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

March 2019



Navy

Justification Book Volume 3 of 5

Other Procurement, Navy

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The estimated cost of this report for the Department of the Navy (DON) is \$9,833.

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

Appropriation: 1810N Other Procurement, Navy

Line No	Item Nomenclature	Ident Code	FY 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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Department of the Navy
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Exhibit P-1 FY 2020 President's Budget
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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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
----	-----	-----	-----	----	-----	----	-----	----	-----	----	-
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
(Dollars in Thousands)

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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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
----	-----	-----	-----	-----	-----	-----	-
	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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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
----	-----	-----	-----	----	-----	----	-----	----	-----	----	-
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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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
----	-----	-----	-----	-----	-----	-----	-
	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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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
----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-
	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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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
----	-----	-----	-----	-----
	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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Appropriation: 1810N Other Procurement, Navy

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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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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19	01	09	0970	LCAC.....	Volume 1 - 523
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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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
53	02	07	2657	NAVSTAR GPS Receivers (Space).....	Volume 2 - 303
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
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69	02	10	2970	EMI Control Instrumentation.....	Volume 2 - 565
70	02	10	2980	Items less than \$5 Million.....	Volume 2 - 569
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
94	03	03	4268	Aviation Support Equipment.....	Volume 3 - 119
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100	04	04	5358	Strategic Missile Systems Equip.....	Volume 4 - 59
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105	04	07	5530	Anti-ship Missile Decoy System.....	Volume 4 - 149
106	04	07	5661	Submarine Training Device Mods.....	Volume 4 - 161
107	04	07	5664	Surface Training Equipment.....	Volume 4 - 177

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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
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AN/SQQ-89 Surf ASW Cmbt Sys	2136	37	02	02.....	Volume 2 - 11
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
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C4ISR Equipment	8120	127	07	02.....	Volume 5 - 221
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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
Explosive Ordnance Disposal Equip	5509	103	04	06.....	Volume 4 - 133
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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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LHA/LHD Midlife	0933	8	01	09.....	Volume 1 - 289
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
Naval MIP Support Equipment	8114	125	07	02.....	Volume 5 - 209
Naval Mission Planning Systems	2876	60	02	09.....	Volume 2 - 465
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Navy Command and Control System (NCCS)	2618	50	02	07.....	Volume 2 - 273
Navy Multiband Terminal (NMT)	3216	77	02	13.....	Volume 2 - 669
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Pollution Control Equipment	0935	9	01	09.....	Volume 1 - 353
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
SSN Acoustic Equipment	2150	38	02	02.....	Volume 2 - 43
SSN Combat Control Systems	5420	101	04	05.....	Volume 4 - 89
SURTASS	2237	43	02	03.....	Volume 2 - 133
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
Ship Missile Support Equipment	5231	98	04	03.....	Volume 4 - 9

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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 Vehicles	6028	112	05	01.....	Volume 5 - 57
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
Underwater EOD Programs	0977	20	01	09.....	Volume 1 - 527
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Weapons Range Support Equipment	4204	87	03	03.....	Volume 3 - 17

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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 03: Aviation Support Equipment / BSA 1: Sonobuoys							P-1 Line Item Number / Title: 4048 / Sonobuoys - All Types					
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)	1,715.105	173.616	237.347	260.644	2.910	263.554	266.938	271.538	275.378	279.228	Continuing	Continuing
Less PY Advance Procurement (\$ in Millions)	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (\$ in Millions)	1,715.105	173.616	237.347	260.644	2.910	263.554	266.938	271.538	275.378	279.228	Continuing	Continuing
Plus CY Advance Procurement (\$ in Millions)	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority (\$ in Millions)	1,715.105	173.616	237.347	260.644	2.910	263.554	266.938	271.538	275.378	279.228	Continuing	Continuing
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)												
Initial Spares (\$ in Millions)	-	-	-	-	-	-	-	-	-	-	-	-
Flyaway Unit Cost (\$ in Dollars)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost (\$ in Dollars)	-	-	-	-	-	-	-	-	-	-	-	-
Description:												
Sonobuoys are air launched expendable, electro-mechanical sensors designed to relay underwater sounds associated with ships and submarines to remote processors. Sonobuoys by type are procured annually to maintain the OPNAV Naval Munitions Requirements Process (NMRP). The NMRP includes annual usage requirements for squadron training, readiness and current operations. Sonobuoys currently support the P-3, P-8 and H-60 platforms.												
[P5 / Sonobuoys, All Types]: Any increase to sonobuoy unit costs that is greater than inflation is a result of either a decrease in economies of scale or an increase in sonobuoy capability. See P5 footnotes for details.												
[P5 / AN/SSQ-36 (BT) QZ001]: The AN/SSQ-36 Bathythermograph (BT) is a bathythermograph sonobuoy used to provide a vertical temperature profile of the ocean with respect to depth. The data is transmitted to aircraft to assist in the selection of hydrophone depths and tactics for localizing and tracking submarines and long-range forecasts of acoustic conditions in the ocean.												
[P5 / AN/SSQ-53 (DIFAR) QZ002]: The AN/SSQ-53 Directional Frequency Analysis and Recording (DIFAR) is a passive directional sonobuoy which provides acoustic target localization.												
[P5 / AN/SSQ-62 (DICASS) QZ004]: The AN/SSQ-62 Directional Command Active Sonobuoy System (DICASS) is a commandable, active acoustic directional sonobuoy that provides target bearing and range information.												
[P5 / AN/SSQ-101 (Multi-static Coherent Receiver) QZ006]: The AN/SSQ-101 Air Deployable Active Receiver (ADAR) is a commandable passive acoustic sonobuoy with a horizontal planar array. It is part of the family of multi-static active sensor systems.												
[P5 / AN/SSQ-125 (Multi-static Coherent Source) QZ010]: The AN/SSQ-125 Multi-static Active Coherent (MAC) Source is a commandable coherent active search sensor. It is part of the family of multi-static active sensor systems.												
[P5 / SUS MK84 QZ012]: The MK84 Signal Underwater Sound (SUS) device is an expendable, non-explosive, electro-acoustic device which transmits acoustic tones. The MK84 SUS is used for training and exercise signaling to submarines.												

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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 03: Aviation Support Equipment / BSA 1: Sonobuoys						P-1 Line Item Number / Title: 4048 / Sonobuoys - All Types				
ID Code (A=Service Ready, B=Not Service Ready): A			Program Elements for Code B Items: N/A			Other Related Program Elements: N/A				
Line Item MDAP/MAIS Code: N/A										
Exhibits Schedule					Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Exhibit Type	Title*	Subexhibits	ID CD	MDAP/MAIS Code	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)
P-5	1 / Sonobuoys, All Types	P-5a, P-21			- / 1,715.105	- / 173.616	- / 237.347	- / 260.644	- / 2.910	- / 263.554
P-40	Total Gross/Weapon System Cost				- / 1,715.105	- / 173.616	- / 237.347	- / 260.644	- / 2.910	- / 263.554
*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:
 The level of sonobuoy procurement funding enables several facets of the Navy's overall ASW mission readiness. The Air ASW program buys to budget based on actual fleet usage, fleet forecasted usage and best negotiated pricing across all sonobuoy types. This funding profile does not meet minimum inventory requirements for the entire family of air delivered acoustic sensors within the Future Years Defense Program (FYDP). This is the result of an increase in actual expenditures, budget constraints and an increase in the Total Munitions Requirement (TMR). The Air ASW community is migrating from a primarily passive to a more capable Multi-static Active Coherent (MAC) wide area search Concept of Operations (CONOPS). While the transition to MAC requires the procurement of more sophisticated sonobuoys, the resulting wide area search capability is more efficient and effective. The MAC capability provides the foundational Air ASW acoustic search capability for the P-8 Poseidon, and increasing the inventory of MAC sonobuoys is required to support the combatant commander's ASW mission execution requirements. This funding profile allows the Navy to prioritize and meet current operational forward presence requirements while building fleet commander deployment readiness levels in the Anti-Submarine Warfare (ASW) mission area. The unexpected high ASW OPS Tempo in 2017 and 2018 resulted in an unexpected high expenditure rate of all type/model/series. The increase from FY 2019 to FY 2020 improves U.S. Naval Forces Europe-Africa / U.S. 6th Fleet ASW Readiness.

OCO:
 FY 2020 Overseas Contingency Operations (OCO) funding is required for the following Sonobuoys in order to replenish inventory that has been expended in theater: AN/SSQ-36, AN/SSQ-53, AN/SSQ-62, AN/SSQ-101, and AN/SSQ-125. These operations were in support of Operation Freedom's Sentinel (OFS).

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Exhibit P-5, Cost Analysis: PB 2020 Navy													Date: March 2019								
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 03 / 1							P-1 Line Item Number / Title: 4048 / Sonobuoys - All Types						Item Number / Title [DODIC]: 1 / Sonobuoys, All Types								
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>				1,715.105			173.616			237.347			260.644			2.910			263.554		
Less PY Advance Procurement <i>(\$ in Millions)</i>				-			-			-			-			-			-		
Net Procurement (P-1) <i>(\$ in Millions)</i>				1,715.105			173.616			237.347			260.644			2.910			263.554		
Plus CY Advance Procurement <i>(\$ in Millions)</i>				-			-			-			-			-			-		
Total Obligation Authority <i>(\$ in Millions)</i>				1,715.105			173.616			237.347			260.644			2.910			263.554		
(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 - Sonobuoys (Common) Cost																					
Recurring Cost																					
1.1.1) AN/SSQ-36 (BT) QZ001 ^(†)		617.53	24,368	15.048	711.41	2,062	1.467	723.20	2,940	2.126	702.56	3,998	2.809	702.56	41	0.029	702.56	4,039	2.838		
1.1.2) AN/SSQ-53 (DIFAR) QZ002 ^(†)		758.44	595,827	451.899	779.05	78,411	61.086	790.38	92,540	73.142	777.45	115,000	89.407	777.45	1,294	1.006	777.45	116,294	90.413		
1.1.3) AN/SSQ-62 (DICASS) QZ004 ^(†)		1,670.59	66,330	110.810	1,807.48	12,198	22.048	1,838.42	20,612	37.894	1,796.45	16,001	28.745	1,796.45	82	0.147	1,796.45	16,083	28.892		
Subtotal: Recurring Cost		-	-	577.757	-	-	84.601	-	-	113.162	-	-	120.961	-	-	1.182	-	-	122.143		
Subtotal: Hardware - Sonobuoys (Common) Cost		-	-	577.757	-	-	84.601	-	-	113.162	-	-	120.961	-	-	1.182	-	-	122.143		
Hardware - Sonobuoys (Multistatic) Cost																					
Recurring Cost																					
2.1.1) AN/SSQ-101 (Multi-static Coherent Receiver) QZ006 ^(†)		3,768.47	41,127	154.986	3,638.67	10,000	36.387	3,704.10	12,095	44.801	3,544.15	15,000	53.162	3,544.15	185	0.656	3,544.15	15,185	53.818		
2.1.2) AN/SSQ-125 (Multi-static Coherent Source) QZ010 ^(†) (1)		4,588.61	45,550	209.011	4,935.77	8,459	41.752	7,380.22	9,534	70.363	6,784.17	11,480	77.882	6,784.17	139	0.943	6,784.17	11,619	78.825		
Subtotal: Recurring Cost		-	-	363.997	-	-	78.139	-	-	115.164	-	-	131.044	-	-	1.599	-	-	132.643		
Subtotal: Hardware - Sonobuoys (Multistatic) Cost		-	-	363.997	-	-	78.139	-	-	115.164	-	-	131.044	-	-	1.599	-	-	132.643		
Hardware - Sonobuoys (Other) Cost																					
Recurring Cost																					

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Exhibit P-5, Cost Analysis: PB 2020 Navy													Date: March 2019					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 03 / 1						P-1 Line Item Number / Title: 4048 / Sonobuoys - All Types						Item Number / Title [DODIC]: 1 / Sonobuoys, All Types						
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)
3.1.1) SUS MK84 QZ012 ^(†)	378.33	10,150	3.840	392.10	5,152	2.020	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: Recurring Cost	-	-	3.840	-	-	2.020	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: Hardware - Sonobuoys (Other) Cost	-	-	3.840	-	-	2.020	-	-	-	-	-	-	-	-	-	-	-	-
Hardware - Acceptance Testing Cost																		
Recurring Cost																		
4.1.1) Common QZ860	-	-	20.382	-	-	2.483	-	-	2.496	-	-	2.248	-	-	0.028	-	-	2.276
4.1.2) Multi-static QZ860	-	-	11.441	-	-	2.293	-	-	2.430	-	-	2.401	-	-	0.038	-	-	2.439
4.1.3) Other QZ860	-	-	0.093	-	-	0.059	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: Recurring Cost	-	-	31.916	-	-	4.835	-	-	4.926	-	-	4.649	-	-	0.066	-	-	4.715
Subtotal: Hardware - Acceptance Testing Cost	-	-	31.916	-	-	4.835	-	-	4.926	-	-	4.649	-	-	0.066	-	-	4.715
Hardware - Prior Years Cost																		
Non Recurring Cost																		
5.1.1) Prior Years	-	-	708.043	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: Non Recurring Cost	-	-	708.043	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: Hardware - Prior Years Cost	-	-	708.043	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Support - Production Engineering Cost																		
6.1) Common QZ830	-	-	19.384	-	-	2.065	-	-	2.025	-	-	1.950	-	-	0.026	-	-	1.976
6.2) Multi-static QZ830	-	-	10.089	-	-	1.907	-	-	2.070	-	-	2.040	-	-	0.037	-	-	2.077
6.3) Other QZ830	-	-	0.079	-	-	0.049	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: Support - Production Engineering Cost	-	-	29.552	-	-	4.021	-	-	4.095	-	-	3.990	-	-	0.063	-	-	4.053
Gross/Weapon System Cost	-	-	1,715.105	-	-	173.616	-	-	237.347	-	-	260.644	-	-	2.910	-	-	263.554
Remarks:																		
[Hardware] Actual quantities between the various sonobuoy types may adjust for Fleet requirements. Hardware funds may be realigned to support necessary Engineering Investigations and production Engineering Change Proposals. Any year over year increase to sonobuoy unit costs is a result of either economies of scale or sonobuoy capability enhancements.																		
[Hardware] Sonobuoys under prior subheads are not included in Prior Years amount.																		
(†) indicates the presence of a P-5a																		

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Exhibit P-5, Cost Analysis: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 03 / 1	P-1 Line Item Number / Title: 4048 / Sonobuoys - All Types	Item Number / Title [DODIC]: 1 / Sonobuoys, All Types
ID Code (A=Service Ready, B=Not Service Ready) :		MDAP/MAIS Code:
Footnotes: ⁽¹⁾ Cost Element 2.1.2 AN/SSQ-125 unit cost increases from FY 2018 to FY 2019 due to the incorporation of increased capabilities into the Multi-static Active Coherent (MAC) source sonobuoy (AN/SSQ-125 to AN/SSQ-125A).		

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Exhibit P-5a, Procurement History and Planning: PB 2020 Navy								Date: March 2019				
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 03 / 1				P-1 Line Item Number / Title: 4048 / Sonobuoys - All Types				Item Number / Title [DODIC]: 1 / Sonobuoys, All Types				
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) AN/SSQ-36 (BT) QZ001		2017	ERAPSCO / Columbia City IN	C / FFP	NAVAIR	Nov 2016	Nov 2017	4,944	623.84	Y		Apr 2013
1.1.1) AN/SSQ-36 (BT) QZ001		2018	ERAPSCO / Columbia City IN	C / FFP	NAVAIR	Oct 2017	Oct 2018	2,062	711.41	Y		Apr 2013
1.1.1) AN/SSQ-36 (BT) QZ001		2019	ERAPSCO / Columbia City IN	TBD	NAVAIR	Mar 2019	Mar 2020	2,446	723.20	Y		Aug 2017
1.1.1) AN/SSQ-36 (BT) QZ001	✓	2019	ERAPSCO / Columbia City IN	TBD	NAVAIR	Mar 2019	Mar 2020	494	723.20	Y		Aug 2017
1.1.1) AN/SSQ-36 (BT) QZ001		2020	ERAPSCO / Columbia City IN	TBD	NAVAIR	Dec 2019	Dec 2020	3,998	702.56	Y		Aug 2017
1.1.1) AN/SSQ-36 (BT) QZ001	✓	2020	ERAPSCO / Columbia City IN	TBD	NAVAIR	Dec 2019	Dec 2020	41	702.56	Y		Aug 2017
1.1.2) AN/SSQ-53 (DIFAR) QZ002 ^(†)		2017	ERAPSCO / Columbia City IN	C / FFP	NAVAIR	Apr 2017	Apr 2018	88,365	750.34	Y		Apr 2013
1.1.2) AN/SSQ-53 (DIFAR) QZ002 ^(†)		2018	ERAPSCO / Columbia City IN	C / FFP	NAVAIR	Apr 2018	Apr 2019	78,411	779.05	Y		Apr 2013
1.1.2) AN/SSQ-53 (DIFAR) QZ002 ^(†)		2019	ERAPSCO / Columbia City IN	TBD	NAVAIR	Mar 2019	Mar 2020	73,335	790.38	Y		Aug 2017
1.1.2) AN/SSQ-53 (DIFAR) QZ002 ^(†)	✓	2019	ERAPSCO / Columbia City IN	TBD	NAVAIR	Mar 2019	Mar 2020	19,205	790.38	Y		Aug 2017
1.1.2) AN/SSQ-53 (DIFAR) QZ002 ^(†)		2020	ERAPSCO / Columbia City IN	TBD	NAVAIR	Dec 2019	Dec 2020	115,000	777.45	Y		Aug 2017
1.1.2) AN/SSQ-53 (DIFAR) QZ002 ^(†)	✓	2020	ERAPSCO / Columbia City IN	TBD	NAVAIR	Dec 2019	Dec 2020	1,294	777.45	Y		Aug 2017
1.1.3) AN/SSQ-62 (DICASS) QZ004 ^(†)		2017	ERAPSCO / Columbia City IN	C / FFP	NAVAIR	Nov 2016	Nov 2017	13,514	1,739.86	Y		Apr 2013
1.1.3) AN/SSQ-62 (DICASS) QZ004 ^(†)		2018	ERAPSCO / Columbia City IN	C / FFP	NAVAIR	Dec 2017	Dec 2018	12,198	1,807.48	Y		Apr 2013
1.1.3) AN/SSQ-62 (DICASS) QZ004 ^(†)		2019	ERAPSCO / Columbia City IN	TBD	NAVAIR	Mar 2019	Mar 2020	19,347	1,838.42	Y		Aug 2017
1.1.3) AN/SSQ-62 (DICASS) QZ004 ^(†)	✓	2019	ERAPSCO / Columbia City IN	TBD	NAVAIR	Mar 2019	Mar 2020	1,265	1,838.42	Y		Aug 2017
1.1.3) AN/SSQ-62 (DICASS) QZ004 ^(†)		2020	ERAPSCO / Columbia City IN	TBD	NAVAIR	Dec 2019	Dec 2020	16,001	1,796.45	Y		Aug 2017
1.1.3) AN/SSQ-62 (DICASS) QZ004 ^(†)	✓	2020	ERAPSCO / Columbia City IN	TBD	NAVAIR	Dec 2019	Dec 2020	82	1,796.45	Y		Aug 2017
2.1.1) AN/SSQ-101 (Multi-static Coherent Receiver) QZ006 ^(†)		2017	ERAPSCO / Columbia City IN	C / FFP	NAVAIR	Jan 2017	Jan 2018	8,662	3,576.56	Y		Apr 2013
2.1.1) AN/SSQ-101 (Multi-static Coherent Receiver) QZ006 ^(†)		2018	ERAPSCO / Columbia City IN	C / FFP	NAVAIR	Mar 2018	Mar 2019	10,000	3,638.67	Y		Apr 2013

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Exhibit P-5a, Procurement History and Planning: PB 2020 Navy									Date: March 2019			
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 03 / 1			P-1 Line Item Number / Title: 4048 / Sonobuoys - All Types						Item Number / Title [DODIC]: 1 / Sonobuoys, All Types			
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) AN/SSQ-101 (Multi-static Coherent Receiver) QZ006 ^(†)		2019	ERAPSCO / Columbia City IN	TBD	NAVAIR	Mar 2019	Mar 2020	12,032	3,704.10	Y		Aug 2017
2.1.1) AN/SSQ-101 (Multi-static Coherent Receiver) QZ006 ^(†)	✓	2019	ERAPSCO / Columbia City IN	TBD	NAVAIR	Mar 2019	Mar 2020	63	3,704.10	Y		Aug 2017
2.1.1) AN/SSQ-101 (Multi-static Coherent Receiver) QZ006 ^(†)		2020	ERAPSCO / Columbia City IN	TBD	NAVAIR	Dec 2019	Dec 2020	15,000	3,544.15	Y		Aug 2017
2.1.1) AN/SSQ-101 (Multi-static Coherent Receiver) QZ006 ^(†)	✓	2020	ERAPSCO / Columbia City IN	TBD	NAVAIR	Dec 2019	Dec 2020	185	3,544.15	Y		Aug 2017
2.1.2) AN/SSQ-125 (Multi-static Coherent Source) QZ010 ^(†)		2016	ERAPSCO / Columbia City IN	C / FFP	NAVAIR	Sep 2018	Sep 2019	4,087	4,936.00	Y		Apr 2013
2.1.2) AN/SSQ-125 (Multi-static Coherent Source) QZ010 ^(†)		2017	ERAPSCO / Columbia City IN	C / FFP	NAVAIR	Jan 2017	Jan 2018	5,150	5,044.20	Y		Apr 2013
2.1.2) AN/SSQ-125 (Multi-static Coherent Source) QZ010 ^(†)		2018	ERAPSCO / Columbia City IN	C / FFP	NAVAIR	Mar 2018	Mar 2019	8,459	4,935.77	Y		Apr 2013
2.1.2) AN/SSQ-125 (Multi-static Coherent Source) QZ010 ^(†)		2019	VARIOUS ⁽²⁾ / Various	C / FFP	NAVAIR	Dec 2018	Dec 2019	9,479	7,380.22	Y		Aug 2017
2.1.2) AN/SSQ-125 (Multi-static Coherent Source) QZ010 ^(†)	✓	2019	VARIOUS ⁽²⁾ / Various	C / FFP	NAVAIR	Dec 2018	Dec 2019	55	7,380.22	Y		Aug 2017
2.1.2) AN/SSQ-125 (Multi-static Coherent Source) QZ010 ^(†)		2020	VARIOUS ⁽²⁾ / Various	C / FFP	NAVAIR	Dec 2019	Dec 2020	11,480	6,784.17	Y		Aug 2017
2.1.2) AN/SSQ-125 (Multi-static Coherent Source) QZ010 ^(†)	✓	2020	VARIOUS ⁽²⁾ / Various	C / FFP	NAVAIR	Dec 2019	Dec 2020	139	6,784.17	Y		Aug 2017
3.1.1) SUS MK84 QZ012		2018	ERAPSCO / Columbia City IN	C / FFP	NAVAIR	Oct 2017	Oct 2018	5,152	392.10	Y		Apr 2013

^(†) indicates the presence of a P-21

Footnotes:

