mine Countermeasures (MCM) Mission Package (MP) counters bottom, tethered, near surface, and surface mines in the littorals without putting Sailors in the minefield. When the MCM MP 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 MP provides these capabilities through the use of sensors and weapons deployed from an embarked MH-60S multi-mission helicopter and unmanned offboard vehicles. The embarked MH-60S employs the Organic Airborne Mine Countermeasures systems to provide rapid minehunting. Organic Airborne Mine Countermeasures (OAMCM) systems provide the long-range, airborne capability to conduct minehunting and clearing operations in littoral zones, confined straits, choke points, and the Amphibious Operations Area (AOA) quickly. 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. The Airborne Mine Neutralization Module (MH-60S Helo + Airborne Mine Neutralization System) and Near Surface Detection (NSD) Module (MH-60S Helo + Airborne Laser Mine Detection System) achieved Initial Operational Capability (IOC) in Q1 FY 2017. The program will add future capabilities to provide a surface influence sweep capability via the Unmanned Minesweeping (UMS) Module: Unmanned Surface Vehicle and Minesweeping Payload Delivery System (previously known as Unmanned Influence Sweeping System (UISS)) for high-speed influence minesweeping, Remote Minehunting Module (Unmanned Surface Vehicle and Minehunting Payload Delivery System) to detect bottom and tethered mines and the Buried Minehunting Module (Knifefish Unmanned Underwater Vehicle) to detect buried mines and mines in a high clutter environment. When complete, the MCM MP will provide full capability against floating, tethered, bottom, and buried mines. The MCM MP 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 each MCM Module (Line Item Number 1601). Other Related Budgets: BLIs: OPN 1600, OPN 1602, OPN 1603, OPN 4248, OPN 2622, OPN 2624, WPN 4221, WPN 4225, RDT&E 0603596N												

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Exhibit P-40, Budget Line Item Justification: PB 2020 Navy		Date: March 2019
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 / Minesweeping Payload Delivery System]: Beginning in FY 2020, the program is aligning the budget to reflect the planned procurement strategy of the Unmanned Surface Vehicle (USV) that is part of both the Unmanned Minesweeping Module and the Remote Minehunting Module. As such, the budget breaks out the procurement of the vehicles, the Payload Delivery System (PDS), and associated payloads.		

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Exhibit P-40, Budget Line Item Justification: PB 2020 Navy								Date: March 2019		
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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Exhibit Type	Title*	Subexhibits	ID CD	MDAP/MAIS Code	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)
P-5	1 / LCS MCM Mission Packages	P-5a, P-21			- / 179.105	- / 45.146	- / 98.901	- / 197.129	- / 0.000	- / 197.129
P-40	Total Gross/Weapon System Cost				- / 179.105	- / 45.146	- / 98.901	- / 197.129	- / 0.000	- / 197.129
*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 2020 funding includes the procurement of two Unmanned Minesweeping Modules, four Remote Minehunting Modules, two Buried Minehunting Modules, three additional Minehunting Payload Delivery Systems to back-fit Unmanned Minesweeping Modules with Remote Minehunting capability, one Airborne Laser Mine Detection System (ALMDS), one Coastal Battlefield Reconnaissance and Analysis (COBRA) system, two AN/AQS-20Cs and associated MCM MP support equipment. All MCM assets procured in FY 2020 support MCM MP deployments starting in FY 2022. The increase in FY 2020 from FY 2019 is attributed to ramping production following mission system testing and following the initial procurement of the Buried Minehunting Module (two Knifefish systems and ancillary equipment) as well as the Remote Minehunting Module. The FY 2020 funding request was reduced by \$1.000 million to account for the availability of prior year execution balances.										

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Exhibit P-5, Cost Analysis: PB 2020 Navy													Date: March 2019								
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 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
Procurement Quantity <i>(Units in Each)</i>				-			-			-			-			-			-		
Gross/Weapon System Cost <i>(\$ in Millions)</i>				179.105			45.146			98.901			197.129			0.000			197.129		
Less PY Advance Procurement <i>(\$ in Millions)</i>				-			-			-			-			-			-		
Net Procurement (P-1) <i>(\$ in Millions)</i>				179.105			45.146			98.901			197.129			0.000			197.129		
Plus CY Advance Procurement <i>(\$ in Millions)</i>				-			-			-			-			-			-		
Total Obligation Authority <i>(\$ in Millions)</i>				179.105			45.146			98.901			197.129			0.000			197.129		
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)																					
Initial Spares <i>(\$ in Millions)</i>				-			4.304			0.971			7.912			-			7.912		
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 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 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 MINESWEEPING (UMS) MODULE Cost																					
Recurring Cost																					
1.1.1) Unmanned Influenced Sweep System (UISS) ^(†)		-	-	-	11,800K	1	11.800	12,100K	1	12.100	-	-	-	-	-	-	-	-	-		
1.1.2) Unmanned Surface Vehicle for UMS Module ^{(†) (1)}		-	-	-	-	-	-	-	-	-	11,732K	2	23.464	-	-	-	11,732K	2	23.464		
1.1.3) Minesweeping Payload Delivery System ^{(†) (2)}		-	-	-	-	-	-	-	-	-	2,277K	2	4.554	-	-	-	2,277K	2	4.554		
Subtotal: Recurring Cost		-	-	-	-	-	11.800	-	-	12.100	-	-	28.018	-	-	-	-	-	28.018		
Subtotal: Hardware - MC001 - UNMANNED MINESWEEPING (UMS) MODULE Cost		-	-	-	-	-	11.800	-	-	12.100	-	-	28.018	-	-	-	-	-	28.018		
Hardware - MC003 - ORGANIC AIRBORNE MINE COUNTERMEASURES (OAMCM) SYSTEMS Cost																					
Recurring Cost																					
2.1.1) Airborne Mine Neutralization System (AMNS) ^{(†) (3)}		4,254K	4	17.017	3,010K	2	6.020	3,582K	2	7.164	-	-	-	-	-	-	-	-	-		
2.1.2) Airborne Laser Mine Detection System ^{(†) (4)}		10,033K	5	50.164	14,669K	1	14.669	-	-	-	15,262K	1	15.262	-	-	-	15,262K	1	15.262		
2.1.3) AMNS Technology Refresh		-	-	2.651	-	-	-	-	-	1.308	-	-	1.264	-	-	-	-	-	1.264		

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Exhibit P-5, Cost Analysis: PB 2020 Navy													Date: March 2019					
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 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 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)
and Obsolescence Upgrades ⁽⁵⁾																		
2.1.4) ALMDS Technology Refresh and obsolescence Upgrades	-	-	3.900	-	-	-	-	-	-	-	-	2.732	-	-	-	-	-	2.732
Subtotal: Recurring Cost	-	-	73.732	-	-	20.689	-	-	8.472	-	-	19.258	-	-	-	-	-	19.258
Subtotal: Hardware - MC003 - ORGANIC AIRBORNE MINE COUNTERMEASURES (OAMCM) SYSTEMS Cost	-	-	73.732	-	-	20.689	-	-	8.472	-	-	19.258	-	-	-	-	-	19.258
Hardware - MC004 - COASTAL MINE RECONNAISSANCE MODULE Cost																		
Recurring Cost																		
3.1.1) COBRA ^(†) ⁽⁶⁾	8,500K	1	8.500	7,628K	1	7.628	8,550K	1	8.550	8,721K	1	8.721	-	-	-	8,721K	1	8.721
Subtotal: Recurring Cost	-	-	8.500	-	-	7.628	-	-	8.550	-	-	8.721	-	-	-	-	-	8.721
Subtotal: Hardware - MC004 - COASTAL MINE RECONNAISSANCE MODULE Cost	-	-	8.500	-	-	7.628	-	-	8.550	-	-	8.721	-	-	-	-	-	8.721
Hardware - MC005 - BURIED MINEHUNTING MODULE Cost																		
Recurring Cost																		
4.1.1) KNIFEFISH ^(†) ⁽⁷⁾	-	-	-	-	-	-	10,652K	2	21.304	11,765K	2	23.530	-	-	-	11,765K	2	23.530
4.1.2) Ancillary Equipment and Container Outfitting ^(†) ⁽⁸⁾	-	-	-	-	-	-	4,198K	2	8.396	2,236K	2	4.472	-	-	-	2,236K	2	4.472
Subtotal: Recurring Cost	-	-	-	-	-	-	-	-	29.700	-	-	28.002	-	-	-	-	-	28.002
Subtotal: Hardware - MC005 - BURIED MINEHUNTING MODULE Cost	-	-	-	-	-	-	-	-	29.700	-	-	28.002	-	-	-	-	-	28.002
Hardware - MC006 - MCM SUPPORT EQUIPMENT Cost																		
Recurring Cost																		
5.1.1) SUPPORT EQUIPMENT	-	-	10.638	-	-	-	-	-	3.242	-	-	3.789	-	-	-	-	-	3.789
Subtotal: Recurring Cost	-	-	10.638	-	-	-	-	-	3.242	-	-	3.789	-	-	-	-	-	3.789
Subtotal: Hardware - MC006 - MCM SUPPORT EQUIPMENT Cost	-	-	10.638	-	-	-	-	-	3.242	-	-	3.789	-	-	-	-	-	3.789

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Exhibit P-5, Cost Analysis: PB 2020 Navy													Date: March 2019					
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 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 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 - MC008 - REMOTE MINEHUNTING MODULE Cost																		
Recurring Cost																		
6.1.1) USV ^(†) (9)	-	-	-	-	-	-	17,480K	1	17.480	-	-	-	-	-	-	-	-	-
6.1.2) Unmanned Surface Vehicle ^(†) (10)	-	-	-	-	-	-	-	-	-	11,732K	4	46.928	-	-	-	11,732K	4	46.928
6.1.3) Minehunting Payload Delivery System ^(†)	-	-	-	-	-	-	-	-	-	3,833K	4	15.332	-	-	-	3,833K	4	15.332
6.1.4) Minehunting Payload Delivery System (to backfit UMS Module USV) ^(†) (11)	-	-	-	-	-	-	6,100K	2	12.200	3,833K	3	11.499	-	-	-	3,833K	3	11.499
6.1.5) AN/AQS-20C ^(†) (12)	6,660K	10	66.600	-	-	-	-	-	-	14,180K	2	28.360	-	-	-	14,180K	2	28.360
Subtotal: Recurring Cost	-	-	66.600	-	-	-	-	-	29.680	-	-	102.119	-	-	-	-	-	102.119
Subtotal: Hardware - MC008 - REMOTE MINEHUNTING MODULE Cost	-	-	66.600	-	-	-	-	-	29.680	-	-	102.119	-	-	-	-	-	102.119
Support - MC900 - CONSULTING SERVICES Cost																		
7.1) CONSULTING SERVICES	-	-	3.614	-	-	1.910	-	-	1.948	-	-	2.077	-	-	-	-	-	2.077
Subtotal: Support - MC900 - CONSULTING SERVICES Cost	-	-	3.614	-	-	1.910	-	-	1.948	-	-	2.077	-	-	-	-	-	2.077
Support - PRODUCTION ENGINEERING Cost																		
8.1) MC001 - UNMANNED INFLUENCE MINE SWEEP	-	-	-	-	-	0.532	-	-	0.625	-	-	0.638	-	-	-	-	-	0.638
8.2) MC003 - ORGANIC AIRBORNE MINE COUNTERMEASURES (OAMCM)	-	-	13.101	-	-	1.361	-	-	1.250	-	-	1.279	-	-	-	-	-	1.279
8.3) MC004 - COASTAL MINE RECONNAISSANCE MODULE	-	-	0.172	-	-	0.507	-	-	0.448	-	-	0.560	-	-	-	-	-	0.560
8.4) MC005 - BURIED MINEHUNTING MODULE	-	-	-	-	-	-	-	-	0.625	-	-	0.638	-	-	-	-	-	0.638

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Exhibit P-5, Cost Analysis: PB 2020 Navy													Date: March 2019					
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 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 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)
8.5) MC006 - MCM SUPPORT EQUIPMENT	-	-	2.748	-	-	0.719	-	-	0.640	-	-	0.755	-	-	-	-	-	0.755
8.6) MC008 REMOTE MINEHUNTING MODULE	-	-	-	-	-	-	-	-	1.621	-	-	1.275	-	-	-	-	-	1.275
Subtotal: Support - PRODUCTION ENGINEERING Cost	-	-	16.021	-	-	3.119	-	-	5.209	-	-	5.145	-	-	-	-	-	5.145
Gross/Weapon System Cost	-	-	179.105	-	-	45.146	-	-	98.901	-	-	197.129	-	-	0.000	-	-	197.129
Remarks:																		
[Hardware] MC001- The Unmanned Minesweeping 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.																		
[Hardware] 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.																		
[Hardware] MC006 - MCM SUPPORT EQUIPMENT]: Support equipment related to the individual modules.																		
[Hardware] The Remote Minehunting Module consists of an Unmanned Surface Vehicle and a Minehunting Payload Delivery System for deploying and retrieving the AN/AQS-20 minehunting sonar. Beginning in FY 2020 the USV is common between the Unmanned Minesweeping Module and the Remote Minehunting Module. The USV is capable of supporting both minehunting and minesweeping missions. FY 2020 procurements will be competitively sought. Pricing in FY 2020 reflect production startup plus competitive procurement pricing. The LCS MM Program requires a total of 48 Unmanned Surface Vehicles and 48 Minehunting Payload Delivery Systems to support minehunting missions.																		
[Support Cost] MC900 - Provides program management support, engineering and technical support, studies, analysis and evaluation on mission module systems.																		
(†) indicates the presence of a P-5a																		
Footnotes:																		
(1) The Unmanned Minesweeping Module consists of an Unmanned Surface Vehicle (USV) and a Minesweeping Payload Delivery System (PDS). Prior to FY 2020, this system was known as the 1.1.1) Unmanned Influenced Sweep System (UISS). The LCS MM Program requires a total of 24 Unmanned Minesweeping Modules.																		
(2) The Minesweeping Payload Delivery System (PDS) plus the Unmanned Surface Vehicle (USV) form the Unmanned Influence Sweep System (UISS). The Minesweeping PDS includes the MK-104 payload.																		
(3) AMNS unit pricing reflects contract actuals.																		
(4) ALMDS unit prices are based on economic order quantity / step-ladder pricing in existing contract.																		
(5) 2.1.4) AMNS Tech Refreshes improve reliability and maintainability to previously procured AMNS units and correct deficiencies that allow the equipment to perform in accordance with current deployment configuration / operational requirements.																		

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Exhibit P-5, Cost Analysis: PB 2020 Navy		Date: March 2019
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:
⁽⁶⁾ FY17 - FY20 reflects Economic Order Quantity (EOQ) when taking into consideration the COBRA training assets procured through OPN Line Item 2624 where COBRA systems are procured to provide initial and proficiency training to Navy aircrews. ⁽⁷⁾ The FY 2019 Knifefish pricing is based on the current EDM/LRIP contract and reflects procurement of two (2) Unmanned Underwater Vehicles (UUVs). FY 2020 through FY 2024 pricing is based on a planned competitive contract and is based on the Program Lifecycle Cost Estimate (PLCCE). The LCS MM Program requires a total of 24 Knifefish systems. ⁽⁸⁾ The unit cost includes all necessary equipment to outfit the Buried Minehunting (BMH) Module to include the base pallet, launch and recovery device, shipping containers, support equipment (Deck tie down case, ballast transport case, grapple assembly, winch case, and other tools), and the BMH Specialized Container. ⁽⁹⁾ Beginning in FY 2020, the program is aligning the budget to reflect the planned procurement strategy for the Unmanned Surface Vehicle (USV) that is part of both the Unmanned Minesweeping Module and the Remote Minehunting Module. Prior to FY 2020, this Cost Element (6.1.1 - MCM USV) reflects the procurement of one vehicle and one Minehunting Payload Delivery System (PDS). Beginning in FY 2020, the budget breaks out the USV and the Minehunting PDS into separate Cost Elements, 6.1.2 and 6.1.3 respectively. ⁽¹⁰⁾ The Unmanned Surface Vehicle (USV), Minehunting Payload Delivery System (PDS), and the AN/AQS-20 minehunting sonar form the Remote Minehunting (RMH) Module. The LCS MM Program requires a total of 24 RMH Modules. ⁽¹¹⁾ The LCS MM Program requires a total of 48 Minehunting Payload Delivery Systems (PDS) to enable the 48 USVs procured for both the Unmanned Mine Sweeping (UMS) and the Remote Minehunting (RMH) Modules to perform minehunting missions. Cost Element 6.1.4 procures the 24 Minehunting PDS required to backfit the 24 USVs in the UMS Modules (procured in cost element 1.1.2 - Unmanned Surface Vehicle) allowing those assets to support both mine sweeping and minehunting missions. ⁽¹²⁾ The AQS-20C is a towed variable depth minehunting sonar. FY 2020 unit cost reflects Non-Recurring Engineering (NRE) for production line startup costs associated with competitively awarded contract.		

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Exhibit P-5a, Procurement History and Planning: PB 2020 Navy								Date: March 2019				
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 (UISS) ^(†)		2018	Textron / Hunt Valley, MD	C / FPIF	NAVSEA	Apr 2019	Oct 2020	1	11,800K	N	Apr 2019	
1.1.1) Unmanned Influenced Sweep System (UISS) ^(†)		2019	Textron / Hunt Valley, MD	C / FPIF	NAVSEA	Apr 2019	Oct 2020	1	12,100K	N	Apr 2019	
1.1.2) Unmanned Surface Vehicle for UMS Module ^(†)		2020	TBD / TBD	C / TBD	NAVSEA	Apr 2020	Apr 2022	2	11,732K	N	May 2019	Aug 2019
1.1.3) Minesweeping Payload Delivery System		2020	New Contractor following FFP decision / TBD	C / TBD	NAVSEA	Apr 2020	Apr 2022	2	2,277K	N	May 2019	Aug 2019
2.1.1) Airborne Mine Neutralization System (AMNS) ^(†)		2017	Raytheon / Portsmouth, RI	C / FFP	NAVSEA	May 2017	May 2019	1	4,189K	Y		
2.1.1) Airborne Mine Neutralization System (AMNS) ^(†)		2018	Raytheon / Portsmouth, RI	C / FFP	NAVSEA	Feb 2018	Aug 2019	2	3,010K	Y		
2.1.1) Airborne Mine Neutralization System (AMNS) ^(†)		2019	Raytheon / Portsmouth, RI	C / FFP	NAVSEA	Feb 2019	Aug 2020	2	3,582K	Y		
2.1.2) Airborne Laser Mine Detection System ^(†)		2017	Northrop Grumman / Melborn, FL	C / FFP	NAVSEA	Feb 2017	May 2019	1	13,826K	Y		
2.1.2) Airborne Laser Mine Detection System ^(†)		2018	Northrop Grumman / Melborn, FL	C / FFP	NAVSEA	Mar 2018	Sep 2019	1	14,669K	Y		
2.1.2) Airborne Laser Mine Detection System ^(†)		2020	New Contractor following FFP decision / TBD	TBD	NAVSEA	Dec 2019	Jun 2021	1	15,262K	Y		Dec 2019
3.1.1) COBRA ^(†)		2018	ARETE / TUCSON, AZ	C / FFP	NSWC PC	Sep 2018	Sep 2020	1	7,628K	Y		
3.1.1) COBRA ^(†)		2019	ARETE / TUCSON, AZ	C / FFP	NSWC PC	Dec 2018	Dec 2020	1	8,550K	Y		
3.1.1) COBRA ^(†)		2020	ARETE / TUCSON, AZ	C / FFP	NSWC PC	Oct 2019	Oct 2021	1	8,721K	Y		
4.1.1) KNIFEFISH ^(†)		2019	General Dynamics MS / Mcleansville, NC	C / CPIF	NAVSEA	Apr 2019	Jun 2020	2	10,652K	Y		
4.1.1) KNIFEFISH ^(†)		2020	New Contractor following FRP decision / TBD	TBD	NAVSEA	Apr 2020	Jun 2021	2	11,765K	N	May 2019	Aug 2019
4.1.2) Ancillary Equipment and Container Outfitting		2019	NORTHROP GRUMMAN / BETHPAGE, NEW YORK	C / FPIF	NAVSEA	Jan 2019	Jan 2020	2	4,198K	Y		
4.1.2) Ancillary Equipment and Container Outfitting		2020	NORTHROP GRUMMAN / BETHPAGE, NEW YORK	C / CPIF	NAVSEA	Jan 2020	Jan 2021	2	2,236K	Y		
6.1.1) USV ^(†)		2019	Textron / Hunt Valley, MD	C / TBD	NAVSEA	Jan 2019	Jan 2021	1	17,480K	Y		
6.1.2) Unmanned Surface Vehicle ^(†)		2020	New Contractor following FFP decision / TBD	C / TBD	NAVSEA	Apr 2020	Apr 2022	4	11,732K	N	May 2019	Aug 2019