⁽²⁾ ERAPSCO, Columbia City IN and Lockheed Martin, Manassas VA

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Exhibit P-21, Production Schedule: PB 2020 Navy																				Date: March 2019																
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 03 / 1										P-1 Line Item Number / Title: 4048 / Sonobuoys - All Types										Item Number / Title [DODIC]: 1 / Sonobuoys, All Types																
Cost Elements <i>(Units in Thousands)</i>							Fiscal Year 2017										Fiscal Year 2018													B A L A N C E						
O C C #	M F R #	FY	SERVICE	PROC QTY	ACCEP T P R I O R T O 1 O C T 2 0 1 6	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					
1.1.2) AN/SSQ-53 (DIFAR) QZ002																																				
Prior Years Deliveries: 507462																																				
	1	2017	NAVY	88.365	.000	88.365	A -						-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	9.000	9.500	10.000	10.500	10.500	10.500	28.365		
	1	2018	NAVY	78.411	.000	78.411														A -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	78.411
	1	2019	NAVY	73.335	.000	73.335																						73.335								
✓	1	2019	NAVY	19.205	.000	19.205																						19.205								
	1	2020	NAVY	115.000	.000	115.000																						115.000								
✓	1	2020	NAVY	1.294	.000	1.294																						1.294								
1.1.3) AN/SSQ-62 (DICASS) QZ004																																				
Prior Years Deliveries: 52816																																				
	2	2017	NAVY	13.514	.000	13.514		A -	-	-	-	-	-	-	-	-	-	-	-	1.400	1.500	1.500	1.600	1.600	1.600	1.500	1.500	1.314			.000					
	2	2018	NAVY	12.198	.000	12.198															A -	-	-	-	-	-	-	-	-	-	-	-	-	-	12.198	
	2	2019	NAVY	19.347	.000	19.347																						19.347								
✓	2	2019	NAVY	1.265	.000	1.265																						1.265								
	2	2020	NAVY	16.001	.000	16.001																						16.001								
✓	2	2020	NAVY	.082	.000	.082																						.082								
2.1.1) AN/SSQ-101 (Multi-static Coherent Receiver) QZ006																																				
Prior Years Deliveries: 32465																																				
	3	2017	NAVY	8.662	.000	8.662		A -	-	-	-	-	-	-	-	-	-	-	-	-	.900	.950	1.000	1.000	1.000	1.000	1.000	.950	.862	.000						
	3	2018	NAVY	10.000	.000	10.000															A -	-	-	-	-	-	-	-	-	-	-	-	-	10.000		
	3	2019	NAVY	12.032	.000	12.032																						12.032								
✓	3	2019	NAVY	.063	.000	.063																						.063								
	3	2020	NAVY	15.000	.000	15.000																						15.000								
✓	3	2020	NAVY	.185	.000	.185																						.185								
2.1.2) AN/SSQ-125 (Multi-static Coherent Source) QZ010 ⁽¹⁾																																				
Prior Years Deliveries: 36313																																				
	4	2016	NAVY	4.087	.000	4.087																				A -	4.087									
	4	2017	NAVY	5.150	.000	5.150		A -	-	-	-	-	-	-	-	-	-	-	-	.500	.500	.500	.700	.725	.725	.500	.500	.500	.000							
	4	2018	NAVY	8.459	.000	8.459															A -	-	-	-	-	-	-	-	-	-	-	-	8.459			
	5	2019	NAVY	9.479	.000	9.479																						9.479								
✓	5	2019	NAVY	.055	.000	.055																						.055								
	5	2020	NAVY	11.480	.000	11.480																						11.480								
✓	5	2020	NAVY	.139	.000	.139																						.139								
							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 / 03 / 1										P-1 Line Item Number / Title: 4048 / Sonobuoys - All Types										Item Number / Title [DODIC]: 1 / Sonobuoys, All Types																		
Cost Elements <i>(Units in Thousands)</i>							Fiscal Year 2019										Fiscal Year 2020													B A L A N C E								
O C C #	M F R #	FY	SERVICE	PROC QTY	ACCEP T P R I O R T O 1 O C T 2 0 1 8	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							
1.1.2) AN/SSQ-53 (DIFAR) QZ002																																						
Prior Years Deliveries: 507462																																						
	1	2017	NAVY	88.365	60.000	28.365	10.000	9.365	9.000																							.000						
	1	2018	NAVY	78.411	.000	78.411	-	-	-	-	-	-	8.600	8.600	8.800	8.800	8.800	8.800	8.800	8.600	8.611											.000						
	1	2019	NAVY	73.335	.000	73.335						A -	-	-	-	-	-	-	-	-	-	-	-	-	7.000	8.000	8.300	8.900	9.000	8.900	8.300	14.935						
✓	1	2019	NAVY	19.205	.000	19.205						A -	-	-	-	-	-	-	-	-	-	-	-	-	1.000	1.500	2.250	3.250	3.250	3.250	2.000	2.705						
	1	2020	NAVY	115.000	.000	115.000																A -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	115.000	
✓	1	2020	NAVY	1.294	.000	1.294																A -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.294
1.1.3) AN/SSQ-62 (DICASS) QZ004																																						
Prior Years Deliveries: 52816																																						
	2	2017	NAVY	13.514	13.514	.000																									.000							
	2	2018	NAVY	12.198	.000	12.198	-	-	1.050	1.400	1.400	1.500	1.500	1.500	1.400	1.400	1.048															.000						
	2	2019	NAVY	19.347	.000	19.347						A -	-	-	-	-	-	-	-	-	-	-	-	-	1.500	2.000	2.500	2.500	2.500	2.500	2.500	3.347						
✓	2	2019	NAVY	1.265	.000	1.265						A -	-	-	-	-	-	-	-	-	-	-	-	.100	.100	.150	.200	.200	.200	.150	.165							
	2	2020	NAVY	16.001	.000	16.001																A -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	16.001	
✓	2	2020	NAVY	.082	.000	.082																A -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	.082
2.1.1) AN/SSQ-101 (Multi-static Coherent Receiver) QZ006																																						
Prior Years Deliveries: 32465																																						
	3	2017	NAVY	8.662	8.662	.000																									.000							
	3	2018	NAVY	10.000	.000	10.000	-	-	-	-	-	1.000	1.100	1.100	1.200	1.200	1.200	1.100	1.100	1.000												.000						
	3	2019	NAVY	12.032	.000	12.032						A -	-	-	-	-	-	-	-	-	-	-	-	1.000	1.000	1.015	2.000	2.000	2.000	1.015	2.002							
✓	3	2019	NAVY	.063	.000	.063						A -	-	-	-	-	-	-	-	-	-	-	-	.006	.007	.007	.007	.008	.008	.007	.013							
	3	2020	NAVY	15.000	.000	15.000																A -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	15.000	
✓	3	2020	NAVY	.185	.000	.185																A -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	.185
2.1.2) AN/SSQ-125 (Multi-static Coherent Source) QZ010 ⁽¹⁾																																						
Prior Years Deliveries: 36313																																						
	4	2016	NAVY	4.087	.000	4.087	-	-	-	-	-	-	-	-	-	-	-	.400	.400	.450	.500	.500	.500	.450	.450	.437						.000						
	4	2017	NAVY	5.150	5.150	.000																									.000							
	4	2018	NAVY	8.459	.000	8.459	-	-	-	-	-	.800	.900	1.000	1.000	1.000	1.000	1.000	.900	.859											.000							
	5	2019	NAVY	9.479	.000	9.479			A -	-	-	-	-	-	-	-	-	-	-	-	.600	.875	1.000	1.500	1.500	1.500	1.000	.875	.629			.000						
✓	5	2019	NAVY	.055	.000	.055			A -	-	-	-	-	-	-	-	-	-	-	-	.005	.006	.006	.007	.007	.007	.006	.006	.005			.000						
	5	2020	NAVY	11.480	.000	11.480																A -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	11.480	
✓	5	2020	NAVY	.139	.000	.139																A -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	.139
							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 / 03 / 1										P-1 Line Item Number / Title: 4048 / Sonobuoys - All Types											Item Number / Title [DODIC]: 1 / Sonobuoys, All Types											
Cost Elements <i>(Units in Thousands)</i>							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	
1.1.2) AN/SSQ-53 (DIFAR) QZ002																																
Prior Years Deliveries: 507462																																
	1	2017	NAVY	88.365	88.365	.000																				.000						
	1	2018	NAVY	78.411	78.411	.000																				.000						
	1	2019	NAVY	73.335	58.400	14.935	8.000	6.935														.000										
✓	1	2019	NAVY	19.205	16.500	2.705	1.500	1.205														.000										
	1	2020	NAVY	115.000	.000	115.000	-	-	11.000	12.000	13.500	14.000	14.000	14.000	13.500	12.000	11.000						.000									
✓	1	2020	NAVY	1.294	.000	1.294	-	-	.100	.100	.150	.200	.200	.200	.150	.100	.094						.000									
1.1.3) AN/SSQ-62 (DICASS) QZ004																																
Prior Years Deliveries: 52816																																
	2	2017	NAVY	13.514	13.514	.000																				.000						
	2	2018	NAVY	12.198	12.198	.000																				.000						
	2	2019	NAVY	19.347	16.000	3.347	2.000	1.347														.000										
✓	2	2019	NAVY	1.265	1.100	.165	.100	.065														.000										
	2	2020	NAVY	16.001	.000	16.001	-	-	1.500	1.700	1.800	2.000	2.000	2.000	1.800	1.700	1.501						.000									
✓	2	2020	NAVY	.082	.000	.082	-	-	.009	.009	.009	.009	.010	.009	.009	.009	.009						.000									
2.1.1) AN/SSQ-101 (Multi-static Coherent Receiver) QZ006																																
Prior Years Deliveries: 32465																																
	3	2017	NAVY	8.662	8.662	.000																				.000						
	3	2018	NAVY	10.000	10.000	.000																				.000						
	3	2019	NAVY	12.032	10.030	2.002	1.000	1.002														.000										
✓	3	2019	NAVY	.063	.050	.013	.007	.006														.000										
	3	2020	NAVY	15.000	.000	15.000	-	-	1.000	1.500	2.000	2.000	2.000	2.000	2.000	1.500	1.000						.000									
✓	3	2020	NAVY	.185	.000	.185	-	-	.020	.020	.020	.022	.022	.021	.020	.020	.020						.000									
2.1.2) AN/SSQ-125 (Multi-static Coherent Source) QZ010 ⁽¹⁾																																
Prior Years Deliveries: 36313																																
	4	2016	NAVY	4.087	4.087	.000																				.000						
	4	2017	NAVY	5.150	5.150	.000																				.000						
	4	2018	NAVY	8.459	8.459	.000																				.000						
	5	2019	NAVY	9.479	9.479	.000																				.000						
✓	5	2019	NAVY	.055	.055	.000																				.000						
	5	2020	NAVY	11.480	.000	11.480	-	-	1.000	1.200	1.300	1.500	1.500	1.500	1.300	1.200	.980						.000									
✓	5	2020	NAVY	.139	.000	.139	-	-	.010	.010	.015	.020	.020	.020	.020	.014	.010	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 / 03 / 1				P-1 Line Item Number / Title: 4048 / Sonobuoys - All Types				Item Number / Title [DODIC]: 1 / Sonobuoys, All Types			

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	ERAPSCO - Columbia City IN	45,000	62,000	135,000	24	3	12	15	0	0	0	0
2	ERAPSCO - Columbia City IN	7,000	26,000	67,000	24	1	12	13	0	0	0	0
3	ERAPSCO - Columbia City IN	2,000	8,000	16,000	24	5	12	17	0	0	0	0
4	ERAPSCO - Columbia City IN	2,000	7,000	19,500	24	2	12	14	0	0	0	0
5	VARIOUS ⁽²⁾ - Various	1,048	8,400	18,000	24	2	12	14	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).

Footnotes:

⁽²⁾ ERAPSCO, Columbia City IN and Lockheed Martin, Manassas VA

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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 03: Aviation Support Equipment / BSA 3: Aircraft Support Equipment	P-1 Line Item Number / Title: 3640 / Minotaur
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ID Code (A=Service Ready, B=Not Service Ready): A	Program Elements for Code B Items: 0305241N	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	5.000	0.000	5.000	5.100	5.200	5.300	5.400	-	26.000
Less PY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (<i>\$ in Millions</i>)	0.000	0.000	0.000	5.000	0.000	5.000	5.100	5.200	5.300	5.400	-	26.000
Plus CY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority (<i>\$ in Millions</i>)	0.000	0.000	0.000	5.000	0.000	5.000	5.100	5.200	5.300	5.400	-	26.000
<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:

(U//FOUO): This is a new program starting in FY 2020.

(U//FOUO): Minotaur OPN provides Non-recurring Engineering (NRE), integration, test, procurement, production and delivery of Minotaur Family of Services (FOS) Special Mission Equipment (SME/systems, installed on ship and shore-based server infrastructure, and production software releases and obsolescence upgrades to pace the threat. Minotaur FOS provides interoperable systems including: 1) Mission Management System (MMS) (sensor calibration/control), 2) Grid (networking services), 3) Reach (access to classified national databases), and 4) Web (cloud computing services) to ensure correlation and fusion of tactical mission data products are provided to Combatant Commanders (COCOMs), Fleet Commanders, and Tactical Commanders. Minotaur FOS enhances Intelligence, Surveillance, Reconnaissance and Targeting (ISR&T) for all warfare pillars. Minotaur FOS provides basis for Battlespace Awareness (BA) tactical decision aids, intelligence data distribution, and battle-management coordination with improved decisional agility. Funding provides Technical Data Packages supporting ISR&T capabilities and Tasking, Collection, Processing, Exploitation, and Dissemination (TCPED) aboard U.S. Navy Ships, submarines, and surface systems servers to include both Ground Support Stations and Command and Control (C2) Nodes (afloat and ashore). Funding provides common ISR&T/TCEPD USN systems that delivers increased capability, reduced operator workload, and deployment of a common system infrastructure across the Fleet as directed by the Chief of Naval Operations. The effort includes delivery of ship-based Maven Appliance in Sea-based Targeting (MAST) servers, which integrates Minotaur FOS with existing Carrier Battle Group Distributed Common Ground System-Navy, (DCGS-N), allowing Fleet Commanders access to Full Motion Video for enhanced BA.

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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 03: Aviation Support Equipment / BSA 3: Aircraft Support Equipment					P-1 Line Item Number / Title: 3640 / Minotaur					
ID Code (A=Service Ready, B=Not Service Ready): A			Program Elements for Code B Items: 0305241N			Other Related Program Elements: N/A				
Line Item MDAP/MAIS Code: N/A										
Exhibits Schedule					Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Exhibit Type	Title*	Subexhibits	ID CD	MDAP/MAIS Code	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)
P-5	1 / Minotaur				- / 0.000	- / 0.000	- / 0.000	- / 5.000	- / 0.000	- / 5.000
P-40	Total Gross/Weapon System Cost				- / 0.000	- / 0.000	- / 0.000	- / 5.000	- / 0.000	- / 5.000
*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:
(U//FOUO): FY 2020 funding provides support infrastructure and surface/shore unit of fielding Minotaur FOS Appliance in Sea-based and Shore-based for Targeting (MAST) with Minotaur Reach/Web applications supporting server software.

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Exhibit P-5, Cost Analysis: PB 2020 Navy													Date: March 2019					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 03 / 3							P-1 Line Item Number / Title: 3640 / Minotaur						Item Number / Title [DODIC]: 1 / Minotaur					
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		5.000		0.000		5.000				
Less PY Advance Procurement <i>(\$ in Millions)</i>				-		-		-		-		-		-				
Net Procurement (P-1) <i>(\$ in Millions)</i>				0.000		0.000		0.000		5.000		0.000		5.000				
Plus CY Advance Procurement <i>(\$ in Millions)</i>				-		-		-		-		-		-				
Total Obligation Authority <i>(\$ in Millions)</i>				0.000		0.000		0.000		5.000		0.000		5.000				
(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 Cost																		
Recurring Cost																		
1.1.1) Ship-Based	-	-	-	-	-	-	-	-	-	-	-	2.601	-	-	-	-	-	2.601
1.1.2) Shore-Based	-	-	-	-	-	-	-	-	-	-	-	0.867	-	-	-	-	-	0.867
Subtotal: Recurring Cost	-	-	-	-	-	-	-	-	-	-	-	3.468	-	-	-	-	-	3.468
Subtotal: Hardware Cost	-	-	-	-	-	-	-	-	-	-	-	3.468	-	-	-	-	-	3.468
Support Cost																		
2.1) Data	-	-	-	-	-	-	-	-	-	-	-	0.200	-	-	-	-	-	0.200
2.2) Training Equipment	-	-	-	-	-	-	-	-	-	-	-	0.500	-	-	-	-	-	0.500
2.3) Support Equipment	-	-	-	-	-	-	-	-	-	-	-	0.525	-	-	-	-	-	0.525
2.4) ILS	-	-	-	-	-	-	-	-	-	-	-	0.150	-	-	-	-	-	0.150
2.5) Other Support	-	-	-	-	-	-	-	-	-	-	-	0.157	-	-	-	-	-	0.157
Subtotal: Support Cost	-	-	-	-	-	-	-	-	-	-	-	1.532	-	-	-	-	-	1.532
Gross/Weapon System Cost	-	-	0.000	-	-	0.000	-	-	0.000	-	-	5.000	-	-	0.000	-	-	5.000

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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 03: Aviation Support Equipment / BSA 3: Aircraft Support Equipment							P-1 Line Item Number / Title: 4204 / Weapons Range 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>)	643.727	66.941	93.864	101.843	0.000	101.843	84.035	110.979	112.426	115.771	Continuing	Continuing
Less PY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (<i>\$ in Millions</i>)	643.727	66.941	93.864	101.843	0.000	101.843	84.035	110.979	112.426	115.771	Continuing	Continuing
Plus CY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority (<i>\$ in Millions</i>)	643.727	66.941	93.864	101.843	0.000	101.843	84.035	110.979	112.426	115.771	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>)	-	4.729	6.762	3.480	-	3.480	2.825	3.632	4.658	5.752	Continuing	Continuing
Flyaway Unit Cost (<i>\$ in Dollars</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost (<i>\$ in Dollars</i>)	-	-	-	-	-	-	-	-	-	-	-	-

Description:

This budget line item provides the resources to implement the Navy Fleet Training Range (FTR) Instrumentation Program Plan. These FTRs provide the primary means of fleet combat readiness training. The plan addresses the following major procurement areas: Electronic Warfare (EW) simulators, Systems Replacement and Modernization (SRAM), and generic systems such as range computer systems, simulation, surveillance systems, Aerial Targets Range Support equipment includes Moving Land Targets (MLT) and Target Threat Simulation Program (TTSP) equipment; MLT includes vehicles, vehicle components, and Engineering Change Proposals to upgrade hardware; TTSP equipment includes EW & Threat Payload simulations, electronic countermeasures equipment and active emitter augmentation equipment, Tactical Combat Training System (TCTS), Large Area Tracking Range (LATR), Undersea Warfare Training Range/ Pacific Fleet Portable Antisubmarine Warfare (ASW) Range, and range infrastructure necessary to enable Live Virtual Constructive (LVC) training capability. The integral parts of these major range programs include but are not limited to the following: voice communications, weapons scoring systems, display consoles, radars, tracking subsystems, control/ computation subsystems, display/ debriefing subsystems, processors, HF/ VHF/ UHF receivers, transmitters/ transceivers, multiplexers, intercom circuits, encoding devices, frequency interface control systems, peculiar support equipment, and other specialized equipment.

[P5 / SC004 SRAM - Systems Replacement and Modernization]: The SRAM program provides for the procurement of numerous non-recurring range equipment replacement and modernization efforts that are needed at all Navy training ranges. SRAM procurements replace and modernize economically unmaintainable systems and equipment in order to increase range efficiency. Funding for installation of minor equipment is required in all years for all ranges. Sample procurements include antenna replacement, datalink replacement, electrical generators, and range safety lighting equipment.

[P5 / SC012 OS - Ocean Systems]: Funds the procurement and upgrade of fixed underwater training ranges at Pacific Missile Range Facility (PMRF), Barking Sands, HI and Southern California ASW Range (SOAR), CA, as well as portable underwater range systems supporting Forward Deployed Naval Forces (FDNF) in the Pacific. Upgrades include cyber security enhancements, increased range accuracy, and splash detection capabilities. The underwater ranges are used to provide individual and unit level training for basic antisubmarine warfare (ASW) skills. Large exercises such as Composite Training Unit Exercises (COMTUEX), Fleet Exercises (FLEETEX), and Joint Task Force Exercises (JTFX) are conducted in the vicinity of the fixed underwater training ranges. Items procured under this cost element include hydrophones, undersea cable, and shore system electronics. Funded programs include Portable Undersea Training Range (PUTR), Barking Sands Tactical Underwater Range (BARSTUR) refurbishment, and West Coast Undersea Warfare Training Range (WC USWTR).

[P5 / SC161 OS - East Coast USWTR]: The purpose of the East Coast USWTR is to establish a shallow-water training range capability on the East Coast. The primary USWTR mission will be to support Fleet readiness through training and tactical development of submarine, surface ship, and aircraft undersea warfare (USW), surface warfare (SUW), and mine warfare (MIW). Secondary missions will include training in shallow water, regional conflict operations involving the naval special warfare (NSW), electronic warfare (EW), and amphibious warfare (AMW) mission/ operational capability areas. Additionally, joint mission areas that may be supported include joint littoral warfare and joint surveillance and warning. Previously subsumed within Ocean Systems, East Coast USWTR has been broken out separately in accordance

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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 03: Aviation Support Equipment / BSA 3: Aircraft Support Equipment		P-1 Line Item Number / Title: 4204 / Weapons Range 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		
with the FY 2007 Defense Appropriations Act. Items procured under this cost element include hydrophones, undersea cable, and shore system electronics for East Coast USWTR. End result is a single in-water training range.		
[P5 / SC034 LATR Shipboard Rotary Technology Upgrade]: The Large Area Tracking Range (LATR) Shipboard and Rotary Wing Technology Upgrade (LSRTU) will replace obsolete components in the legacy shipboard and rotary wing tracking instrumentation and will deliver enhanced Beyond Line of Sight (BLOS) tracking capability for Large Force Exercise support.		
[P5 / SC132 LATR Navigation Technology Refresh]: Produce and field a Navigation Technology Refresh for Large Area Tracking Range (LATR) Airborne Instrumentation Package-Fixed Wing (AIP-FW) pods to continue training instrumentation support for Large Force Exercises such as COMTUEX and JTFEX. The current AIP-FW pods exhibit tracking anomalies cause by internal navigation system degradation. These pods have been deployed since 1996 and many flight hours have accumulated resulting in stress on the aging internal components. LATR tracks and integrates participating surface and air platforms into an overall training range display for mission feedback. LATR Navigation Technology Refresh will keep LATR operational through the projected sunset date of FY 2030.		
[P5 / SC158 TCTS Ground Subsytem]: The Tactical Combat Training System (TCTS) will procure fixed range instrumentation equipment for both shore-based (aircrew training) and deployable (ship/sub/aircrew training) applications. TCTS instrumentation will transmit exercise scenarios; simulate/stimulate all exercise participants sensors/weapons with the exercise scenario; track all exercise participants and events, e.g., weapons engagements; and provide accurate, realistic, and timely feedback. TCTS is building on technology developed for existing tactical training range systems. TCTS consists of airborne instrumentation called Participant Subsystems and Ground Subsystems. Increment 1 systems have been procured and fielded. Procurements for Increment II systems with encrypted communication capability will begin in FY21.		
[P5 / SC140 TCTS - Remote Range Unit]: The Tactical Combat Training System (TCTS) will procure fixed, transportable, and mobile range instrumentation equipment for both shore-based (aircrew training) and deployable (ship/sub/aircrew training) applications. TCTS instrumentation will transmit exercise scenarios; simulate/stimulate all exercise participants sensors/weapons with the exercise scenario; track all exercise participants and events, e.g., weapons engagements; and provide accurate, realistic, and timely feedback. TCTS is building on technology developed for existing tactical training range systems. TCTS consists of airborne instrumentation called Participant Subsystems and Ground Subsystems. Increment 1 systems have been procured and fielded. Procurements for Increment 2 systems with encrypted communication capability will begin in FY21.		
[P5 / SC105 EW - Threat Presentation]: Threat Presentation includes all the necessary components and elements associated with presenting friendly training event participants with an opposing force (OPFOR) operating environment that replicates the expected enemy order of battle. The capability of a range to recreate any Electronic Combat electronic order of battle requires a range to simulate or emulate basic elements of Electronic Combat such as search, acquisition and tracking radars, anti-aircraft artillery (AAA) systems, surface-to-air missile (SAM) systems, infrared (IR) systems, jammers, coastal threats, airborne simulators, and information warfare/ command and control systems. Individual pieces procured vary from year to year.		
[P5 / SC151 MLT Hardware]: The Moving Land Target (MLT) Program will provide Moving Land Target vehicles to train aircrews in the demands of Close Air Support (CAS), Time Sensitive Targeting (TST), Target Identification, and Forward Air Controller (FAC) procedures within a Network Centric Warfighting force. MLT provides aircrews with threat representative targets that provide infrared reactivity, mobility, and realistic radar cross-section targets to meet their combat training and testing needs. The MLT program procures Moving Land Target vehicles, vehicle components, and Engineering Change Proposals to upgrade hardware.		
[P5 / SC106 TTSP]: The Target Threat Simulation Program (TTSP) replicates various threats dependent upon the objectives of the test and evaluation event(s). TTSP procures the payload equipment required to electronically enhance aerial/surface targets to provide threat representative Radio Frequency signatures, specifically the Electronic Attack and Threat Radar Emissions (Active Emitters). TTSP accomplishes this through a collection of modules which are integrated into the target in various configurations, providing the ability to simulate the RF environment.		
[P5 / SC711 LVC Range Integration]: Funds Range Live Virtual Constructive (LVC) integration allowing real-time telemetry to be received from new aircraft reaching the fleet. Establish persistent integrated training between AEGIS, CVW, Maritime & UAS training assets by enabling LVC capability with live aircraft on Tactical Training Range (TTR) sites. Effort will modify range infrastructure at multiple range sites to provide secure network connectivity to provide robust integrated training capability. Allows range communications, networking, and mission brief, display, and debrief capabilities at multiple levels of security.		

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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 03: Aviation Support Equipment / BSA 3: Aircraft Support Equipment		P-1 Line Item Number / Title: 4204 / Weapons Range 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		
[P5 / SC158 - TCTS Block Upgrade]: The Tactical Combat Training System (TCTS) will procure fixed range instrumentation equipment for both shore-based (aircrew training) and deployable (ship/sub/aircrew training) applications. TCTS instrumentation will transmit exercise scenarios; simulate/stimulate all exercise participants sensors/weapons with the exercise scenario; track all exercise participants and events, e.g., weapons engagements; and provide accurate, realistic, and timely feedback. TCTS is building on technology developed for existing tactical training range systems. TCTS consists of airborne instrumentation called Participant Subsystems and Ground Subsystems. Increment 1 systems have been procured and fielded. Annual block upgrade software packages will be released to fielded Increment 1 systems to correct system deficiencies. These block upgrades were previously budgeted under SC920, TCTS Non-Recurring. Software block upgrades will deliver the capability to integrate and merge F-35 range participant information with TCTS time-space position information (TSPI) at TCTS ground systems for training exercise display and debrief at multiple Tactical Training Range (TTR) sites.		

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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 03: Aviation Support Equipment / BSA 3: Aircraft Support Equipment						P-1 Line Item Number / Title: 4204 / Weapons Range 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-5	1 / Weapons Range Support Equipment				- / 643.727	- / 66.941	- / 93.864	- / 101.843	- / 0.000	- / 101.843
P-40	Total Gross/Weapon System Cost				- / 643.727	- / 66.941	- / 93.864	- / 101.843	- / 0.000	- / 101.843
*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: The increase in Systems Replacement and Modernization (SRAM) in FY 2020 funds fleet priorities for modernization efforts at Navy training ranges in support of fleet training wholeness. The increase in Ocean Systems in FY 2020 funds replacement of the in-water sensor system and shore electronics at the Barking Sands Tactical Underwater Range (BARSTUR) at PMRF, HI under cost code SC012. Existing BARSTUR instrumentation is past its 20 year service life, which has led to multiple cable failures and degraded range tracking and communication capability. BARSTUR effort includes replacement of failed Barking Sands Underwater Range Expansion (BSURE) high frequency projector capability required for BSURE range safety. The increase in SC105 Electronic Warfare (EW) Threat Presentation in FY 2020 funds the update and digitization of Fallon Range Opposing Force (OPFOR) surveillance radars and the modernization of the Integrated Air Defense System (IADS) at Fallon, NV, Yuma, AZ, and Mid-Atlantic Electronic Warfare Range (MAEWR), NC. The increase in SC711 Live-Virtual-Constructive (LVC) Range Integration in FY 2020 funds requirements for NAWDC Integrated Training Facility (ITF) Building P-440 and Air Wing Training Facility (AWTF) Building P-420 at NAWDC, Fallon, NV. FY20 funds Intrusion Detection System (IDS) and Access Control System (ACS) for P-440 ITF, Integrated Performance Assessment System, Distributed Mission Planning - Automated Logistic Information System (ALIS)/Off board Mission Support (OMS) Mission Planning, P-420 Audio-Visual system, Live Virtual Constructive (LVC) adaptations to migrate simulator weapon flyouts to Fallon Range live environment, and development of a common monitor/debrief/assessment toolset. Reduction of TCTS Increment II procurements and associated support cost elements in FY20 to zero reflect transfer of funding to RD TEN 0204571N 3093 to support developmental test requirements in FY20 and program schedule to Milestone C. Procurement of encrypted TCTS ground subsystems will begin in FY21.										

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Exhibit P-5, Cost Analysis: PB 2020 Navy												Date: March 2019						
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 03 / 3						P-1 Line Item Number / Title: 4204 / Weapons Range Support Equipment						Item Number / Title [DODIC]: 1 / Weapons Range Support Equipment						
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>				643.727		66.941		93.864		101.843		0.000		101.843				
Less PY Advance Procurement <i>(\$ in Millions)</i>				-		-		-		-		-		-				
Net Procurement (P-1) <i>(\$ in Millions)</i>				643.727		66.941		93.864		101.843		0.000		101.843				
Plus CY Advance Procurement <i>(\$ in Millions)</i>				-		-		-		-		-		-				
Total Obligation Authority <i>(\$ in Millions)</i>				643.727		66.941		93.864		101.843		0.000		101.843				
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)																		
Initial Spares <i>(\$ in Millions)</i>				-		4.729		6.762		3.480		-		3.480				
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 - Systems Replacement and Modernization Cost																		
Recurring Cost																		
1.1.1) SC004 SRAM - Systems Replacement and Modernization ⁽¹⁾	-	-	169.732	-	-	9.071	-	-	8.866	-	-	9.146	-	-	-	-	-	9.146
Subtotal: Recurring Cost	-	-	169.732	-	-	9.071	-	-	8.866	-	-	9.146	-	-	-	-	-	9.146
Subtotal: Hardware - Systems Replacement and Modernization Cost	-	-	169.732	-	-	9.071	-	-	8.866	-	-	9.146	-	-	-	-	-	9.146
Hardware - Ocean Systems Cost																		
Recurring Cost																		
2.1.1) SC012 OS - Ocean Systems ⁽²⁾	-	-	63.370	-	-	-	-	-	0.537	-	-	11.495	-	-	-	-	-	11.495
2.1.2) SC161 OS - East Coast USWTR ⁽³⁾	-	-	124.072	-	-	18.593	-	-	18.889	-	-	13.369	-	-	-	-	-	13.369
Subtotal: Recurring Cost	-	-	187.442	-	-	18.593	-	-	19.426	-	-	24.864	-	-	-	-	-	24.864
Subtotal: Hardware - Ocean Systems Cost	-	-	187.442	-	-	18.593	-	-	19.426	-	-	24.864	-	-	-	-	-	24.864
Hardware - Large Area Tracking Range Cost																		
Recurring Cost																		
3.1.1) SC034 LATR Shipboard Rotary Technology Upgrade	-	-	3.308	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

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Exhibit P-5, Cost Analysis: PB 2020 Navy													Date: March 2019						
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 03 / 3							P-1 Line Item Number / Title: 4204 / Weapons Range Support Equipment							Item Number / Title [DODIC]: 1 / Weapons Range Support Equipment					
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)	
3.1.2) SC132 LATR Navigation Technology Refresh	-	-	-	-	-	4.846	-	-	-	-	-	-	-	-	-	-	-	-	
Subtotal: Recurring Cost	-	-	3.308	-	-	4.846	-	-	-	-	-	-	-	-	-	-	-	-	
Subtotal: Hardware - Large Area Tracking Range Cost	-	-	3.308	-	-	4.846	-	-	-	-	-	-	-	-	-	-	-	-	
Hardware - Electronic Warfare Training Equipment Cost																			
Recurring Cost																			
5.1.1) SC105 EW - Threat Presentation ⁽⁴⁾	-	-	95.589	-	-	15.507	-	-	36.444	-	-	37.465	-	-	-	-	-	37.465	
Subtotal: Recurring Cost	-	-	95.589	-	-	15.507	-	-	36.444	-	-	37.465	-	-	-	-	-	37.465	
Subtotal: Hardware - Electronic Warfare Training Equipment Cost	-	-	95.589	-	-	15.507	-	-	36.444	-	-	37.465	-	-	-	-	-	37.465	
Hardware - Aerial Targets Range Support Equipment (PMA208) Cost																			
Recurring Cost																			
6.1.1) SC151 MLT Hardware ⁽⁵⁾	-	-	14.116	-	-	1.918	-	-	1.745	-	-	1.817	-	-	-	-	-	1.817	
6.1.2) SC152 MLT Engineering Change Proposals ⁽⁶⁾	-	-	0.725	-	-	0.035	-	-	0.035	-	-	0.035	-	-	-	-	-	0.035	
6.1.3) SC106 TTSP ⁽⁷⁾	-	-	-	-	-	-	-	-	0.104	-	-	0.106	-	-	-	-	-	0.106	
Subtotal: Recurring Cost	-	-	14.841	-	-	1.953	-	-	1.884	-	-	1.958	-	-	-	-	-	1.958	
Subtotal: Hardware - Aerial Targets Range Support Equipment (PMA208) Cost	-	-	14.841	-	-	1.953	-	-	1.884	-	-	1.958	-	-	-	-	-	1.958	
Hardware - Live-Virtual-Constructive Cost																			
Recurring Cost																			
7.1.1) SC711 LVC Range Integration ⁽⁸⁾	-	-	2.098	-	-	-	-	-	6.657	-	-	12.914	-	-	-	-	-	12.914	
Subtotal: Recurring Cost	-	-	2.098	-	-	-	-	-	6.657	-	-	12.914	-	-	-	-	-	12.914	
Subtotal: Hardware - Live-Virtual-Constructive Cost	-	-	2.098	-	-	-	-	-	6.657	-	-	12.914	-	-	-	-	-	12.914	
Software - SC158 TCTS Block Upgrade Cost																			
Recurring Cost																			
8.1.1) SC158 - TCTS Block Upgrade	-	-	4.664	-	-	2.467	-	-	1.327	-	-	-	-	-	-	-	-	-	
Subtotal: Recurring Cost	-	-	4.664	-	-	2.467	-	-	1.327	-	-	-	-	-	-	-	-	-	

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Exhibit P-5, Cost Analysis: PB 2020 Navy												Date: March 2019						
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 03 / 3						P-1 Line Item Number / Title: 4204 / Weapons Range Support Equipment						Item Number / Title [DODIC]: 1 / Weapons Range Support Equipment						
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: Software - SC158 TCTS Block Upgrade Cost	-	-	4.664	-	-	2.467	-	-	1.327	-	-	-	-	-	-	-	-	-
Support - Integrated Logistics Cost																		
9.1) SC800 SRAM	-	-	2.177	-	-	0.320	-	-	0.350	-	-	0.320	-	-	-	-	-	0.320
9.2) SC800 Ocean Systems ⁽⁹⁾	-	-	2.707	-	-	0.336	-	-	0.431	-	-	0.520	-	-	-	-	-	0.520
9.3) SC800 LATR	-	-	0.050	-	-	0.329	-	-	-	-	-	-	-	-	-	-	-	-
9.4) SC800 TCTS	-	-	1.868	-	-	0.149	-	-	0.150	-	-	-	-	-	-	-	-	-
9.5) SC800 EW	-	-	2.232	-	-	0.290	-	-	0.420	-	-	0.210	-	-	-	-	-	0.210
9.6) SC800 LVC Range Integration ⁽¹⁰⁾	-	-	-	-	-	-	-	-	-	-	-	0.160	-	-	-	-	-	0.160
9.7) SC800 Prior Years	-	-	9.317	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: Support - Integrated Logistics Cost	-	-	18.351	-	-	1.424	-	-	1.351	-	-	1.210	-	-	-	-	-	1.210
Support - Production Support Cost																		
10.1) SC820 Ocean Systems	-	-	6.725	-	-	0.920	-	-	2.544	-	-	2.496	-	-	-	-	-	2.496
10.2) SC820 LATR	-	-	-	-	-	0.539	-	-	-	-	-	-	-	-	-	-	-	-
10.3) SC820 TCTS	-	-	0.997	-	-	0.110	-	-	0.297	-	-	-	-	-	-	-	-	-
10.4) SC820 EW	-	-	1.386	-	-	0.148	-	-	1.992	-	-	1.971	-	-	-	-	-	1.971
10.5) SC820 LVC Range Integration	-	-	0.100	-	-	-	-	-	0.147	-	-	-	-	-	-	-	-	-
Subtotal: Support - Production Support Cost	-	-	9.208	-	-	1.717	-	-	4.980	-	-	4.467	-	-	-	-	-	4.467
Support - Production Engineering Cost																		
11.1) SC831 SRAM	-	-	7.995	-	-	1.942	-	-	2.000	-	-	1.240	-	-	-	-	-	1.240
11.2) SC831 Ocean Systems	-	-	25.383	-	-	3.839	-	-	5.319	-	-	4.682	-	-	-	-	-	4.682
11.3) SC831 LATR	-	-	0.351	-	-	0.351	-	-	-	-	-	-	-	-	-	-	-	-
11.4) SC831 TCTS	-	-	18.127	-	-	1.120	-	-	1.931	-	-	-	-	-	-	-	-	-
11.5) SC831 EW	-	-	19.216	-	-	3.008	-	-	1.741	-	-	1.776	-	-	-	-	-	1.776
11.6) SC832 MLT	-	-	1.450	-	-	0.422	-	-	0.428	-	-	0.437	-	-	-	-	-	0.437
11.7) SC831 LVC Range Integration ⁽¹¹⁾	-	-	-	-	-	-	-	-	0.136	-	-	0.398	-	-	-	-	-	0.398
11.8) SC831 Prior Years	-	-	58.652	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: Support - Production Engineering Cost	-	-	131.174	-	-	10.682	-	-	11.555	-	-	8.533	-	-	-	-	-	8.533

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Exhibit P-5, Cost Analysis: PB 2020 Navy													Date: March 2019					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 03 / 3						P-1 Line Item Number / Title: 4204 / Weapons Range Support Equipment							Item Number / Title [DODIC]: 1 / Weapons Range Support Equipment					
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)
Support - Acceptance Testing Cost																		
12.1) SC860 SRAM	-	-	1.641	-	-	0.265	-	-	0.326	-	-	0.250	-	-	-	-	-	0.250
12.2) SC860 Ocean Systems ⁽¹²⁾	-	-	1.875	-	-	0.219	-	-	0.217	-	-	0.301	-	-	-	-	-	0.301
12.3) SC860 LATR	-	-	-	-	-	0.025	-	-	-	-	-	-	-	-	-	-	-	-
12.4) SC860 TCTS	-	-	0.061	-	-	0.172	-	-	0.110	-	-	-	-	-	-	-	-	-
12.5) SC860 EW	-	-	0.200	-	-	-	-	-	0.721	-	-	0.735	-	-	-	-	-	0.735
12.7) SC860 Prior Years	-	-	3.543	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: Support - Acceptance Testing Cost	-	-	7.320	-	-	0.681	-	-	1.374	-	-	1.286	-	-	-	-	-	1.286
Gross/Weapon System Cost	-	-	643.727	-	-	66.941	-	-	93.864	-	-	101.843	-	-	0.000	-	-	101.843

Footnotes:

(1) SC004 SRAM: Systems Replacement and Modernization: The increase in SRAM funding from FY 2019 to FY 2020 funds fleet priorities for modernization efforts at Navy training ranges in support of fleet training wholeness.

(2) SC012 Ocean Systems: Funds various fixed and portable anti-submarine warfare (ASW) training ranges in California and Hawaii. The funding change from PB 2019 to PB 2020 in FY 2019 reflects Fleet priorities to accelerate the East Coast Undersea Warfare Training Range (USWTR) program and the Portable Undersea Training Range (PUTR) procurement was realigned to FY 2020. The funding increase from FY 2019 to FY 2020 funds a replacement of the in-water sensor system and shore electronics at the Barking Sands Tactical Underwater Range (BARSTUR) at PMRF, HI under cost code SC012. Existing BARSTUR instrumentation is past its 20 year service life, which has led to multiple cable failures and degraded range tracking and communication capability. BARSTUR effort includes replacement of failed Barking Sands Underwater Range Expansion (BSURE) high frequency projector capability required for BSURE range safety.

(3) SC161 East Coast USWTR: The Undersea Warfare Training Range (USWTR) is an approved time phased procurement exception to full funding. Hardware buys in each year are scheduled to meet the Fleet's required date for Full Operational Capability (FOC) of the USWTR range. Hardware buys will vary in cost from year to year.

(4) SC105 EW Threat Presentation: Fluctuations in funding from year to year reflect Navy prioritization of various Electronic Warfare (EW) Threat Presentation devices for use at multiple Tactical Training Range (TTR) sites, including Fallon, NV; Yuma, AZ; Southern California Offshore Range (SCORE), CA; Mid-Atlantic Electronic Warfare Range (MAEWR), NC. FY 2020 funds the update and digitization of Fallon Range Opposing Force (OPFOR) surveillance radars and the modernization of the Integrated Air Defense System (IADS) at Fallon, NV, Yuma, AZ, and MAEWR, NC.

(5) SC151 MLT Hardware: MLT Hardware includes Moving Land Target Vehicles, Ground Control Stations, Command and Control units, Data Links, Radio kits, Range equipment, Relays and other hardware such as kits to include but not limited to weapon instrumentation kits, specialty tires/ wheels, and equipment protection. Some of the kits are more expensive than others and the kits being procured depend on the operational demand/ training requirements of the fleet which vary from year to year; consequently, the items, quantities of items, and associated unit costs of the items being procured vary from year to year. Quantities were removed from the P-5 this budget cycle because they were artificially inflating unit costs and not a true depiction of what is being procured in support of fleet operational and training requirements.

(6) SC152 MLT ECP: Costs include the procurement of Engineering Change Proposals for critical hardware updates (i.e.: Information Assurance / Windows) with more stringent HW and SW requirements, as well as making system level changes to meet the requirements of the Risk Management Framework (RMF) Information Assurance (IA) processes.

(7) SC 106 - TTSP: Hardware quantities and unit costs are dependent upon which threat simulation equipment is being procured; some equipment is more expensive than others and the type of equipment being procured is dependent upon Fleet requirements and consumption. It is critical to maintain adequate inventory levels as these assets are required to establish readiness capability for the Fleet.

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Exhibit P-5, Cost Analysis: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 03 / 3	P-1 Line Item Number / Title: 4204 / Weapons Range Support Equipment	Item Number / Title [DODIC]: 1 / Weapons Range Support Equipment
ID Code (A=Service Ready, B=Not Service Ready) :		MDAP/MAIS Code:
⁽⁸⁾ SC711 LVC Range Integration: Increase from FY 2019 to FY 2020 for NAWDC Integrated Training Facility (ITF) Building P-440 and Air Wing Training Facility (AWTF) Building P-420 at NAWDC, Fallon, NV. Funds Intrusion Detection System (IDS) and Access Control System (ACS) for P-440 ITF, Integrated Performance Assessment System, Distributed Mission Planning - Automated Logistic Information System (ALIS)/Off board Mission Support (OMS) Mission Planning, P-420 Audio-Visual system, Live Virtual Constructive (LVC) adaptations to migrate simulator weapon flyouts to Fallon Range live environment, and development of a common monitor/debrief/assessment toolset. ⁽⁹⁾ SC800 Ocean Systems: The increase from FY 2019 to FY 2020 funds additional support to start work on the Barking Sands Tactical Underwater Range (BARSTUR) refurbishment in addition to ongoing work at East Coast Undersea Warfare Training Range (EC USWTR). ⁽¹⁰⁾ SC800 LVC Range Integration: The FY 2020 funds support required for the NAWDC hardware & software procurements for Integrated Training Facility (ITF) Building P-440 and Air Wing Training Facility (AWTF) Building P-420 at NAWDC, Fallon, NV. ⁽¹¹⁾ SC831 LVC Range Integration: The FY 2020 funds support required for the NAWDC hardware & software procurements for Integrated Training Facility (ITF) Building P-440 and Air Wing Training Facility (AWTF) Building P-420 at NAWDC, Fallon, NV. ⁽¹²⁾ SC860 Ocean Systems: The increase from FY 2019 to FY 2020 funds additional support to start work on the Barking Sands Tactical Underwater Range (BARSTUR) refurbishment in addition to ongoing work at East Coast Undersea Warfare Training Range (EC USWTR).		

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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 03: Aviation Support Equipment / BSA 3: Aircraft Support Equipment							P-1 Line Item Number / Title: 4213 / Aircraft Support Equipment					
ID Code (A=Service Ready, B=Not Service Ready): B				Program Elements for Code B Items: 0204112N				Other Related Program Elements: 0604512N, 0604112N, 0604530N				
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>)	298.520	103.340	105.943	145.601	13.420	159.021	132.786	120.849	143.300	134.933	Continuing	Continuing
Less PY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (<i>\$ in Millions</i>)	298.520	103.340	105.943	145.601	13.420	159.021	132.786	120.849	143.300	134.933	Continuing	Continuing
Plus CY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority (<i>\$ in Millions</i>)	298.520	103.340	105.943	145.601	13.420	159.021	132.786	120.849	143.300	134.933	Continuing	Continuing
<i>(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)</i>												
Initial Spares (<i>\$ in Millions</i>)	-	2.633	1.413	2.059	-	2.059	2.216	1.533	1.347	1.989	Continuing	Continuing
Flyaway Unit Cost (<i>\$ in Dollars</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost (<i>\$ in Dollars</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Description: AVIATION SUPPORT EQUIPMENT provides funds for the procurement of air-launched anti-submarine (ASW) detection and other general support equipment associated with aircraft systems. Other support equipment includes ground electronics equipment, aircraft launch and recovery equipment, photographic equipment, reconnaissance and electronic warfare process. The items contained within this budget line item were previously funded under the following line items in FY14 and prior: 4208 Expeditionary Airfields 4214 Aircraft Rearming Equipment 4216 Aircraft Launch and Recovery Equipment 4255 LAMPS MK III Shipboard Equipment [P5 / Expeditionary Airfields]: This program provides for procurement of aircraft recovery equipment, landing mat and accessories, airfield lighting and Visual Landing Aids for Naval Aviation Expeditionary Airfields (EAF.) EAF recovery equipment consists of the M31 arresting gear and its accessories. This equipment is used to stop aircraft in less than 1000 ft. EAF landing mats and accessories are used to construct airfields of varying configurations such as, 5000+ ft conventional airport runways and taxiways, Forward Arming and Refueling Points (FARPs), Forward Operating Bases (FOBs), Landing Zones (LZs) and Helo Pads. EAF Lighting equipment augments the many types of EAFs with lighting of the runways, taxiways, LZs, FARPs, FOBs and Helo pads. Much of the EAF Lighting utilizes Infra Red Lighting for use with Night Vision Devices for night operations by all Type/Model/Series aircraft. Fresnel Lens Optical Landing Systems and Precision Approach Path Indicator systems are used to guide aircraft to the proper landing or arresting gear area of the EAF. This core funding level directly supports the procurement and fielding of operational EAF systems for three Active Marine Aircraft Wings (MAW) and one Reserve MAW, testing and training installations, and provides assets for use by the Marine Expeditionary Forces during contingency operations. [P5 - 2 / Acft Rearming Equip]: This program funds the procurement of common Armament Support Equipment (ASE), and Weapons Support Equipment (WSE) under the procurement and inventory control of the Naval Inventory Control Point and the Naval Air Systems Command. This budget line supports: (a) initial outfitting for all in-production weapons systems; (b) procurement of new Support Equipment, and (c) procurement of replacement items for obsolete Support Equipment. These items support sustained operations and surge deployments of the CV battle groups. Shipboard/Shorebased WSE is utilized by weapons departments to handle, transport, and maintain weapons. Shipboard/Shorebased ASE is utilized by squadrons and supporting activities to load and service aircraft weapons and guns. [P5 - 3 / Air Launch & Recovery Equip]: This program provides for the procurement of aircraft launch, recovery, visual landing aids, and related information systems as well as ancillary items required for installation aboard aircraft carriers, air capable combatant vessels, amphibious assault ships and shore stations. It also provides cyber resiliency within the Aviation Land and Launch Enclave (ALLE) for ALRE.												

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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 03: Aviation Support Equipment / BSA 3: Aircraft Support Equipment		P-1 Line Item Number / Title: 4213 / Aircraft Support Equipment
ID Code (A=Service Ready, B=Not Service Ready): B	Program Elements for Code B Items: 0204112N	Other Related Program Elements: 0604512N, 0604112N, 0604530N
Line Item MDAP/MAIS Code: N/A		
ALRE works jointly through ALLE with PMA-213 Air Traffic and Control (ATC) and Landing System and will enhance network segmentation, device hardening, centralized monitoring, increased cyber situational awareness and incident response within the enclave. Procurements are initiated due to a variety of reasons including fleet-generated reports associated with safe and reliable operations of existing equipment, support of fixed and rotary wing aircraft on Air Capable Ships, and maintaining reliability, availability and maintainability of ALRE equipment. Engineering Change Proposals (ECPs) are generated and processed via a Configuration Control Board. Once approved, the ECP final product is a service change kit. These kits are identified for installation aboard applicable ships as well as shore-based installations in the ECP. Major shipboard equipment items are generally installed by shipyard personnel, alteration installation teams or fleet readiness centers voyage repair teams during routine or restricted availabilities of the various ships. Service change kits support corrective actions that result from changes in operational conditions, obsolescence, and improvements in reliability, availability and maintainability. [P3A - 4 / LAMPS MK III - SRQ(KU)-4 (S1010)]: LAMPS MK III, AN/SRQ-4 (Ku), is an over the horizon information dominance system with a high-speed, air-to-ground, digital data link that transmits reconnaissance and other data from MH-60 helicopters to surface ships (cruisers and destroyers) to enable data, imagery, electronic support measures, communications, and radar information via the Ku-band link.		