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Exhibit P-5a, Procurement History and Planning: PB 2020 Navy									Date: March 2019			
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
6.1.3) Minehunting Payload Delivery System ^(†)		2020	New Contractor following FFP decision / TBD	C / TBD	NAVSEA	Apr 2020	Apr 2022	4	3,833K	N	May 2019	Aug 2019
6.1.4) Minehunting Payload Delivery System (to backfit UMS Module USV) ^(†)		2019	New Contractor following FFP decision / TBD	C / TBD	NAVSEA	Jan 2019	Jan 2021	2	6,100K	Y		
6.1.4) Minehunting Payload Delivery System (to backfit UMS Module USV) ^(†)		2020	New Contractor following FFP decision / TBD	C / TBD	NAVSEA	Apr 2020	Apr 2022	3	3,833K	N	May 2019	Aug 2019
6.1.5) AN/AQS-20C ^(†)		2020	TBD / TBD	TBD	NAVSEA	Jul 2020	Dec 2021	2	14,180K	Y		Jan 2019

^(†) indicates the presence of a P-21

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Exhibit P-21, Production Schedule: PB 2020 Navy																												Date: March 2019							
Appropriation / Budget Activity / Budget Sub Activity:										P-1 Line Item Number / Title:										Item Number / Title [DODIC]:															
1810N / 01 / 15										1601 / LCS MCM Mission Modules										1 / LCS MCM Mission Packages															
Cost Elements (Units in Each)						Fiscal Year 2017												Fiscal Year 2018												B A L A N C E					
O C C O	M F R #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2016	BAL DUE AS OF 1 OCT	Calendar Year 2017												Calendar Year 2018																
							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 (UISS)																																			
	1	2018	NAVY		1	0	1																									1			
	1	2019	NAVY		1	0	1																									1			
1.1.2) Unmanned Surface Vehicle for UMS Module ⁽¹⁾																																			
	2	2020	NAVY		2	0	2																									2			
2.1.1) Airborne Mine Neutralization System (AMNS) ⁽³⁾																																			
Prior Years Deliveries: 3																																			
	3	2017	NAVY		1	0	1													A -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
	3	2018	NAVY		2	0	2													A - - - - - - - - - - - - - - - -												2			
	3	2019	NAVY		2	0	2																									2			
2.1.2) Airborne Laser Mine Detection System ⁽⁴⁾																																			
Prior Years Deliveries: 4																																			
	4	2017	NAVY		1	0	1													A -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
	4	2018	NAVY		1	0	1													A - - - - - - - - - - - - - - - -												1			
	5	2020	NAVY		1	0	1																									1			
3.1.1) COBRA ⁽⁶⁾																																			
Prior Years Deliveries: 1																																			
	6	2018	NAVY		1	0	1													A -												1			
	6	2019	NAVY		1	0	1																									1			
	6	2020	NAVY		1	0	1																									1			
4.1.1) KNIFEFISH ⁽⁷⁾																																			
	7	2019	NAVY		2	0	2																									2			
	8	2020	NAVY		2	0	2																									2			
6.1.1) USV ⁽⁹⁾																																			
	9	2019	NAVY		1	0	1																									1			
6.1.2) Unmanned Surface Vehicle ⁽¹⁰⁾																																			
	10	2020	NAVY		4	0	4																									4			
6.1.3) Minehunting Payload Delivery System																																			
	11	2020	NAVY		4	0	4																									4			
6.1.4) Minehunting Payload Delivery System (to backfit UMS Module USV) ⁽¹¹⁾																																			
	12	2019	NAVY		2	0	2	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	2			

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Exhibit P-21, Production Schedule: PB 2020 Navy																			Date: March 2019																		
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 2017														Fiscal Year 2018														BALANCE		
OCO	MFR #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2016	BAL DUE AS OF 1 OCT	Calendar Year 2017														Calendar Year 2018																
							OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP							
	12	2020	NAVY	3	0	3																													3		
6.1.5) AN/AQS-20C ⁽¹²⁾																																					
Prior Years Deliveries: 10																																					
	13	2020	NAVY	2	0	2	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	2						

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LI 1601 - LCS MCM Mission Modules

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Exhibit P-21, Production Schedule: PB 2020 Navy																			Date: March 2019															
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 2019												Fiscal Year 2020												BALANCE			
OCO	MFR #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2018	BAL DUE AS OF 1 OCT	Calendar Year 2019												Calendar Year 2020															
							OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP				
	12	2020	NAVY	3	0	3													A - - - - -												3			
6.1.5) AN/AQS-20C ⁽¹²⁾																																		
Prior Years Deliveries: 10																																		
	13	2020	NAVY	2	0	2																									A -	-	-	2
							OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP				

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Exhibit P-21, Production Schedule: PB 2020 Navy																							Date: March 2019														
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 2021												Fiscal Year 2022												B A L A N C E						
O C C #	M F R #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2020	BAL DUE AS OF 1 OCT	Calendar Year 2021																		Calendar Year 2022												
							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 (UISS)																																					
	1	2018	NAVY	1	0	1	1																								0						
	1	2019	NAVY	1	0	1	1																								0						
1.1.2) Unmanned Surface Vehicle for UMS Module ⁽¹⁾																																					
	2	2020	NAVY	2	0	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	1			0						
2.1.1) Airborne Mine Neutralization System (AMNS) ⁽³⁾																																					
Prior Years Deliveries: 3																																					
	3	2017	NAVY	1	1	0																								0							
	3	2018	NAVY	2	2	0																								0							
	3	2019	NAVY	2	1	1	1																								0						
2.1.2) Airborne Laser Mine Detection System ⁽⁴⁾																																					
Prior Years Deliveries: 4																																					
	4	2017	NAVY	1	1	0																								0							
	4	2018	NAVY	1	1	0																								0							
	5	2020	NAVY	1	0	1	-	-	-	-	-	-	-	-	-	1															0						
3.1.1) COBRA ⁽⁶⁾																																					
Prior Years Deliveries: 1																																					
	6	2018	NAVY	1	1	0																								0							
	6	2019	NAVY	1	0	1	-	-	1																					0							
	6	2020	NAVY	1	0	1	-	-	-	-	-	-	-	-	-	-	-	-	1												0						
4.1.1) KNIFEFISH ⁽⁷⁾																																					
	7	2019	NAVY	2	2	0																								0							
	8	2020	NAVY	2	0	2	-	-	-	-	-	-	-	-	2																0						
6.1.1) USV ⁽⁹⁾																																					
	9	2019	NAVY	1	0	1	-	-	-	1																					0						
6.1.2) Unmanned Surface Vehicle ⁽¹⁰⁾																																					
	10	2020	NAVY	4	0	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	1	-	2		0						
6.1.3) Minehunting Payload Delivery System																																					
	11	2020	NAVY	4	0	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	1	-	2		0						
6.1.4) Minehunting Payload Delivery System (to backfit UMS Module USV) ⁽¹¹⁾																																					
	12	2019	NAVY	2	0	2	-	-	-	1	-	-	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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Exhibit P-21, Production Schedule: PB 2020 Navy																				Date: March 2019												
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 2021										Fiscal Year 2022										BALANCE					
OCO	MFR #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2020	BAL DUE AS OF 1 OCT	Calendar Year 2021										Calendar Year 2022															
							OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY		JUN	JUL	AUG	SEP	
	12	2020	NAVY	3	0	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	1	-	1		0		
6.1.5) AN/AQS-20C ⁽¹²⁾																																
Prior Years Deliveries: 10																																
	13	2020	NAVY	2	0	2	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	1								0
							OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP		

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Exhibit P-21, Production Schedule: PB 2020 Navy							Date: March 2019
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 2020	1-8-5 For 2020	MAX For 2020	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	6	12	3	3	18	21	3	3	18	21
2	TBD - TBD	1	6	10	3	0	24	24	0	0	24	24
3	Raytheon - Portsmouth, RI	2	3	8	3	0	18	18	3	3	18	21
4	Northrop Grumman - Melborn, FL	1	4	8	3	0	18	18	3	3	18	21
5	New Contractor following FFP decision - TBD	1	4	8	3	0	18	18	3	3	18	21
6	ARETE - TUCSON, AZ	2	6	12	0	0	24	24	0	0	24	24
7	General Dynamics MS - Mcleansville, NC	2	4	10	3	6	14	20	0	3	18	21
8	New Contractor following FRP decision - TBD	1	6	10	3	2	14	16	1	2	14	16
9	Textron - Hunt Valley, MD	1	6	12	3	0	24	24	0	0	24	24
10	New Contractor following FFP decision - TBD	1	6	10	3	0	24	24	0	0	24	24
11	New Contractor following FFP decision - TBD	1	6	10	3	0	24	24	0	0	24	24
12	New Contractor following FFP decision - TBD	1	6	10	0	0	24	24	0	0	24	24
13	TBD - TBD	2	3	8	3	0	17	17	3	3	17	20

"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: PB 2020 Navy										Date: March 2019		
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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity (<i>Units in Each</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost (<i>\$ in Millions</i>)	0.000	0.000	0.000	27.754	0.000	27.754	63.181	34.104	34.777	35.473	149.221	344.510
Less PY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (<i>\$ in Millions</i>)	0.000	0.000	0.000	27.754	0.000	27.754	63.181	34.104	34.777	35.473	149.221	344.510
Plus CY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority (<i>\$ in Millions</i>)	0.000	0.000	0.000	27.754	0.000	27.754	63.181	34.104	34.777	35.473	149.221	344.510
<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>)	-	0.506	0.578	0.300	-	0.300	0.353	0.175	0.210	0.233	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 (MP) 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. The ASW MP is developed to provide the warfighter capabilities that can be employed for ASW area search as well as high value unit escort missions and composed of an Escort Mission Module (EMM), a Torpedo Defense Module (TDM), and an Aviation Module. The EMM components include a Variable Depth Sonar (VDS), a Multi-Function Towed Array (MFTA), associated winch and handling equipment, and a Mission Package Computing Environment (MPCE) Sonar Signal Processing suite. The Torpedo Defense Module utilizes the Light Weight Tow Torpedo countermeasures system, associated winch and handling equipment, and a control station. The Aviation Module provides airborne threat localization and engagement capability through an MH-60R helicopter with MK54 torpedoes and sonobuoys, as well as associated storing and handling gear. The ability to incorporate a Fire Scout Vertical Takeoff and Landing Unmanned Aerial Vehicle is an additional capability within the Aviation Module.

An ASW MP 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 ASW MPs must not only keep pace with the number of ships, additional MPs are required to account for those 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

[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 Variable Depth Sonar (VDS) active source and a Multi Function Towed Array (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.

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Exhibit P-40, Budget Line Item Justification: PB 2020 Navy		Date: March 2019
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		
[P5 / (AS005) - ASW Mission Package Support Equipment and 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 / ASW Support 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: PB 2020 Navy								Date: March 2019		
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										
Exhibits Schedule					Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Exhibit Type	Title*	Subexhibits	ID CD	MDAP/MAIS Code	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)
P-5	1 / LCS ASW Mission Modules	P-5a, P-21			- / 0.000	- / 0.000	- / 0.000	- / 27.754	- / 0.000	- / 27.754
P-3a	1 / ASW MP Modifications (Permanent Installation)				- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000
P-40	Total Gross/Weapon System Cost				- / 0.000	- / 0.000	- / 0.000	- / 27.754	- / 0.000	- / 27.754
Exhibits Schedule					FY 2021	FY 2022	FY 2023	FY 2024	To Complete	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 ASW Mission Modules	P-5a, P-21			- / -	- / -	- / -	- / -	- / -	- / -
P-3a	1 / ASW MP Modifications (Permanent Installation)				- / 11.468	- / 9.278	- / 9.840	- / 9.725	- / 42.599	- / 82.910
P-40	Total Gross/Weapon System Cost				- / 63.181	- / 34.104	- / 34.777	- / 35.473	- / 149.221	- / 344.510
*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 2020 funds the procurement of one ASW MP, to include associated support equipment. This is a new start. The Navy in coordination with the prime contractor of the Escort Mission Module (EMM) Pre-Production Test Article (PPTA) completed acoustic characterization, end-to-end integration testing, and two phases of dockside testing in 3Q FY 2018 and 4Q FY 2018. The Navy took delivery of the EMM PPTA in Q1 FY 2019. Following delivery, the Navy initiated white ship testing in January 2019 to characterize hydrodynamic performance. LCS ship modification planning and design efforts have completed, and the Navy plans to begin modifications to USS Fort Worth (LCS 3) in Q2 FY 2019 and complete in Q3 FY 2019. Once complete, the ASW MP will be embarked in Q3 FY 2019 and commence formal testing Q4 FY 2019, which will complete in Q2 FY2020.										

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Exhibit P-5, Cost Analysis: PB 2020 Navy												Date: March 2019						
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 15						P-1 Line Item Number / Title: 1602 / LCS ASW Mission Modules						Item Number / Title [DODIC]: 1 / LCS ASW Mission Modules						
ID Code (A=Service Ready, B=Not Service Ready) :									MDAP/MAIS Code:									
Resource Summary				Prior Years		FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total				
Procurement Quantity <i>(Units in Each)</i>				-		-		-		-		-		-				
Gross/Weapon System Cost <i>(\$ in Millions)</i>				0.000		0.000		0.000		27.754		0.000		27.754				
Less PY Advance Procurement <i>(\$ in Millions)</i>				-		-		-		-		-		-				
Net Procurement (P-1) <i>(\$ in Millions)</i>				0.000		0.000		0.000		27.754		0.000		27.754				
Plus CY Advance Procurement <i>(\$ in Millions)</i>				-		-		-		-		-		-				
Total Obligation Authority <i>(\$ in Millions)</i>				0.000		0.000		0.000		27.754		0.000		27.754				
(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 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 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 - (AS001) - ASW Escort Module Cost																		
Recurring Cost																		
1.1.1) Variable Depth Sonar ⁽¹⁾ (1)	-	-	0.000	-	-	0.000	-	-	0.000	16,581K	1	16.581	-	-	0.000	16,581K	1	16.581
1.1.2) Variable Depth Sonar Engineering Change Proposals ⁽²⁾	-	-	0.000	-	-	0.000	-	-	0.000	-	-	2.500	-	-	0.000	-	-	2.500
1.1.3) Multi Function Towed Array ⁽¹⁾ (3)	-	-	0.000	-	-	0.000	-	-	0.000	3,150K	1	3.150	-	-	0.000	3,150K	1	3.150
1.1.4) Production Engineering	-	-	0.000	-	-	0.000	-	-	0.000	-	-	2.280	-	-	0.000	-	-	2.280
Subtotal: Recurring Cost	-	-	0.000	-	-	0.000	-	-	0.000	-	-	24.511	-	-	0.000	-	-	24.511
Subtotal: Hardware - (AS001) - ASW Escort Module Cost	-	-	0.000	-	-	0.000	-	-	0.000	-	-	24.511	-	-	0.000	-	-	24.511
Hardware - (AS005) - ASW Mission Package Support Equipment and Containers Cost																		
Recurring Cost																		
3.1.2) ASW Support Equipment ⁽⁴⁾	-	-	0.000	-	-	0.000	-	-	0.000	-	-	2.906	-	-	0.000	-	-	2.906
Subtotal: Recurring Cost	-	-	0.000	-	-	0.000	-	-	0.000	-	-	2.906	-	-	0.000	-	-	2.906
Subtotal: Hardware - (AS005) - ASW Mission Package Support Equipment and Containers Cost	-	-	0.000	-	-	0.000	-	-	0.000	-	-	2.906	-	-	0.000	-	-	2.906
Support - (AS900) - Consulting Services Cost																		

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Exhibit P-5, Cost Analysis: PB 2020 Navy													Date: March 2019					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 15						P-1 Line Item Number / Title: 1602 / LCS ASW Mission Modules							Item Number / Title [DODIC]: 1 / LCS ASW Mission Modules					
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 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 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) Consulting Services	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.337	-	-	0.000	-	-	0.337
Subtotal: Support - (AS900) - Consulting Services Cost	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.337	-	-	0.000	-	-	0.337
Gross/Weapon System Cost	-	-	0.000	-	-	0.000	-	-	0.000	-	-	27.754	-	-	0.000	-	-	27.754

(†) indicates the presence of a P-5a

Footnotes:

- (1) The VDS is an acoustic source that can be towed at the speeds required to perform effective ASW search from the LCS. The VDS is a Dual Mode Array Transmitter (DART), and together with the MFTA and Sonar Signal Processing System, provides an in-stride and rapid ASW escort and large area search capability for the Escort Mission Module.
- (2) This cost element funds Engineering Change Proposals (ECPs) required for the production of the Escort Mission Module's Variable Depth Sonar (VDS). These ECPs include upgrades to support the additional snag load requirement, cyber security enhancements, and other ECPs discovered during testing.
- (3) The Multi-Function Towed Array (MFTA) is a Program of Record (PoR) system in production and that is integrated into the AS/SQQ-89A(V)15 and installed aboard Arleigh Burke Class guided missile destroyers and Ticonderoga Class cruisers. The MFTA is being integrated into the ASW Mission Package as part of the Escort Mission Module. The MFTA is paired with the VDS will provide both a transit speed ASW Escort and Barrier/Area search capability as well as torpedo alert capability.
- (4) ASW MP Support Equipment funds will be to procure the following items: Variable Depth Sonar (VDS) Crate, VDS tow cable, VDS reel pallet, Multi-Function Towed Array (MFTA) reel pallet, MFTA tow cable reel pallet, Ramp Spanning Structure and Stern Door Cofferdam Flat Rack, Cabinets for Sonobuoys, Closed-Circuit TVs, and Expendable Bathythermographs (XBT) probes.

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Exhibit P-5a, Procurement History and Planning: PB 2020 Navy									Date: March 2019			
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 15			P-1 Line Item Number / Title: 1602 / LCS ASW Mission Modules					Item Number / Title [DODIC]: 1 / LCS ASW Mission Modules				
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) Variable Depth Sonar ^(†)		2020	Raytheon / Portsmouth, RI	C / FFP	NUWC Newport	Jun 2020	Feb 2022	1	16,581K	Y		
1.1.3) Multi Function Towed Array ^(†)		2020	Lockheed Martin / Syracuse, NY	C / FFP	NAVSEA	Jan 2020	Jan 2022	1	3,150K	Y		

^(†) indicates the presence of a P-21

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Exhibit P-21, Production Schedule: PB 2020 Navy																				Date: March 2019													
Appropriation / Budget Activity / Budget Sub Activity:							P-1 Line Item Number / Title:													Item Number / Title [DODIC]:													
1810N / 01 / 15							1602 / LCS ASW Mission Modules													1 / LCS ASW Mission Modules													
Cost Elements (Units in Each)							Fiscal Year 2020													Fiscal Year 2021													BALANCE
OCO	MFR #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2019	BAL DUE AS OF 1 OCT	Calendar Year 2020													Calendar Year 2021													
							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) Variable Depth Sonar ⁽¹⁾																																	
	1	2020	NAVY		1	0	1								A -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1		
1.1.3) Multi Function Towed Array ⁽³⁾																																	
	2	2020	NAVY		1	0	1					A -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	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		

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Exhibit P-21, Production Schedule: PB 2020 Navy																				Date: March 2019												
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 15										P-1 Line Item Number / Title: 1602 / LCS ASW Mission Modules										Item Number / Title [DODIC]: 1 / LCS ASW Mission Modules												
Cost Elements <i>(Units in Each)</i>							Fiscal Year 2022										Fiscal Year 2023														BALANCE	
OCO	MFR #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2021	BAL DUE AS OF 1 OCT	Calendar Year 2022										Calendar Year 2023															
							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) Variable Depth Sonar ⁽¹⁾																																
	1	2020	NAVY		1	0	1	-	-	-	-	1																				0
1.1.3) Multi Function Towed Array ⁽³⁾																																
	2	2020	NAVY		1	0	1	-	-	-	1																					0
							OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP		

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Exhibit P-21, Production Schedule: PB 2020 Navy									Date: March 2019			
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 15					P-1 Line Item Number / Title: 1602 / LCS ASW Mission Modules				Item Number / Title [DODIC]: 1 / LCS ASW Mission Modules			
MFR Ref #	Manufacturer Name - Location	Production Rates (Each / Year)			Procurement Leadtime (Months)							
		MSR For 2020	1-8-5 For 2020	MAX For 2020	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	Raytheon - Portsmouth, RI	1	4	8	3	0	20	20	0	0	20	20
2	Lockheed Martin - Syracuse, NY	1	4	8	0	0	24	24	0	0	24	24

"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-3a, Individual Modification: PB 2020 Navy						Date: March 2019					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 15				P-1 Line Item Number / Title: 1602 / LCS ASW Mission Modules				Modification Number / Title: 1 / ASW MP Modifications			

ID Code (A=Service Ready, B=Not Service Ready) :						MDAP/MAIS Code:						
Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity (Units in Each)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost (\$ in Millions)	0.000	0.000	0.000	0.000	0.000	0.000	11.468	9.278	9.840	9.725	42.599	82.910
Less PY Advance Procurement (\$ in Millions)	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (\$ in Millions)	0.000	0.000	0.000	0.000	0.000	0.000	11.468	9.278	9.840	9.725	42.599	82.910
Plus CY Advance Procurement (\$ in Millions)	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority (\$ in Millions)	0.000	0.000	0.000	0.000	0.000	0.000	11.468	9.278	9.840	9.725	42.599	82.910
(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:

For LCS Freedom variant, seaframe changes include installation of a fairlead and bellmouth thru the starboard transom, and a winch foundation. For LCS Independence variant, seaframe changes include installation of a fairlead and bellmouth through the starboard amah, a winch foundation, and a sheave.