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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 03: Aviation Support Equipment / BSA 3: Aircraft Support Equipment					P-1 Line Item Number / Title: 4213 / Aircraft Support Equipment	
ID Code (A=Service Ready, B=Not Service Ready): B			Program Elements for Code B Items: 0204112N			Other Related Program Elements: 0604512N, 0604112N, 0604530N

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 / Expeditionary Airfields	P-5a, P-21			- / 22.714	- / 4.450	- / 8.484	- / 12.474	- / 13.420	- / 25.894
P-5	2 / Aft Rearing Equip	P-5a, P-21			- / 34.834	- / 11.643	- / 12.040	- / 12.058	- / 0.000	- / 12.058
P-5	3 / Air Launch & Recovery Equip				- / 87.826	- / 37.787	- / 39.965	- / 52.910	- / 0.000	- / 52.910
P-3a	1 / ALRE - Advanced Arresting Gear (SJ301) (Advanced Arresting Gear (SJ301))				- / 15.574	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000
P-3a	2 / ALRE - ADMACS Block Upgrade (SJ302) (Increase Capability)				- / 86.578	- / 20.001	- / 17.034	- / 18.989	- / 0.000	- / 18.989
P-3a	3 / ALRE - Electromagnetic Aircraft Launch System (EMALS) (SJ306) (Reliability and Maintainability)				- / 1.057	- / 4.715	- / 6.483	- / 23.798	- / 0.000	- / 23.798
P-3a	4 / LAMPS MK III - SRQ(KU)-4 (S1010) (Non-Organic)				- / 49.937	- / 24.744	- / 21.937	- / 25.372	- / 0.000	- / 25.372
P-40	Total Gross/Weapon System Cost				- / 298.520	- / 103.340	- / 105.943	- / 145.601	- / 13.420	- / 159.021

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 / Expeditionary Airfields	P-5a, P-21			- / -	- / -	- / -	- / -	- / -	- / -
P-5	2 / Aft Rearing Equip	P-5a, P-21			- / -	- / -	- / -	- / -	- / -	- / -
P-5	3 / Air Launch & Recovery Equip				- / -	- / -	- / -	- / -	- / -	- / -
P-3a	1 / ALRE - Advanced Arresting Gear (SJ301) (Advanced Arresting Gear (SJ301))				- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 15.574
P-3a	2 / ALRE - ADMACS Block Upgrade (SJ302) (Increase Capability)				- / 19.463	- / 19.479	- / 20.563	- / 20.701	Continuing	Continuing
P-3a	3 / ALRE - Electromagnetic Aircraft Launch System (EMALS) (SJ306) (Reliability and Maintainability)				- / 5.771	- / 5.205	- / 15.091	- / 4.165	Continuing	Continuing
P-3a	4 / LAMPS MK III - SRQ(KU)-4 (S1010) (Non-Organic)				- / 25.913	- / 26.412	- / 26.968	- / 27.508	Continuing	Continuing
P-40	Total Gross/Weapon System Cost				- / 132.786	- / 120.849	- / 143.300	- / 134.933	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.

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

Justification:

Expeditionary Airfields (EAF) FY 2020 baseline funding is required for EAF Surfacing equipment, EAF Lighting Equipment, EAF Arresting Gear, associated ECPs and support. The increases from FY 2019 to FY 2020 support the Expeditionary Airfield 2000.1 design to support the Table of Basic Allowance (TBA) set by Headquarters Marine Corps Aviation Ground Support (APX-34) for a quantity to field 6000-foot scalable aircraft runways. This includes the procurement of Aluminum Matting Type 2 (AM2) Matting, AM2 Accessories and the associated ECP support to upgrade the Legacy Lighting system.

Aircraft Rearing Equipment - FY 2020 baseline funding is required for MHU-191/M CIOP, MHU-126/202 Trailer Replacement, USMC A/S32K-1E Weapons Loader Replacement and associated support costs.

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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 03: Aviation Support Equipment / BSA 3: Aircraft Support Equipment		P-1 Line Item Number / Title: 4213 / Aircraft Support Equipment
ID Code (A=Service Ready, B=Not Service Ready): B	Program Elements for Code B Items: 0204112N	Other Related Program Elements: 0604512N, 0604112N, 0604530N
Line Item MDAP/MAIS Code: N/A		
Aircraft Launch and Recovery Equipment (ALRE) - FY 2020 baseline funding is required for support of 48 ALRE equipment systems. Major categories of ALRE systems support include: Launcher, Recovery, Information Systems, Visual Landing Aides (VLA), and Aviation Land and Launch Enclave (ALLE). Included in this budget are Individual Modification exhibits for Electromagnetic Aircraft Launch System (EMALS), and Aviation Data Management and Control System (ADMACS) Block Upgrade. Increases from FY 2019 to FY 2020 across ALRE systems supports hardware purchases, non-recurring engineering efforts, Integrated Logistics Support, and production engineering activities required for multiple ECPs to rectify critical obsolescence items, resolve evolving Cybersecurity upgrades to correct deficiencies identified through the National Defense Authorization Act (NDAA) mandated risk assessment process, and to implement technical refresh of critical out of production ALRE systems. ALRE is unique in nature in that systems are very seldom sun-downed. Several current Visual Landing Aid (VLA), Launcher and Recovery systems require significant investment due to obsolete 1960's technology. Mk-7 Arresting Gear and Advance Recovery Systems are going through multiple ECPs to extend service life and to continue to provide Carrier Aviation arresting gear capability to the current and future air wing. Optical Landing System and Long Range Lineup System are no longer produced or supported by the Original Equipment Manufacturer (OEM). These systems require complete organic technical redesign, requalification and manufacture to maintain aircraft recovery capability on Aircraft Carriers and Amphibious Assault Ships. The Integrated Launch and Recovery Television Surveillance System (ILARTS) is based on both functional and technical obsolete 1980's technology that is no longer supportable by industry, therefore requiring replacement and qualification of a Digital ILARTS System to meet both operational and safety requirements for Aircraft Carrier aviation operations. LAMPS MK III Shipboard Equipment - The FY 2020 baseline funding is required for the procurement of 8 AN/SRQ-4(Ku) field install kits and associated support and installation costs to meet the MH-60R deployment schedule. OCO: Expeditionary Airfields (EAF) - FY 2020 Overseas Contingency Operations (OCO) funding is required for Expeditionary Airfields in order to continue to replenish equipment that has been expended in theater. This equipment includes AM2 Matting, AM2 Accessories and lighting assets. These operations were in support of Operation Inherent Resolve (OIR).		

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Exhibit P-5, Cost Analysis: PB 2020 Navy													Date: March 2019								
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 03 / 3							P-1 Line Item Number / Title: 4213 / Aircraft Support Equipment						Item Number / Title [DODIC]: 1 / Expeditionary Airfields								
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>				22.714			4.450			8.484			12.474			13.420			25.894		
Less PY Advance Procurement <i>(\$ in Millions)</i>				-			-			-			-			-			-		
Net Procurement (P-1) <i>(\$ in Millions)</i>				22.714			4.450			8.484			12.474			13.420			25.894		
Plus CY Advance Procurement <i>(\$ in Millions)</i>				-			-			-			-			-			-		
Total Obligation Authority <i>(\$ in Millions)</i>				22.714			4.450			8.484			12.474			13.420			25.894		
(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 - (SE010) EAF Surfacing Equipment Cost																					
Recurring Cost																					
1.1.1) AM-2-Matting (F72) ⁽¹⁾ (1)	7,153.85	91	0.651	-	-	0.000	7,162.00	103	0.738	7,162.00	455	3.259	7,162.00	731	5.235	7,162.00	1,186	8.494			
1.1.2) AM-2 Matting (F73) ⁽¹⁾	9,400.00	5	0.047	-	-	0.000	9,495.00	4	0.038	9,495.00	4	0.038	-	-	0.000	9,495.00	4	0.038			
1.1.3) AM-2 Matting (F71) ⁽¹⁾	11,379.31	145	1.650	11,375.00	108	1.229	11,375.00	82	0.933	11,375.00	185	2.104	11,375.00	172	1.957	11,375.00	357	4.061			
1.1.4) AM-2 Accessory Packs (1) ⁽²⁾	-	-	1.000	-	-	0.150	-	-	0.396	-	-	0.456	-	-	2.520	-	-	2.976			
1.1.5) Surfacing engineering change proposals ⁽³⁾	-	-	6.051	-	-	0.431	-	-	2.107	-	-	1.948	-	-	0.000	-	-	1.948			
Subtotal: Recurring Cost	-	-	9.399	-	-	1.810	-	-	4.212	-	-	7.805	-	-	9.712	-	-	17.517			
Subtotal: Hardware - (SE010) EAF Surfacing Equipment Cost	-	-	9.399	-	-	1.810	-	-	4.212	-	-	7.805	-	-	9.712	-	-	17.517			
Hardware - (SE860) Acceptance Testing and Evaluation - Surfacing Cost																					
Recurring Cost																					
2.1.1) EAF Surfacing Equipment	-	-	1.182	-	-	0.119	-	-	0.368	-	-	0.372	-	-	0.000	-	-	0.372			
Subtotal: Recurring Cost	-	-	1.182	-	-	0.119	-	-	0.368	-	-	0.372	-	-	0.000	-	-	0.372			
Subtotal: Hardware - (SE860) Acceptance Testing	-	-	1.182	-	-	0.119	-	-	0.368	-	-	0.372	-	-	0.000	-	-	0.372			

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Exhibit P-5, Cost Analysis: PB 2020 Navy												Date: March 2019						
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 03 / 3						P-1 Line Item Number / Title: 4213 / Aircraft Support Equipment						Item Number / Title [DODIC]: 1 / Expeditionary Airfields						
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 Evaluation - Surfacing Cost																		
Hardware - (SE010) EAF Lighting Equipment Cost																		
Recurring Cost																		
3.1.1) EAF Lighting Equipment	-	-	1.362	-	-	0.000	-	-	0.000	-	-	0.000	-	-	3.708	-	-	3.708
3.1.2) Lighting Engineering Change Proposals ⁽⁴⁾	-	-	3.924	-	-	1.302	-	-	1.978	-	-	2.315	-	-	0.000	-	-	2.315
Subtotal: Recurring Cost	-	-	5.286	-	-	1.302	-	-	1.978	-	-	2.315	-	-	3.708	-	-	6.023
Subtotal: Hardware - (SE010) EAF Lighting Equipment Cost	-	-	5.286	-	-	1.302	-	-	1.978	-	-	2.315	-	-	3.708	-	-	6.023
Hardware - Acceptance Testing - Lighting Cost																		
Recurring Cost																		
4.1.1) EAF Lighting Equipment ⁽⁵⁾	-	-	1.302	-	-	0.000	-	-	0.170	-	-	0.185	-	-	0.000	-	-	0.185
Subtotal: Recurring Cost	-	-	1.302	-	-	0.000	-	-	0.170	-	-	0.185	-	-	0.000	-	-	0.185
Subtotal: Hardware - Acceptance Testing - Lighting Cost	-	-	1.302	-	-	0.000	-	-	0.170	-	-	0.185	-	-	0.000	-	-	0.185
Hardware - (SE0210) EAF Arresting Gear Cost																		
Recurring Cost																		
5.1.1) M-31 Engineering Change Proposals ⁽⁶⁾	-	-	1.262	-	-	0.253	-	-	0.479	-	-	0.489	-	-	0.000	-	-	0.489
Subtotal: Recurring Cost	-	-	1.262	-	-	0.253	-	-	0.479	-	-	0.489	-	-	0.000	-	-	0.489
Subtotal: Hardware - (SE0210) EAF Arresting Gear Cost	-	-	1.262	-	-	0.253	-	-	0.479	-	-	0.489	-	-	0.000	-	-	0.489
Hardware - Acceptance Testing - Arresting Gear Cost																		
Recurring Cost																		
6.1.1) EAF Arresting Gear ⁽⁷⁾	-	-	0.364	-	-	0.000	-	-	0.039	-	-	0.048	-	-	0.000	-	-	0.048
Subtotal: Recurring Cost	-	-	0.364	-	-	0.000	-	-	0.039	-	-	0.048	-	-	0.000	-	-	0.048
Subtotal: Hardware - Acceptance Testing - Arresting Gear Cost	-	-	0.364	-	-	0.000	-	-	0.039	-	-	0.048	-	-	0.000	-	-	0.048
Support - (SE800) Integrated Logistics Cost																		

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Exhibit P-5, Cost Analysis: PB 2020 Navy												Date: March 2019						
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 03 / 3						P-1 Line Item Number / Title: 4213 / Aircraft Support Equipment						Item Number / Title [DODIC]: 1 / Expeditionary Airfields						
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)
7.1) EAF Surfacing Equipment	-	-	1.516	-	-	0.336	-	-	0.437	-	-	0.434	-	-	0.000	-	-	0.434
7.2) EAF Lighting Equipment	-	-	0.227	-	-	0.039	-	-	0.044	-	-	0.051	-	-	0.000	-	-	0.051
7.3) EAF Arresting Gear	-	-	0.236	-	-	0.032	-	-	0.042	-	-	0.046	-	-	0.000	-	-	0.046
Subtotal: Support - (SE800) Integrated Logistics Cost	-	-	1.979	-	-	0.407	-	-	0.523	-	-	0.531	-	-	0.000	-	-	0.531
Support - (SE830) Production Engineering Cost																		
8.1) EAF Surfacing Equipment	-	-	1.167	-	-	0.317	-	-	0.485	-	-	0.495	-	-	0.000	-	-	0.495
8.2) EAF Lighting Equipment	-	-	0.372	-	-	0.088	-	-	0.071	-	-	0.069	-	-	0.000	-	-	0.069
8.3) EAF Arresting Gear	-	-	0.401	-	-	0.154	-	-	0.159	-	-	0.165	-	-	0.000	-	-	0.165
Subtotal: Support - (SE830) Production Engineering Cost	-	-	1.940	-	-	0.559	-	-	0.715	-	-	0.729	-	-	0.000	-	-	0.729
Gross/Weapon System Cost	-	-	22.714	-	-	4.450	-	-	8.484	-	-	12.474	-	-	13.420	-	-	25.894
Remarks:																		
The quantities of AM-2 and Light Weight Matting procured vary depending on the type of matting and service change requirements each year. The equipment, accessories and service changes are procured and fielded with these funds. Equipment procurements are based on inventory shortfalls, product improvements to fill or correct deficiencies, modernizing EAF equipment to improve maintainability, reliability and safety-of-flight and to keep pace with new aircraft and aircraft systems.																		
(†) indicates the presence of a P-5a																		
Footnotes:																		
(1) AM2 Matting (cost elements 1.1.1 - 1.1.3) Unit costs will remain constant throughout the FYDP. The cost of the AM2 is based on a yearly rate of 80,000 square feet which is used to account for lost and damaged AM2. This yearly rate is 270,000 square feet short of the APX-34 Headquarters Marine Corps requirement of replacement of 5% of the total AM2 installed currently around 7,000,000 square feet. This rate ensures that the assets in the Table of Basic Allowance are maintained. The Table of Basic Allowance rates are used to maintain the proper amount of AM2 Matting per HQMC standards and is formulated off of yearly submitted fleet asset reports. This does not include the addition of AM2 assets to the inventory, but sustainment only due to loss and damage. For reference, one F71 is 432 square feet and one F72 is 216 square feet. AM2 Matting (cost elements 1.1.1 - 1.1.3) quantity changes based on tracking of EAF projected fleet requirements from the Table of Basic Allowance and the Marine Wing Support Squadron available assets to determine what needs to be procured on an annual basis. Increases in AM2 Matting is a result of APX-34 and NAVAIR changing the AM2 surfacing lay pattern increasing the amount of AM2 Matting required in the Table of Basic Allowance. The change in the lay pattern of airfields is required to reduce installation time and requirements set by Combat Development and Integration (CD&I) and HQMC. This requires a gross increase in the amount of F72 AM2 packages to meet the updated HQMC table of basic allowance requirements for airfields.																		
(2) AM-2 Accessory Packs (1.1.4) consist of multiple low priced items. There are several types of hardware configurations that are procured each year, therefore, individual quantities are not provided for some Expeditionary equipment. Accessory Packs are required per the Table of Basic Allowance and hardware component items required change based on fleet asset reports back to NAVAIR as a result of increased requirements per APX-34 or damaged accessories that require replacement.																		

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Exhibit P-5, Cost Analysis: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 03 / 3	P-1 Line Item Number / Title: 4213 / Aircraft Support Equipment	Item Number / Title [DODIC]: 1 / Expeditionary Airfields
ID Code (A=Service Ready, B=Not Service Ready) :		MDAP/MAIS Code:
⁽³⁾ Surfacing Engineering Change Proposals (1.1.5) supports the procurement of hardware to support multiple Surfacing ECPs and the associated engineering support. Surfacing ECPs are required to adapt to diverse airfield operating environments which drive changes to tool kits necessary for matting installation, accommodating new aircraft heat signatures (i.e. JSF, V22) as well as variable soil compositions. ⁽⁴⁾ Lighting Engineering Change Proposals (3.1.2) address the obsolescence and reliability of an aging legacy system. The ECP work for the Minimum Operating Strip Lighting System (MOSLS) and Man Portable Lights provides upgrades to obsolescent incandescent bulbs, unreliable battery systems, poor mobility, and other deficiencies. MOSLS obsolescence issues have increased the need of an ECP to correct and allow for sustainability and capability the fleet lacks due to obsolescence. This ECP will improve readiness and safety to ensure Navy/Marine Corps aircraft can land at night in austere environments. EAF has been directed per HQMC to increase airfield light capability to overcome aging packages and meet updated forward deployment table of basic allowance requirements. FY 2019 - 2020 increases in hardware costs to support the Minimum Operating Strip Lighting Systems (MOSLS) ECP. This supports the USMC Deputy Commandant requirement to have three contingency airfields of EAF lighting equipment ready for issue to support aviation operations. ⁽⁵⁾ Lighting Equipment Acceptance Test & Evaluation (4.1.1) address the Acceptance Testing required to support multiple Lighting ECPs. The increase in FY 2020 is driven by the Acceptance Testing required to support the Minimum Operating Strip Lighting System (MOSLS) ECP to undergo acceptance testing to finalize the ECP and allow procurement of MOSLS ECP hardware kits. ⁽⁶⁾ M-31 Engineering Change Proposals (5.1.1) supports the aging M-31 Marine Corps Expeditionary Arresting Gear System by providing ECP Hardware and engineering support to improve readiness, increase safety, and replacement of obsolescent assemblies. FY 2022 - 2024 increases in Hardware are due to the ECP for M31 Coral anchoring installation to support pacific deployments. The ECP will help meet HQMC capability gap for quicker embarkment and installation requirements of forward deployed Expeditionary Airfields. ⁽⁷⁾ EAF Arresting Gear (6.1.1) increase in FY 2020 supports the Acceptance Testing required to support the Hard Soil anchoring reconfiguration. The increase in FY 2021 - 2024 support the acceptance testing required to ensure proper anchoring hardware configuration kits for hard soil and corral anchoring are being procured to satisfy the ECP, along with the testing required to accept and prove the improved readiness, safety, and correct the obsolescent deficiencies of the aging M-31 arresting gear system.		

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Exhibit P-5a, Procurement History and Planning: PB 2020 Navy			Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 03 / 3	P-1 Line Item Number / Title: 4213 / Aircraft Support Equipment	Item Number / Title [DODIC]: 1 / Expeditionary Airfields	

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) AM-2-Matting (F72) ^(†)		2019	TBD / TBD	TBD	LKE	Apr 2019	Jun 2019	103	7,162.00	Y		Apr 2018
1.1.1) AM-2-Matting (F72) ^(†)		2020	TBD / TBD	TBD	LKE	Nov 2019	Jan 2020	455	7,162.00	Y		Apr 2018
1.1.1) AM-2-Matting (F72) ^(†)	✓	2020	TBD / TBD	TBD	LKE	Nov 2019	Jan 2020	731	7,162.00	Y		Apr 2018
1.1.2) AM-2 Matting (F73)		2019	TBD / TBD	TBD	LKE	Apr 2019	Jun 2019	4	9,495.00	Y		Apr 2018
1.1.2) AM-2 Matting (F73)		2020	TBD / TBD	TBD	LKE	Nov 2019	Jan 2020	4	9,495.00	Y		Apr 2018
1.1.3) AM-2 Matting (F71)		2018	ALFAB / Montgomery, AL	C / FFP	DLA	Dec 2018	Mar 2019	108	11,375.00	Y		Apr 2018
1.1.3) AM-2 Matting (F71)		2019	TBD / TBD	TBD	LKE	Apr 2019	Jun 2019	82	11,375.00	Y		Apr 2018
1.1.3) AM-2 Matting (F71)		2020	TBD / TBD	TBD	LKE	Nov 2019	Jan 2020	185	11,375.00	Y		Apr 2018
1.1.3) AM-2 Matting (F71)	✓	2020	TBD / TBD	TBD	LKE	Nov 2019	Jan 2020	172	11,375.00	Y		Apr 2018

^(†) 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 / 03 / 3										P-1 Line Item Number / Title: 4213 / Aircraft Support Equipment										Item Number / Title [DODIC]: 1 / Expeditionary Airfields																	
Cost Elements (Units in Each)							Fiscal Year 2019										Fiscal Year 2020													BALANCE							
O C C O	M F R #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 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						
1.1.1) AM-2-Matting (F72) ⁽¹⁾																																					
Prior Years Deliveries: 91																																					
	1	2019	NAVY	103	0	103	A - - 103																							0							
	1	2020	NAVY	455	0	455											A -	-	128	128	128	71														0	
✓	1	2020	NAVY	731	0	731											A -	-	128	128	128	185	162														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 / 03 / 3					P-1 Line Item Number / Title: 4213 / Aircraft Support Equipment				Item Number / Title [DODIC]: 1 / Expeditionary Airfields			
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			TBD	0	7	2	9	0	2	2	4

"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 / 03 / 3						P-1 Line Item Number / Title: 4213 / Aircraft Support Equipment						Item Number / Title [DODIC]: 2 / Acft Rearming Equip						
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)				34.834		11.643		12.040		12.058		0.000		12.058				
Less PY Advance Procurement (\$ in Millions)				-		-		-		-		-		-				
Net Procurement (P-1) (\$ in Millions)				34.834		11.643		12.040		12.058		0.000		12.058				
Plus CY Advance Procurement (\$ in Millions)				-		-		-		-		-		-				
Total Obligation Authority (\$ in Millions)				34.834		11.643		12.040		12.058		0.000		12.058				
(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 - HARDWARE - Ordnance Assembly Cost																		
Recurring Cost																		
1.1.1) SH042 - USMC WEAPONS ASSEMBLY STATION (A/E32K-11 LIFTING ASSLY) ^(†)	273,666.67	6	1.642	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000
Subtotal: Recurring Cost	-	-	1.642	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000
Subtotal: Hardware - HARDWARE - Ordnance Assembly Cost	-	-	1.642	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000
Hardware - HARDWARE - Ordnance Transport Cost																		
Recurring Cost																		
2.1.1) SH036 - USMC A/M32K-4A MUN TRLR REPLACEMENT - (A/ M32K-10 MUN TRLR)	57,063.75	251	14.323	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000
2.1.2) SH043 - MHU-191/M CILOP - MHU-191A/M MUN TRANSPORTER ^(†)	5,439.97	1,466	7.975	6,367.25	600	3.820	6,494.59	600	3.897	6,624.49	600	3.975	-	-	0.000	6,624.49	600	3.975
2.1.3) SH045 - MHU-126/202 TRLR REPLACEMENT - (MHU-230/M) ^(†)	-	-	0.000	250,000.00	4	1.000	-	-	0.000	20,000.00	80	1.600	-	-	0.000	20,000.00	80	1.600

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Exhibit P-5, Cost Analysis: PB 2020 Navy												Date: March 2019						
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 03 / 3						P-1 Line Item Number / Title: 4213 / Aircraft Support Equipment						Item Number / Title [DODIC]: 2 / Acft Rearming Equip						
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)
2.1.4) SH048 - AERO-83A ADAPTER, TRANSPORT ^(†)	-	-	0.000	-	-	0.000	50,000.00	4	0.200	-	-	0.000	-	-	0.000	-	-	0.000
Subtotal: Recurring Cost	-	-	22.298	-	-	4.820	-	-	4.097	-	-	5.575	-	-	0.000	-	-	5.575
Subtotal: Hardware - HARDWARE - Ordnance Transport Cost	-	-	22.298	-	-	4.820	-	-	4.097	-	-	5.575	-	-	0.000	-	-	5.575
Hardware - HARDWARE - Ordnance Loading Cost																		
Recurring Cost																		
3.1.1) SH046 - USMC A/S32K-1E WEAPONS LOADER REPLACEMENT ^(†)	-	-	0.000	647,000.00	4	2.588	-	-	0.000	137,700.00	34	4.682	-	-	0.000	137,700.00	34	4.682
3.1.3) SH049 - FARP ORDNANCE LOADING SE ^(†)	-	-	0.000	159,375.00	1	0.159	159,375.00	32	5.100	-	-	0.000	-	-	0.000	-	-	0.000
Subtotal: Recurring Cost	-	-	0.000	-	-	2.747	-	-	5.100	-	-	4.682	-	-	0.000	-	-	4.682
Subtotal: Hardware - HARDWARE - Ordnance Loading Cost	-	-	0.000	-	-	2.747	-	-	5.100	-	-	4.682	-	-	0.000	-	-	4.682
Hardware - SH920 NON-RECURRING Cost																		
Non Recurring Cost																		
4.1.1) Ordnance Assembly	-	-	0.115	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000
4.1.2) Ordnance Transport	-	-	2.941	-	-	0.300	-	-	0.335	-	-	0.250	-	-	0.000	-	-	0.250
4.1.3) Ordnance Loading	-	-	0.000	-	-	2.276	-	-	0.500	-	-	0.155	-	-	0.000	-	-	0.155
Subtotal: Non Recurring Cost	-	-	3.056	-	-	2.576	-	-	0.835	-	-	0.405	-	-	0.000	-	-	0.405
Subtotal: Hardware - SH920 NON-RECURRING Cost	-	-	3.056	-	-	2.576	-	-	0.835	-	-	0.405	-	-	0.000	-	-	0.405
Hardware - SH010 ECP Cost																		
Recurring Cost																		
5.1.1) Ordnance Transport ECP	-	-	2.280	-	-	0.094	-	-	0.089	-	-	0.070	-	-	0.000	-	-	0.070
5.1.2) Ordnance Loading ECP	-	-	0.221	-	-	0.094	-	-	0.090	-	-	0.072	-	-	0.000	-	-	0.072
Subtotal: Recurring Cost	-	-	2.501	-	-	0.188	-	-	0.179	-	-	0.142	-	-	0.000	-	-	0.142