[ASW MP Kits] Funds the modifications to the current LCS designs to accommodate the ASW mission package configuration. All LCS ships will require the installation of the ASW Ship Alteration.

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Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019			
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 15					P-1 Line Item Number / Title: 1602 / LCS ASW Mission Modules					Modification Number / Title: 1 / ASW MP Modifications			
ID Code (A=Service Ready, B=Not Service Ready) :							MDAP/MAIS Code:						
Models of Systems Affected: ASW Mission Package Light Weight Tow				Modification Type: Permanent Installation				Related RDT&E PEs:					
Financial Plan	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total	
	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	
Procurement													
<i>Modification Item 1 of 1:</i> ASW MP Modifications													
A Kits													
Recurring													
1.1.1) ASW MP Kits - NonOrganic	- / -	- / -	- / -	- / -	- / -	- / -	2 / 2.435	2 / 1.872	2 / 1.708	2 / 1.947	4 / 7.600	12 / 15.562	
<i>Subtotal: Recurring</i>	- / 0.000	- / -	- / -	- / -	- / -	- / -	- / 2.435	- / 1.872	- / 1.708	- / 1.947	- / 7.600	- / 15.562	
<i>Subtotal: ASW MP Modifications</i>	- / -	- / -	- / -	- / -	- / -	- / -	2 / 2.435	2 / 1.872	2 / 1.708	2 / 1.947	4 / 7.600	12 / 15.562	
<i>Subtotal: Procurement, All Modification Items</i>	- / 0.000	- / -	- / -	- / -	- / -	- / -	- / 2.435	- / 1.872	- / 1.708	- / 1.947	- / 7.600	- / 15.562	
Support (All Modification Items)													
2.1) Engineering Services	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 2.075	- / 1.055	- / 0.955	- / 1.200	- / 5.715	- / 11.000	
<i>Subtotal: Support</i>	- / 0.000	- / -	- / -	- / -	- / -	- / -	- / 2.075	- / 1.055	- / 0.955	- / 1.200	- / 5.715	- / 11.000	
Installation													
<i>Modification Item 1 of 1:</i> ASW MP Modifications	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 6.958	- / 6.351	- / 7.177	- / 6.578	- / 29.284	- / 56.348	
<i>Subtotal: Installation</i>	- / 0.000	- / -	- / -	- / -	- / -	- / -	- / 6.958	- / 6.351	- / 7.177	- / 6.578	- / 29.284	- / 56.348	
Total													
Total Cost (Procurement + Support + Installation)	0.000	0.000	0.000	0.000	0.000	0.000	11.468	9.278	9.840	9.725	42.599	82.910	

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Exhibit P-3a, Individual Modification: PB 2020 Navy											Date: March 2019																				
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 15										P-1 Line Item Number / Title: 1602 / LCS ASW Mission Modules										Modification Number / Title: 1 / ASW MP Modifications											
ID Code (A=Service Ready, B=Not Service Ready) :															MDAP/MAIS Code:																
Modification Item 1 of 1: ASW MP Modifications																															
Manufacturer Information																															
Manufacturer Name: Planning Yard Services														Manufacturer Location: Var																	
Administrative Leadtime (in Months): 1														Production Leadtime (in Months): 3																	
Dates		FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024					
Contract Dates														Nov 2020				Nov 2021				Nov 2022				Nov 2023					
Delivery Dates														Feb 2021				Feb 2022				Feb 2023				Mar 2024					
Installation Information																															
Method of Implementation: [none specified]:: Installation Name: ASW MP Kits																															
Installation Cost		Prior Years	FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total		FY 2021		FY 2022		FY 2023		FY 2024		To Complete		Total								
		Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)								
Prior Years		- / -	- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -								
FY 2018		- / -	- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -								
FY 2019		- / -	- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -								
FY 2020		- / -	- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -								
FY 2021		- / -	- / -		- / -		- / -		- / -		- / -		2 / 6.958		- / -		- / -		- / -		0 / 0.000		2 / 6.958								
FY 2022		- / -	- / -		- / -		- / -		- / -		- / -		- / -		2 / 6.351		- / -		- / -		0 / 0.000		2 / 6.351								
FY 2023		- / -	- / -		- / -		- / -		- / -		- / -		- / -		- / -		2 / 7.177		- / -		0 / 0.000		2 / 7.177								
FY 2024		- / -	- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		2 / 6.578		0 / 0.000		2 / 6.578								
To Complete		- / -	- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		4 / 29.284		4 / 29.284								
Total		- / -	- / -		- / -		- / -		- / -		- / -		2 / 6.958		2 / 6.351		2 / 7.177		2 / 6.578		4 / 29.284		12 / 56.348								
Installation Schedule																															
	PYS	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				TC	Tot
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4		
In	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-	2	-	-	-	2	-	-	2	-	-	4	12
Out	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-	2	-	-	-	2	-	-	2	-	4	12

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Exhibit P-40, Budget Line Item Justification: PB 2020 Navy										Date: March 2019		
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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity (<i>Units in Each</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost (<i>\$ in Millions</i>)	120.824	20.925	13.025	26.566	0.000	26.566	15.342	15.711	28.711	4.961	32.604	278.669
Less PY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (<i>\$ in Millions</i>)	120.824	20.925	13.025	26.566	0.000	26.566	15.342	15.711	28.711	4.961	32.604	278.669
Plus CY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority (<i>\$ in Millions</i>)	120.824	20.925	13.025	26.566	0.000	26.566	15.342	15.711	28.711	4.961	32.604	278.669
<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>)	-	1.984	1.559	1.419	-	1.419	0.135	0.134	0.805	0.926	Continuing	Continuing
Flyaway Unit Cost (<i>\$ in Dollars</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost (<i>\$ in Dollars</i>)	-	-	-	-	-	-	-	-	-	-	-	-

Description:

The Surface Warfare (SUW) MP 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 MP embarked, LCS has enhanced detection and engagement capability against enemy small craft and similar littoral surface threats.

The SUW MP is composed of the Gun Mission Module (GMM), Maritime Security Module (MSM), Surface-to-Surface Missile Module (SSMM), and an Aviation Module. The SUW MP with the GMM, MSM, and Aviation Module (with the MH-60R) achieved Initial Operational Capability in FY 2014. The GMM comprises of two high velocity 30mm cannons to augment the ship's 57mm gun and the MSM supports the embarkation of visit, board, search, and seizure (VBSS) teams.

Six deployable SUW MPs with GMM & MSM have been delivered to the Fleet and three more are in production. An SUW MP 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 composed of the LCS SUW Mission Module (Line Item Number 1603).

The program will increase capability of the SUW MP with 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 meet the long range engagement capability against surface threats.

Other Related Budgets: BLIs: OPN 1600, OPN 1601, OPN 1602, WPN 4221, RDT&E 0603596N

[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 engagement capability against surface threats.

[P40A / SURFACE-TO-SURFACE MISSILE MODULE]: The program plans to conduct a Production Readiness Review (PRR) in 2Q FY19 to inform a production decision to support planned SSMM procurements beginning in FY 2019. To ensure that planned procurements are low risk, results from integration (including combat system and software integration efforts) on both the Freedom and Independence variant hulls

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Exhibit P-40, Budget Line Item Justification: PB 2020 Navy		Date: March 2019
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		
and formal testing completed on the Freedom variant hull Q1 FY2019 will inform the production decision. These risk reduction efforts include results from 152 missile shots conducted on two odd hull platforms (LCS 5 and 7), successful embark/debark events on both hull variants (includes an end-to-end integration and TRACKEX event on an Independence variant hull), and validation and verification of the SSMM Technical Data Package (TDP). [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: PB 2020 Navy								Date: March 2019		
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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Exhibit Type	Title*	Subexhibits	ID CD	MDAP/MAIS Code	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)
P-40a	LCS SUW Mission Packages	P-5a, P-21			- / 120.824	- / 20.925	- / 13.025	- / 26.566	- / -	- / 26.566
P-40	Total Gross/Weapon System Cost				- / 120.824	- / 20.925	- / 13.025	- / 26.566	- / 0.000	- / 26.566
*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 2020 funding will procure two Surface to Surface Mission Modules (SSMM), as well as associated production engineering and consulting services.

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Exhibit P-40a, Budget Item Justification For Aggregated Items: PB 2020 Navy															Date: March 2019					
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 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 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		3,754K	16	60.066	3,579K	2	7.158	-	-	-	-	-	-	-	-	-	-	-	-
1.2) MK-46 Gun Weapon System ^(†)	A		2,690K	14	37.661	4,657K	2	9.314	-	-	-	-	-	-	-	-	-	-	-	-
1.3) PRODUCTION ENGINEERING SUPPORT ⁽¹⁾	A		-	-	8.719	-	-	1.996	-	-	1.039	-	-	1.500	-	-	-	-	-	1.500
Subtotal: 1) SU001 - GUN MODULE			-	-	106.446	-	-	18.468	-	-	1.039	-	-	1.500	-	-	-	-	-	1.500
2) SU002 - SURFACE-TO-SURFACE MISSILE MODULE (SSMM)																				
2.1) SURFACE-TO-SURFACE MISSILE MODULE ^(†)	A		-	-	-	-	-	-	11,076K	1	11.077	11,482K	2	22.963	-	-	-	11,482K	2	22.963
2.2) PRODUCTION ENGINEERING SUPPORT ⁽²⁾	A		-	-	-	-	-	-	-	-	0.432	-	-	0.972	-	-	-	-	-	0.972
Subtotal: 2) SU002 - SURFACE-TO-SURFACE MISSILE MODULE (SSMM)			-	-	0.000	-	-	-	-	-	11.509	-	-	23.935	-	-	-	-	-	23.935
3) SU003 - MARITIME SECURITY MODULE																				
3.1) MARITIME SECURITY MODULE ^{(3)(†)}	A		1,097K	9	9.876	1,374K	1	1.374	-	-	-	-	-	-	-	-	-	-	-	-
3.2) PRODUCTION ENGINEERING ⁽⁴⁾	A		-	-	1.439	-	-	0.563	-	-	-	-	-	0.490	-	-	-	-	-	0.490
Subtotal: 3) SU003 - MARITIME SECURITY MODULE			-	-	11.315	-	-	1.937	-	-	-	-	-	0.490	-	-	-	-	-	0.490
4) SU900 - CONSULTING SERVICES																				
4.1) CONSULTING SERVICES	A		-	-	3.063	-	-	0.520	-	-	0.477	-	-	0.641	-	-	-	-	-	0.641
Subtotal: 4) SU900 - CONSULTING SERVICES			-	-	3.063	-	-	0.520	-	-	0.477	-	-	0.641	-	-	-	-	-	0.641
Total			-	-	120.824	-	-	20.925	-	-	13.025	-	-	26.566	-	-	-	-	-	26.566
Note: Subtotals or Totals in this Exhibit P-40a may not be exact or sum exactly, due to rounding.																				
(†) indicates the presence of a P-5a																				
Footnotes:																				
(1) Production Engineering is required 24 months after procurement to fund factory acceptance testing in year of delivery.																				
(2) Production Engineering is required 24 months after procurement to fund factory acceptance testing in year of delivery.																				
(3) The FY18 Maritime Security Module pricing only reflects procurement of remaining VBSS equipment to meet the program inventory objective.																				
(4) Production Engineering is required 12 months after procurement to fund factory acceptance testing in year of delivery.																				

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Exhibit P-5a, Procurement History and Planning: PB 2020 Navy									Date: March 2019			
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 15				P-1 Line Item Number / Title: 1603 / LCS SUW Mission Modules					Aggregated Items: LCS SUW Mission Packages			
Item Number / Title [DODIC]	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) SU001 - GUN MODULE												
1.1) MK-50 Gun Module ^(†)		2018	NORTHROP GRUMMAN / BETHPAGE, NEW YORK	C / FFP	NAVSEA	Mar 2018	Sep 2019	2	3,579K	Y		
1.2) MK-46 Gun Weapon System ^(†)		2018	General Dynamics Land Systems / Sterling Heights, MI	C / TBD	NAVSEA	Mar 2019	Jan 2021	2	4,657K	Y		
2) SU002 - SURFACE-TO-SURFACE MISSILE MODULE (SSMM)												
2.1) SURFACE-TO-SURFACE MISSILE MODULE ^(†)		2019	NORTHROP GRUMMAN / BETHPAGE, NEW YORK	C / FFP	NAVSEA	Mar 2019	Sep 2020	1	11,076K	Y		
2.1) SURFACE-TO-SURFACE MISSILE MODULE ^(†)		2020	NORTHROP GRUMMAN / BETHPAGE, NEW YORK	C / FFP	NAVSEA	Mar 2020	Sep 2021	2	11,482K	Y		
3) SU003 - MARITIME SECURITY MODULE												
3.1) MARITIME SECURITY MODULE ⁽³⁾ (†)		2018	Various / Various	C / FFP	NAVSEA	Mar 2018	Mar 2019	1	1,374K	Y		

^(†) indicates the presence of a P-21

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Exhibit P-21, Production Schedule: PB 2020 Navy																				Date: March 2019											
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 15										P-1 Line Item Number / Title: 1603 / LCS SUW Mission Modules										Aggregated Items: LCS SUW Mission Packages											
Items (Units in Each)							Fiscal Year 2018										Fiscal Year 2019													BALANCE	
OCO#	MFR#	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2017	BAL DUE AS OF 1 OCT	Calendar Year 2018										Calendar Year 2019														
							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) SU001 - GUN MODULE																															
1.1) MK-50 Gun Module																															
Prior Years Deliveries: 16																															
15	2018	NAVY		2		0	2																							2	0
1.2) MK-46 Gun Weapon System																															
Prior Years Deliveries: 14																															
16	2018	NAVY		2		0	2																								2
2) SU002 - SURFACE-TO-SURFACE MISSILE MODULE (SSMM)																															
2.1) SURFACE-TO-SURFACE MISSILE MODULE																															
17	2019	NAVY		1		0	1																								1
17	2020	NAVY		2		0	2																								2
3) SU003 - MARITIME SECURITY MODULE																															
3.1) MARITIME SECURITY MODULE ⁽³⁾																															
Prior Years Deliveries: 9																															
18	2018	NAVY		1		0	1																								0
																				</											

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Exhibit P-21, Production Schedule: PB 2020 Navy																								Date: March 2019							
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 15										P-1 Line Item Number / Title: 1603 / LCS SUW Mission Modules										Aggregated Items: LCS SUW Mission Packages											
Items (Units in Each)							Fiscal Year 2020												Fiscal Year 2021												BALANCE
OCO#	MFR#	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2019	BAL DUE AS OF 1 OCT	Calendar Year 2020												Calendar Year 2021												
							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) SU001 - GUN MODULE																															
1.1) MK-50 Gun Module																															
Prior Years Deliveries: 16																															
15		2018	NAVY	2	2	0																								0	
1.2) MK-46 Gun Weapon System																															
Prior Years Deliveries: 14																															
16		2018	NAVY	2	0	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2						0	
2) SU002 - SURFACE-TO-SURFACE MISSILE MODULE (SSMM)																															
2.1) SURFACE-TO-SURFACE MISSILE MODULE																															
17		2019	NAVY	1	0	1	-	-	-	-	-	-	-	-	-	-	-	1												0	
17		2020	NAVY	2	0	2						A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	0	
3) SU003 - MARITIME SECURITY MODULE																															
3.1) MARITIME SECURITY MODULE ⁽³⁾																															
Prior Years Deliveries: 9																															
18		2018	NAVY	1	1	0																								0	
							OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	

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Exhibit P-21, Production Schedule: PB 2020 Navy								Date: March 2019			
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 15					P-1 Line Item Number / Title: 1603 / LCS SUW Mission Modules				Aggregated Items: LCS SUW Mission Packages		

MFR Ref #	Manufacturer Name - Location	Production Rates (Each / Year)			Procurement Leadtime (Months)							
		MSR For 2020	1-8-5 For 2020	MAX For 2020	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	NORTHROP GRUMMAN - BETHPAGE, NEW YORK	1	2	8	0	3	18	21	3	3	18	21
2	General Dynamics Land Systems - Sterling Heights, MI	2	6	18	3	0	22	22	3	0	18	18
3	NORTHROP GRUMMAN - BETHPAGE, NEW YORK	1	2	8	3	3	18	21	3	3	18	21
4	Various - Various	1	4	8	2	2	12	14	2	2	12	14

"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: PB 2020 Navy										Date: March 2019		
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: 0603581N				
Line Item MDAP/MAIS Code: N/A												
Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity (<i>Units in Each</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost (<i>\$ in Millions</i>)	0.000	139.726	62.526	84.972	0.000	84.972	178.333	275.882	321.551	377.226	Continuing	Continuing
Less PY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (<i>\$ in Millions</i>)	0.000	139.726	62.526	84.972	0.000	84.972	178.333	275.882	321.551	377.226	Continuing	Continuing
Plus CY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority (<i>\$ in Millions</i>)	0.000	139.726	62.526	84.972	0.000	84.972	178.333	275.882	321.551	377.226	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>)	-	-	-	3.434	-	3.434	2.149	2.129	1.683	-	-	9.395
Flyaway Unit Cost (<i>\$ in Dollars</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost (<i>\$ in Dollars</i>)	-	-	-	-	-	-	-	-	-	-	-	-

Description:

Modernization/maintenance efforts support LCS requirements to remain operational and meet mission needs. This line provides funding for mandatory safety design changes, cyber security remediation actions, habitability modifications, and obsolescence and reliability resolution to maintain Littoral Combat Ships (LCS) operational availability and achieve the full expected service life. Funding covers planned CNO availabilities and includes two years of planning costs and long lead time materials (LLTM).

MT001 - Habitability Modification
 Habitability Modifications: Modifications to increase the permanent berths to 98 on the FREEDOM and INDEPENDENCE variants for LCS 11, 13-20 during Post Shakedown Availability. The FREEDOM variant change also includes 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. As a result of the congressional reduction, the modification on INDEPENDENCE variant ships will include only berthing spaces to 98 and dry provision storage capacity. Non-Rack Hab Modifications: Funding for LCS 5-8 Habitability Mod efforts not completed during the Post Shakedown Availabilities (PSA). These efforts include increased solid waste storage, refrigeration and freezer capacity, reverse osmosis plant capacity and dry provision storage capacity and will be accomplished during the first Selected Restricted Availability (SRA) for each ship.

MT002 - 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 wings for safe and effective operation of four INDEPENDENCE variant ships (LCS 14/16/18/20). Safety design changes will be incorporated in-line for LCS 21 and follow. 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.

MT003 - LCS Maintenance 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.

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Exhibit P-40, Budget Line Item Justification: PB 2020 Navy		Date: March 2019
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: 0603581N
Line Item MDAP/MAIS Code: N/A		
- Reliability changes are key to the LCS reaching its full operational capabilities for the entire service life. System and structural reliability modifications will increase the LCS Operational Availability Ao and performance, while decreasing life-cycle maintenance costs. - Maintainability changes improve ease of system maintenance by increasing the average time between required maintenance activities and reduce the Mean Time To Repair (MTTR). MT004 - LCS Maintenance and Modernization - Lethality and Survivability (L&S) Provides for hardware procurement and installation of a common Combat Management System (CMS), government furnished equipment and associated technical/logistic support data to upgrade the existing contractor furnished equipment, with associated cybersecurity modifications, that will be back-fit onboard in-service LCS platforms. Funding will also provide the for non-recurring engineering to develop Ship Change Documents (SCDs) necessary to integrate and test the common software baseline for two different LCS Class variants - FREEDOM and INDEPENDENCE. Production support services for these upgrades are phased over a three (3) year span starting two (2) years prior to installation on a per hull basis, with installation to be accomplished during planned CNO Availabilities. The official schedule and durations for CNO Availabilities is maintained by Commander Naval Surface Force Atlantic and Pacific in the Navy Data Environment (NDE) and is subject to change to accommodate port loading and dry dock availability. The funding for Design Services Allocation begins two years prior to the start of an Availability. The official schedule for CNO Availabilities is maintained in the Navy Data Environment (NDE) and updated by Commander Naval Surface Force Atlantic and Pacific schedulers. The CNO approved schedule for LCS Availabilities included in the requirements is as follows: FY19: LCS 2, LCS 4 FY20: LCS 1, LCS 5, LCS 6, LCS 8 FY21: LCS 3, LCS 7, LCS 9, LCS 10, LCS 12, LCS 14 FY22: LCS 2, LCS 4, LCS 6, LCS 11, LCS 13, LCS 16 FY23: LCS 1, LCS 3, LCS 5, LCS 7, LCS 8, LCS 15, LCS 17, LCS 18, LCS 20, LCS 22 FY24: LCS 9, LCS 10, LCS 12, LCS 14, LCS 19, LCS 21, LCS 23, LCS 24		

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Exhibit P-40, Budget Line Item Justification: PB 2020 Navy								Date: March 2019		
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: 0603581N				
Line Item MDAP/MAIS Code: N/A										
Exhibits Schedule					Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Exhibit Type	Title*	Subexhibits	ID CD	MDAP/MAIS Code	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)
P-40a	LCS In-Service Modernization	P-5a			- / 0.000	- / 96.604	- / 26.694	- / 10.908	- / -	- / 10.908
P-3a	1 / LCS Maintenance Modernization (TBD)				- / 0.000	- / 43.122	- / 35.832	- / 74.064	- / 0.000	- / 74.064
P-3a	2 / Combat System Lethality & Survivability Upgrades (TBD)				- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000
P-40	Total Gross/Weapon System Cost				- / 0.000	- / 139.726	- / 62.526	- / 84.972	- / 0.000	- / 84.972
Exhibits Schedule					FY 2021	FY 2022	FY 2023	FY 2024	To Complete	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	P-5a			- / -	- / -	- / -	- / -	- / -	- / -
P-3a	1 / LCS Maintenance Modernization (TBD)				- / 133.033	- / 180.782	- / 164.790	- / 162.915	- / 0.000	- / 794.538
P-3a	2 / Combat System Lethality & Survivability Upgrades (TBD)				- / 45.300	- / 95.100	- / 156.761	- / 214.311	Continuing	Continuing
P-40	Total Gross/Weapon System Cost				- / 178.333	- / 275.882	- / 321.551	- / 377.226	Continuing	Continuing
*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: MT001 - Habitability Modification FY 2020 funds modifications increase the permanent berths to 98 on two FREEDOM variant ships (LCS 17/19) to be installed during the Post Shakedown Availability (PSA) period. MT002 - LCS Ships Class Safety Design Changes FY 2020 funds safety modifications address the final two of five redesigned stern ramp back-fit on FREEDOM variant ships (LCS 17/19) during PSA. MT003 - LCS Maintenance Modernization Littoral Combat Ships (LCS) Maintenance Modernization funding includes Ship Change Documents (SCD) for cyber, reliability, obsolescence, maintainability, and safety efforts/alterations required by the Navy for the LCS Class to maintain Authority to Operate (ATO). The scope/requirements for maintenance modernization include 112 SCD/alterations and 1,051 planned installations (across the FYDP) during LCS CNO availabilities driven/maintained by the NDE, the Navy's centralized database and web-based application used to manage Navy Modernization, Maintenance, Logistics, and Workload/Performance. NDE monitors/maintains the LCS Class availabilities for their scheduled modification by Hull, by year to include the advanced planning, procurement and installation of all modernization/SCD's to the LCS class. Modernization SCDs include: Total Ship Computing Environment (TSCE) Hardware/Software Upgrade, NAVLAN Server Tech Refresh, SPS-77 Tech Refresh, ES 3601 ESM Tech Refresh, ICMS Software Upgrade, ICMS Upgrade Cyber Fixes, MK-27 Gun Fire Control, TCSE Cyber Security Layer Defense Enhancements, Galley Habitability, USV Integration, Fire Pump Modifications, Isolation Valves in Oil Cooling System, Water mist Firefighting System Mod. Long lead material procurement, advance planning and design services allocation (DSA) need to be funded up to two years in advance of installations in accordance with planning milestones. MT004 LCS Lethality and Survivability Lethality and Survivability (L&S) funds upgrades to include:										

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Exhibit P-40, Budget Line Item Justification: PB 2020 Navy		Date: March 2019
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: 0603581N
Line Item MDAP/MAIS Code: N/A		
- The FY18 Congressional add covered procurement of four (4) shipsets of Over the Horizon (OTH) missile launcher systems, Identification of Friend or Foe (IFF) Mode 5 equipment, and Beyond Line of Sight (BLOS) data link components to backfit onto both LCS Class Variant ships. Also funded was a shore-based testing/certification/engineering analysis infrastructure operated as the Littoral Warfare Engineering Capability (LWEC) to validate engineering changes, software upgrades, and in-service product improvements before installing on ships. - Lethality and Survivability funding will provide for hardware procurement and installation of a common Combat Management System (CMS), government furnished equipment and associated technical/logistic support data to upgrade the existing contractor furnished equipment, with associated cybersecurity modifications, that will be back-fit onboard in-service LCS platforms. Funding will also provide for the non-recurring engineering to develop Ship Change Documents (SCDs) necessary to integrate and test the common software baseline for two different LCS Class variants - Freedom and Independence. Production support services for these upgrades are phased over a three (3) year span starting two (2) years prior to installation on a per hull basis, with installation to be accomplished during planned CNO Availabilities.		

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Exhibit P-40a, Budget Item Justification For Aggregated Items: PB 2020 Navy															Date: March 2019				
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 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 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) MT001 Habitability Modifications																				
1.1) Habitability Mod (FRE Variant) ^(†)	A		-	-	-	4,916K	1	4.916	3,302K	2	6.605	4,854K	2	9.708	-	-	-	4,854K	2	9.708
1.2) Habitability Mod, Non-Rack (FRE Variant) ^{(1)(†)}	A		-	-	-	-	-	-	2,275K	2	4.550	-	-	-	-	-	-	-	-	-
1.3) Habitability Mod (IND Variant) - Racks Only ^(†)	A		-	-	-	2,294K	2	4.588	2,394K	2	4.789	-	-	-	-	-	-	-	-	-
1.4) Habitability Mod, Non-Rack (IND Variant) ^(†)	A		-	-	-	-	-	-	2,275K	2	4.550	-	-	-	-	-	-	-	-	-
Subtotal: 1) MT001 Habitability Modifications			-	-	0.000	-	-	9.504	-	-	20.494	-	-	9.708	-	-	-	-	-	9.708
2) MT002 LCS Ship Class Safety Design Changes																				
2.1) Stern Ramp (FRE Variant) ^(†)	A		-	-	-	600,000.00	1	0.600	600,000.00	2	1.200	600,000.00	2	1.200	-	-	-	600,000.00	2	1.200
2.2) Bridge Wings (IND Variant) ^{(2)(†)}	A		-	-	-	2,500K	1	2.500	2,500K	2	5.000	-	-	-	-	-	-	-	-	-
2.3) FY18 Congressional Add - OTH, IFF Mode 5, BLOS, LWEC	A		-	-	-	-	-	84.000	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: 2) MT002 LCS Ship Class Safety Design Changes			-	-	0.000	-	-	87.100	-	-	6.200	-	-	1.200	-	-	-	-	-	1.200
Total			-	-	0.000	-	-	96.604	-	-	26.694	-	-	10.908	-	-	-	-	-	10.908

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

(†) indicates the presence of a P-5a

Footnotes:

- (1) CE 1.2/1.4 MT001 - Habitability Mod, Non-Rack: FY19 Habitability Mod Budget was transferred from OPN Budget BLI 0944 to FY19 OPN Budget BLI 1604 to be executed during the ship's first Selected Restricted Availability (SRA).
- (2) MT002 Bridge Wings - Bridge Wing installations, initially planned for PSA, are to be installed during the Industrial Post Delivery Availability (IPDA) period. This safety modification change was requested by the Fleet to be installed prior to ship sailaway.

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Exhibit P-5a, Procurement History and Planning: PB 2020 Navy									Date: March 2019			
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 15			P-1 Line Item Number / Title: 1604 / LCS In-Service Modernization						Aggregated Items: LCS In-Service Modernization			
Item Number / Title [DODIC]	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) MT001 Habitability Modifications												
1.1) Habitability Mod (FRE Variant)		2018	FRE Variant (LM) / Marinette, WI	C / CPAF	NAVSEA	Apr 2018	Jan 2019	1	4,916K	Y		Jan 2018
1.1) Habitability Mod (FRE Variant)		2019	FRE Variant (LM) / Marinette, WI	C / CPAF	NAVSEA	Dec 2018	Sep 2019	2	3,302K	Y		Sep 2018
1.1) Habitability Mod (FRE Variant)		2020	FRE Variant (LM) / Marinette, WI	C / CPAF	NAVSEA	Nov 2019	Aug 2020	2	4,854K	Y		Jul 2019
1.2) Habitability Mod, Non-Rack (FRE Variant) ⁽¹⁾		2019	FRE Variant (LM) / Marinette, WI	C / CPAF	NAVSEA	Apr 2019	Jan 2020	2	2,275K	Y		Dec 2018
1.3) Habitability Mod (IND Variant) - Racks Only		2018	IND Variant (Austal) / Mobile, AL	C / CPAF	NAVSEA	May 2018	Jan 2019	2	2,294K	Y		Feb 2018
1.3) Habitability Mod (IND Variant) - Racks Only		2019	IND Variant (Austal) / Mobile, AL	C / CPAF	NAVSEA	Feb 2019	Oct 2019	2	2,394K	Y		Sep 2018
1.4) Habitability Mod, Non-Rack (IND Variant)		2019	IND Variant (Austal) / Mobile, AL	C / CPAF	NAVSEA	Jun 2019	Feb 2020	2	2,275K	Y		Mar 2019
2) MT002 LCS Ship Class Safety Design Changes												
2.1) Stern Ramp (FRE Variant)		2018	FRE Variant (LM) / Marinette, WI	C / CPAF	NAVSEA	Jul 2018	Apr 2019	1	600,000.00	Y		Jan 2018
2.1) Stern Ramp (FRE Variant)		2019	FRE Variant (LM) / Marinette, WI	C / CPAF	NAVSEA	Dec 2018	Sep 2019	2	600,000.00	Y		Oct 2018
2.1) Stern Ramp (FRE Variant)		2020	FRE Variant (LM) / Marinette, WI	C / CPAF	NAVSEA	Nov 2019	Aug 2020	2	600,000.00	Y		Oct 2019
2.2) Bridge Wings (IND Variant) ⁽²⁾		2018	IND Variant (Austal) / Mobile, AL	C / CPAF	NAVSEA	Jan 2018	Jun 2018	1	2,500K	Y		Dec 2017
2.2) Bridge Wings (IND Variant) ⁽²⁾		2019	IND Variant (Austal) / Mobile, AL	C / CPAF	NAVSEA	May 2019	Oct 2019	2	2,500K	Y		Nov 2018

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Exhibit P-3a, Individual Modification: PB 2020 Navy									Date: March 2019			
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 15				P-1 Line Item Number / Title: 1604 / LCS In-Service Modernization					Modification Number / Title: 1 / LCS Maintenance Modernization			
ID Code (A=Service Ready, B=Not Service Ready) :							MDAP/MAIS Code:					
Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity (Units in Each)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost (\$ in Millions)	0.000	43.122	35.832	74.064	0.000	74.064	133.033	180.782	164.790	162.915	0.000	794.538
Less PY Advance Procurement (\$ in Millions)	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (\$ in Millions)	0.000	43.122	35.832	74.064	0.000	74.064	133.033	180.782	164.790	162.915	0.000	794.538
Plus CY Advance Procurement (\$ in Millions)	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority (\$ in Millions)	0.000	43.122	35.832	74.064	0.000	74.064	133.033	180.782	164.790	162.915	0.000	794.538
(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: LCS Maintenance 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 35 year service life. System and structural reliability modifications will increase the LCS Operational Availability Ao and performance, while decreasing life-cycle maintenance costs. - Maintainability changes improve ease of system maintenance by increasing the average time between required maintenance activities and reduce the Mean Time To Repair (MTTR). The funding for Design Services Allocation begins two years prior to the start of an Availability. The official schedule for CNO Availabilities is maintained in the Navy Data Environment (NDE) and updated by Commander Naval Surface Force Atlantic and Pacific schedulers. The CNO approved schedule for LCS Availabilities included in the requirements is as follows: FY19: LCS 2, LCS 4 FY20: LCS 1, LCS 5, LCS 6, LCS 8 FY21: LCS 3, LCS 7, LCS 9, LCS 10, LCS 12, LCS 14 FY22: LCS 2, LCS 4, LCS 6, LCS 11, LCS 13, LCS 16 FY23: LCS 1, LCS 3, LCS 5, LCS 7, LCS 8, LCS 15, LCS 17, LCS 18, LCS 20, LCS 22 FY24: LCS 9, LCS 10, LCS 12, LCS 14, LCS 19, LCS 21, LCS 23, LCS 24												

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Exhibit P-3a, Individual Modification: PB 2020 Navy								Date: March 2019				
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 15			P-1 Line Item Number / Title: 1604 / LCS In-Service Modernization					Modification Number / Title: 1 / LCS Maintenance Modernization				
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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	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)	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												
1.1.1) LCS Maintenance Modernization - Freedom Variant (Safety) - NonOrganic Installation 1 of 2	- / -	- / 2.099	- / 0.726	- / 2.049	- / -	- / 2.049	- / 2.064	- / 1.123	- / 0.221	- / 1.345	- / -	- / 9.627
2.1.1) LCS Maintenance Modernization - Freedom Variant (Obsolescence) - NonOrganic Installation 1 of 2	- / -	- / 3.775	- / 2.166	- / 6.361	- / -	- / 6.361	- / 17.887	- / 34.083	- / 23.344	- / 33.028	- / -	- / 120.644
3.1.1) LCS Maintenance Modernization - Freedom Variant (Cyber) - NonOrganic Installation 1 of 2	- / -	- / 5.526	- / 1.018	- / 3.043	- / -	- / 3.043	- / 4.624	- / 7.117	- / 7.492	- / 9.478	- / -	- / 38.298
4.1.1) LCS Maintenance Modernization - Freedom Variant (Reliability) - NonOrganic Installation 1 of 2	- / -	- / 3.731	- / 1.115	- / 3.288	- / -	- / 3.288	- / 8.031	- / 15.040	- / 9.366	- / 9.458	- / -	- / 50.029
5.1.1) LCS Maintenance Modernization - Freedom Variant (Maintainability) - NonOrganic Installation 1 of 2	- / -	- / -	- / 1.187	- / 2.983	- / -	- / 2.983	- / 6.306	- / 4.013	- / 3.018	- / 4.743	- / -	- / 22.250
6.1.1) LCS Maintenance Modernization - Freedom Variant (CNO Availabilities) - NonOrganic ⁽³⁾ Installation 1 of 2	- / -	- / -	- / -	2 / 0.000	- / -	2 / 0.000	3 / 0.000	2 / 0.000	6 / 0.000	4 / 0.000	- / -	17 / 0.000
1.1.2) LCS Maintenance Modernization - Independence Variant (Safety) - NonOrganic Installation 2 of 2	- / -	- / 3.553	- / 0.884	- / 1.543	- / -	- / 1.543	- / 2.563	- / 1.077	- / 0.162	- / 1.395	- / -	- / 11.177
2.1.2) LCS Maintenance Modernization - Independence Variant (Obsolescence) - NonOrganic Installation 2 of 2	- / -	- / 6.131	- / 2.021	- / 6.307	- / -	- / 6.307	- / 18.195	- / 34.563	- / 23.917	- / 32.431	- / -	- / 123.565
3.1.2) LCS Maintenance Modernization - Independence Variant (Cyber) - NonOrganic Installation 2 of 2	- / -	- / 6.024	- / 1.127	- / 3.045	- / -	- / 3.045	- / 5.956	- / 7.267	- / 6.228	- / 8.575	- / -	- / 38.222
4.1.2) LCS Maintenance Modernization - Independence Variant (Reliability) - NonOrganic Installation 2 of 2	- / -	- / 6.412	- / 2.117	- / 3.095	- / -	- / 3.095	- / 9.169	- / 13.348	- / 6.602	- / 8.844	- / -	- / 49.587
5.1.2) LCS Maintenance Modernization - Independence Variant (Maintainability) - NonOrganic Installation 2 of 2	- / -	- / -	- / 2.153	- / 3.014	- / -	- / 3.014	- / 7.800	- / 3.850	- / 2.214	- / 4.146	- / -	- / 23.177
6.1.2) LCS Maintenance Modernization - Independence Variant (CNO Availabilities) - NonOrganic ⁽⁴⁾ Installation 2 of 2	- / -	- / -	2 / 0.000	2 / 0.000	- / -	2 / 0.000	3 / 0.000	4 / 0.000	4 / 0.000	4 / 0.000	- / -	19 / 0.000
Subtotal: Procurement	- / 0.000	- / 37.251	- / 14.514	- / 34.728	- / -	- / 34.728	- / 82.595	- / 121.481	- / 82.564	- / 113.443	- / 0.000	- / 486.576
Installation												
Installation 1 of 2: GRP: Freedom Variant	- / -	- / 0.921	- / 2.801	- / 17.163	- / 0.000	- / 17.163	- / 23.205	- / 22.692	- / 44.533	- / 22.355	- / 0.000	- / 133.670
Installation 2 of 2: GRP: Independence Variant	- / -	- / 4.950	- / 18.517	- / 22.173	- / 0.000	- / 22.173	- / 27.233	- / 36.609	- / 37.693	- / 27.117	- / 0.000	- / 174.292

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Exhibit P-3a, Individual Modification: PB 2020 Navy									Date: March 2019			
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 15			P-1 Line Item Number / Title: 1604 / LCS In-Service Modernization						Modification Number / Title: 1 / LCS Maintenance Modernization			
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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	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)	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)
	Subtotal: Installation	- / 0.000	- / 5.871	- / 21.318	- / 39.336	- / -	- / 39.336	- / 50.438	- / 59.301	- / 82.226	- / 49.472	- / 0.000
Total												
Total Cost (Procurement + Support + Installation)	0.000	43.122	35.832	74.064	0.000	74.064	133.033	180.782	164.790	162.915	0.000	794.538