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Exhibit P-5, Cost Analysis: PB 2020 Navy												Date: March 2019						
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 03 / 3						P-1 Line Item Number / Title: 4213 / Aircraft Support Equipment						Item Number / Title [DODIC]: 2 / Acft Rearming Equip						
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 - SH010 ECP Cost	-	-	2.501	-	-	0.188	-	-	0.179	-	-	0.142	-	-	0.000	-	-	0.142
Hardware - SH860 Acceptance Test & Eval Cost																		
Recurring Cost																		
6.1.1) Ordnance Assembly Acceptance Testing	-	-	0.109	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000
6.1.2) Ordnance Transport Acceptance Testing	-	-	0.466	-	-	0.177	-	-	0.277	-	-	0.200	-	-	0.000	-	-	0.200
6.1.3) Ordnance Loading Acceptance Testing	-	-	0.600	-	-	0.209	-	-	0.306	-	-	0.198	-	-	0.000	-	-	0.198
Subtotal: Recurring Cost	-	-	1.175	-	-	0.386	-	-	0.583	-	-	0.398	-	-	0.000	-	-	0.398
Subtotal: Hardware - SH860 Acceptance Test & Eval Cost	-	-	1.175	-	-	0.386	-	-	0.583	-	-	0.398	-	-	0.000	-	-	0.398
Support - SH800 ILS Cost																		
7.1) Ordnance Assembly	-	-	0.286	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000
7.2) Ordnance Transport	-	-	0.561	-	-	0.164	-	-	0.212	-	-	0.109	-	-	0.000	-	-	0.109
7.3) Ordnance Loading	-	-	0.882	-	-	0.281	-	-	0.303	-	-	0.209	-	-	0.000	-	-	0.209
Subtotal: Support - SH800 ILS Cost	-	-	1.729	-	-	0.445	-	-	0.515	-	-	0.318	-	-	0.000	-	-	0.318
Support - SH830 Production Engineering Cost																		
8.1) Ordnance Assembly PE	-	-	0.697	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000
8.2) Ordnance Transport PE	-	-	0.778	-	-	0.227	-	-	0.370	-	-	0.267	-	-	0.000	-	-	0.267
8.3) Ordnance Loading PE	-	-	0.958	-	-	0.254	-	-	0.361	-	-	0.271	-	-	0.000	-	-	0.271
Subtotal: Support - SH830 Production Engineering Cost	-	-	2.433	-	-	0.481	-	-	0.731	-	-	0.538	-	-	0.000	-	-	0.538
Gross/Weapon System Cost	-	-	34.834	-	-	11.643	-	-	12.040	-	-	12.058	-	-	0.000	-	-	12.058
(t) 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 / 03 / 3			P-1 Line Item Number / Title: 4213 / Aircraft Support Equipment						Item Number / Title [DODIC]: 2 / Acft Rearming Equip			
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) SH042 - USMC WEAPONS ASSEMBLY STATION (A/E32K-11 LIFTING ASSLY)		2015 ⁽⁸⁾	CAROLINA GROWLER / STAR, NC	C / FFP	NAWCADLKE	May 2017	Jan 2018	3	293,333.33	Y		Mar 2010
1.1.1) SH042 - USMC WEAPONS ASSEMBLY STATION (A/E32K-11 LIFTING ASSLY)		2016	CAROLINA GROWLER / STAR, NC	C / FFP	NAWCADLKE	May 2017	Apr 2019	2	293,000.00	Y		Mar 2010
1.1.1) SH042 - USMC WEAPONS ASSEMBLY STATION (A/E32K-11 LIFTING ASSLY)		2017	CAROLINA GROWLER / STAR, NC	C / FFP	NAWCADLKE	May 2017	Apr 2019	1	176,000.00	Y		Mar 2010
2.1.2) SH043 - MHU-191/M CILOP - MHU-191A/M MUN TRANSPORTER		2018	DEVAL CORPORATION / PHILADELPHIA, PA	C / FFP	NAWCADLKE	Feb 2018	Oct 2018	600	6,367.25	Y		Jun 2011
2.1.2) SH043 - MHU-191/M CILOP - MHU-191A/M MUN TRANSPORTER		2019	DEVAL CORPORATION / PHILADELPHIA, PA	C / FFP	NAWCADLKE	Dec 2018	Aug 2019	600	6,494.59	Y		Jun 2011
2.1.2) SH043 - MHU-191/M CILOP - MHU-191A/M MUN TRANSPORTER		2020	DEVAL CORPORATION / PHILADELPHIA, PA	C / TBD	NAWCADLKE	Jan 2020	Sep 2020	600	6,624.49	Y		Jun 2011
2.1.3) SH045 - MHU-126/202 TRLR REPLACEMENT - (MHU-230/M)		2018	TBD / TBD	C / FFP	NAWCADLKE	Feb 2019	Oct 2019	4	250,000.00	Y		Mar 2018
2.1.3) SH045 - MHU-126/202 TRLR REPLACEMENT - (MHU-230/M)		2020	TBD / TBD	C / TBD	NAWCADLKE	Oct 2019	Apr 2020	80	20,000.00	Y		Mar 2018
2.1.4) SH048 - AERO-83A ADAPTER, TRANSPORT		2019	TBD / TBD	C / FFP	NAWCADLKE	Feb 2019	May 2019	4	50,000.00	Y		Oct 2018
3.1.1) SH046 - USMC A/ S32K-1E WEAPONS LOADER REPLACEMENT ^(†)		2018	HYDRAULICS INTERNATIONAL INC / CALABASAS CA	C / FFP	NAWCADLKE	Aug 2018	Mar 2019	4	647,000.00	Y		Mar 2018
3.1.1) SH046 - USMC A/ S32K-1E WEAPONS LOADER REPLACEMENT ^(†)		2020	HYDRAULICS INTERNATIONAL INC / CALABASAS CA	C / FFP	NAWCADLKE	Oct 2019	Apr 2020	34	137,700.00	Y		Mar 2018
3.1.3) SH049 - FARP ORDNANCE LOADING SE ^(†)		2018	TBD / TBD	C / FFP	NAWCADLKE	Jun 2019	Dec 2019	1	159,375.00	Y		Mar 2018
3.1.3) SH049 - FARP ORDNANCE LOADING SE ^(†)		2019	TBD / TBD	C / FFP	NAWCADLKE	Dec 2019	Jan 2020	32	159,375.00	Y		Oct 2018
^(†) indicates the presence of a P-21 Footnotes: ⁽⁸⁾ (SH042) SH042 - USMC WEAPONS ASSEMBLY STATION (A/E32K-11 LIFTING ASSLY) The difference in unit cost due to step ladder pricing.												

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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 / 03 / 3							4213 / Aircraft Support Equipment												2 / Acft Rearming Equip																		
Cost Elements <i>(Units in Each)</i>							Fiscal Year 2017												Fiscal Year 2018												BALANCE						
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							
3.1.1) SH046 - USMC A/S32K-1E WEAPONS LOADER REPLACEMENT																																					
	1	2018	NAVY	4	0	4																										A -	-	4			
	1	2020	NAVY	34	0	34																												34			
3.1.3) SH049 - FARP ORDNANCE LOADING SE																																					
	2	2018	NAVY	1	0	1																												1			
	2	2019	NAVY	32	0	32																												32			
							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 / 03 / 3										P-1 Line Item Number / Title: 4213 / Aircraft Support Equipment										Item Number / Title [DODIC]: 2 / Acft Rearming Equip														
Cost Elements <i>(Units in Each)</i>							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			
3.1.1) SH046 - USMC A/S32K-1E WEAPONS LOADER REPLACEMENT																																		
	1	2018	NAVY	4	0	4	-	-	-	-	-	2	2																					0
	1	2020	NAVY	34	0	34											A -	-	-	-	-	-	-	3	3	3	3	3	3	3	16			
3.1.3) SH049 - FARP ORDNANCE LOADING SE																																		
	2	2018	NAVY	1	0	1											A -	-	-	-	-	-	1											0
	2	2019	NAVY	32	0	32											A -	1	2	2	3	3	3	3	3	3	3	3	3	9				
							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 / 03 / 3										P-1 Line Item Number / Title: 4213 / Aircraft Support Equipment										Item Number / Title [DODIC]: 2 / Acft Rearming Equip												
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	
3.1.1) SH046 - USMC A/S32K-1E WEAPONS LOADER REPLACEMENT																																
	1	2018	NAVY	4	4	0																										0
	1	2020	NAVY	34	18	16	3	3	3	3	3	1																				0
3.1.3) SH049 - FARP ORDNANCE LOADING SE																																
	2	2018	NAVY	1	1	0																										0
	2	2019	NAVY	32	23	9	3	3	3	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 / 03 / 3				P-1 Line Item Number / Title: 4213 / Aircraft Support Equipment				Item Number / Title [DODIC]: 2 / Acft Rearming Equip			

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	HYDRAULICS INTERNATIONAL INC - CALABASAS CA	5	10	48	0	0	7	7	0	0	6	6
2	TBD - TBD			TBD	0	0	6	6	0	0	1	1

"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 / 03 / 3						P-1 Line Item Number / Title: 4213 / Aircraft Support Equipment						Item Number / Title [DODIC]: 3 / Air Launch & Recovery Equip							
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>				87.826		37.787		39.965		52.910		0.000		52.910					
Less PY Advance Procurement <i>(\$ in Millions)</i>				-		-		-		-		-		-					
Net Procurement (P-1) <i>(\$ in Millions)</i>				87.826		37.787		39.965		52.910		0.000		52.910					
Plus CY Advance Procurement <i>(\$ in Millions)</i>				-		-		-		-		-		-					
Total Obligation Authority <i>(\$ in Millions)</i>				87.826		37.787		39.965		52.910		0.000		52.910					
(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 - SJ040 - Service Change Kits Cost																			
Recurring Cost																			
1.1.1) Information Systems (SJ040) ⁽⁹⁾		-	-	5.504	-	-	4.122	-	-	1.688	-	-	2.599	-	-	0.000	-	-	2.599
1.1.2) Visual Landing Aids (SJ040) ⁽¹⁰⁾		-	-	14.776	-	-	1.401	-	-	1.639	-	-	2.460	-	-	0.000	-	-	2.460
1.1.3) Launcher (SJ040) ⁽¹¹⁾		-	-	1.918	-	-	0.380	-	-	1.173	-	-	1.470	-	-	0.000	-	-	1.470
1.1.4) Recovery (SJ040)		-	-	6.760	-	-	5.318	-	-	5.100	-	-	1.576	-	-	0.000	-	-	1.576
1.1.5) SLMP ⁽¹²⁾		-	-	0.000	-	-	0.000	-	-	0.000	-	-	1.898	-	-	0.000	-	-	1.898
1.1.6) ALLE ⁽¹³⁾		-	-	0.000	-	-	0.263	-	-	0.772	-	-	3.915	-	-	0.000	-	-	3.915
Subtotal: Recurring Cost		-	-	28.958	-	-	11.484	-	-	10.372	-	-	13.918	-	-	0.000	-	-	13.918
Subtotal: Hardware - SJ040 - Service Change Kits Cost		-	-	28.958	-	-	11.484	-	-	10.372	-	-	13.918	-	-	0.000	-	-	13.918
Hardware - - SJ305 - Non-Recurring Engineering Cost																			
Non Recurring Cost																			
2.1.1) Information Systems - NRE		-	-	11.647	-	-	2.278	-	-	1.862	-	-	1.831	-	-	0.000	-	-	1.831
2.1.2) Visual Landing Aids ⁽¹⁴⁾		-	-	10.246	-	-	4.912	-	-	5.129	-	-	5.440	-	-	0.000	-	-	5.440
2.1.3) Launcher ⁽¹⁵⁾		-	-	2.703	-	-	1.300	-	-	1.619	-	-	2.441	-	-	0.000	-	-	2.441
2.1.4) Recovery ⁽¹⁶⁾		-	-	8.088	-	-	2.360	-	-	4.745	-	-	5.725	-	-	0.000	-	-	5.725

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Exhibit P-5, Cost Analysis: PB 2020 Navy											Date: March 2019							
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 03 / 3						P-1 Line Item Number / Title: 4213 / Aircraft Support Equipment						Item Number / Title [DODIC]: 3 / Air Launch & Recovery Equip						
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)
2.1.5) ALLE ⁽¹⁷⁾	-	-	0.000	-	-	0.000	-	-	2.500	-	-	6.818	-	-	0.000	-	-	6.818
Subtotal: Non Recurring Cost	-	-	32.684	-	-	10.850	-	-	15.855	-	-	22.255	-	-	0.000	-	-	22.255
Subtotal: Hardware - - SJ305 - Non-Recurring Engineering Cost	-	-	32.684	-	-	10.850	-	-	15.855	-	-	22.255	-	-	0.000	-	-	22.255
Support - SJ800 - Integrated Logistics Cost																		
3.1) Information Systems	-	-	0.889	-	-	0.770	-	-	0.776	-	-	0.497	-	-	0.000	-	-	0.497
3.2) Visual Landing Aids ⁽¹⁸⁾	-	-	1.030	-	-	0.643	-	-	0.227	-	-	0.440	-	-	0.000	-	-	0.440
3.3) Launcher	-	-	0.595	-	-	0.119	-	-	0.139	-	-	0.143	-	-	0.000	-	-	0.143
3.4) Recovery	-	-	1.895	-	-	0.534	-	-	0.812	-	-	0.568	-	-	0.000	-	-	0.568
3.5) SLMP	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.038	-	-	0.000	-	-	0.038
3.6) ALLE ⁽¹⁹⁾	-	-	0.000	-	-	0.314	-	-	0.320	-	-	0.808	-	-	0.000	-	-	0.808
Subtotal: Support - SJ800 - Integrated Logistics Cost	-	-	4.409	-	-	2.380	-	-	2.274	-	-	2.494	-	-	0.000	-	-	2.494
Support - SJ830 - Production Engineering Cost																		
4.1) Information Systems	-	-	2.642	-	-	1.523	-	-	1.066	-	-	1.088	-	-	0.000	-	-	1.088
4.2) Visual Landing Aids ⁽²⁰⁾	-	-	3.806	-	-	2.685	-	-	0.969	-	-	1.463	-	-	0.000	-	-	1.463
4.3) Launcher	-	-	1.144	-	-	0.145	-	-	0.277	-	-	0.289	-	-	0.000	-	-	0.289
4.4) Recovery	-	-	3.468	-	-	1.370	-	-	0.755	-	-	0.720	-	-	0.000	-	-	0.720
4.5) SLMP	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.182	-	-	0.000	-	-	0.182
4.6) ALLE ⁽²¹⁾	-	-	0.000	-	-	0.354	-	-	0.353	-	-	0.846	-	-	0.000	-	-	0.846
Subtotal: Support - SJ830 - Production Engineering Cost	-	-	11.060	-	-	6.077	-	-	3.420	-	-	4.588	-	-	0.000	-	-	4.588
Support - SJ900 - Installation -NonFMP Cost																		
5.1) Information Systems	-	-	0.720	-	-	0.000	-	-	0.272	-	-	0.000	-	-	0.000	-	-	0.000
5.2) Visual Landing Aids	-	-	0.457	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000
5.4) Recovery	-	-	0.017	-	-	0.081	-	-	0.079	-	-	0.000	-	-	0.000	-	-	0.000
Subtotal: Support - SJ900 - Installation -NonFMP Cost	-	-	1.194	-	-	0.081	-	-	0.351	-	-	0.000	-	-	0.000	-	-	0.000
Support - SJ910 - Installation -FMP Cost																		
6.1) Information Systems ⁽²²⁾	-	-	2.425	-	-	0.737	-	-	3.395	-	-	3.577	-	-	0.000	-	-	3.577
6.2) Visual Landing Aids	-	-	2.624	-	-	2.495	-	-	2.473	-	-	2.265	-	-	0.000	-	-	2.265

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Exhibit P-5, Cost Analysis: PB 2020 Navy													Date: March 2019					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 03 / 3							P-1 Line Item Number / Title: 4213 / Aircraft Support Equipment						Item Number / Title [DODIC]: 3 / Air Launch & Recovery Equip					
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)
6.3) Launcher ⁽²³⁾	-	-	1.919	-	-	1.225	-	-	0.069	-	-	0.363	-	-	0.000	-	-	0.363
6.4) Recovery ⁽²⁴⁾	-	-	2.553	-	-	2.458	-	-	1.642	-	-	2.329	-	-	0.000	-	-	2.329
6.6) ALLE ⁽²⁵⁾	-	-	0.000	-	-	0.000	-	-	0.114	-	-	1.121	-	-	0.000	-	-	1.121
Subtotal: Support - SJ910 - Installation -FMP Cost	-	-	9.521	-	-	6.915	-	-	7.693	-	-	9.655	-	-	0.000	-	-	9.655
Gross/Weapon System Cost	-	-	87.826	-	-	37.787	-	-	39.965	-	-	52.910	-	-	0.000	-	-	52.910
Remarks:																		
[Hardware/Recurring] The recurring hardware funding shown is a combination of many planned hardware upgrades to a variety of Aircraft Launch and Recovery Systems and to a variety of ships/classes including Carrier Vessel Nuclear (CVNs), Amphibious Assault Ships (AAS), and Air Capable Ships (ACS), which include various unit costs/quantities for differing fiscal years. As such, hardware recurring costs will vary significantly year to year and within each item.																		
[Hardware] Non-Recurring Engineering costs are associated with design, development, systems test and evaluation, tooling, logistics, systems engineering and project management of hardware or software Engineering Changes.																		
[Support Cost] Recurring Engineering Support costs are associated with the non-level of effort (organic) labor at NAWCAD Lakehurst directly supporting the manufacture of hardware, assembly kits and installation kits for many of the service changes.																		
Footnotes:																		
⁽⁹⁾ C.E. 1.1.1 (Information Systems) The increase from FY 2019 to FY 2020 is driven by hardware (HW) procurements for Moriah Wind System (MWS) cybersecurity ECP500 for LHD 7 and LHD 8. HW procurements in FY 2020 is also for MWS on LPD 22, and Landing Signal Officer Display System (LSODS) on CVN 69, CVN 72, and CVN 76.																		
⁽¹⁰⁾ C.E. 1.1.2 (Visual Landing Aids) The increase from FY 2019 to FY 2020 is driven by additional hardware (HW) procurements for 3 ECPs in FY 2020: Aviation Lighting System-Control Panel Set (ALS-CPS) ECP-256, Improved Manually Operated Visual Landing Aid System (IMOVLAS) ECP-452, and IMOVLAS ECP-442.																		
⁽¹¹⁾ C.E. 1.1.3 (Launcher) The increase from FY 2019 to FY 2020 is driven by hardware (HW) procurements for Water Brake Preventative Maintenance System (PMS) ECP, and Low Level Launch Valve (LLLV) Semi Auto Lube.																		
⁽¹²⁾ C.E. 1.1.5 Service Life Management Program (SLMP): The increase from FY 2019 to FY 2020 is due to the first year of kit procurement for two critical safety ECPs that address cracking, which has caused inadequate service life on the Crosshead and Fixed Sheave. In FY 2020 Crosshead ECP-365 and Fixed Sheave ECP-366 procure kits for CVN 71.																		
⁽¹³⁾ C.E. 1.1.6 Aviation Land and Launch Enclave (ALLE): In FY 2020 and FY 2023 the Department added funding for Cyber Resiliency for ALLE. The increase from FY 2019 to FY 2020 is for additional core labor required to coordinate and maintain configuration management between ALLE non-recurring engineering efforts conducted by PMA 251 (ALRE) and PMA 213 (Air Traffic Control), as well as between eight different ALRE systems (ADMACS, EMALS, AAG, LSODS, Moriah Wind Systems, IFLOLS, ILARTS, and MK-7/ARC) and six different PMA 213 systems (JPALS, SPN-46, SPN-41, TPX-42, URN-32 (TACAN)/URN-25, and SPN-43/SPN-50). ALLE efforts will enhance network segmentation, device hardening, centralized monitoring, increase cyber situation awareness and incident responses within the enclave which includes multiple products within the ALRE portfolio. The ALLE program has continually executed its program plan with emphasis on flexibility, risk mitigation, and contingency planning in an environment of extreme budget fluctuation.																		
⁽¹⁴⁾ C.E. 2.1.2 VLA: The increase from FY 2019 to FY 2020 is driven by non-recurring engineering work on several obsolescence ECPs, including Vertical Short Take Off and Landing - Optical Landing System (VSTOL-OLS) and Integrated Launch and Recovery Television Surveillance/System (ILARTS).																		

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Exhibit P-5, Cost Analysis: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 03 / 3	P-1 Line Item Number / Title: 4213 / Aircraft Support Equipment	Item Number / Title [DODIC]: 3 / Air Launch & Recovery Equip
ID Code (A=Service Ready, B=Not Service Ready) :		MDAP/MAIS Code:
(15) C.E. 2.1.3 Launcher: The increase from FY 2019 to FY 2020 is driven by non-recurring engineering work on several obsolescence ECPs, including Repeatable Release Holdback Bar, Capacity Selector Valve Card Replacement, Catapult Relay Replacement, and Improved Nose Gear Launch Deck Tensioner. (16) C.E. 2.1.4 Recovery: The increase from FY 2019 to FY 2020 is driven by non-recurring engineering work on critical safety and readiness ECPs, including Advanced Recovery Control (ARC) Block Upgrade (ECP-518), MK-7 Mod 4 Retractable Sheave Block 2 Upgrade (ECP-496), and Improved Arresting Engine Fluid Cooler (ECP-495). (17) C.E. 2.1.5 ALLE: In FY 2020 and FY 2023 the Department increased Cyber Resiliency funding for ALLE. The increase from FY 2019 to FY 2020 is for organic non-recurring engineering for ECP work to implement a shipboard enclave environment, in compliance with DoD Functional Implementation Architecture (DFIA), thus reducing the cyber-attack surface for aviation land and launch systems. ALLE must coordinate with eight ALRE programs of record (ADMACS, EMALS, AAG, LSODS, Moriah Wind Systems, IFLOLS, ILARTS, and MK-7/ARC) to develop and execute ECPs which implement the cyber enclave. (18) C.E. 3.2 VLA: The increase from FY 2019 to FY 2020 is driven by integrated logistics work on several ECPs, including ALS-CPS, IMOVLAS, and ILARTS. (19) C.E. 3.6 ALLE: In FY 2020 and FY 2023 the Department increased funding required for Cyber Resiliency efforts for ALLE. The increase from FY 2019 to FY 2020 is due to the escalation of work on logistics documents and efforts required for ALLE, such as supply support, maintenance planning, technical manuals, and training systems. (20) Cost element 4.2 The increase in production engineering from FY 2019 to FY 2020 is driven by support required for multiple IFLOLS and IMOVLAS installations on multiple CVNs. (21) C.E. 4.6 ALLE: In FY 2020 and FY 2023 the Department increased funding required for Cyber Resiliency efforts for ALLE. The increase from FY 2019 to FY 2020 is due to the escalation of non-recurring engineering on ALLE ECPs and the required coordination to interface with eight ALRE programs of record (ADMACS, EMALS, AAG, LSODS, Moriah Wind Systems, IFLOLS, ILARTS, and MK-7/ARC). (22) C.E. 6.1 Information Systems: Increase from FY 2019 to FY 2020 is due to increased planning costs associated with Moriah Wind System Ship check and Ship Installation Drawings (SIDS) for LPD 20, LPD 21, and LPD 22. Ship checks and SIDS are planning costs that are essential components of install cost aboard all ship types. (23) C.E. 6.3 Launcher: Increase from FY 2019 to FY 2020 is due to hardware required for two Launcher ECPs: Catapult Relay Replacement (ECP-504) and Water Brake (ECP-171). The HW for ECP-171 is being installed on CVN 69 and CVN 72. (24) C.E. 6.4 Recovery: Increase from FY 2019 to FY 2020 due to installs of hardware required for Compact Swaging Machine on CVN 69, 71, 72, and at Lakehurst. An additional install for Hydraulic Fluid Filtration (ECP-232) will be for CVN 72. (25) C.E. 6.6 ALLE: In FY 2020 and FY 2023 the Department increased funding for Cyber Resiliency for ALLE, which partially restored the ALLE full funding profile. The increase from FY 2019 to FY 2020 is for the installation of hardware (servers/workstations to the ALRE infrastructure) associated with ALLE Task 3 that provides network authentication and event monitoring. Ship installations are predominately software installations that require software engineers, testers, and a Shipboard Operational Verification Test (SOVT), which goes beyond a simple functional operation check.		