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Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019																					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 15										P-1 Line Item Number / Title: 1604 / LCS In-Service Modernization										Modification Number / Title: 1 / LCS Maintenance Modernization											
ID Code (A=Service Ready, B=Not Service Ready) :															MDAP/MAIS Code:																
Installation 1 of 2: GRP: Freedom Variant																															
Manufacturer Information																															
Manufacturer Name: VARIOUS															Manufacturer Location: Various																
Administrative Leadtime (in Months): 12															Production Leadtime (in Months): 12																
Dates		FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024					
Contract Dates		Nov 2017				Nov 2018				Nov 2019				Nov 2020				Nov 2021				Nov 2022				Nov 2023					
Delivery Dates		Dec 2017				Jan 2019				Jan 2020				Jan 2021				Jan 2022				Jan 2023				Jan 2024					
Installation Information																															
Method of Implementation: LCS Modernization Freedom Variant:: Installation Name: Freedom Variant																															
Installation Cost		Prior Years	FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total		FY 2021		FY 2022		FY 2023		FY 2024		To Complete		Total								
		Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)								
Prior Years		- / -	- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -						
FY 2018		- / -	- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -						
FY 2019		- / -	- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -						
FY 2020		- / -	0 / 0.921		0 / 1.843		2 / 10.265		0 / 0.000		2 / 10.265		- / -		- / -		- / -		- / -		0 / 0.000		2 / 13.029		2 / 13.029						
FY 2021		- / -	- / -		0 / 0.958		0 / 5.611		0 / 0.000		0 / 5.611		3 / 16.034		- / -		- / -		- / -		0 / 0.000		3 / 22.603		3 / 22.603						
FY 2022		- / -	- / -		- / -		0 / 1.287		0 / 0.000		0 / 1.287		0 / 5.859		2 / 11.274		- / -		- / -		0 / 0.000		2 / 18.420		2 / 18.420						
FY 2023		- / -	- / -		- / -		- / -		- / -		- / -		0 / 1.312		0 / 9.636		6 / 32.532		- / -		0 / 0.000		6 / 43.480		6 / 43.480						
FY 2024		- / -	- / -		- / -		- / -		- / -		- / -		- / -		0 / 1.782		0 / 12.001		4 / 22.355		0 / 0.000		4 / 36.138		4 / 36.138						
To Complete		- / -	- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -						
Total		- / -	0 / 0.921		0 / 2.801		2 / 17.163		0 / 0.000		2 / 17.163		3 / 23.205		2 / 22.692		6 / 44.533		4 / 22.355		0 / 0.000		17 / 133.670		17 / 133.670						
Installation Schedule																															
	PYS	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				TC	Tot
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4		
In	-	-	-	-	-	-	-	-	-	-	2	-	-	-	3	-	-	-	2	-	-	-	6	-	-	-	4	-	-	-	17
Out	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-	3	-	-	-	2	-	-	-	6	-	-	-	4	-	-	17

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Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019																					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 15										P-1 Line Item Number / Title: 1604 / LCS In-Service Modernization										Modification Number / Title: 1 / LCS Maintenance Modernization											
ID Code (A=Service Ready, B=Not Service Ready) :															MDAP/MAIS Code:																
Installation 2 of 2: GRP: Independence Variant																															
Manufacturer Information																															
Manufacturer Name: VARIOUS															Manufacturer Location: VARIOUS																
Administrative Leadtime (in Months): 12															Production Leadtime (in Months): 12																
Dates		FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024					
Contract Dates		Nov 2017				Nov 2018				Nov 2019				Nov 2020				Nov 2021				Nov 2022				Nov 2023					
Delivery Dates		Dec 2017				Jan 2019				Jan 2020				Jan 2021				Jan 2022				Jan 2023				Jan 2024					
Installation Information																															
Method of Implementation: LCS Modernization Independence Variant:: Installation Name: Independence Variant																															
Installation Cost		Prior Years	FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total		FY 2021		FY 2022		FY 2023		FY 2024		To Complete		Total								
		Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)								
Prior Years		- / -	- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -						
FY 2018		- / -	- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -						
FY 2019		- / -	0 / 4.304		2 / 12.296		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.000		2 / 16.600						
FY 2020		- / -	0 / 0.646		0 / 4.369		2 / 12.481		0 / 0.000		2 / 12.481		- / -		- / -		- / -		- / -		- / -		0 / 0.000		2 / 17.496						
FY 2021		- / -	- / -		0 / 1.852		0 / 8.868		0 / 0.000		0 / 8.868		3 / 19.336		- / -		- / -		- / -		- / -		0 / 0.000		3 / 30.056						
FY 2022		- / -	- / -		- / -		0 / 0.824		0 / 0.000		0 / 0.824		0 / 6.750		4 / 25.286		- / -		- / -		- / -		0 / 0.000		4 / 32.860						
FY 2023		- / -	- / -		- / -		- / -		- / -		- / -		0 / 1.147		0 / 9.136		4 / 26.102		- / -		- / -		0 / 0.000		4 / 36.385						
FY 2024		- / -	- / -		- / -		- / -		- / -		- / -		- / -		0 / 2.187		0 / 11.591		4 / 27.117		0 / 0.000		4 / 40.895		4 / 40.895						
To Complete		- / -	- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -						
Total		- / -	0 / 4.950		2 / 18.517		2 / 22.173		0 / 0.000		2 / 22.173		3 / 27.233		4 / 36.609		4 / 37.693		4 / 27.117		0 / 0.000		19 / 174.292		19 / 174.292						
Installation Schedule																															
	PYS	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				TC	Tot
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4		
In	-	-	-	-	-	-	2	-	-	-	2	-	-	-	3	-	-	-	4	-	-	-	4	-	-	-	4	-	-	-	19
Out	-	-	-	-	-	-	-	2	-	-	-	2	-	-	-	3	-	-	-	4	-	-	-	4	-	-	-	4	-	-	19
Footnotes: ⁽³⁾ CNO approved schedule for LCS Availabilities provided by Freedom variant. The official schedule for CNO Availabilities is maintained in the Navy Data Environment (NDE) and updated by Commander Naval Surface Force Atlantic and Pacific schedulers. The funding for Design Services Allocation begins one/two years prior to the start of an Availability. ⁽⁴⁾ CNO approved schedule for LCS Availabilities provided by Independence variant. The official schedule for CNO Availabilities is maintained in the Navy Data Environment (NDE) and updated by Commander Naval Surface Force Atlantic and Pacific schedulers. The funding for Design Services Allocation begins one/two years prior to the start of an Availability.																															

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Exhibit P-3a, Individual Modification: PB 2020 Navy						Date: March 2019					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 15				P-1 Line Item Number / Title: 1604 / LCS In-Service Modernization				Modification Number / Title: 2 / Combat System Lethality & Survivability Upgrades			

ID Code (A=Service Ready, B=Not Service Ready) :						MDAP/MAIS Code:						
Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity <i>(Units in Each)</i>	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost <i>(\$ in Millions)</i>	0.000	0.000	0.000	0.000	0.000	0.000	45.300	95.100	156.761	214.311	Continuing	Continuing
Less PY Advance Procurement <i>(\$ in Millions)</i>	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) <i>(\$ in Millions)</i>	0.000	0.000	0.000	0.000	0.000	0.000	45.300	95.100	156.761	214.311	Continuing	Continuing
Plus CY Advance Procurement <i>(\$ in Millions)</i>	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority <i>(\$ in Millions)</i>	0.000	0.000	0.000	0.000	0.000	0.000	45.300	95.100	156.761	214.311	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>	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost <i>(\$ in Dollars)</i>	-	-	-	-	-	-	-	-	-	-	-	-

Description:

Lethality and Survivability funding will provide for hardware procurement and installation of a common Combat Management System (CMS), government furnished equipment and associated technical/logistic support data to upgrade the existing contractor furnished equipment, with associated cybersecurity modifications, that will be back-fit onboard in-service LCS platforms. Funding will also provide for the non-recurring engineering to develop Ship Change Documents (SCDs) necessary to integrate and test the common software baseline for two different LCS Class variants - Freedom and Independence. Production support services for these upgrades are phased over a three (3) year span starting two years prior to installation on a per hull basis, with installation to be accomplished during planned CNO Availabilities. The official schedule and durations for CNO Availabilities is maintained by Commander Naval Surface Force Atlantic and Pacific in the Navy Data Environment (NDE) and is subject to change to accommodate port loading and dry dock availability.

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Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019			
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 15				P-1 Line Item Number / Title: 1604 / LCS In-Service Modernization						Modification Number / Title: 2 / Combat System Lethality & Survivability 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: 0603581N					
Financial Plan	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total	
	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	
Procurement													
<i>Modification Item 1 of 1: Combat System Lethality & Survivability Upgrades</i>													
<i>B Kits</i>													
<i>Recurring</i>													
1.1.1) CS Lethality & Survivability Upgrades - Independence Variant - NonOrganic ⁽⁵⁾	- / -	- / -	- / -	- / -	- / -	- / -	1 / 21.800	2 / 44.470	2 / 52.945	2 / 53.925	Continuing	Continuing	
1.1.2) CS Lethality & Survivability Upgrades - Freedom Variant - NonOrganic	- / -	- / -	- / -	- / -	- / -	- / -	1 / 14.020	2 / 28.600	2 / 34.048	2 / 34.677	Continuing	Continuing	
<i>Subtotal: Recurring</i>	- / 0.000	- / -	- / -	- / -	- / -	- / -	- / 35.820	- / 73.070	- / 86.993	- / 88.602	<i>Continuing</i>	<i>Continuing</i>	
<i>Subtotal: Combat System Lethality & Survivability Upgrades</i>	- / -	- / -	- / -	- / -	- / -	- / -	2 / 35.820	4 / 73.070	4 / 86.993	4 / 88.602	<i>Continuing</i>	<i>Continuing</i>	
<i>Subtotal: Procurement, All Modification Items</i>	- / 0.000	- / -	- / -	- / -	- / -	- / -	- / 35.820	- / 73.070	- / 86.993	- / 88.602	<i>Continuing</i>	<i>Continuing</i>	
Installation													
<i>Modification Item 1 of 1: Combat System Lethality & Survivability Upgrades</i>													
	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 9.480	- / 22.030	- / 69.768	- / 125.709	- / 203.050	- / 430.037	
<i>Subtotal: Installation</i>	- / 0.000	- / -	- / -	- / -	- / -	- / -	- / 9.480	- / 22.030	- / 69.768	- / 125.709	- / 203.050	- / 430.037	
Total													
Total Cost (Procurement + Support + Installation)	0.000	0.000	0.000	0.000	0.000	0.000	45.300	95.100	156.761	214.311	Continuing	Continuing	

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Exhibit P-3a, Individual Modification: PB 2020 Navy												Date: March 2019																			
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 15										P-1 Line Item Number / Title: 1604 / LCS In-Service Modernization										Modification Number / Title: 2 / Combat System Lethality & Survivability Upgrades											
ID Code (A=Service Ready, B=Not Service Ready) :														MDAP/MAIS Code:																	
Modification Item 1 of 1: Combat System Lethality & Survivability Upgrades																															
Manufacturer Information																															
Manufacturer Name: VARIOUS														Manufacturer Location: VARIOUS																	
Administrative Leadtime (in Months): 6														Production Leadtime (in Months): 18																	
Dates		FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024					
Contract Dates														Mar 2021				May 2022				Jun 2023				Jun 2024					
Delivery Dates														Sep 2022				Nov 2023				Dec 2024				Dec 2025					
Installation Information																															
Method of Implementation: CS L&S Upgrades:: Installation Name: Combat System Lethality & Survivability Upgrades																															
Installation Cost		Prior Years		FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total		FY 2021		FY 2022		FY 2023		FY 2024		To Complete		Total							
		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)							
Prior Years		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
FY 2018		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
FY 2019		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
FY 2020		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
FY 2021		- / -		- / -		- / -		- / -		- / -		- / -		- / -		0 / 9.480		0 / 19.030		2 / 49.310		- / -		0 / 0.000		2 / 77.820					
FY 2022		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		0 / 3.000		0 / 16.660		4 / 87.410		0 / 0.000		4 / 107.070					
FY 2023		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		0 / 3.798		0 / 28.439		4 / 77.320		4 / 109.557					
FY 2024		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		0 / 9.860		4 / 125.730		4 / 135.590					
To Complete		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.000		- / -					
Total		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		0 / 9.480		0 / 22.030		2 / 69.768		4 / 125.709		8 / 203.050					
Installation Schedule																															
	PYS	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				TC	Tot
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4		
In	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	1	1	2	-	8	14
Out	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	1	1	10	14
Footnotes: ⁽⁵⁾ Installation costs vary between Freedom and Independence LCS Variant ships.																															

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

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: 1611 / Small & Medium UUV

ID Code (A=Service Ready, B=Not Service Ready): B	Program Elements for Code B Items: 0603502N, 0604218N	Other Related Program Elements: N/A

Line Item MDAP/MAIS Code: N/A

Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity (<i>Units in Each</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost (<i>\$ in Millions</i>)	0.000	0.000	0.000	40.547	0.000	40.547	38.817	24.310	8.564	35.170	Continuing	Continuing
Less PY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (<i>\$ in Millions</i>)	0.000	0.000	0.000	40.547	0.000	40.547	38.817	24.310	8.564	35.170	Continuing	Continuing
Plus CY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority (<i>\$ in Millions</i>)	0.000	0.000	0.000	40.547	0.000	40.547	38.817	24.310	8.564	35.170	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:

Small and Medium Unmanned Undersea Vehicles (UUVs) are a segment of the Navy's UUV Family of Systems (FoS) defined as having a diameter between 3 inches and 10 inches for small UUVs and a diameter of 10 inches to 21 inches for medium UUVs. The UUVs can be launched from small boats, surface ships, submarines, or larger UUVs and recovered by surface ships and some submarines. Small and Medium UUVs currently provide the warfighter battlespace awareness, Intelligence Preparation of the Operational Environment (IPOE), and Mine Warfare (MIW) capability including buried and volume mine hunting.

[P40A / Littoral Battlespace Sensors-Autonomous Unmanned Vehicle (Submarine variant) (LBS-AUV(S)/Razorback)]: LBS-AUV(S)/Razorback provides Intelligence Preparation of the Operational Environment (IPOE) payload capabilities for submarine launched missions. Razorback will be deployed from host submarines via the dry deck shelter (DDS) or from the Torpedo Tube.

Beginning in Fiscal Year (FY) 2020 LBS-AUV(S)/Razorback was moved from OPN Line Item (LI) 4226 into OPN LI 1611.

[P5 / MU001 KNIFEFISH (SMCM UUV w/LFBB)]: The Knifefish Surface Mine Countermeasure Unmanned Undersea Vehicle (SMCM UUV) program procures Unmanned Undersea Vehicles to support clandestine mine detection capability against volume and bottom mines including buried mine detection. The Knifefish system is composed of two UUVs, batteries, launch and handling system, and other support equipment.

Beginning in Fiscal Year (FY) 2020, Knifefish (SMCM UUV) was moved from OPN Line Item (LI) 2622 into OPN LI 1611.

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Exhibit P-40, Budget Line Item Justification: PB 2020 Navy								Date: March 2019		
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: 1611 / Small & Medium UUV				
ID Code (A=Service Ready, B=Not Service Ready): B			Program Elements for Code B Items: 0603502N, 0604218N			Other Related Program Elements: N/A				
Line Item MDAP/MAIS Code: N/A										
Exhibits Schedule					Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Exhibit Type	Title*	Subexhibits	ID CD	MDAP/MAIS Code	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)
P-40a	Small & Medium UUV				- / 0.000	- / -	- / -	- / 10.601	- / -	- / 10.601
P-5	1 / Small & Medium UUV	P-5a, P-21			- / 0.000	- / 0.000	- / 0.000	- / 29.946	- / 0.000	- / 29.946
P-40	Total Gross/Weapon System Cost				- / 0.000	- / 0.000	- / 0.000	- / 40.547	- / 0.000	- / 40.547
*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 Small and Medium UUVs line item is new in FY 2020, combining systems from OPN LI 2622 Minesweeping Replacement (Knifefish) and OPN LI 4226 Meteorological Equipment (LBS-AUV(S)/Razorback). FY 2020 budget procures LBS-AUV(s)/Razorback Upgrades/Backfits and TEMPALT installation support. Additionally, the FY2020 budget procures two (2) Knifefish Systems, ancillary equipment, and associated support engineering.										

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Exhibit P-40a, Budget Item Justification For Aggregated Items: PB 2020 Navy															Date: March 2019					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 15						P-1 Line Item Number / Title: 1611 / Small & Medium UUV									Aggregated Items Title: Small & Medium UUV					
Item Number / Title [DODIC]	ID CD	MDAP/MAIS Code	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 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) Littoral Battlespace Sensors-Autonomous Unmanned Vehicle (Submarine variant) (LBS-AUV(S)/R ⁽¹⁾																				
1.3) LBS-AUV(S)/Razorback Upgrades/Backfits	A		-	-	-	-	-	-	-	-	-	-	-	0.898	-	-	-	-	-	0.898
Subtotal: 1) Littoral Battlespace Sensors-Autonomous Unmanned Vehicle (Submarine variant) (LBS-AUV(S)/R			-	-	0.000	-	-	-	-	-	-	-	-	0.898	-	-	-	-	-	0.898
2) LBS-AUV(S)/Razorback Production Support																				
2.1) LBS-AUV(S)/Razorback	A		-	-	-	-	-	-	-	-	-	-	-	1.082	-	-	-	-	-	1.082
Subtotal: 2) LBS-AUV(S)/Razorback Production Support			-	-	0.000	-	-	-	-	-	-	-	-	1.082	-	-	-	-	-	1.082
3) FMP																				
3.1) LBS-AUV(S)/Razorback DSA	A		-	-	-	-	-	-	-	-	-	-	-	3.689	-	-	-	-	-	3.689
3.2) LBS-AUV(S)/Razorback Install ⁽²⁾	A		-	-	-	-	-	-	-	-	-	-	-	4.932	-	-	-	-	-	4.932
Subtotal: 3) FMP			-	-	0.000	-	-	-	-	-	-	-	-	8.621	-	-	-	-	-	8.621
Total			-	-	0.000	-	-	-	-	-	-	-	-	10.601	-	-	-	-	-	10.601
Note: Subtotals or Totals in this Exhibit P-40a may not be exact or sum exactly, due to rounding.																				
Footnotes:																				
⁽¹⁾ Littoral Battlespace Sensors-Autonomous Undersea Vehicles (Submarine variant) (LBS-AUV(S)/Razorback) are broken out between AUV(S)/Razorback units and AUV(S)/Razorback Shipsets. Shipsets consist of the operation van, maintenance van, and launch & recovery system. LBS-AUV(S)/Razorback includes AUV(S)/Razorback vehicles, AUV(S)/Razorback Dry-Deck Shelter (DDS) Submarine Support Systems, Torpedo-tube Launch and Recover (TTL&R) Submarine Support Systems and TTL&R SAFEACAPs. AUV(S)/Razorback DDS Submarine Support Systems consist of operational and maintenance equipment including launch, mooring and submarine modification kits for DDS operations. AUV(S)/Razorback TTL&R Submarine Support Systems consist of operational and maintenance equipment including launch, mooring and submarine modification kits for TTL&R operations. The AUV(S)/Razorback TTL&R SAFECAP consists of operational and maintenance equipment required to safely ship, stow, and deploy an AUV with lithium batteries from a submarine torpedo tube. FY20 provides funding for technology upgrades and back-fits (additional sensor integration, new battery technology insertion, etc.) Beginning in Fiscal Year (FY) 2020 LBS-AUV(S)/Razorback was moved from OPN Line Item (LI) 4226 into OPN LI 1611.																				
⁽²⁾ LBS-AUV(S) Razorback units installing in FY20 were procured under BLI 4226 (funding in FY20 and out transferred from BLI 4226 to BLI 1611). A single Dry Deck Shelter (DDS), AUV(S) Razorback install consists of two AUV(S) vehicles and a DDS submarine support system. A single TTL&R install consists of a TTL&R submarine support system and an equal amount of TTL&R SAFEACAPs and AUV(S) vehicles. The submarine support system and AUV(S) Razorback installs are based on mission requirements.																				

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Exhibit P-5, Cost Analysis: PB 2020 Navy										Date: March 2019	
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 15					P-1 Line Item Number / Title: 1611 / Small & Medium UUV					Item Number / Title [DODIC]: 1 / Small & Medium UUV	

ID Code (A=Service Ready, B=Not Service Ready) :				MDAP/MAIS Code:		
Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Procurement Quantity (Units in Each)	-	-	-	-	-	-
Gross/Weapon System Cost (\$ in Millions)	0.000	0.000	0.000	29.946	0.000	29.946
Less PY Advance Procurement (\$ in Millions)	-	-	-	-	-	-
Net Procurement (P-1) (\$ in Millions)	0.000	0.000	0.000	29.946	0.000	29.946
Plus CY Advance Procurement (\$ in Millions)	-	-	-	-	-	-
Total Obligation Authority (\$ in Millions)	0.000	0.000	0.000	29.946	0.000	29.946
(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)	-	-	-	-	-	-

Note: Subtotals or Totals in this Exhibit P-5 may not be exact or sum exactly due to rounding.

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$)	Qty (Each)	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 - MU001 KNIFEFISH (SMCM UUV w/LFBB) Cost																		
Recurring Cost																		
1.1.1) KNIFEFISH (SMCM UUV) ^{(†) (3)}	-	-	0.000	-	-	0.000	-	-	0.000	11,765K	2	23.530	-	-	0.000	11,765K	2	23.530
1.1.2) Ancillary Equipment	-	-	0.000	-	-	0.000	-	-	0.000	-	-	5.524	-	-	0.000	-	-	5.524
<i>Subtotal: Recurring Cost</i>	-	-	0.000	-	-	0.000	-	-	0.000	-	-	29.054	-	-	0.000	-	-	29.054
Non Recurring Cost																		
1.2.1) Production Engineering	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.892	-	-	0.000	-	-	0.892
<i>Subtotal: Non Recurring Cost</i>	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.892	-	-	0.000	-	-	0.892
<i>Subtotal: Hardware - MU001 KNIFEFISH (SMCM UUV w/ LFBB) Cost</i>	-	-	0.000	-	-	0.000	-	-	0.000	-	-	29.946	-	-	0.000	-	-	29.946
Gross/Weapon System Cost	-	-	0.000	-	-	0.000	-	-	0.000	-	-	29.946	-	-	0.000	-	-	29.946

(†) indicates the presence of a P-5a

Footnotes:

⁽³⁾ The Small and Medium UUVs line item (LI) is new in FY 2020, realigning systems from OPN LI 2622 Minesweeping Replacement (Knifefish). The Knifefish Surface Mine Countermeasure Unmanned Undersea Vehicle (SMCM UUV) program procures Unmanned Undersea Vehicles to support clandestine mine detection capability against volume and bottom mines, including buried mine detection. The Knifefish system is composed of two UUVs, batteries, launch and handling system, and other support equipment.

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Exhibit P-5a, Procurement History and Planning: PB 2020 Navy								Date: March 2019				
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 15				P-1 Line Item Number / Title: 1611 / Small & Medium UUV				Item Number / Title [DODIC]: 1 / Small & Medium UUV				
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) KNIFEFISH (SMCM UUV) ^(†)		2020 ⁽⁴⁾	TBD / TBD	C / FPIF	NAVSEA	Mar 2020	May 2021	2	11,765K	N	Mar 2019	Jul 2019

^(†) indicates the presence of a P-21

Footnotes:

⁽⁴⁾ OPN 1611 is a new OPN Line Item (LI) for FY 2020. Prior years in OPN LI 2622 Minesweeping Replacement.

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Exhibit P-21, Production Schedule: PB 2020 Navy																				Date: March 2019													
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 15										P-1 Line Item Number / Title: 1611 / Small & Medium UUV										Item Number / Title [DODIC]: 1 / Small & Medium UUV													
Cost Elements (Units in Each)							Fiscal Year 2020										Fiscal Year 2021													BALANCE			
OCO	MFR #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2019	BAL DUE AS OF 1 OCT	Calendar Year 2020										Calendar Year 2021																
							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) KNIFEFISH (SMCM UUV) ⁽³⁾																																	
	1	2020	NAVY	2	0	2						A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1				0
							OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP			

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Exhibit P-21, Production Schedule: PB 2020 Navy									Date: March 2019			
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 15					P-1 Line Item Number / Title: 1611 / Small & Medium UUV				Item Number / Title [DODIC]: 1 / Small & Medium UUV			
MFR Ref #	Manufacturer Name - Location	Production Rates (Each / Year)			Procurement Leadtime (Months)							
		MSR For 2020	1-8-5 For 2020	MAX For 2020	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	TBD - TBD	1	6	10	3	5	14	19	1	2	14	16

"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: PB 2020 Navy										Date: March 2019		
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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity (<i>Units in Each</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost (<i>\$ in Millions</i>)	642.798	80.536	4.784	40.269	0.000	40.269	66.617	64.245	64.609	65.900	68.946	1,098.704
Less PY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (<i>\$ in Millions</i>)	642.798	80.536	4.784	40.269	0.000	40.269	66.617	64.245	64.609	65.900	68.946	1,098.704
Plus CY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority (<i>\$ in Millions</i>)	642.798	80.536	4.784	40.269	0.000	40.269	66.617	64.245	64.609	65.900	68.946	1,098.704
<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: 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. LSD Phase Modernization for LSD 41, 42 and 46 was funded with SMOSF prior to FY18. For FY 2018+, this funding shifted from SMOSF to the base budget. LSD 46 USS Tortuga Midlife is being installed as the LSD Modernization program. The LSD 46 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 Davit Upgrade. The LSD 41 USS Whidbey Island and LSD 42 USS Germantown will be inducted into Modernization in FY2020 and FY2024, respectively, which will provide for a 5-year service life extension. [P40A / ST001 LSD MOD C4I System]: LSD 41, LSD 42, LSD 46 Phased Modernization upgrades of C4I System including equipment procurement, Design Services Agent (DSA), Alteration Installation Team (AIT), Shipyard installation, recurring equipment engineering, equipment integration, and ILS requirements. Ship Alterations: ADNS, BFTN, DMR, GBS, KMI/KW46, NAVMACS, ADAP, NMT, CRYPTO, CANES, and VACM. [P40A / Automated Digital Network System (ADNS)]: Procures Automated Digital Network System (ADNS) for LSD Phased Mod ships including equipment procurement, system engineering, equipment integration, and Integrated Logistics Support (ILS). ADNS supplies the tactical wide area network (WAN) component of the naval communications system, providing surface, ship, submarine, airborne, tactical-shore, and shore based Wide Area network (AWN) gateway services management. [P40A / Battle Force Tactical Network (BFTN)]: Procures Battle Force Tactical Network (BFTN) for LSD Phased Mod ships including equipment procurement, system engineering, equipment integration, and Integrated Logistics Support (ILS).												

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Exhibit P-40, Budget Line Item Justification: PB 2020 Navy		Date: March 2019
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 / Digital Modular Radio (DMR)]: Procures Digital Modular Radio (DMR) for LSD Phased Mod ships including equipment procurement, system engineering, equipment integration, and Integrated Logistics Support (ILS).		
[P40A / Global Broadcast System (GBS)]: Procures Global Broadcast System (GBS) for LSD Phased Mod ships including equipment procurement, system engineering, equipment integration, and Integrated Logistics Support (ILS).		
[P40A / Information Systems Security Program (KMI and KW46)]: Procures Information Systems Security Program (KMI and KW46) for LSD Phased Mod ships including equipment procurement, system engineering, equipment integration, and Integrated Logistics Support (ILS).		
[P40A / Naval Modular Automated Communications System (NAVMACS)]: Procures Naval Modular Automated Communications System (NAVMACS) for LSD Phased Mod ships including equipment procurement, system engineering, equipment integration, and Integrated Logistics Support (ILS).		
[P40A / Advanced Digital Antenna Production (ADAP)]: Procures Advanced Digital Antenna Production (ADAP) for LSD Phased Mod ships including equipment procurement, system engineering, equipment integration, and Integrated Logistics Support (ILS).		
[P40A / Navy Multiband Terminal (NMT)]: Procures Navy Multiband Terminal (NMT) for LSD Phased Mod ships including equipment procurement, system engineering, equipment integration, and Integrated Logistics Support (ILS).		
[P40A / CRYPTO]: Procures Cryptologic equipment for communication security for LSD Phased Mod ships including equipment procurement, system engineering, equipment integration, and Integrated Logistics Support (ILS).		
[P40A / CANES]: Procures Consolidated Afloat Network and Enterprise Services (CANES) for LSD Phased Mod ships including equipment procurement, system engineering, equipment integration, and Integrated Logistics Support (ILS). CANES is the Navy’s next-generation tactical afloat network provides a common computing environment, which includes an adaptable information technology platform that can rapidly meet changing warfighting requirements.		
[P40A / VINSON/ANDVT Cryptographic Modernization (VACM)]: Procures VINSON/ANDVT Cryptographic Modernization (VACM) for LSD Phased Mod ships including equipment procurement, system engineering, equipment integration, and Integrated Logistics Support (ILS).		
[P40A / ST001 - LSD MOD Combat System]: Modernizes LSD 41 and LSD 42 during Phase Modernization Period with upgraded Combat System suites.		
[P40A / AN/SLQ-32]: Upgrades AN/SLQ-32 Electronic Warfare (EW) system.		
[P40A / Navigation Sensor System Interface (NAVSSI)]: Upgrades AN/SSN-6 Navigation Sensor System Interface (NAVSSI) System.		
[P40A / Ship Self Defense System (SSDS)]: Upgrades Ship Self Defense System (SSDS) MK2 Combat System equipment.		
[P40A / Rolling Airframe Missile (RAM)]: Upgrades Rolling Airframe Missile (RAM).		
[P40A / Combat Ship System Qualification Trials (CSSQT)]: Combat Systems Ship Qualifications Trials consists of aircraft flight and re-fueling services, Air Warfare/Surface Warfare/Under Sea Warfare range services and support, scenario data recording and data analysis.		
[P40A / ST001 - LSD Mod HM&E Modernization]: LSD Modernization Hull Mechanical and Electrical (HM&E) Modernization upgrades for LSD 41 and LSD 49 Class.		

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Exhibit P-40, Budget Line Item Justification: PB 2020 Navy		Date: March 2019
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 HM&E Cyber Resiliency]: HM&E cyber resiliency shipalts on LSD-41 class ships. The shipalts would each include a Boundary Defense Capability (BDC), a central HM&E Situational Awareness (SA) tool, TAPs into HM&E data flow and weasel boards on the backplanes of select HM&E equipment providing the capabilities required to detect anomalous activity, react by segmenting the shipboard network and restore to normal operating conditions. [P40A / LSD HM&E Cyber Resiliency (DSA / Install)]: FY21 DSA for 2 installations in FY22 of Cyber Security Resiliency Procurements in FY21. [P40A / Damage Control Console (DCC) Upgrade]: Upgrades Damage Control Console (DCC) hardware by replacing legacy DCC with PLC based control systems and Human Machine Interface (HMIs) for user monitoring and control. [P40A / Bus Tie Circuit Breaker Replace 2000Amp]: Replaces legacy Whipp & Bourne Bus Tie Circuit Breakers with industry standard (non-ruggedized) DRS circuit breakers. [P40A / SSDG Circuit Breaker Replace 4000Amp]: Replaces legacy Whipp & Bourne Ship Service Diesel Generator (SSDG) Circuit Breakers with industry standard (non-ruggedized) DRS circuit breakers. [P40A / Solenoid Operated Pilot Valves (SOPVs)]: Modernizes Solenoid Operated Pilot Valves (SOPVs) with new Motor Operated Pilot Valves (MOPVs) via SCD 14864. [P40A / Fire Detection System]: Modernizes the LSD-41/49 Fire Detection System (FDS) to correct critical and functional deficiencies within the existing system comprised of 750 heat detectors in approximately 330 compartments. The new, individually-addressable fire detection system to include smoke detectors in berthing and other spaces and new heat, smoke, and flame detector coverage throughout the ship. [P40A / Oily Water Separator (OWS)]: Modernizes the LSD 41/49 Class Oily Water Separator (OWS). [P40A / 80Ton AC Units]: Replace Obsolete 80 Ton AC Plant with fully supported 111 ton AC units and increased capacity. [P40A / Modular Refrigeration System (MRS)]: Replaces legacy refrigeration system with a Modular Refrigeration System (MRS) Plant. [P3A / ST002 - Propeller Blades & PLMU]: Replaces the existing Propeller Blades with higher efficiency blades and installs Propulsion Load Management Units (PLMU). [P3A - 2 / ST002 - Steering Control System]: Replaces the analog Helm and Lee Helm Steering Consoles and equipment with an electronic, computerized Steering Control System (SCS). [P3A - 3 / ST002 - Low Pressure Air Compressor]: Replaces the Low-Pressure Air Compressors (LPAC) with modern, oil-free compressors. [P3A - 4 / 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. [P3A - 5 / ST002 - LSD Deck Crane]: Modernize the control system for the 60 and 20 Ton Cranes with a modern, electronic, computerized control system. [P3A - 6 / ST002 - 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. [P3A - 7 / ST002 - LSD Ballast Control Console]: Provides upgrades to the existing Ballast Control Consoles (BCS) and replace legacy BCS with a Programmable Logic Controller (PLC) based digital, networked system.		

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Exhibit P-40, Budget Line Item Justification: PB 2020 Navy			Date: March 2019		
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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Exhibit Type	Title*	Subexhibits	ID CD	MDAP/MAIS Code	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)
P-40a	LSD Midlife				- / 545.125	- / 57.670	- / -	- / 24.470	- / -	- / 24.470
P-3a	1 / ST002 - Propeller Blades & PLMU (TBD)				- / 19.852	- / 1.138	- / 0.000	- / 0.000	- / 0.000	- / 0.000
P-3a	2 / ST002 - Steering Control System (TBD)				- / 52.780	- / 1.528	- / 0.000	- / 0.000	- / 0.000	- / 0.000
P-3a	3 / ST002 - Low Pressure Air Compressor (TBD)				- / 17.607	- / 1.202	- / 0.000	- / 0.000	- / 0.000	- / 0.000
P-3a	4 / ST002 - Generators & Elect Distribution (TBD)				- / 7.434	- / 14.336	- / 0.000	- / 0.000	- / 0.000	- / 0.000
P-3a	5 / ST002 - LSD Deck Crane (TBD)				- / 0.000	- / 1.736	- / 0.925	- / 6.140	- / 0.000	- / 6.140
P-3a	6 / ST002 - LSD Flight Deck Thermal Management System (TBD)				- / 0.000	- / 1.498	- / 1.311	- / 0.025	- / 0.000	- / 0.025
P-3a	7 / ST002 - LSD Ballast Control Console (TBD)				- / 0.000	- / 1.428	- / 2.548	- / 9.634	- / 0.000	- / 9.634
P-40	Total Gross/Weapon System Cost				- / 642.798	- / 80.536	- / 4.784	- / 40.269	- / 0.000	- / 40.269

Exhibits Schedule					FY 2021	FY 2022	FY 2023	FY 2024	To Complete	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				- / -	- / -	- / -	- / -	- / -	- / -
P-3a	1 / ST002 - Propeller Blades & PLMU (TBD)				- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 20.990
P-3a	2 / ST002 - Steering Control System (TBD)				- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 54.308
P-3a	3 / ST002 - Low Pressure Air Compressor (TBD)				- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 18.809
P-3a	4 / ST002 - Generators & Elect Distribution (TBD)				- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 21.770
P-3a	5 / ST002 - LSD Deck Crane (TBD)				- / 15.963	- / 14.908	- / 5.096	- / 6.820	- / 0.000	- / 51.588
P-3a	6 / ST002 - LSD Flight Deck Thermal Management System (TBD)				- / 1.314	- / 1.778	- / 0.000	- / 0.028	- / 3.228	- / 9.182
P-3a	7 / ST002 - LSD Ballast Control Console (TBD)				- / 16.728	- / 16.963	- / 0.000	- / 1.965	- / 5.002	- / 54.268
P-40	Total Gross/Weapon System Cost				- / 66.617	- / 64.245	- / 64.609	- / 65.900	- / 68.946	- / 1,098.704

*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 2020 increase supports LSD 41 USS Whidbey Island Phase Modernization procurements for C4I Systems, Combat Systems, and Hull Mechanical and Electrical upgrades to support delivery in time for LSD 41 FY 2022 Modernization Period Availability. Funds also support first in class Ballast Control Consoles and Deck Crane Control upgrade procurements in FY 2020 to support delivery in time for FY 2021 availabilities.

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Exhibit P-40a, Budget Item Justification For Aggregated Items: PB 2020 Navy																Date: March 2019					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 16									P-1 Line Item Number / Title: 1610 / LSD Midlife & Modernization							Aggregated Items Title: LSD Midlife					
Item Number / Title [DODIC]	ID CD	MDAP/MAIS Code	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 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 LSD MOD C4I System ⁽¹⁾																					
1.1) Automated Digital Network System (ADNS) ⁽²⁾	A		-	-	0.497	-	-	-	-	-	-	454,000.00	1	0.454	-	-	-	454,000.00	1	0.454	
1.2) Battle Force Tactical Network (BFTN) ⁽³⁾	A		-	-	0.220	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
1.3) Digital Modular Radio (DMR) ⁽⁴⁾	A		-	-	1.151	-	-	-	-	-	-	945,000.00	1	0.945	-	-	-	945,000.00	1	0.945	
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) ⁽⁵⁾	A		-	-	0.425	-	-	-	-	-	-	365,000.00	1	0.365	-	-	-	365,000.00	1	0.365	
1.8) Navy Multiband Terminal (NMT) ⁽⁶⁾	A		-	-	7.635	-	-	-	-	-	-	3,359K	1	3.359	-	-	-	3,359K	1	3.359	
1.9) CRYPTO	A		-	-	0.082	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
1.10) CANES ⁽⁷⁾	A		-	-	5.000	-	-	-	-	-	-	3,857K	1	3.857	-	-	-	3,857K	1	3.857	
1.11) VINSON/ ANDVT Cryptographic Modernization (VACM)	A		-	-	0.325	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
1.13) LSD MOD C4I Installation (Engineering/ DSA/ AIT/ Shipyard) ⁽⁸⁾	A		-	-	-	-	-	-	-	-	-	-	-	0.363	-	-	-	-	-	0.363	
1.14) LSD MOD Interior Communications (IC) System	A		-	-	3.300	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Subtotal: 1) ST001 LSD MOD C4I System			-	-	19.429	-	-	-	-	-	-	-	-	9.343	-	-	-	-	-	9.343	
2) ST5IN LSD Installation / DSA / AIT																					
2.1) LSD 46 FY18 EDSRA Installation / AIT	A		-	-	-	-	-	56.834	-	-	-	-	-	-	-	-	-	-	-	-	

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Exhibit P-40a, Budget Item Justification For Aggregated Items: PB 2020 Navy															Date: March 2019						
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 16								P-1 Line Item Number / Title: 1610 / LSD Midlife & Modernization							Aggregated Items Title: LSD Midlife						
Item Number / Title [DODIC]	ID CD	MDAP/MAIS Code	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 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)	
2.2) LSD 46 C4I Systems AIT	A		-	-	10.000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
2.3) LSD 46 Special Selected Restricted Availability (SSRA)	A		-	-	9.400	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
2.4) LSD 46 Design Services Allocation (DSA)	A		-	-	7.892	-	-	0.836	-	-	-	-	-	-	-	-	-	-	-	-	
Subtotal: 2) ST5IN LSD Installation / DSA / AIT			-	-	27.292	-	-	57.670	-	-	-	-	-	-	-	-	-	-	-	-	
3) ST001 - LSD MOD Combat System ⁽⁹⁾																					
3.1) AN/SLQ-32 ⁽¹⁰⁾	A		-	-	-	-	-	-	-	-	-	509,701.00	1	0.510	-	-	-	509,701.00	1	0.510	
3.2) Navigation Sensor System Interface (NAVSSI) ⁽¹¹⁾	A		-	-	-	-	-	-	-	-	-	715,594.00	1	0.716	-	-	-	715,594.00	1	0.716	
3.4) Rolling Airframe Missile (RAM) ⁽¹²⁾	A		-	-	-	-	-	-	-	-	-	4,083K	1	4.083	-	-	-	4,083K	1	4.083	
3.5) LSD MOD CS Installations (ENG/ DSA/ AIT/ Shipyard) ⁽¹³⁾	A		-	-	-	-	-	-	-	-	-	-	-	0.553	-	-	-	-	-	0.553	
3.7) LSD 46 Combat System Equipment	A		-	-	7.456	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Subtotal: 3) ST001 - LSD MOD Combat System			-	-	7.456	-	-	-	-	-	-	-	-	-	5.862	-	-	-	-	-	5.862
4) ST001 - LSD Mod HM&E Modernization																					
4.3) Damage Control Console (DCC) Upgrade ⁽¹⁴⁾	A		-	-	-	-	-	-	-	-	-	1,163K	1	1.163	-	-	-	1,163K	1	1.163	
4.4) Bus Tie Circuit Breaker Replace 2000Amp ⁽¹⁵⁾	A		-	-	-	-	-	-	-	-	-	1,355K	1	1.355	-	-	-	1,355K	1	1.355	
4.5) SSDG Circuit Breaker Replace 4000Amp ⁽¹⁶⁾	A		-	-	-	-	-	-	-	-	-	1,084K	1	1.084	-	-	-	1,084K	1	1.084	
4.9) 80Ton AC Units ⁽¹⁷⁾	A		-	-	-	-	-	-	-	-	-	2,552K	1	2.552	-	-	-	2,552K	1	2.552	
4.10) Modular Refrigeration System (MRS) ⁽¹⁸⁾	A		-	-	-	-	-	-	-	-	-	1,276K	1	1.276	-	-	-	1,276K	1	1.276	
4.11) LSD MOD HM&E Installations	A		-	-	-	-	-	-	-	-	-	-	-	1.835	-	-	-	-	-	1.835	