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Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019		
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 03 / 3					P-1 Line Item Number / Title: 4213 / Aircraft Support Equipment					Modification Number / Title: 1 / ALRE - Advanced Arresting Gear (SJ301)		
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>)	15.574	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	15.574
Less PY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (<i>\$ in Millions</i>)	15.574	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	15.574
Plus CY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority (<i>\$ in Millions</i>)	15.574	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	15.574
<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: Advanced Arresting Gear (AAG) will replace the legacy Mark 7 arresting gear aboard Ford class aircraft carriers. AAG will provide the U.S. Navy with the ability to recover existing and projected aircraft carrier based air vehicles well into the 21st century. AAG will provide increased operational availability, while reducing manning, maintenance and support costs. FY 2014 and prior funded under Aircraft Support Equipment (BLI 4216). FY 2018 and out funded under Advanced Arresting Gear (AAG) (BLI 4217) for OSD MDAP Transparency.												

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Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019			
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 03 / 3					P-1 Line Item Number / Title: 4213 / Aircraft Support Equipment					Modification Number / Title: 1 / ALRE - Advanced Arresting Gear (SJ301)			
ID Code (A=Service Ready, B=Not Service Ready) :							MDAP/MAIS Code:						
Models of Systems Affected: MK-7 Legacy - Shorebased				Modification Type: Advanced Arresting Gear (SJ301)				Related RDT&E PEs: 0604512N, 0604530N					
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> ALRE - Advanced Arresting Gear (SJ301)													
B Kits													
Non-Recurring													
1.1.1) Non-Recurring Engineering - Organic ⁽²⁶⁾	- / 8.173	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / 8.173	
1.1.2) Data - Organic - Organic	- / 2.982	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / 2.982	
<i>Subtotal: Non-Recurring</i>	- / 11.155	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / 0.000	- / 11.155	
<i>Subtotal: ALRE - Advanced Arresting Gear (SJ301)</i>	- / 11.155	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / 11.155	
<i>Subtotal: Procurement, All Modification Items</i>	- / 11.155	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / 0.000	- / 11.155	
Support (All Modification Items)													
2.1) ILS	- / 0.980	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / -	- / 0.980	
2.2) PE	- / 3.439	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / -	- / 3.439	
<i>Subtotal: Support</i>	- / 4.419	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / 0.000	- / 4.419	
Installation													
<i>Subtotal: Installation</i>	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	
Total													
Total Cost (Procurement + Support + Installation)	15.574	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	15.574	

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Exhibit P-3a, Individual Modification: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 03 / 3	P-1 Line Item Number / Title: 4213 / Aircraft Support Equipment	Modification Number / Title: 1 / ALRE - Advanced Arresting Gear (SJ301)
ID Code (A=Service Ready, B=Not Service Ready) :		MDAP/MAIS Code:
Modification Item 1 of 1: ALRE - Advanced Arresting Gear (SJ301)		

Footnotes:
(26) 1.2.1 - FY18 and out funded under Advanced Arresting Gear (AAG) (BLI 4217) for OSD MDAP Transparency.

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Exhibit P-3a, Individual Modification: PB 2020 Navy									Date: March 2019			
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 03 / 3				P-1 Line Item Number / Title: 4213 / Aircraft Support Equipment					Modification Number / Title: 2 / ALRE - ADMACS Block Upgrade (SJ302)			
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)	86.578	20.001	17.034	18.989	0.000	18.989	19.463	19.479	20.563	20.701	Continuing	Continuing
Less PY Advance Procurement (\$ in Millions)	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (\$ in Millions)	86.578	20.001	17.034	18.989	0.000	18.989	19.463	19.479	20.563	20.701	Continuing	Continuing
Plus CY Advance Procurement (\$ in Millions)	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority (\$ in Millions)	86.578	20.001	17.034	18.989	0.000	18.989	19.463	19.479	20.563	20.701	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: The Aviation Data Management and Control System (ADMACS) is an integrated, network-centric, shipboard aviation operations information management system, which provides data required for aircraft carriers aviation operations planning, execution and readiness assessment. ADMACS communicates aviation and command related data elements across the ADMACS Local Area Network and Integrated Shipboard Network System that electronically displays position and location of aircraft on the flight and hangar decks, status of aircraft, Aircraft Launch and Recovery Equipment, fuel, weapons types and quantity as well as a wide variety of other aviation related and ship information. The Milestone Decision Authority (MDA) has approved the ADMACS Block (Blk) II program rebaseline in 2013. The ADMACS program experienced an MDA directed rebaseline due to software deficiencies found during final Developmental Testing (DT)/Shipboard testing and the resultant need to defer Initial Operational Test and Evaluation. The rebaselined program addressed DT identified software deficiencies as well as all outstanding Information Assurance (IA) requirements/mandates and will provide for necessary obsolescence upgrades on this largely Commercial-Off-The-Shelf system, which addresses long term supportability. The rebaseline targets the Blk I ISNS ships first and then the remaining Blk I ships from an IA requirements perspective. The rebaselined program provides for a common configuration across Nimitz and Ford Class Carriers. The program rebaseline effort will conclude with the completion of the CVN76 installation in FY 2020. ADMACS will transition from a common configuration effort to a system upgrade effort to address obsolescence and deficiencies. Efforts are heavily focused in the non-recurring budget elements to integrate field technical solutions which vary in complexity and cost. Given the constraints of Carrier availabilities, upgrades are planned based upon OPNAV controlled Carrier Availability Schedule. ADMACS deficiencies can be discovered during test through System Trouble Reports (STRs), in operation which can result from Casualty Reports (CASREPs), or in engineering investigations, hardware (HW) obsolescence or cybersecurity mandates as required by the Navy's Defense-in Depth Functional Implementation Architecture (DFIA) standard. In FY 2019 ADMACS will execute technical solutions for cybersecurity patching, HW obsolescence, and the resolution of STRs through ECP-463 (software build upgrades), ECP-505 (addresses cybersecurity vulnerabilities), ECP-475 (addresses Private IP complication specific to shipboard), as well as several other critical ADMACS ECPs. BlkI/ISNS Kits - (Full) ADMACS Installation Modification Item 1 of 2 and 2 of 2: Installation costs include the advance planning costs (i.e. ship-check) for ADMACS which are funded and occur in the year prior to actual system installation. ADMACS installation information - Installation Cost: ADMACS Block II Phase 1 is the common configuration planned for all CVNs. Depending on the system (Block I, Block I/ISNS or Block II) currently fielded, there is wide variance in the procurement and/or installation costs depending upon whether a full, completion, or upgrade Block II kit is procured or installed; current Blk I CVNs (68/72/73/74/76) and Blk I/ISNS CVNs (70/77) generally required a Full Blk II kit and a full installation; current Blk II CVNs (69/71/75) required an upgrade kit only. Specifically, CVN77 requires a completion kit. FY 2014 and prior funded under Aircraft Support Equipment (BLI 4216)												

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Exhibit P-3a, Individual Modification: PB 2020 Navy									Date: March 2019				
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 03 / 3				P-1 Line Item Number / Title: 4213 / Aircraft Support Equipment					Modification Number / Title: 2 / ALRE - ADMACS Block Upgrade (SJ302)				
ID Code (A=Service Ready, B=Not Service Ready) :							MDAP/MAIS Code:						
Models of Systems Affected: ADMACS Block 2			Modification Type: Increase Capability					Related RDT&E PEs: 0604512N					
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: Block I and Block I/ISNS													
B Kits													
Recurring													
1.1.1) Blk I/ISNS Kits - (Full) - NonOrganic ⁽²⁷⁾		3 / 11.799	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	3 / 11.799	
1.1.2) Hardware Obsolescence ECPs - Organic		- / 7.125	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / 7.125	
1.1.3) Cybersecurity - Organic		- / 8.647	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / 8.647	
1.1.4) Systems Integration & Installation - Organic		- / 7.497	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / 7.497	
Subtotal: Recurring		- / 35.068	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / 0.000	- / 35.068	
Subtotal: Block I and Block I/ISNS		3 / 35.068	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	3 / 35.068	
Modification Item 2 of 2: Block II													
B Kits													
Recurring													
2.1.1) Hardware Obsolescence ECPs - Organic ⁽²⁸⁾		- / 5.231	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	Continuing	Continuing	
2.1.2) Cyber Security - Organic ⁽²⁹⁾		- / 8.182	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	Continuing	Continuing	
2.1.3) Systems SW Integration and Installation - Organic ⁽³⁰⁾		- / 5.865	- / 0.514	- / 0.827	- / 0.758	- / -	- / 0.758	- / 0.854	- / 0.866	- / 0.852	- / 0.849	Continuing	
Subtotal: Recurring		- / 19.278	- / 0.514	- / 0.827	- / 0.758	- / -	- / 0.758	- / 0.854	- / 0.866	- / 0.852	- / 0.849	Continuing	
Non-Recurring													
2.2.1) Block II System Release Upgrade - NonOrganic ⁽³¹⁾		5 / 0.573	2 / 1.222	3 / 1.836	3 / 1.929	- / -	3 / 1.929	3 / 1.986	3 / 2.046	3 / 2.107	3 / 2.171	Continuing	
2.2.2) Hardware Obsolescence ECPs NRE - Organic ⁽³²⁾		- / -	- / 3.365	- / 3.234	- / 5.030	- / -	- / 5.030	- / 4.393	- / 2.996	- / 2.772	- / 2.898	- / -	
2.2.3) Cybersecurity ECPs NRE - Organic ⁽³³⁾		- / -	- / 5.041	- / 3.074	- / 3.330	- / -	- / 3.330	- / 5.184	- / 6.420	- / 7.480	- / 7.396	- / -	
2.2.4) Systems SW Build Integration - Organic ⁽³⁴⁾		- / -	- / -	- / 0.452	- / 1.361	- / -	- / 1.361	- / 1.746	- / 1.796	- / 1.836	- / 1.920	- / -	
Subtotal: Non-Recurring		- / 0.573	- / 9.628	- / 8.596	- / 11.650	- / -	- / 11.650	- / 13.309	- / 13.258	- / 14.195	- / 14.385	Continuing	
Subtotal: Block II		5 / 19.851	2 / 10.142	3 / 9.423	3 / 12.408	- / -	3 / 12.408	3 / 14.163	3 / 14.124	3 / 15.047	3 / 15.234	Continuing	
Subtotal: Procurement, All Modification Items		- / 54.919	- / 10.142	- / 9.423	- / 12.408	- / -	- / 12.408	- / 14.163	- / 14.124	- / 15.047	- / 15.234	Continuing	
Support (All Modification Items)													
3.1) ILS ⁽³⁵⁾		- / 4.577	- / 0.499	- / 0.445	- / 0.359	- / -	- / 0.359	- / 0.351	- / 0.346	- / 0.356	- / 0.367	Continuing	

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Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019																					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 03 / 3										P-1 Line Item Number / Title: 4213 / Aircraft Support Equipment										Modification Number / Title: 2 / ALRE - ADMACS Block Upgrade (SJ302)											
ID Code (A=Service Ready, B=Not Service Ready) :															MDAP/MAIS Code:																
Modification Item 1 of 2: Block I and Block I/ISNS																															
Manufacturer Information																															
Manufacturer Name: Bowhead Manufacturing Technology - Blk I/ISNS Kits - (Full) ⁽³⁷⁾															Manufacturer Location: Plano, TX																
Administrative Leadtime <i>(in Months)</i> : 2															Production Leadtime <i>(in Months)</i> : 11																
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: Blk I/ISNS Kits - (Full)																															
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 / 8.469		1 / 6.699		0 / 3.487		0 / 1.578		0 / 0.000		0 / 1.578		- / -		- / -		- / -		- / -		- / -		0 / 0.000		3 / 20.233					
FY 2018		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
FY 2019		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
FY 2020		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
FY 2021		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
FY 2022		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
FY 2023		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
FY 2024		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
To Complete		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
Total		2 / 8.469		1 / 6.699		0 / 3.487		0 / 1.578		0 / 0.000		0 / 1.578		- / -		- / -		- / -		- / -		- / -		0 / 0.000		3 / 20.233					
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	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 / 03 / 3				P-1 Line Item Number / Title: 4213 / Aircraft Support Equipment				Modification Number / Title: 2 / ALRE - ADMACS Block Upgrade (SJ302)																							
ID Code (A=Service Ready, B=Not Service Ready) :											MDAP/MAIS Code:																				
Modification Item 2 of 2: Block II																															
Manufacturer Information																															
Manufacturer Name: Bowhead Manufacturing Technology - Blk II System Release Upgrade ⁽³⁸⁾														Manufacturer Location: Plano, TX																	
Administrative Leadtime <i>(in Months)</i> : 2														Production Leadtime <i>(in Months)</i> : 11																	
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		Nov 2018			Nov 2019			Nov 2020			Nov 2021			Nov 2022			Nov 2023			Nov 2024											
Installation Information																															
Method of Implementation: AIT:: Installation Name: Block II System Release 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		3 / 7.118		2 / 0.062		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.000		5 / 7.180					
FY 2018		- / -		- / -		2 / 2.338		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.000		2 / 2.338					
FY 2019		- / -		- / -		- / -		3 / 3.615		0 / 0.000		3 / 3.615		- / -		- / -		- / -		- / -		- / -		0 / 0.000		3 / 3.615					
FY 2020		- / -		- / -		- / -		- / -		- / -		- / -		3 / 3.687		- / -		- / -		- / -		- / -		0 / 0.000		3 / 3.687					
FY 2021		- / -		- / -		- / -		- / -		- / -		- / -		- / -		3 / 3.687		- / -		- / -		- / -		0 / 0.000		3 / 3.687					
FY 2022		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		3 / 3.798		- / -		- / -		0 / 0.000		3 / 3.798					
FY 2023		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		3 / 3.874		- / -		0 / 0.000		3 / 3.874					
FY 2024		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		3 / 3.815		- / -		3 / 3.815					
To Complete		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.000		- / -					
Total		3 / 7.118		2 / 0.062		2 / 2.338		3 / 3.615		0 / 0.000		3 / 3.615		3 / 3.687		3 / 3.687		3 / 3.798		3 / 3.874		3 / 3.815		25 / 31.994							
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	-	-	-	2	-	-	-	3	-	-	-	3	-	-	-	3	-	-	-	3	-	-	-	3	-	-	3	25
Out	2	-	1	-	2	-	-	-	2	-	-	-	3	-	-	-	3	-	-	-	3	-	-	-	3	-	-	-	3	3	25
Footnotes:																															
⁽²⁷⁾ C.E. 1.1.1 - The 3 kits procured in FY 2016 are full kits. The time from procurement to installation varies due to: 1) constantly shifting CVN availabilities, and 2) the need to bundle procurements of several kits and do obsolescence upgrade ECPs for each bundle. FY 2018 Block I and Block I/SNS Installation costs increased due to an overrun on AMDACS AIT Installation contracts for CVN68 and CVN74. Additional funds were provided in September of 2018 for the increased costs.																															

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Exhibit P-3a, Individual Modification: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 03 / 3	P-1 Line Item Number / Title: 4213 / Aircraft Support Equipment	Modification Number / Title: 2 / ALRE - ADMACS Block Upgrade (SJ302)
ID Code (A=Service Ready, B=Not Service Ready) :		MDAP/MAIS Code:
(28) C.E. 2.1.1 - Moved costs from C.E. 2.1.1 to 2.2.1, where kit procurement for the System Release Upgrade effort will be shown. The ADMACS program will transition from a common configuration effort to a system upgrade effort, with the first system release procurement occurring in FY 2018 and installing in FY 2019. Service change kits for ADMACS are only required for (HW) ECPs. These kits are procured in a single fiscal year for all ships and land based lab sites due to the rate at which these components become obsolete. Attempting to procure HW annualized with installs would result in multiple different shipboard configurations due to obsolescence and excessive cost spent on annual requalification of updated HW. Bundled procurements of several kits are required in order to do obsolescence upgrade ECPs. Software (SW) upgrades and installs do not require kit procurement because the upgrade is developed and installed organically. (29) C.E. 2.1.2 - Cybersecurity costs moved to cost element 2.2.3. These costs are more accurately classified as non-recurring. (30) C.E. 2.1.3 - Costs include the install of hardware and software obsolescence updates performed by an organic team (government labor, travel, etc.). Some cost was moved to 2.1.3 in FY21-FY24 for continuity in the SW integration effort throughout the FYDP. (31) C.E. 2.2.1 - Costs moved to 2.2.1 from cost elements 2.1.1, 2.2.2 and 2.2.3 in order to show procurements of Block II upgrade kits for the annual system release upgrade effort. Increase from FY 2019 to FY 2020 includes a 3% escalation factor per unit on kit procurement. The ADMACS program will transition from a common configuration effort to a system upgrade effort, with the first system release procurement occurring in FY 2018 and installing in FY 2019. (32) C.E. 2.2.2 - Hardware Obsolescence ECPs represent the organic work required to address obsolescent components in system hardware. Integration and installation of these ECPs is performed organically under cost element 2.1.3. Some costs moved from 2.2.2 to 2.2.1 (for kit procurement) and to the Block II Install line for the installation of the system release upgrade. The cost increase from FY 2019 to FY 2020 is for ECPs associated with both hardware and software that are required to maintain system availability, meet cybersecurity requirements, and enhance reliability. These ECPs resolve deficiencies identified by Fleet Support Team in Software Trouble Reports (STRs) and also implement Commercial off the Shelf (COTS) patch tools to deliver and support critical cybersecurity updates. Hardware and software obsolescence ECPs qualify replacements for obsolete hardware and obsolete operating systems and COTS software. (33) C.E. 2.2.3 - Cybersecurity ECPs represent the organic work required to mitigate emerging Cyber threats as well as software obsolescence. Integration and installation of these ECPs is performed organically under cost element 2.1.3. Increase from FY 2019 to FY 2020 is due to completing ECP285, which upgrades EMALS and AAG to ADMACS Software (SW) Build 3. Increases in FY 2020 also includes updating the lab test facility for the latest cybersecurity patches and SW versions. Some costs moved from 2.2.3 to 2.2.1 for procurement of Block II upgrade kits for the system release upgrade effort. (34) C.E. 2.2.4 -Added costs in FY 2019, FY 2021, and FY 2023 due to a required shift to annual software (SW) builds from a biennial build strategy. Increase from FY 2019 to FY 2020 is due to a ramp up in non-recurring engineering for the next ADMACS SW build and integration effort. This is required due to the complexity of critical SW integration and number of security mandates to be incorporated into each build. Systems Software Build Integration non-recurring engineering represents the organic work required to integrate SW developed under individual ECPs into a SW build to integrate into the ADMACS SW baseline. This task is performed in builds (as opposed to ECP by ECP) to improve the efficiency of common tasking that must take place for each, and reduce the cost of the overall integration task. Once integrated, the ADMACS SW version number is changed, and that version is approved for install. (35) C.E. 3.1 - Adjusted costs in ILS from FY 2020 to FY 2024 are a result of a cost estimate update of support to complete logistics products updates (Tech Manuals, Maintenance Plan, MRCs, Training) for ADMACS Block II. (36) C.E. 3.2 Adjusted costs in PE is due to incorporating hardware obsolescence and cybersecurity engineering efforts into ECPs reflected in C.E. 2.1.3, 2.2.2, 2.2.3, and 2.2.4. (37) The time from procurement to installation varies due to: 1) constantly shifting CVN availabilities, and 2) the need to bundle procurements of several kits and do obsolescence upgrade ECPs for each bundle. ADMACS installation requires at least a 6 month ship availability, however CVN76 is only available for 4 months in years before 2023. Due to the nature of the availability schedule of this forward deployed Carrier, three separate ship availabilities are required to complete the install aboard CVN76. Therefore, the installation for CVN76 must take place over 3 Carrier availabilities in FY 2018, FY 2019, and FY 2020. The higher cumulative cost associated with the CVN76 install in FY 2018 - FY 2020 is due to additional government labor, contract cost, modification work OCONUS in Japan, and administrative coordination for three availabilities rather than one. The CVN76 install quantity of 1 is shown in FY18 and a quantity of 0 is shown in FY 2019 and FY 2020. (38) The ADMACS program rebaseline effort concludes with the completion of the CVN76 installation in FY 2020 (Block I and Block I/ISNS install line). The program will transition from a common configuration effort to a system upgrade effort, with the first system release procurement occurring in FY18 and installing in FY19 (Block II install line). Costs are added to the Block II install line to show installs for the System Release Upgrade effort, which begins with 2 installs in FY 2019 and targets 3 carrier installs per year thereafter.		

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Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019		
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 03 / 3				P-1 Line Item Number / Title: 4213 / Aircraft Support Equipment						Modification Number / Title: 3 / ALRE - Electromagnetic Aircraft Launch System (EMALS) (SJ306)		
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>)	1.057	4.715	6.483	23.798	0.000	23.798	5.771	5.205	15.091	4.165	Continuing	Continuing
Less PY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (<i>\$ in Millions</i>)	1.057	4.715	6.483	23.798	0.000	23.798	5.771	5.205	15.091	4.165	Continuing	Continuing
Plus CY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority (<i>\$ in Millions</i>)	1.057	4.715	6.483	23.798	0.000	23.798	5.771	5.205	15.091	4.165	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: The Electromagnetic Aircraft Launch System (EMALS) is replacing the C13 Steam Catapult System aboard Ford class carriers and is an advanced technology aircraft launch system which provides better control of applied forces, improved reliability and maintainability, reduced manning workload and increased operational availability. FY 2020 baseline funding is required for software/hardware procurements and updates to address emerging cyber security threats to maintain authority to operate (ATO), to modify the Transformer Rectifier Fuse Detection and Actuator to increase the reliability of the Transformer Rectifier, and to modify the Position Sensor Block to increase reliability and replace obsolete parts. Non-recurring engineering funding is required for CVN-78 Engineering Change Proposals and to modify the Halfbridges to incorporate the next generation of Integrated Gate Bipolar Transfer (IGBT) to improve reliability and replace obsolete prior generation IGBT.												

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Exhibit P-3a, Individual Modification: PB 2020 Navy									Date: March 2019				
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 03 / 3				P-1 Line Item Number / Title: 4213 / Aircraft Support Equipment					Modification Number / Title: 3 / ALRE - Electromagnetic Aircraft Launch System (EMALS) (SJ306)				
ID Code (A=Service Ready, B=Not Service Ready) :							MDAP/MAIS Code:						
Models of Systems Affected: C13-2 Steam Catapult			Modification Type: Reliability and Maintainability					Related RDT&E PEs: 0604112N					
Financial Plan (*) Indicates the modification is being installed organically and no installation funds are required.	Prior Years	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) Transformer Rectifier Fuse Detection Actuator - NonOrganic ⁽³⁹⁾ Installation 1 of 10	- / -	- / -	4 / 0.029	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	4 / 0.029	
1.1.2) Position Sensor - NonOrganic ⁽⁴⁰⁾ Installation 2 of 10	- / -	5 / 2.261	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	5 / 2.261	
1.1.3) Hardware Obsolescence - NonOrganic ⁽⁴¹⁾ Installation 3 of 10	- / -	- / -	- / -	- / -	- / -	- / -	8 / 0.147	- / -	- / -	- / -	Continuing	Continuing	
1.1.4) Torsion Brake - NonOrganic ⁽⁴²⁾ Installation 4 of 10	- / -	2 / 0.032	12 / 0.155	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	14 / 0.187	
1.1.5) Halfbridges - NonOrganic ⁽⁴³⁾ Installation 5 of 10	- / -	- / -	- / -	29 / 1.010	- / -	29 / 1.010	92 / 3.486	57 / 2.098	73 / 2.692	80 / 3.017	101 / 4.320	432 / 16.623	
1.1.6) Sixnet Switches - NonOrganic ⁽⁴⁴⁾ Installation 6 of 10	- / -	- / -	177 / 1.361	142 / 1.114	- / -	142 / 1.114	- / -	- / -	- / -	- / -	- / -	319 / 2.475	
1.1.7) Transformer Rectifier - NonOrganic ⁽⁴⁵⁾ Installation 7 of 10	- / -	- / -	- / -	3 / 10.390	- / -	3 / 10.390	- / -	- / -	- / -	- / -	- / -	3 / 10.390	
1.1.8) Ground Fault Detection - NonOrganic ⁽⁴⁶⁾ Installation 8 of 10	- / -	- / -	- / -	48 / 2.780	- / -	48 / 2.780	- / -	- / -	- / -	- / -	- / -	48 / 2.780	
1.1.9) PC104 Hardware Obsolescence - NonOrganic ⁽⁴⁷⁾ Installation 9 of 10	- / -	- / -	8 / 0.392	20 / 0.942	- / -	20 / 0.942	- / -	- / -	- / -	- / -	- / -	28 / 1.334	
1.1.10) UIC40 Urgent Obsolescence - NonOrganic ⁽⁴⁸⁾ Installation 10 of 10	- / -	- / -	24 / 0.027	72 / 0.083	- / -	72 / 0.083	- / -	- / -	- / -	- / -	- / -	96 / 0.110	
1.2.1) Non-Recurring Engineering - Organic ^(*) (49)	- / 0.349	- / 2.034	- / 3.976	- / 5.428	- / -	- / 5.428	- / 0.888	- / 2.437	- / 0.004	- / 1.054	Continuing	Continuing	
Subtotal: Procurement	- / 0.349	- / 4.327	- / 5.940	- / 21.747	- / -	- / 21.747	- / 4.521	- / 4.535	- / 2.696	- / 4.071	Continuing	Continuing	
Support													
2.1) PE	- / 0.602	- / 0.078	- / 0.081	- / 0.083	- / -	- / 0.083	- / -	- / -	- / -	- / -	Continuing	Continuing	
2.2) ILS ⁽⁵⁰⁾	- / 0.106	- / 0.206	- / 0.379	- / 1.508	- / -	- / 1.508	- / 0.893	- / 0.367	- / 0.076	- / -	Continuing	Continuing	
Subtotal: Support	- / 0.708	- / 0.284	- / 0.460	- / 1.591	- / -	- / 1.591	- / 0.893	- / 0.367	- / 0.076	- / -	Continuing	Continuing	
Installation													
Installation 1 of 10: GRP: 1.1.1) Transformer Rectifier Fuse Detection Actuator	- / -	- / -	- / 0.058	- / 0.177	- / 0.000	- / 0.177	- / -	- / -	- / -	- / -	- / 0.000	- / 0.235	
Installation 2 of 10: GRP: 1.1.2) Position Sensor	- / -	- / 0.101	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / 0.000	- / 0.101	
Installation 3 of 10: GRP: 1.1.3) Hardware Obsolescence	- / -	- / -	- / -	- / -	- / -	- / -	- / 0.005	- / 0.005	- / -	- / -	- / 0.000	- / 0.010	

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Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019			
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 03 / 3					P-1 Line Item Number / Title: 4213 / Aircraft Support Equipment					Modification Number / Title: 3 / ALRE - Electromagnetic Aircraft Launch System (EMALS) (SJ306)			
ID Code (A=Service Ready, B=Not Service Ready) :							MDAP/MAIS Code:						
Models of Systems Affected: C13-2 Steam Catapult			Modification Type: Reliability and Maintainability					Related RDT&E PEs: 0604112N					
Financial Plan (*) Indicates the modification is being installed organically and no installation funds are required.	Prior Years	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)	
Installation 4 of 10: GRP: 1.1.4) Torsion Brake	- / -	- / 0.003	- / 0.010	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / 0.000	- / 0.013	
Installation 5 of 10: GRP: 1.1.5) Halfbridges	- / -	- / -	- / -	- / 0.025	- / 0.000	- / 0.025	- / 0.087	- / 0.066	- / 0.080	- / 0.094	- / 0.145	- / 0.497	
Installation 6 of 10: GRP: 1.1.6) Sixnet Switches	- / -	- / -	- / -	- / 0.243	- / 0.000	- / 0.243	- / 0.265	- / -	- / -	- / -	- / 0.000	- / 0.508	
Installation 7 of 10: GRP: 1.1.7) Transformer Rectifier	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / 11.760	- / -	- / 0.000	- / 11.760	
Installation 8 of 10: GRP: 1.1.8) Ground Fault Detection	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / 0.232	- / 0.479	- / -	- / 0.000	- / 0.711	
Installation 9 of 10: GRP: 1.1.9) PC104 Hardware Obsolescence	- / -	- / -	- / 0.005	- / 0.005	- / 0.000	- / 0.005	- / -	- / -	- / -	- / -	- / 0.000	- / 0.010	
Installation 10 of 10: GRP: 1.1.10) UIC40 Urgent Obsolescence	- / -	- / -	- / 0.010	- / 0.010	- / 0.000	- / 0.010	- / -	- / -	- / -	- / -	- / 0.000	- / 0.020	
Subtotal: Installation	- / 0.000	- / 0.104	- / 0.083	- / 0.460	- / -	- / 0.460	- / 0.357	- / 0.303	- / 12.319	- / 0.094	- / 0.145	- / 13.865	
Total													
Total Cost (Procurement + Support + Installation)	1.057	4.715	6.483	23.798	0.000	23.798	5.771	5.205	15.091	4.165	Continuing	Continuing	

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Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019																					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 03 / 3										P-1 Line Item Number / Title: 4213 / Aircraft Support Equipment										Modification Number / Title: 3 / ALRE - Electromagnetic Aircraft Launch System (EMALS) (SJ306)											
ID Code (A=Service Ready, B=Not Service Ready) :															MDAP/MAIS Code:																
Installation 1 of 10: GRP: 1.1.1) Transformer Rectifier Fuse Detection Actuator																															
Manufacturer Information																															
Manufacturer Name: General Atomics															Manufacturer Location: San Diego, CA																
Administrative Leadtime (in Months): 4															Production Leadtime (in Months): 3																
Dates		FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024					
Contract Dates						Jan 2019																									
Delivery Dates						Apr 2019																									
Installation Information																															
Method of Implementation: ALT:: Installation Name: 1.1.1) Transformer Rectifier Fuse Detection Actuator																															
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		- / -	- / -		1 / 0.058		3 / 0.177		0 / 0.000		3 / 0.177		- / -		- / -		- / -		- / -		- / -		0 / 0.000		4 / 0.235						
FY 2020		- / -	- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -						
FY 2021		- / -	- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -						
FY 2022		- / -	- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -						
FY 2023		- / -	- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -						
FY 2024		- / -	- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -						
To Complete		- / -	- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -						
Total		- / -	- / -		1 / 0.058		3 / 0.177		0 / 0.000		3 / 0.177		- / -		- / -		- / -		- / -		- / -		0 / 0.000		4 / 0.235						
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

UNCLASSIFIED

Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019																					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 03 / 3					P-1 Line Item Number / Title: 4213 / Aircraft Support Equipment					Modification Number / Title: 3 / ALRE - Electromagnetic Aircraft Launch System (EMALS) (SJ306)																					
ID Code (A=Service Ready, B=Not Service Ready) :										MDAP/MAIS Code:																					
Installation 2 of 10: GRP: 1.1.2) Position Sensor																															
Manufacturer Information																															
Manufacturer Name: General Atomics										Manufacturer Location: San Diego, CA																					
Administrative Leadtime (in Months): 8										Production Leadtime (in Months): 3																					
Dates	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024																								
Contract Dates	May 2018																														
Delivery Dates	Aug 2018																														
Installation Information																															
Method of Implementation: ALT:: Installation Name: 1.1.2) Position Sensor																															
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	- / -	5 / 0.101	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	5 / 0.101																		
FY 2019	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -																		
FY 2020	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -																		
FY 2021	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -																		
FY 2022	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -																		
FY 2023	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -																		
FY 2024	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -																		
To Complete	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -																		
Total	- / -	5 / 0.101	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	5 / 0.101																		
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	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5
Out	-	-	-	-	-	-	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5

UNCLASSIFIED

Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019																					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 03 / 3										P-1 Line Item Number / Title: 4213 / Aircraft Support Equipment										Modification Number / Title: 3 / ALRE - Electromagnetic Aircraft Launch System (EMALS) (SJ306)											
ID Code (A=Service Ready, B=Not Service Ready) :															MDAP/MAIS Code:																
Installation 3 of 10: GRP: 1.1.3) Hardware Obsolescence																															
Manufacturer Information																															
Manufacturer Name: General Atomics															Manufacturer Location: San Diego, CA																
Administrative Leadtime (in Months): 3															Production Leadtime (in Months): 2																
Dates		FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024					
Contract Dates														Dec 2020																	
Delivery Dates														Feb 2021																	
Installation Information																															
Method of Implementation: ALT:: Installation Name: 1.1.3) Hardware 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		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
FY 2018		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
FY 2019		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
FY 2020		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
FY 2021		- / -		- / -		- / -		- / -		- / -		- / -		- / -		5 / 0.005		3 / 0.005		- / -		- / -		0 / 0.000		8 / 0.010					
FY 2022		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
FY 2023		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
FY 2024		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
To Complete		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
Total		- / -		- / -		- / -		- / -		- / -		- / -		- / -		5 / 0.005		3 / 0.005		- / -		- / -		0 / 0.000		8 / 0.010					
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	-	-	3	-	-	-	-	-	-	-	-	-	-	-	-	8
Out	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5	-	-	3	-	-	-	-	-	-	-	-	-	-	-	8

UNCLASSIFIED

Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019																					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 03 / 3					P-1 Line Item Number / Title: 4213 / Aircraft Support Equipment					Modification Number / Title: 3 / ALRE - Electromagnetic Aircraft Launch System (EMALS) (SJ306)																					
ID Code (A=Service Ready, B=Not Service Ready) :										MDAP/MAIS Code:																					
Installation 4 of 10: GRP: 1.1.4) Torsion Brake																															
Manufacturer Information																															
Manufacturer Name: General Atomics										Manufacturer Location: San Diego, CA																					
Administrative Leadtime (in Months): 4										Production Leadtime (in Months): 2																					
Dates	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024																								
Contract Dates	Jan 2018	Jan 2019																													
Delivery Dates	Mar 2018	Mar 2019																													
Installation Information																															
Method of Implementation: ALT:: Installation Name: 1.1.4) Torsion Brake																															
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 / 0.003	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	2 / 0.003																		
FY 2019	- / -	- / -	12 / 0.010	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	12 / 0.010																		
FY 2020	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -																		
FY 2021	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -																		
FY 2022	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -																		
FY 2023	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -																		
FY 2024	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -																		
To Complete	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -																		
Total	- / -	2 / 0.003	12 / 0.010	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	14 / 0.013																		
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	-	-	-	12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	14
Out	-	-	-	2	-	-	-	-	12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	14

UNCLASSIFIED

Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019																					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 03 / 3										P-1 Line Item Number / Title: 4213 / Aircraft Support Equipment										Modification Number / Title: 3 / ALRE - Electromagnetic Aircraft Launch System (EMALS) (SJ306)											
ID Code (A=Service Ready, B=Not Service Ready) :															MDAP/MAIS Code:																
Installation 5 of 10: GRP: 1.1.5) Halfbridges																															
Manufacturer Information																															
Manufacturer Name: General Atomics															Manufacturer Location: San Diego, CA																
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 2019				Dec 2020				Dec 2021				Dec 2022				Dec 2023					
Delivery Dates										Jun 2020				Jun 2021				Jun 2022				Jun 2023				Jun 2024					
Installation Information																															
Method of Implementation: ALT:: Installation Name: 1.1.5) Halfbridges																															
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		- / -		- / -		- / -		29 / 0.025		0 / 0.000		29 / 0.025		- / -		- / -		- / -		- / -		- / -		0 / 0.000		29 / 0.025					
FY 2021		- / -		- / -		- / -		- / -		- / -		- / -		92 / 0.087		- / -		- / -		- / -		- / -		0 / 0.000		92 / 0.087					
FY 2022		- / -		- / -		- / -		- / -		- / -		- / -		- / -		57 / 0.066		- / -		- / -		- / -		0 / 0.000		57 / 0.066					
FY 2023		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		73 / 0.080		- / -		- / -		0 / 0.000		73 / 0.080					
FY 2024		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		80 / 0.094		- / -		0 / 0.000		80 / 0.094					
To Complete		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		101 / 0.145		101 / 0.145		101 / 0.145					
Total		- / -		- / -		- / -		29 / 0.025		0 / 0.000		29 / 0.025		92 / 0.087		57 / 0.066		73 / 0.080		80 / 0.094		101 / 0.145		432 / 0.497		432 / 0.497					
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	-	-	-	92	-	-	-	57	-	-	-	73	-	-	-	80	-	101	432
Out	-	-	-	-	-	-	-	-	-	-	-	4	25	-	-	13	79	-	-	13	44	-	-	13	60	-	-	24	56	101	432

UNCLASSIFIED

Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019																					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 03 / 3										P-1 Line Item Number / Title: 4213 / Aircraft Support Equipment										Modification Number / Title: 3 / ALRE - Electromagnetic Aircraft Launch System (EMALS) (SJ306)											
ID Code (A=Service Ready, B=Not Service Ready) :															MDAP/MAIS Code:																
Installation 6 of 10: GRP: 1.1.6) Sixnet Switches																															
Manufacturer Information																															
Manufacturer Name: General Atomics															Manufacturer Location: San Diego, CA																
Administrative Leadtime (in Months): 4															Production Leadtime (in Months): 6																
Dates		FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024					
Contract Dates						Jan 2019				Jan 2020																					
Delivery Dates						Jul 2019				Jul 2020																					
Installation Information																															
Method of Implementation: ALT:: Installation Name: 1.1.6) Sixnet Switches																															
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		- / -		- / -		- / -		177 / 0.243		0 / 0.000		177 / 0.243		- / -		- / -		- / -		- / -		- / -		0 / 0.000		177 / 0.243					
FY 2020		- / -		- / -		- / -		- / -		- / -		- / -		142 / 0.265		- / -		- / -		- / -		- / -		0 / 0.000		142 / 0.265					
FY 2021		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
FY 2022		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
FY 2023		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
FY 2024		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
To Complete		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
Total		- / -		- / -		- / -		177 / 0.243		0 / 0.000		177 / 0.243		142 / 0.265		- / -		- / -		- / -		- / -		0 / 0.000		319 / 0.508					
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	-	-	-	-	-	-	-	-	-	177	-	-	-	142	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	319
Out	-	-	-	-	-	-	-	-	-	-	177	-	-	-	-	-	142	-	-	-	-	-	-	-	-	-	-	-	-	-	319

UNCLASSIFIED

Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019																					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 03 / 3										P-1 Line Item Number / Title: 4213 / Aircraft Support Equipment										Modification Number / Title: 3 / ALRE - Electromagnetic Aircraft Launch System (EMALS) (SJ306)											
ID Code (A=Service Ready, B=Not Service Ready) :															MDAP/MAIS Code:																
Installation 7 of 10: GRP: 1.1.7) Transformer Rectifier																															
Manufacturer Information																															
Manufacturer Name: General Atomics															Manufacturer Location: San Diego, CA																
Administrative Leadtime (in Months): 7															Production Leadtime (in Months): 24																
Dates		FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024					
Contract Dates										Apr 2020																					
Delivery Dates										Apr 2022																					
Installation Information																															
Method of Implementation: ALT:: Installation Name: 1.1.7) Transformer Rectifier																															
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		- / -	- / -		- / -		- / -		- / -		- / -		- / -		- / -		3 / 11.760		- / -		0 / 0.000		3 / 11.760								
FY 2021		- / -	- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -						
FY 2022		- / -	- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -						
FY 2023		- / -	- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -						
FY 2024		- / -	- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -						
To Complete		- / -	- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -						
Total		- / -	- / -		- / -		- / -		- / -		- / -		- / -		- / -		3 / 11.760		- / -		0 / 0.000		3 / 11.760								
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
Out	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	-	-	-	-	-	-	-	3

UNCLASSIFIED

Exhibit P-3a, Individual Modification: PB 2020 Navy												Date: March 2019																			
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 03 / 3										P-1 Line Item Number / Title: 4213 / Aircraft Support Equipment										Modification Number / Title: 3 / ALRE - Electromagnetic Aircraft Launch System (EMALS) (SJ306)											
ID Code (A=Service Ready, B=Not Service Ready) :														MDAP/MAIS Code:																	
Installation 8 of 10: GRP: 1.1.8) Ground Fault Detection																															
Manufacturer Information																															
Manufacturer Name: General Atomics													Manufacturer Location: San Diego, CA																		
Administrative Leadtime (in Months): 4													Production Leadtime (in Months): 19																		
Dates		FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024					
Contract Dates										Jan 2020																					
Delivery Dates										Aug 2021																					
Installation Information																															
Method of Implementation: ALT:: Installation Name: 1.1.8) Ground Fault Detection																															
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		- / -		- / -		- / -		- / -		- / -		- / -		- / -		12 / 0.232		36 / 0.479		- / -		0 / 0.000		48 / 0.711							
FY 2021		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
FY 2022		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
FY 2023		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
FY 2024		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
To Complete		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
Total		- / -		- / -		- / -		- / -		- / -		- / -		- / -		12 / 0.232		36 / 0.479		- / -		0 / 0.000		48 / 0.711							
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	-	-	-	36	-	-	-	-	-	-	-	-	48
Out	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12	-	-	36	-	-	-	-	-	-	-	48

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Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019																					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 03 / 3										P-1 Line Item Number / Title: 4213 / Aircraft Support Equipment										Modification Number / Title: 3 / ALRE - Electromagnetic Aircraft Launch System (EMALS) (SJ306)											
ID Code (A=Service Ready, B=Not Service Ready) :															MDAP/MAIS Code:																
Installation 9 of 10: GRP: 1.1.9) PC104 Hardware Obsolescence																															
Manufacturer Information																															
Manufacturer Name: General Atomics															Manufacturer Location: San Diego, CA																
Administrative Leadtime (in Months): 4															Production Leadtime (in Months): 2																
Dates		FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024					
Contract Dates						Jan 2019				Jan 2020																					
Delivery Dates						Mar 2019				Mar 2020																					
Installation Information																															
Method of Implementation: ALT:: Installation Name: 1.1.9) PC104 Hardware 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		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
FY 2018		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
FY 2019		- / -		- / -		8 / 0.005		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.000		8 / 0.005					
FY 2020		- / -		- / -		- / -		20 / 0.005		0 / 0.000		20 / 0.005		- / -		- / -		- / -		- / -		- / -		0 / 0.000		20 / 0.005					
FY 2021		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
FY 2022		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
FY 2023		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
FY 2024		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
To Complete		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
Total		- / -		- / -		8 / 0.005		20 / 0.005		0 / 0.000		20 / 0.005		- / -		- / -		- / -		- / -		- / -		0 / 0.000		28 / 0.010					
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	-	-	-	-	20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Out	-	-	-	-	-	-	-	-	8	-	-	-	20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		

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Exhibit P-3a, Individual Modification: PB 2020 Navy											Date: March 2019																				
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 03 / 3										P-1 Line Item Number / Title: 4213 / Aircraft Support Equipment										Modification Number / Title: 3 / ALRE - Electromagnetic Aircraft Launch System (EMALS) (SJ306)											
ID Code (A=Service Ready, B=Not Service Ready) :															MDAP/MAIS Code:																
Installation 10 of 10: GRP: 1.1.10) UIC40 Urgent Obsolescence																															
Manufacturer Information																															
Manufacturer Name: General Atomics														Manufacturer Location: San Diego, CA																	
Administrative Leadtime <i>(in Months)</i> : 4														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 2019				Jan 2020																					
Delivery Dates						Apr 2019				Apr 2020																					
Installation Information																															
Method of Implementation: ALT:: Installation Name: 1.1.10) UIC40 Urgent 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		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
FY 2018		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
FY 2019		- / -		- / -		24 / 0.010		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.000		24 / 0.010					
FY 2020		- / -		- / -		- / -		72 / 0.010		0 / 0.000		72 / 0.010		- / -		- / -		- / -		- / -		- / -		0 / 0.000		72 / 0.010					
FY 2021		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
FY 2022		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
FY 2023		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
FY 2024		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
To Complete		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
Total		- / -		- / -		24 / 0.010		72 / 0.010		0 / 0.000		72 / 0.010		- / -		- / -		- / -		- / -		- / -		0 / 0.000		96 / 0.020					
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	-	-	-	-	-	-	-	24	-	-	-	-	72	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Out	-	-	-	-	-	-	-	-	24	-	-	-	72	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Footnotes: ⁽³⁹⁾ 1.1.1 Transformer Rectifier Fuse Detection Actuator: FY 2019 funding is required to increase the reliability of the Transformer Rectifier (TR) by adding a new circuit to detect the functionality of the control fuse. Additionally, the existing actuator is being replaced with a more reliable and robust unit. The quantity of 4 are being procured for the following, 1 to be installed at the System Functional Demonstration (SFD) site in FY 2019 and 3 for installation on CVN78 during its FY 2020 PIA (Planned Incremental Availability).																															

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Exhibit P-3a, Individual Modification: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 03 / 3	P-1 Line Item Number / Title: 4213 / Aircraft Support Equipment	Modification Number / Title: 3 / ALRE - Electromagnetic Aircraft Launch System (EMALS) (SJ306)
ID Code (A=Service Ready, B=Not Service Ready) :		MDAP/MAIS Code:
⁽⁴⁰⁾ 1.1.2 Position Sensor: Position Sensor Blocks (PSB) are a critical safety item experiencing failures which require the shutdown of the effected catapult until the PSB can be replaced. This effort improves the reliability of the PSB and the overall system availability. The quantity in FY 2018 has been updated from the PB19 budget from 2 to now reflect a quantity of 5. Installation are planned as follows: one for the SFD test site (1 catapult) and four for CVN78 (4 catapults). The fasteners onboard CVN78 will be changed during its Post Shakedown Availability (PSA) period. ⁽⁴¹⁾ 1.1.3 Hardware Obsolescence: Crystal Rugged Servers are obsolete and are required for EMALS to maintain its Authority to Operate (ATO). This replaces COTS hardware servers and software that will be installed during CVN78 PIA in FY 2020. The program plans to procure all 8 together for economic order quantity and install 5 in FY 2021 (2 at System Functional Demonstrator (SFD), 2 at Shipset Control Lab (SCL), and 1 at Regression Test Lab (RTL)) and 3 in FY 2022 (remaining 1 at RTL, and last 2 at CVN78 during pier side availability in FY 2022). The 5 units being installed in FY 2021 are based on the land-based equipment. This is used to validate the design and installation procedures before ship installation. There is a risk of obsolescence to the Carrier if they are not procured in the same year. ⁽⁴²⁾ 1.1.4 Armature Torsion Brake: There were four (4) failures on CVN78 due to a combination of stress cycle and the environment. As a result, the PB19 quantity of 14 in FY 2018 was updated to reflect the procurement of 2 in FY 2018 for 2 prototypes to modify the material to increase the corrosion resilience, change the interface geometry to reduce the stresses and a feature change to increase chamfer height so that it remains present under all operational states of brake pad wear producing a more robust upgraded Armature Torsion Brake. The 12 units being procured in FY 2019 are for 2 production units for SFD sites to be installed in FY 2019, and 10 units in FY 2019 for CVN78 to be installed during the PSA. They will be installed in the same year as procured. Unit cost decreased based on more recent estimates and design maturity. ⁽⁴³⁾ 1.1.5, 1.1.6, 1.1.7 and 1.1.8 - Quantities have been updated to reflect individual components rather than shipsets/catapults. 1.1.5 Halfbridges: Prime Power Interface System/Power Conversion System (PPIS/PCS) HalfBridge Gen 3 were state of the art when originally designed. They are currently under capacity and obsolete for the performance requirements of the system for faulted inverter operating modes. This upgrade is required for halfbridge reliability and to address Insulated Gate Bipolar Transistor (IGBT) obsolescence. Installation will begin during the Planned Incremental Availability (PIA) beginning in FY 2020. The quantity 432 equates to 324 for CVN78, and 108 for SFD. ⁽⁴⁴⁾ 1.1.6 Sixnet Switches: In the PB19 original FY 2018 budget was to procure 5 sets of switches (4 for CVN78 and 1 for SFD test site) and to only complete the required NRE; however, the current switches cannot handle the system bandwidth requirements and the current switches are also obsolete and can no longer be purchased. Design verification requires updated switches to be tested in the Shipset Controls Lab (SCL) that was originally not considered necessary, testing entails validating software coding, and compatibility with other EMALS components prior to ship installation. New quantities in FY 2019 are 177 for SFD site and 142 for SCL testing. In FY 2020 a quantity of 142 will be procured for CVN78. Installations will occur as described in P-3A portion of this budget with units for both the SFD test site and the SCL being installed in FY 2020, and the units for CVN78 to be installed in FY 2021 during the PIA. ⁽⁴⁵⁾ 1.1.7 Transformer Rectifier: TR #3 aboard CVN78 failed during installation testing in fall 2015 due to design deficiency. This design deficiency has been corrected and the FY 2020 procurement for 3 replacement TR's for CVN78 will be installed in the FY 2023 PIA. The procurement for this item is required in FY 2020 for a CVN78 PIA in FY 2023 because there is a 24-month production lead time for General Atomics to produce the TRs and actually deliver them in time for the PIA in FY 2023. ⁽⁴⁶⁾ 1.1.8 Ground Fault Detection: Multiple ground faults in a single motor phase causes damage to EMALS health that could cause two catapults to be down at the same time which decreases EMALS readiness and availability during flight operations. The system needs this detection upgrade to monitor and prevent downtime. The strategy is to procure 12 for SFD and 36 for CVN78 in FY 2020. The total procurement is planned all in one year/lot to ensure economic order quantity and same configuration item for SFD as well as for the ship. There is a risk of obsolescence if they are not procured in the same year. The lead time and ship availability is driving the install schedule. In FY 2022, 12 units will be installed at SFD for testing to ensure compatibility with other EMALS components prior to Carrier installation. In FY 2023, during the next CVN78 PIA, the remaining 36 will be installed. ⁽⁴⁷⁾ 1.1.9 PC104 (a computer) Hardware Obsolescence: The current EMALS PC104 computers are obsolete. There are changes to hardware and software in the computer for this upgrade. Without the new hardware, the system will be unable to secure their Authority To Operate (ATO) or procure spares. The 28 required units are being procured as follows. The first 8 in FY 2019 will be procured and installed on CVN78 in FY 2019 during a Post Shakedown Availability (PSA) so that EMALS can maintain its ATO and the remaining 20 will be procured in FY 2020 and installed on CVN78 in FY 2020. ⁽⁴⁸⁾ 1.1.10 Universal Interface Controller (UIC)40 Urgent Obsolescence: UIC40s are obsolete and need to be replaced in Power Conversion System (PCS) Inverters with UIC100s. Without the new hardware, the system will be unable to secure their ATO and spares. FY 2019 procurement is for the 24 units required for installation the same year at SFD. The FY 2020 procurement quantity of 72 units will be installed aboard CVN78 during any available maintenance periods or at the latest during the PIA. ⁽⁴⁹⁾ CE 1.2.1 Non-Recurring Engineering addresses engineering changes, obsolescence of hardware, correction of deficiencies found during integration test and development test evaluation, and to maintain cyber security compliance and field critical software updates. ⁽⁵⁰⁾ The increase in ILS in FY 2020 is to support all the required logistic product updates at RALS, JCTS and onboard CVN78 for all the hardware procurements and installations in FY 2020.		