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Exhibit P-40a, Budget Item Justification For Aggregated Items: PB 2020 Navy															Date: March 2019				
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 16								P-1 Line Item Number / Title: 1610 / LSD Midlife & Modernization							Aggregated Items Title: LSD Midlife				

Item Number / Title [DODIC]	ID CD	MDAP/MAIS Code	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 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)
(ENG/ DSA/ AIT/ Shipyard) ⁽¹⁹⁾																				
4.12) LSD 46 HM&E Mod and Conjunctive Alterations	A		-	-	15.023	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4.13) Canned Lube Oil Pump	A		-	-	16.543	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: 4) ST001 - LSD Mod HM&E Modernization			-	-	31.566	-	-	-	-	-	-	-	-	9.265	-	-	-	-	-	9.265
5) Other Prior Year Costs ⁽²⁰⁾																				
5.1) All Other Prior Year Costs	A		-	-	459.382	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: 5) Other Prior Year Costs			-	-	459.382	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total			-	-	545.125	-	-	57.670	-	-	-	-	-	24.470	-	-	-	-	-	24.470

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

Footnotes:

- (1) FY20 Procurement to support delivery in time for LSD 41 FY22 Modernization Period availability.
- (2) FY20 procurement to support delivery in time for LSD 41 FY22 Modernization Period availability.
- (3) FY20 procurement to support delivery in time for LSD 41 FY22 Modernization Period availability.
- (4) FY20 procurement to support delivery in time for LSD 41 FY22 Modernization Period availability.
- (5) FY20 procurement to support delivery in time for LSD 41 FY22 Modernization Period availability.
- (6) FY20 procurement to support delivery in time for LSD 41 FY22 Modernization Period availability.
- (7) FY20 procurement to support delivery in time for LSD 41 FY22 Modernization Period availability.
- (8) FY20 funds A-2 Reoccurring Engineering Services, and Design Services Agent (DSA) in support LSD 41 Modernization Period Availability Scheduled for FY22.
- (9) FY20 funds A-2 Reoccurring Engineering Services, and Design Services Agent (DSA) costs support of LSD 41 Modernization Period Availability scheduled for FY22. FY21 funds A-1 Reoccurring Engineering Services, and Design Services Agent (DSA) costs. FY22 funds A-0 Reoccurring Engineering Services, Alteration Installation Team (AIT) and Shipyard Installation costs. LSD 42 MOD period scheduled for FY26.
- (10) FY20 procurement to support delivery in time for LSD 41 FY22 Modernization Period availability.
- (11) FY20 procurement to support delivery in time for LSD 41 FY22 Modernization Period availability.
- (12) FY20 Procurement to support delivery in time for LSD 41 FY22 Modernization Period availability.
- (13) FY20 funds A-2 Reoccurring Engineering Services, and Design Services Agent (DSA) costs in support of LSD 41 FY22 MOD Period Availability. FY21 funds A-1 Reoccurring Engineering Services, and Design Services Agent (DSA) costs. FY22 funds A-0 Reoccurring Engineering Services, Alteration Installation Team (AIT) and Shipyard Installation costs.
- (14) FY20 Procurement to support delivery in time for LSD 41 FY22 Modernization Period availability.
- (15) FY20 procurement to support delivery in time for LSD 41 FY22 Modernization Period availability.
- (16) FY20 procurement to support delivery in time for LSD 41 FY22 Modernization Period availability.
- (17) FY20 procurement to support delivery in time for LSD 41 FY22 Modernization Period availability.
- (18) FY20 procurement to support delivery in time for LSD 41 FY22 Modernization Period availability.
- (19) FY20 funds A-2 Reoccurring Engineering Services, and Design Services Agent (DSA) costs in support of LSD 42 MOD Period availability scheduled for FY22. FY21 funds A-1 Reoccurring Engineering Services, and Design Services Agent (DSA) costs. FY22 funds A-0 Reoccurring Engineering Services, Alteration Installation Team (AIT) and Shipyard Installation costs for LSD 42 MOD Period availability scheduled for FY22. 2 years lead time.

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Exhibit P-40a, Budget Item Justification For Aggregated Items: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 16	P-1 Line Item Number / Title: 1610 / LSD Midlife & Modernization	Aggregated Items Title: LSD Midlife

⁽²⁰⁾ Accounting entry for prior year funds of all other cost elements no longer funded.

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Exhibit P-3a, Individual Modification: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 16	P-1 Line Item Number / Title: 1610 / LSD Midlife & Modernization	Modification Number / Title: 1 / ST002 - Propeller Blades & PLMU

ID Code (A=Service Ready, B=Not Service Ready) :						MDAP/MAIS Code:						
Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity (Units in Each)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost (\$ in Millions)	19.852	1.138	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	20.990
Less PY Advance Procurement (\$ in Millions)	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (\$ in Millions)	19.852	1.138	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	20.990
Plus CY Advance Procurement (\$ in Millions)	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority (\$ in Millions)	19.852	1.138	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	20.990
(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:

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-3a, Individual Modification: PB 2020 Navy										Date: March 2019			
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 16				P-1 Line Item Number / Title: 1610 / LSD Midlife & Modernization						Modification Number / Title: 1 / ST002 - Propeller Blades & PLMU			
ID Code (A=Service Ready, B=Not Service Ready) :								MDAP/MAIS Code:					
Models of Systems Affected: Propeller Blades & PLMU				Modification Type: TBD				Related RDT&E PEs:					
Financial Plan	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total	
	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	
Procurement													
<i>Modification Item 1 of 1: ST002 - Propeller Blades & PLMU</i>													
<i>B Kits</i>													
<i>Recurring</i>													
1.1.1) FMP Ship Units - NonOrganic ⁽²¹⁾	8 / 8.863	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	8 / 8.863	
1.1.2) End Item Spares - Organic	2 / 1.938	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	2 / 1.938	
<i>Subtotal: Recurring</i>	<i>- / 10.801</i>	<i>- / -</i>	<i>- / -</i>	<i>- / -</i>	<i>- / -</i>	<i>- / -</i>	<i>- / -</i>	<i>- / -</i>	<i>- / -</i>	<i>- / -</i>	<i>- / 0.000</i>	<i>- / 10.801</i>	
<i>Subtotal: ST002 - Propeller Blades & PLMU</i>	<i>10 / 10.801</i>	<i>- / -</i>	<i>- / -</i>	<i>- / -</i>	<i>- / -</i>	<i>- / -</i>	<i>- / -</i>	<i>- / -</i>	<i>- / -</i>	<i>- / -</i>	<i>- / -</i>	<i>10 / 10.801</i>	
<i>Subtotal: Procurement, All Modification Items</i>	<i>- / 10.801</i>	<i>- / -</i>	<i>- / -</i>	<i>- / -</i>	<i>- / -</i>	<i>- / -</i>	<i>- / -</i>	<i>- / -</i>	<i>- / -</i>	<i>- / -</i>	<i>- / 0.000</i>	<i>- / 10.801</i>	
Installation													
<i>Modification Item 1 of 1: ST002 - Propeller Blades & PLMU</i>	<i>- / 9.051</i>	<i>- / 1.138</i>	<i>- / 0.000</i>	<i>- / 0.000</i>	<i>- / 0.000</i>	<i>- / 0.000</i>	<i>- / 0.000</i>	<i>- / 0.000</i>	<i>- / 0.000</i>	<i>- / 0.000</i>	<i>- / 0.000</i>	<i>- / 10.189</i>	
<i>Subtotal: Installation</i>	<i>- / 9.051</i>	<i>- / 1.138</i>	<i>- / -</i>	<i>- / -</i>	<i>- / -</i>	<i>- / -</i>	<i>- / -</i>	<i>- / -</i>	<i>- / -</i>	<i>- / -</i>	<i>- / 0.000</i>	<i>- / 10.189</i>	
Total													
Total Cost (Procurement + Support + Installation)	19.852	1.138	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	20.990	

UNCLASSIFIED

Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019																					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 16					P-1 Line Item Number / Title: 1610 / LSD Midlife & Modernization										Modification Number / Title: 1 / ST002 - Propeller Blades & PLMU																
ID Code (A=Service Ready, B=Not Service Ready) :										MDAP/MAIS Code:																					
Modification Item 1 of 1: ST002 - Propeller Blades & PLMU																															
Manufacturer Information																															
Manufacturer Name: Rolls Royce										Manufacturer Location: Walpole, MA																					
Administrative Leadtime (in Months): 2										Production Leadtime (in Months): 12																					
Dates	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024																								
Contract Dates																															
Delivery Dates																															
Installation Information																															
Method of Implementation: SHIPYARD/AIT:: Installation Name: FMP Ship Units																															
Installation Cost	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total																			
	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)																			
Prior Years	7 / 9.051	1 / 1.138	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	8 / 10.189																			
FY 2018	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -																			
FY 2019	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -																			
FY 2020	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -																			
FY 2021	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -																			
FY 2022	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -																			
FY 2023	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -																			
FY 2024	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -																			
To Complete	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -																			
Total	7 / 9.051	1 / 1.138	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	8 / 10.189																			
Installation Schedule																															
	PYS	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				TC	Tot
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4		
In	7	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8
Out	7	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8
Method of Implementation (Organic): End Item Spares - Not Installed																															
														Installation Quantity: 2																	
Footnotes: (21) FY18 Installation is for LSD 46.																															

UNCLASSIFIED

Exhibit P-3a, Individual Modification: PB 2020 Navy						Date: March 2019					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 16				P-1 Line Item Number / Title: 1610 / LSD Midlife & Modernization				Modification Number / Title: 2 / ST002 - Steering Control System			

ID Code (A=Service Ready, B=Not Service Ready) :						MDAP/MAIS Code:						
Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity <i>(Units in Each)</i>	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost <i>(\$ in Millions)</i>	52.780	1.528	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	54.308
Less PY Advance Procurement <i>(\$ in Millions)</i>	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) <i>(\$ in Millions)</i>	52.780	1.528	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	54.308
Plus CY Advance Procurement <i>(\$ in Millions)</i>	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority <i>(\$ in Millions)</i>	52.780	1.528	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	54.308
<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 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 costlier 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.

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Exhibit P-3a, Individual Modification: PB 2020 Navy									Date: March 2019				
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 16				P-1 Line Item Number / Title: 1610 / LSD Midlife & Modernization					Modification Number / Title: 2 / ST002 - Steering Control System				
ID Code (A=Service Ready, B=Not Service Ready) :								MDAP/MAIS Code:					
Models of Systems Affected: Steering Control System				Modification Type: TBD				Related RDT&E PEs:					
Financial Plan	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total	
	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	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> ST002 - Steering Control System													
B Kits													
Recurring													
1.1.1) Non-FMP Shore Site Units - NonOrganic	2 / 1.433	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	2 / 1.433	
1.1.2) FMP Ship Units - NonOrganic	12 / 10.426	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	12 / 10.426	
<i>Subtotal: Recurring</i>	- / 11.859	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / 0.000	- / 11.859	
<i>Subtotal: ST002 - Steering Control System</i>	14 / 11.859	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	14 / 11.859	
<i>Subtotal: Procurement, All Modification Items</i>	- / 11.859	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / 0.000	- / 11.859	
Installation													
<i>Modification Item 1 of 1:</i> ST002 - Steering Control System	- / 40.921	- / 1.528	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 42.449	
<i>Subtotal: Installation</i>	- / 40.921	- / 1.528	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / 0.000	- / 42.449	
Total													
Total Cost (Procurement + Support + Installation)	52.780	1.528	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	54.308	

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Exhibit P-3a, Individual Modification: PB 2020 Navy											Date: March 2019																				
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 16										P-1 Line Item Number / Title: 1610 / LSD Midlife & Modernization										Modification Number / Title: 2 / ST002 - Steering Control System											
ID Code (A=Service Ready, B=Not Service Ready) :															MDAP/MAIS Code:																
Modification Item 1 of 1: ST002 - Steering Control System																															
Manufacturer Information																															
Manufacturer Name: Henschel															Manufacturer Location: Newburyport, MA																
Administrative Leadtime <i>(in Months)</i> : 2															Production Leadtime <i>(in Months)</i> : 12																
Dates		FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024					
Contract Dates																															
Delivery Dates																															
Installation Information																															
Method of Implementation: [none specified]:: Installation Name: Non-FMP Shore Site Units																															
Installation Cost		Prior Years	FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total		FY 2021		FY 2022		FY 2023		FY 2024		To Complete		Total								
		Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)								
Prior Years		2 / 7.102		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.000		2 / 7.102							
FY 2018		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -							
FY 2019		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -							
FY 2020		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -							
FY 2021		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -							
FY 2022		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -							
FY 2023		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -							
FY 2024		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -							
To Complete		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -							
Total		2 / 7.102		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.000		2 / 7.102							
Installation Schedule																															
	PYS	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				TC	Tot
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4		
In	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2
Out	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2
Method of Implementation: SHIPYARD/AIT:: Installation Name: FMP Ship Units																															
Installation Cost		Prior Years	FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total		FY 2021		FY 2022		FY 2023		FY 2024		To Complete		Total								
		Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)								
Prior Years		11 / 33.819		1 / 1.528		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.000		12 / 35.347							

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Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019																					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 16										P-1 Line Item Number / Title: 1610 / LSD Midlife & Modernization										Modification Number / Title: 2 / ST002 - Steering Control System											
ID Code (A=Service Ready, B=Not Service Ready) :															MDAP/MAIS Code:																
Modification Item 1 of 1: ST002 - Steering Control System																															
Installation Information																															
Method of Implementation: SHIPYARD/AIT:: Installation Name: FMP Ship Units																															
Installation Cost		Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total																		
		<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>																	
FY 2018		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -																		
FY 2019		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -																		
FY 2020		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -																		
FY 2021		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -																		
FY 2022		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -																		
FY 2023		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -																		
FY 2024		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -																		
To Complete		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -																		
Total		11 / 33.819	1 / 1.528	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	12 / 35.347																		
Installation Schedule																															
	PYS	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				TC	Tot
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4		
In	11	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12
Out	11	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12

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Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019		
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 16					P-1 Line Item Number / Title: 1610 / LSD Midlife & Modernization					Modification Number / Title: 3 / ST002 - Low Pressure Air Compressor		
ID Code (A=Service Ready, B=Not Service Ready) :							MDAP/MAIS Code:					
Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity (<i>Units in Each</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost (<i>\$ in Millions</i>)	17.607	1.202	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	18.809
Less PY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (<i>\$ in Millions</i>)	17.607	1.202	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	18.809
Plus CY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority (<i>\$ in Millions</i>)	17.607	1.202	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	18.809
<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 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-3a, Individual Modification: PB 2020 Navy										Date: March 2019			
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 16				P-1 Line Item Number / Title: 1610 / LSD Midlife & Modernization						Modification Number / Title: 3 / ST002 - Low Pressure Air Compressor			
ID Code (A=Service Ready, B=Not Service Ready) :								MDAP/MAIS Code:					
Models of Systems Affected: LPAC				Modification Type: TBD				Related RDT&E PEs:					
Financial Plan	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total	
	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	
Procurement													
<i>Modification Item 1 of 1:</i> ST002 - Low Pressure Air Compressor													
B Kits													
Recurring													
1.1.1) FMP Ship Units - NonOrganic	8 / 6.480	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	8 / 6.480	
<i>Subtotal: Recurring</i>	- / 6.480	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / 0.000	- / 6.480	
<i>Subtotal: ST002 - Low Pressure Air Compressor</i>	8 / 6.480	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	8 / 6.480	
<i>Subtotal: Procurement, All Modification Items</i>	- / 6.480	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / 0.000	- / 6.480	
Installation													
<i>Modification Item 1 of 1:</i> ST002 - Low Pressure Air Compressor	- / 11.127	- / 1.202	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 12.329	
<i>Subtotal: Installation</i>	- / 11.127	- / 1.202	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / 0.000	- / 12.329	
Total													
Total Cost (Procurement + Support + Installation)	17.607	1.202	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	18.809	

UNCLASSIFIED

Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019																					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 16										P-1 Line Item Number / Title: 1610 / LSD Midlife & Modernization										Modification Number / Title: 3 / ST002 - Low Pressure Air Compressor											
ID Code (A=Service Ready, B=Not Service Ready) :															MDAP/MAIS Code:																
Modification Item 1 of 1: ST002 - Low Pressure Air Compressor																															
Manufacturer Information																															
Manufacturer Name: RIX															Manufacturer Location: Benecia, CA																
Administrative Leadtime <i>(in Months)</i> : 2															Production Leadtime <i>(in Months)</i> : 16																
Dates		FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024					
Contract Dates																															
Delivery Dates																															
Installation Information																															
Method of Implementation: SHIPYARD/AIT:: Installation Name: FMP Ship Units																															
Installation Cost		Prior Years		FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total		FY 2021		FY 2022		FY 2023		FY 2024		To Complete		Total							
		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)							
Prior Years		7 / 11.127		1 / 1.202		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.000		8 / 12.329					
FY 2018		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
FY 2019		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
FY 2020		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
FY 2021		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
FY 2022		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
FY 2023		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
FY 2024		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
To Complete		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
Total		7 / 11.127		1 / 1.202		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.000		8 / 12.329					
Installation Schedule																															
	PYS	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				TC	Tot
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4		
In	7	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8
Out	7	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8

UNCLASSIFIED

Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019		
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 16					P-1 Line Item Number / Title: 1610 / LSD Midlife & Modernization					Modification Number / Title: 4 / ST002 - Generators & Elect Distribution		
ID Code (A=Service Ready, B=Not Service Ready) :							MDAP/MAIS Code:					
Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity (<i>Units in Each</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost (<i>\$ in Millions</i>)	7.434	14.336	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	21.770
Less PY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (<i>\$ in Millions</i>)	7.434	14.336	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	21.770
Plus CY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority (<i>\$ in Millions</i>)	7.434	14.336	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	21.770
<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: PB 2020 Navy										Date: March 2019			
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 16					P-1 Line Item Number / Title: 1610 / LSD Midlife & Modernization					Modification Number / Title: 4 / 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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total	
	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	
Procurement													
<i>Modification Item 1 of 1: ST002 - Generators & Elect Distribution</i>													
<i>B Kits</i>													
<i>Recurring</i>													
1.1.1) FMP Ship Units - NonOrganic	1 / 4.314	- / 0.649	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	1 / 4.963	
<i>Subtotal: Recurring</i>	- / 4.314	- / 0.649	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / 0.000	- / 4.963	
<i>Subtotal: ST002 - Generators & Elect Distribution</i>	1 / 4.314	- / 0.649	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	1 / 4.963	
<i>Subtotal: Procurement, All Modification Items</i>	- / 4.314	- / 0.649	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / 0.000	- / 4.963	
Installation													
<i>Modification Item 1 of 1: ST002 - Generators & Elect Distribution</i>	- / 3.120	- / 13.687	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 16.807	
<i>Subtotal: Installation</i>	- / 3.120	- / 13.687	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / 0.000	- / 16.807	
Total													
Total Cost (Procurement + Support + Installation)	7.434	14.336	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	21.770	

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Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019																					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 16										P-1 Line Item Number / Title: 1610 / LSD Midlife & Modernization										Modification Number / Title: 4 / 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 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024					
Contract Dates																															
Delivery Dates																															
Installation Information																															
Method of Implementation: SHIPYARD/AIT:: Installation Name: FMP Ship Units																															
Installation Cost		Prior Years		FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total		FY 2021		FY 2022		FY 2023		FY 2024		To Complete		Total							
		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)							
Prior Years		0 / 3.120		1 / 13.687		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.000		1 / 16.807					
FY 2018		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
FY 2019		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
FY 2020		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
FY 2021		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
FY 2022		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
FY 2023		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
FY 2024		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
To Complete		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
Total		0 / 3.120		1 / 13.687		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.000		1 / 16.807					
Installation Schedule																															
	PYS	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				TC	Tot
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4		
In	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Out	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1

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Exhibit P-3a, Individual Modification: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 16	P-1 Line Item Number / Title: 1610 / LSD Midlife & Modernization	Modification Number / Title: 5 / ST002 - LSD Deck Crane

ID Code (A=Service Ready, B=Not Service Ready) :						MDAP/MAIS Code:						
Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity (Units in Each)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost (\$ in Millions)	0.000	1.736	0.925	6.140	0.000	6.140	15.963	14.908	5.096	6.820	0.000	51.588
Less PY Advance Procurement (\$ in Millions)	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (\$ in Millions)	0.000	1.736	0.925	6.140	0.000	6.140	15.963	14.908	5.096	6.820	0.000	51.588
Plus CY Advance Procurement (\$ in Millions)	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority (\$ in Millions)	0.000	1.736	0.925	6.140	0.000	6.140	15.963	14.908	5.096	6.820	0.000	51.588
(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:

SCD 19102 (60 Ton) and SCD 19770 (20 Ton) Crane controls upgrade - modernizes 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. This upgrade does not replace the whole crane.

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Exhibit P-3a, Individual Modification: PB 2020 Navy								Date: March 2019					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 16				P-1 Line Item Number / Title: 1610 / LSD Midlife & Modernization				Modification Number / Title: 5 / ST002 - LSD Deck Crane					
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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	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)	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 - LSD Deck Crane													
B Kits													
Recurring													
1.1.1) 60 Ton Crane Control System - NonOrganic ⁽²²⁾		- / -	- / -	- / -	1 / 1.648	- / -	1 / 1.648	3 / 5.049	- / -	1 / 1.754	- / -	- / -	5 / 8.451
1.1.2) 20 Ton Deck Crane Control System - NonOrganic ⁽²³⁾		- / -	- / -	- / -	1 / 1.648	- / -	1 / 1.648	1 / 1.683	- / -	1 / 1.754	- / -	- / -	3 / 5.085
Subtotal: Recurring		- / 0.000	- / -	- / -	- / 3.296	- / -	- / 3.296	- / 6.732	- / -	- / 3.508	- / -	- / 0.000	- / 13.536
Subtotal: ST002 - LSD Deck Crane		- / -	- / -	- / -	2 / 3.296	- / -	2 / 3.296	4 / 6.732	- / -	2 / 3.508	- / -	- / -	8 / 13.536
Subtotal: Procurement, All Modification Items		- / 0.000	- / -	- / -	- / 3.296	- / -	- / 3.296	- / 6.732	- / -	- / 3.508	- / -	- / 0.000	- / 13.536
Support (All Modification Items)													
2.1) Non-recurring Engineering		- / -	- / 1.736	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / 1.736	
2.2) System Engineering		- / -	- / -	- / 0.512	- / 0.256	- / -	- / 0.256	- / -	- / -	- / -	- / -	- / 0.768	
Subtotal: Support		- / 0.000	- / 1.736	- / 0.512	- / 0.256	- / -	- / 0.256	- / -	- / -	- / -	- / -	- / 2.504	
Installation													
Modification Item 1 of 1: ST002 - LSD Deck Crane		- / 0.000	- / 0.000	- / 0.413	- / 2.588	- / 0.000	- / 2.588	- / 9.231	- / 14.908	- / 1.588	- / 6.820	- / 0.000	- / 35.548
Subtotal: Installation		- / 0.000	- / -	- / 0.413	- / 2.588	- / -	- / 2.588	- / 9.231	- / 14.908	- / 1.588	- / 6.820	- / 0.000	- / 35.548
Total													
Total Cost (Procurement + Support + Installation)		0.000	1.736	0.925	6.140	0.000	6.140	15.963	14.908	5.096	6.820	0.000	51.588

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Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019																					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 16										P-1 Line Item Number / Title: 1610 / LSD Midlife & Modernization										Modification Number / Title: 5 / ST002 - LSD Deck Crane											
ID Code (A=Service Ready, B=Not Service Ready) :															MDAP/MAIS Code:																
Modification Item 1 of 1: ST002 - LSD Deck Crane																															
Manufacturer Information																															
Manufacturer Name: TBD															Manufacturer Location: TBD																
Administrative Leadtime (in Months): 0															Production Leadtime (in Months): 12																
Dates		FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024					
Contract Dates										Mar 2020				Dec 2020								Dec 2022									
Delivery Dates										Mar 2021				Dec 2021								Dec 2023									
Installation Information																															
Method of Implementation: [none specified]:: Installation Name: 60 Ton Crane Control System																															
Installation Cost		Prior Years		FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total		FY 2021		FY 2022		FY 2023		FY 2024		To Complete		Total							
		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)							
Prior Years		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
FY 2018		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
FY 2019		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
FY 2020		- / -		- / -		0 / 0.214		0 / 0.746		0 / 0.000		0 / 0.746		1 / 3.093		- / -		- / -		- / -		- / -		0 / 0.000		1 / 4.053					
FY 2021		- / -		- / -		- / -		0 / 0.822		0 / 0.000		0 / 0.822		0 / 2.284		3 / 10.752		- / -		- / -		- / -		0 / 0.000		3 / 13.858					
FY 2022		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
FY 2023		- / -		- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.286		0 / 0.794		1 / 3.410		0 / 0.000		1 / 4.490		- / -					
FY 2024		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
To Complete		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
Total		- / -		- / -		0 / 0.214		0 / 1.568		0 / 0.000		0 / 1.568		1 / 5.377		3 / 11.038		0 / 0.794		1 / 3.410		0 / 0.000		5 / 22.401							
Installation Schedule																															
	PYS	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				TC	Tot
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4		
In	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	3	-	-	-	-	-	-	-	1	-	-	-	-
Out	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	1	1	-	1	-	-	-	1	-	-	-
Method of Implementation: [none specified]:: Installation Name: 20 Ton Deck Crane Control System																															
Installation Cost		Prior Years		FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total		FY 2021		FY 2022		FY 2023		FY 2024		To Complete		Total							
		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)							
Prior Years		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					

UNCLASSIFIED

Exhibit P-3a, Individual Modification: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 16	P-1 Line Item Number / Title: 1610 / LSD Midlife & Modernization	Modification Number / Title: 5 / ST002 - LSD Deck Crane

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

Modification Item 1 of 1: ST002 - LSD Deck Crane

Installation Information

Method of Implementation: [none specified]:: Installation Name: 20 Ton Deck Crane Control System

Installation Cost	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)	Qty (Each) / Total Cost (\$ M)
FY 2018	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2019	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2020	- / -	- / -	0 / 0.199	0 / 0.746	0 / 0.000	0 / 0.746	1 / 3.093	- / -	- / -	- / -	0 / 0.000	1 / 4.038
FY 2021	- / -	- / -	- / -	0 / 0.274	0 / 0.000	0 / 0.274	0 / 0.761	1 / 3.584	- / -	- / -	0 / 0.000	1 / 4.619
FY 2022	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2023	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.286	0 / 0.794	1 / 3.410	0 / 0.000	1 / 4.490
FY 2024	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
To Complete	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
Total	- / -	- / -	0 / 0.199	0 / 1.020	0 / 0.000	0 / 1.020	1 / 3.854	1 / 3.870	0 / 0.794	1 / 3.410	0 / 0.000	3 / 13.147

Installation Schedule

	PYS	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				TC	Tot
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4		
In	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	1	-	-	-	-	-	-	1	-	-	-	-	3
Out	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	1	-	-	-	1	-	-	3

Footnotes:

⁽²²⁾ 60T and 20T crane have identical procurement costs due to same Crane Controls, brakes, LMI (boom indicator and load cell) and Motors being procured. This is not a crane replacement. FY20 Procures 1 unit (60T Deck Crane Control System) for installation in FY21 for first in class install on LSD 42.

⁽²³⁾ FY20 Procures one (20T Deck Crane Control System) for installation in FY21 for first in class install on LSD 42.

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Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019		
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 16					P-1 Line Item Number / Title: 1610 / LSD Midlife & Modernization					Modification Number / Title: 6 / ST002 - LSD Flight Deck Thermal Management System		
ID Code (A=Service Ready, B=Not Service Ready) :							MDAP/MAIS Code:					
Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity <i>(Units in Each)</i>	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost <i>(\$ in Millions)</i>	0.000	1.498	1.311	0.025	0.000	0.025	1.314	1.778	0.000	0.028	3.228	9.182
Less PY Advance Procurement <i>(\$ in Millions)</i>	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) <i>(\$ in Millions)</i>	0.000	1.498	1.311	0.025	0.000	0.025	1.314	1.778	0.000	0.028	3.228	9.182
Plus CY Advance Procurement <i>(\$ in Millions)</i>	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority <i>(\$ in Millions)</i>	0.000	1.498	1.311	0.025	0.000	0.025	1.314	1.778	0.000	0.028	3.228	9.182
<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 Flight Deck Thermal Management System (FDTMS) (SCD 16657) Procures and installs 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-3a, Individual Modification: PB 2020 Navy								Date: March 2019					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 16				P-1 Line Item Number / Title: 1610 / LSD Midlife & Modernization				Modification Number / Title: 6 / ST002 - LSD Flight Deck Thermal Management System					
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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total	
	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	
Procurement													
<i>Modification Item 1 of 1:</i> ST002 - LSD Flight Deck Thermal Management System													
B Kits													
Recurring													
1.1.1) LSD Flight Deck Thermal Management System* - NonOrganic ⁽²⁴⁾	- / -	1 / 1.078	- / -	- / -	- / -	- / -	1 / 1.194	- / -	- / -	- / -	1 / 1.294	3 / 3.566	
<i>Subtotal: Recurring</i>	- / 0.000	- / 1.078	- / -	- / -	- / -	- / -	- / 1.194	- / -	- / -	- / -	- / 1.294	- / 3.566	
<i>Subtotal: ST002 - LSD Flight Deck Thermal Management System</i>	- / -	1 / 1.078	- / -	- / -	- / -	- / -	1 / 1.194	- / -	- / -	- / -	1 / 1.294	3 / 3.566	
<i>Subtotal: Procurement, All Modification Items</i>	- / 0.000	- / 1.078	- / -	- / -	- / -	- / -	- / 1.194	- / -	- / -	- / -	- / 1.294	- / 3.566	
Support (All Modification Items)													
2.1) Non-recurring Engineering	- / -	- / 0.256	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / 0.256	
<i>Subtotal: Support</i>	- / 0.000	- / 0.256	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / 0.000	- / 0.256	
Installation													
<i>Modification Item 1 of 1:</i> ST002 - LSD Flight Deck Thermal Management System	- / 0.000	- / 0.164	- / 1.311	- / 0.025	- / 0.000	- / 0.025	- / 0.120	- / 1.778	- / 0.000	- / 0.028	- / 1.934	- / 5.360	
<i>Subtotal: Installation</i>	- / 0.000	- / 0.164	- / 1.311	- / 0.025	- / -	- / 0.025	- / 0.120	- / 1.778	- / -	- / 0.028	- / 1.934	- / 5.360	
Total													
Total Cost (Procurement + Support + Installation)	0.000	1.498	1.311	0.025	0.000	0.025	1.314	1.778	0.000	0.028	3.228	9.182	

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Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019																					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 16										P-1 Line Item Number / Title: 1610 / LSD Midlife & Modernization										Modification Number / Title: 6 / ST002 - LSD Flight Deck Thermal Management System											
ID Code (A=Service Ready, B=Not Service Ready) :															MDAP/MAIS Code:																
Modification Item 1 of 1: ST002 - LSD Flight Deck Thermal Management System																															
Manufacturer Information																															
Manufacturer Name: Cellular Materials International (CMI)															Manufacturer Location: Virginia																
Administrative Leadtime <i>(in Months)</i> : 3															Production Leadtime <i>(in Months)</i> : 12																
Dates		FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024					
Contract Dates		Jul 2018												Dec 2020																	
Delivery Dates		Jul 2019												Dec 2021																	
Installation Information																															
Method of Implementation: [none specified]:: Installation Name: LSD Flight Deck Thermal Management System*																															
Installation Cost		Prior Years	FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total		FY 2021		FY 2022		FY 2023		FY 2024		To Complete		Total								
		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>		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 2018		- / -	0 / 0.164		1 / 1.311		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.000		1 / 1.475						
FY 2019		- / -	- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -						
FY 2020		- / -	- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -						
FY 2021		- / -	- / -		- / -		0 / 0.025		0 / 0.000		0 / 0.025		0 / 0.120		1 / 1.778		- / -		- / -		0 / 0.000		1 / 1.923								
FY 2022		- / -	- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -						
FY 2023		- / -	- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -						
FY 2024		- / -	- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -						
To Complete		- / -	- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.028		1 / 1.934		1 / 1.962						
Total		- / -	0 / 0.164		1 / 1.311		0 / 0.025		0 / 0.000		0 / 0.025		0 / 0.120		1 / 1.778		- / -		0 / 0.028		1 / 1.934		3 / 5.360								
Installation Schedule																															
	PYS	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				TC	Tot
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4		
In	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	1	3
Out	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	1	3
Footnotes:																															
⁽²⁴⁾ FY20 funds Design Services Agent (DSA) requirements in support of installation during LSD 41 Modernization Period Availability scheduled for FY22.																															

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Exhibit P-3a, Individual Modification: PB 2020 Navy						Date: March 2019					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 16				P-1 Line Item Number / Title: 1610 / LSD Midlife & Modernization				Modification Number / Title: 7 / ST002 - LSD Ballast Control Console			

ID Code (A=Service Ready, B=Not Service Ready) :						MDAP/MAIS Code:						
Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity (Units in Each)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost (\$ in Millions)	0.000	1.428	2.548	9.634	0.000	9.634	16.728	16.963	0.000	1.965	5.002	54.268
Less PY Advance Procurement (\$ in Millions)	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (\$ in Millions)	0.000	1.428	2.548	9.634	0.000	9.634	16.728	16.963	0.000	1.965	5.002	54.268
Plus CY Advance Procurement (\$ in Millions)	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority (\$ in Millions)	0.000	1.428	2.548	9.634	0.000	9.634	16.728	16.963	0.000	1.965	5.002	54.268
(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:

SCD 10828 - Ballast Control Console (BCS) - Provides upgrades to the existing Ballast Control Consoles (BCS) and replaces legacy BCS with a Programmable Logic Controller (PLC) based digital, networked system. 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.

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Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019			
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 16					P-1 Line Item Number / Title: 1610 / LSD Midlife & Modernization					Modification Number / Title: 7 / ST002 - LSD Ballast Control Console			
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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total	
	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	<i>Qty (Each) / Total Cost (\$ M)</i>	
Procurement													
<i>Modification Item 1 of 1:</i> ST002 - LSD Ballast Control Console													
B Kits													
Recurring													
1.1.1) BALLAST CONTROL CONSOLE UPGRADE* - NonOrganic ⁽²⁵⁾	- / -	- / -	1 / 1.455	2 / 2.970	- / -	2 / 2.970	4 / 6.068	- / -	- / -	1 / 1.614	- / -	8 / 12.107	
<i>Subtotal: Recurring</i>	- / 0.000	- / -	- / 1.455	- / 2.970	- / -	- / 2.970	- / 6.068	- / -	- / -	- / 1.614	- / 0.000	- / 12.107	
<i>Subtotal: ST002 - LSD Ballast Control Console</i>	- / -	- / -	1 / 1.455	2 / 2.970	- / -	2 / 2.970	4 / 6.068	- / -	- / -	1 / 1.614	- / -	8 / 12.107	
<i>Subtotal: Procurement, All Modification Items</i>	- / 0.000	- / -	- / 1.455	- / 2.970	- / -	- / 2.970	- / 6.068	- / -	- / -	- / 1.614	- / 0.000	- / 12.107	
Support (All Modification Items)													
2.1) System Engineering/NonRecurring Engineering ⁽²⁶⁾	- / -	- / 1.180	- / -	- / 0.282	- / -	- / 0.282	- / 0.120	- / -	- / -	- / -	- / -	- / 1.582	
<i>Subtotal: Support</i>	- / 0.000	- / 1.180	- / -	- / 0.282	- / -	- / 0.282	- / 0.120	- / -	- / -	- / -	- / 0.000	- / 1.582	
Installation													
<i>Modification Item 1 of 1:</i> ST002 - LSD Ballast Control Console	- / 0.000	- / 0.248	- / 1.093	- / 6.382	- / 0.000	- / 6.382	- / 10.540	- / 16.963	- / 0.000	- / 0.351	- / 5.002	- / 40.579	
<i>Subtotal: Installation</i>	- / 0.000	- / 0.248	- / 1.093	- / 6.382	- / -	- / 6.382	- / 10.540	- / 16.963	- / -	- / 0.351	- / 5.002	- / 40.579	
Total													
Total Cost (Procurement + Support + Installation)	0.000	1.428	2.548	9.634	0.000	9.634	16.728	16.963	0.000	1.965	5.002	54.268	

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Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019																					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 16										P-1 Line Item Number / Title: 1610 / LSD Midlife & Modernization										Modification Number / Title: 7 / ST002 - LSD Ballast Control Console											
ID Code (A=Service Ready, B=Not Service Ready) :															MDAP/MAIS Code:																
Modification Item 1 of 1: ST002 - LSD Ballast Control Console																															
Manufacturer Information																															
Manufacturer Name: TBD															Manufacturer Location: TBD																
Administrative Leadtime <i>(in Months)</i> : 3															Production Leadtime <i>(in Months)</i> : 12																
Dates		FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024					
Contract Dates						Dec 2018				Mar 2020				Dec 2020																	
Delivery Dates						Dec 2019				Mar 2021				Dec 2021																	
Installation Information																															
Method of Implementation: [none specified]:: Installation Name: BALLAST CONTROL CONSOLE UPGRADE*																															
Installation Cost		Prior Years		FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total		FY 2021		FY 2022		FY 2023		FY 2024		To Complete		Total							
		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)		Qty (Each) / Total Cost (\$ M)							
Prior Years		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
FY 2018		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
FY 2019		- / -		0 / 0.248		0 / 0.599		1 / 3.956		0 / 0.000		1 / 3.956		- / -		- / -		- / -		- / -		- / -		0 / 0.000		1 / 4.803					
FY 2020		- / -		- / -		0 / 0.494		0 / 1.130		0 / 0.000		0 / 1.130		2 / 8.232		- / -		- / -		- / -		- / -		0 / 0.000		2 / 9.856					
FY 2021		- / -		- / -		- / -		0 / 1.296		0 / 0.000		0 / 1.296		0 / 2.308		4 / 16.963		- / -		- / -		- / -		0 / 0.000		4 / 20.567					
FY 2022		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
FY 2023		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
FY 2024		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.351		1 / 5.002		1 / 5.353					
To Complete		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
Total		- / -		0 / 0.248		0 / 1.093		1 / 6.382		0 / 0.000		1 / 6.382		2 / 10.540		4 / 16.963		- / -		0 / 0.351		1 / 5.002		8 / 40.579							
Installation Schedule																															
	PYS	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				TC	Tot
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4		
In	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	1	1	-	4	-	-	-	-	-	-	-	-	-	-	1	8
Out	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	1	-	-	2	1	-	2	-	-	-	-	-	1	8
Footnotes: (25) FY20 Procures 2 units for installation in FY21. (26) FY20 NRE funds Engineering/Non-Recurring Engineering 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. FY21 funds completion of Integrated Logistics System documentation.																															

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