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Exhibit P-3a, Individual Modification: PB 2020 Navy									Date: March 2019			
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 03 / 3				P-1 Line Item Number / Title: 4213 / Aircraft Support Equipment					Modification Number / Title: 4 / LAMPS MK III - SRQ(KU)-4 (S1010)			
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)	49.937	24.744	21.937	25.372	0.000	25.372	25.913	26.412	26.968	27.508	Continuing	Continuing
Less PY Advance Procurement (\$ in Millions)	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (\$ in Millions)	49.937	24.744	21.937	25.372	0.000	25.372	25.913	26.412	26.968	27.508	Continuing	Continuing
Plus CY Advance Procurement (\$ in Millions)	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority (\$ in Millions)	49.937	24.744	21.937	25.372	0.000	25.372	25.913	26.412	26.968	27.508	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: LAMPS MK III, AN/SRQ-4 (Ku), is an over the horizon information dominance system with a high speed, air-to-ground, digital data link that transmits reconnaissance and other data from MH-60 helicopters to surface ships (cruisers and destroyers) to enable data, imagery, electronic support measures, communications and radar information via the Ku-band link. Program provides for non-recurring engineering, procurement and associated installation and support of AN/SRQ-4(Ku) field install kits. This system encompasses hardware and software to transmit sensor data from the Light Airborne Multi-Purpose System (LAMPS) MK III MH-60R aircraft to the host ship classes. The FY 2020 request funds the procurement of 8 AN/SRQ-4(Ku) field install kits and associated support and installation costs to meet the MH-60R deployment schedule. Objective Inventory is 100 kits. (68 Destroyers [DDGs], 22 Cruisers [CGs], & 10 Shore sites). 22 kits were previously installed in line item 4255 and 78 kits will be installed in line item 4213. Notes for installation schedule: 1. Installations are subject to changes with ship availability schedules. 2. The year-to-year unit installation cost varies significantly and can exceed the projected yearly inflation rate. The varying unit cost is due to the hardware installation cost being dependent on quantity, location (i.e., Japan, Norfolk, San Diego, etc.), ship class (i.e., DDG or CG), Shipyard (i.e. Bath or Ingalls), ship baseline configuration (i.e., Navigation System installed, A-Kit pre-install), and ship availability period overlaps. 3. Production lead time includes pre-installation checkouts, kitting with other installation hardware and drawings, and time to ship the hardware to the installation site.												

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Exhibit P-3a, Individual Modification: PB 2020 Navy								Date: March 2019				
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 03 / 3				P-1 Line Item Number / Title: 4213 / Aircraft Support Equipment				Modification Number / Title: 4 / LAMPS MK III - SRQ(KU)-4 (S1010)				
ID Code (A=Service Ready, B=Not Service Ready) :							MDAP/MAIS Code:					
Models of Systems Affected: LAMPS MK III			Modification Type: Non-Organic					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: LAMPS MK III - SRQ(KU)-4 (S1010)												
B Kits												
Recurring												
1.1.1) SRQ(KU)-4 - NonOrganic	38 / 20.076	8 / 9.526	8 / 9.758	8 / 9.999	- / -	8 / 9.999	8 / 10.266	7 / 9.154	1 / 1.333	- / -	- / -	78 / 70.112
Subtotal: Recurring	- / 20.076	- / 9.526	- / 9.758	- / 9.999	- / -	- / 9.999	- / 10.266	- / 9.154	- / 1.333	- / -	- / 0.000	- / 70.112
Non-Recurring												
1.2.1) NRE - Organic ⁽⁵¹⁾	- / 2.919	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / 5.185	- / 5.621	- / -	- / 13.725
Subtotal: Non-Recurring	- / 2.919	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / 5.185	- / 5.621	- / 0.000	- / 13.725
Subtotal: LAMPS MK III - SRQ(KU)-4 (S1010)	38 / 22.995	8 / 9.526	8 / 9.758	8 / 9.999	- / -	8 / 9.999	8 / 10.266	7 / 9.154	1 / 6.518	- / 5.621	- / -	78 / 83.837
Subtotal: Procurement, All Modification Items	- / 22.995	- / 9.526	- / 9.758	- / 9.999	- / -	- / 9.999	- / 10.266	- / 9.154	- / 6.518	- / 5.621	- / 0.000	- / 83.837
Support (All Modification Items)												
2.1) Data ⁽⁵²⁾	- / 1.182	- / 0.376	- / 0.573	- / 0.643	- / -	- / 0.643	- / 0.562	- / 0.975	- / 0.401	- / 0.572	Continuing	Continuing
2.2) Support Equipment ⁽⁵³⁾	- / 0.420	- / 1.087	- / 1.106	- / 1.126	- / -	- / 1.126	- / 1.146	- / -	- / -	- / -	Continuing	Continuing
2.3) ILS ⁽⁵⁴⁾	- / 3.694	- / 2.493	- / 1.928	- / 2.022	- / -	- / 2.022	- / 2.058	- / 2.095	- / 4.304	- / 4.390	Continuing	Continuing
2.4) Government Engineering ⁽⁵⁵⁾	- / 3.284	- / 1.677	- / 2.383	- / 2.435	- / -	- / 2.435	- / 2.469	- / 2.836	- / 5.826	- / 5.943	Continuing	Continuing
2.5) Acceptance Test & Evaluation ⁽⁵⁶⁾	- / 0.175	- / 0.086	- / 0.088	- / 0.207	- / -	- / 0.207	- / 0.211	- / 0.215	- / 0.219	- / 0.223	Continuing	Continuing
2.6) GFE	- / 1.345	- / 0.356	- / 0.363	- / 0.369	- / -	- / 0.369	- / 0.376	- / 0.383	- / 0.390	- / 0.397	Continuing	Continuing
2.7) Production Line Support ⁽⁵⁷⁾	- / -	- / 1.165	- / 1.593	- / 1.626	- / -	- / 1.626	- / 1.679	- / 1.782	- / 1.851	- / 1.922	- / -	- / 11.618
Subtotal: Support	- / 10.100	- / 7.240	- / 8.034	- / 8.428	- / -	- / 8.428	- / 8.501	- / 8.286	- / 12.991	- / 13.447	Continuing	Continuing
Installation												
Modification Item 1 of 1: LAMPS MK III - SRQ(KU)-4 (S1010)	- / 16.842	- / 7.978	- / 4.145	- / 6.945	- / 0.000	- / 6.945	- / 7.146	- / 8.972	- / 7.459	- / 8.440	- / 7.255	- / 75.182
Subtotal: Installation	- / 16.842	- / 7.978	- / 4.145	- / 6.945	- / -	- / 6.945	- / 7.146	- / 8.972	- / 7.459	- / 8.440	- / 7.255	- / 75.182
Total												
Total Cost (Procurement + Support + Installation)	49.937	24.744	21.937	25.372	0.000	25.372	25.913	26.412	26.968	27.508	Continuing	Continuing

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Exhibit P-3a, Individual Modification: PB 2020 Navy											Date: March 2019																					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 03 / 3											P-1 Line Item Number / Title: 4213 / Aircraft Support Equipment											Modification Number / Title: 4 / LAMPS MK III - SRQ(KU)-4 (S1010)										
ID Code (A=Service Ready, B=Not Service Ready) :											MDAP/MAIS Code:																					
Modification Item 1 of 1: LAMPS MK III - SRQ(KU)-4 (S1010)																																
Manufacturer Information																																
Manufacturer Name: L3 Communications													Manufacturer Location: Salt Lake City, Utah																			
Administrative Leadtime <i>(in Months)</i> : 4													Production Leadtime <i>(in Months)</i> : 22																			
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										
Delivery Dates		Dec 2019				Dec 2020				Dec 2021				Dec 2022				Dec 2023				Dec 2024										
Installation Information																																
Method of Implementation: NAWCAD St. Inigoes Installation Team:: Installation Name: AN/SRQ-4 Installations																																
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 / 16.842		8 / 7.978		4 / 4.145		4 / 3.087		0 / 0.000		4 / 3.087		- / -		- / -		- / -		- / -		0 / 0.000		38 / 32.052								
FY 2018		- / -		- / -		- / -		5 / 3.858		0 / 0.000		5 / 3.858		3 / 2.382		- / -		- / -		- / -		0 / 0.000		8 / 6.240								
FY 2019		- / -		- / -		- / -		- / -		- / -		- / -		6 / 4.764		2 / 2.563		- / -		- / -		0 / 0.000		8 / 7.327								
FY 2020		- / -		- / -		- / -		- / -		- / -		- / -		- / -		5 / 6.409		3 / 2.797		- / -		0 / 0.000		8 / 9.206								
FY 2021		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		5 / 4.662		3 / 3.617		0 / 0.000		8 / 8.279								
FY 2022		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		4 / 4.823		3 / 5.441		7 / 10.264								
FY 2023		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		1 / 1.814		1 / 1.814								
FY 2024		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -								
To Complete		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -								
Total		22 / 16.842		8 / 7.978		4 / 4.145		9 / 6.945		0 / 0.000		9 / 6.945		9 / 7.146		7 / 8.972		8 / 7.459		7 / 8.440		4 / 7.255		78 / 75.182								
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	3	2	2	1	3	1	-	-	-	2	3	4	1	2	3	3	2	-	2	3	1	2	2	3	2	2	2	1	4	78	
Out	22	3	2	2	1	3	1	-	-	-	2	3	4	1	2	3	3	2	-	2	3	1	2	2	3	2	2	2	1	4	78	
Footnotes:																																
⁽⁵¹⁾ Cost Element 1.2.1, NRE, FY 2023 and FY 2024 funding supports correction of several component level obsolescence issues on the SRQ(KU)-4 production line as well as program closeout activities.																																
⁽⁵²⁾ Cost Element 2.1, Data funding, supports ship installation documentation and Ship Change Proposals on multiple CG and DDG class ships scheduled for ship check and modernization changes as part of the fielding plan. This cost element provides the funds to procure the data packages one to two years prior to the ship installations. Data costs vary year to year due to Cruiser (CG) packages being significantly more expensive as compared to Destroyers (DDG)s due to the age and individuality of the CGs.																																

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Exhibit P-3a, Individual Modification: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 03 / 3	P-1 Line Item Number / Title: 4213 / Aircraft Support Equipment	Modification Number / Title: 4 / LAMPS MK III - SRQ(KU)-4 (S1010)
ID Code (A=Service Ready, B=Not Service Ready) :		MDAP/MAIS Code:
⁽⁵³⁾ Cost Element 2.2, Support Equipment is for the procurement of Test Set-4120s that allows testing of the LAMPS MK III system without using a helicopter. ⁽⁵⁴⁾ Cost Element 2.3, ILS, increases from FY 2019 to FY 2020 due to logistics support required for PGSE installations. ⁽⁵⁵⁾ Cost Element 2.4, Government Engineering, is required for engineering support for acquisition, configuration/documentation management, GFE, support equipment, scheduling of ship installation activities, and test support required to produce, deliver and install the SRQ(KU)-4 kits onboard CG and DDG class ships. ⁽⁵⁶⁾ Cost Element 2.5, Acceptance Test and Evaluation, increases from FY 2019 to FY 2020 due to software upgrades requiring additional testing for AEGIS certification. ⁽⁵⁷⁾ Cost Element 2.7, Production Line Support, was previously budgeted in Cost Element 1.1.1 as part of the SRQ(KU)-4 recurring B kit unit cost. In FY 2019 and out the costs have been broken out to provide a better fidelity of total costs. These costs are for Prime contractor support required to produce and deliver SRQ(KU)-4 installation kits.		

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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 03: Aviation Support Equipment / BSA 3: Aircraft Support Equipment							P-1 Line Item Number / Title: 4217 / Advanced Arresting Gear (AAG)					
ID Code (A=Service Ready, B=Not Service Ready): A				Program Elements for Code B Items: 0204112N				Other Related Program Elements: 0604512N, 0604530N				
Line Item MDAP/MAIS Code: 529												
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	10.900	11.054	4.725	0.000	4.725	3.118	2.442	2.491	2.540	262.172	299.442
Less PY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (<i>\$ in Millions</i>)	0.000	10.900	11.054	4.725	0.000	4.725	3.118	2.442	2.491	2.540	262.172	299.442
Plus CY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority (<i>\$ in Millions</i>)	0.000	10.900	11.054	4.725	0.000	4.725	3.118	2.442	2.491	2.540	262.172	299.442
<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 line item funds the procurement for Advanced Arresting Gear (AAG) life cycle support modifications and upgrades required aboard Ford Class Carriers, Jet Car Track Site (JCTS) and Runway Arrested Landing Site (RALS) systems. Modifications included in the budget support fatigue life, obsolescence and performance enhancements to ensure the system remains operational throughout the life of the program. AAG will replace Mark 7 arresting gear aboard Ford Class aircraft carriers and will provide the U.S. Navy with the ability to recover existing and projected aircraft carrier based tail-hook equipped air vehicles well into the 21st century. AAG will enhance operational capability, provide increased operational availability, while reducing manning, maintenance and support costs. AAG is installed aboard CVN78 as well as two land based test sites JCTS and RALS. FY 2017 (\$2.2M) and Prior Years (\$74.7M) funded under Aircraft Support Equipment (BLI 4213, and BLI 4216).												

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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 03: Aviation Support Equipment / BSA 3: Aircraft Support Equipment						P-1 Line Item Number / Title: 4217 / Advanced Arresting Gear (AAG)				
ID Code (A=Service Ready, B=Not Service Ready): A				Program Elements for Code B Items: 0204112N			Other Related Program Elements: 0604512N, 0604530N			
Line Item MDAP/MAIS Code: 529										
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 / Advanced Arresting Gear (AAG) (Advanced Arresting Gear (AAG))				- / 0.000	- / 10.900	- / 11.054	- / 4.725	- / 0.000	- / 4.725
P-40	Total Gross/Weapon System Cost				- / 0.000	- / 10.900	- / 11.054	- / 4.725	- / 0.000	- / 4.725
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 / Advanced Arresting Gear (AAG) (Advanced Arresting Gear (AAG))				- / 3.118	- / 2.442	- / 2.491	- / 2.540	- / 262.172	- / 299.442
P-40	Total Gross/Weapon System Cost				- / 3.118	- / 2.442	- / 2.491	- / 2.540	- / 262.172	- / 299.442
*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 Baseline funding is required for post-delivery life cycle improvement upgrades and for the procurement and installation of Halfbridge Reliability, Performance Gen 3 Obsolescence, and Water Twister Mod II installation on CVN78, Mechanical Brake S3 Valve Pressure Monitoring, as well as continuing to address known hardware obsolescence ECP's for the Advanced Arresting Gear.

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Exhibit P-3a, Individual Modification: PB 2020 Navy									Date: March 2019			
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 03 / 3				P-1 Line Item Number / Title: 4217 / Advanced Arresting Gear (AAG)					Modification Number / Title: 1 / Advanced Arresting Gear (AAG)			
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	10.900	11.054	4.725	0.000	4.725	3.118	2.442	2.491	2.540	262.172	299.442
Less PY Advance Procurement (\$ in Millions)	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (\$ in Millions)	0.000	10.900	11.054	4.725	0.000	4.725	3.118	2.442	2.491	2.540	262.172	299.442
Plus CY Advance Procurement (\$ in Millions)	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority (\$ in Millions)	0.000	10.900	11.054	4.725	0.000	4.725	3.118	2.442	2.491	2.540	262.172	299.442
(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 budget line item funds the procurement for Advanced Arresting Gear (AAG) life cycle support modifications and upgrades required aboard Ford Class Carriers, Jet Car Track Site (JCTS) and Runway Arrested Landing Site (RALS) systems. Modifications included in the budget support fatigue life, obsolescence and performance enhancements to ensure the system remains operational throughout the life of the program. AAG will replace Mark 7 arresting gear aboard Ford Class aircraft carriers and will provide the U.S. Navy with the ability to recover existing and projected aircraft carrier based tail-hook equipped air vehicles well into the 21st century. AAG will enhance operational capability, provide increased operational availability, while reducing manning, maintenance and support costs. AAG is installed aboard CVN78 and in two land based test sites at JCTS and RALS. CVN78 was delivered with several known deficiencies for AAG. FY 2020 funding is provided for life cycle improvement upgrades for the procurement and installation of Halfbridge Reliability , Performance Gen 3 Obsolescence, and Water Twister Mod II installation on CVN78 as well as non-recurring engineering (NRE) to continue to address and field critical software updates, maintain cyber security compliance and hardware obsolescence ECP's onboard CVN78 and at RALS and JCTS. CVN78 has a Planned Incremental Availability (PIA) in FY 2020 when a significant amount of obsolescence issues will be addressed for CVN78 as well as the required updates at RALS and JCTS to maintain configuration across all three sites. The degree of complexity and nature of the ECP's are varying in cost as well as in quantities onboard CVN78 for RALS and JCTS depending on the conditions at each of the three sites. FY 2017 and prior funded under Aircraft Support Equipment (BLI 4213, and BLI 4216).												

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Exhibit P-3a, Individual Modification: PB 2020 Navy									Date: March 2019				
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 03 / 3				P-1 Line Item Number / Title: 4217 / Advanced Arresting Gear (AAG)					Modification Number / Title: 1 / Advanced Arresting Gear (AAG)				
ID Code (A=Service Ready, B=Not Service Ready) :							MDAP/MAIS Code:						
Models of Systems Affected: MK-15				Modification Type: Advanced Arresting Gear (AAG)				Related RDT&E PEs: 0604512N, 0604530N					
Financial Plan (*) Indicates the modification is being installed organically and no installation funds are required.	Prior Years	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) Water Twister - NonOrganic ⁽¹⁾ Installation 1 of 6	- / -	4 / 7.147	6 / 5.592	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	10 / 12.739	
1.1.2) Halfbridge Reliability, Performance, and Gen 3 Obsolescence - NonOrganic ⁽²⁾ Installation 2 of 6	- / -	- / -	- / -	48 / 2.186	- / -	48 / 2.186	- / -	- / -	32 / 1.331	16 / 0.677	- / -	96 / 4.194	
1.1.3) AAG AES/EAS - PCD/CSA Sheave Grease Manifold - NonOrganic ⁽³⁾ Installation 3 of 6	- / -	6 / 0.034	- / -	- / -	- / -	- / -	- / -	6 / 0.038	- / -	- / -	- / -	12 / 0.072	
1.1.4) Reconfiguration of ROCS - NonOrganic ⁽⁴⁾ Installation 4 of 6	- / -	- / -	1 / 0.024	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	1 / 0.024	
1.1.5) Encoder Replacement - NonOrganic ⁽⁵⁾ Installation 5 of 6	- / -	- / -	3 / 0.166	- / -	- / -	- / -	- / -	3 / 0.182	- / -	- / -	- / -	6 / 0.348	
1.1.6) Mechanical Brake S3 Valve Pressure Monitoring - NonOrganic ⁽⁶⁾ Installation 6 of 6	- / -	- / -	- / -	3 / 0.069	- / -	3 / 0.069	- / -	3 / 0.073	- / -	- / -	- / -	6 / 0.142	
1.1.7) Retractable Sheave Electric Control Panel Obsolescence - Organic ^{(*) (7)}	- / -	- / -	8 / 0.461	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	8 / 0.461	
1.2.1) Non-Recurring Engineering - Organic ^{(*) (8)}	- / -	- / 3.308	- / 4.150	- / 1.820	- / -	- / 1.820	- / 2.822	- / 1.967	- / -	- / 1.613	- / 234.196	- / 249.876	
Subtotal: Procurement	- / 0.000	- / 10.489	- / 10.393	- / 4.075	- / -	- / 4.075	- / 2.822	- / 2.260	- / 1.331	- / 2.290	- / 234.196	- / 267.856	
Support													
2.1) Integrated Logistics Support	- / -	- / 0.186	- / 0.189	- / 0.091	- / -	- / 0.091	- / 0.124	- / 0.101	- / 0.040	- / 0.098	- / 11.110	- / 11.939	
2.2) Production Engineering Support	- / -	- / 0.225	- / 0.232	- / 0.114	- / -	- / 0.114	- / 0.172	- / 0.081	- / 0.050	- / 0.082	- / 16.866	- / 17.822	
Subtotal: Support	- / 0.000	- / 0.411	- / 0.421	- / 0.205	- / -	- / 0.205	- / 0.296	- / 0.182	- / 0.090	- / 0.180	- / 27.976	- / 29.761	
Installation													
Installation 1 of 6: GRP: 1.1.1) Water Twister	- / -	- / -	- / -	- / 0.183	- / 0.000	- / 0.183	- / -	- / -	- / 0.734	- / -	- / 0.000	- / 0.917	
Installation 2 of 6: GRP: 1.1.2) Halfbridge Reliability, Performance, and Gen 3 Obsolescence	- / -	- / -	- / -	- / 0.192	- / 0.000	- / 0.192	- / -	- / -	- / 0.138	- / 0.070	- / 0.000	- / 0.400	
Installation 3 of 6: GRP: 1.1.3) AAG AES/EAS - PCD/ CSA Sheave Grease Manifold	- / -	- / -	- / 0.234	- / -	- / -	- / -	- / -	- / -	- / 0.126	- / -	- / 0.000	- / 0.360	
Installation 4 of 6: GRP: 1.1.4) Reconfiguration of AAG ROCS	- / -	- / -	- / 0.006	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / 0.000	- / 0.006	
Installation 5 of 6: GRP: 1.1.5) Encoder Replacement	- / -	- / -	- / -	- / 0.040	- / 0.000	- / 0.040	- / -	- / -	- / 0.041	- / -	- / 0.000	- / 0.081	
Installation 6 of 6: GRP: 1.1.6) Mechanical Brake S3 Valve Pressure Monitoring	- / -	- / -	- / -	- / 0.030	- / 0.000	- / 0.030	- / -	- / -	- / 0.031	- / -	- / 0.000	- / 0.061	

UNCLASSIFIED

Exhibit P-3a, Individual Modification: PB 2020 Navy									Date: March 2019			
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 03 / 3			P-1 Line Item Number / Title: 4217 / Advanced Arresting Gear (AAG)						Modification Number / Title: 1 / Advanced Arresting Gear (AAG)			
ID Code (A=Service Ready, B=Not Service Ready) :						MDAP/MAIS Code:						
Models of Systems Affected: MK-15			Modification Type: Advanced Arresting Gear (AAG)				Related RDT&E PEs: 0604512N, 0604530N					
Financial Plan (*) Indicates the modification is being installed organically and no installation funds are required.	Prior Years	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	- / -	- / 0.240	- / 0.445	- / -	- / 0.445	- / -	- / -	- / 1.070	- / 0.070	- / 0.000	- / 1.825
Total												
Total Cost (Procurement + Support + Installation)	0.000	10.900	11.054	4.725	0.000	4.725	3.118	2.442	2.491	2.540	262.172	299.442

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Exhibit P-3a, Individual Modification: PB 2020 Navy											Date: March 2019																				
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 03 / 3										P-1 Line Item Number / Title: 4217 / Advanced Arresting Gear (AAG)										Modification Number / Title: 1 / Advanced Arresting Gear (AAG)											
ID Code (A=Service Ready, B=Not Service Ready) :															MDAP/MAIS Code:																
Installation 1 of 6: GRP: 1.1.1) Water Twister																															
Manufacturer Information																															
Manufacturer Name: General Atomics															Manufacturer Location: San Diego, CA																
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																									
Delivery Dates		Mar 2019				Mar 2020																									
Installation Information																															
Method of Implementation: AIT Install:: Installation Name: 1.1.1) Water Twister																															
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		- / -	- / -		- / -		4 / 0.183		0 / 0.000		4 / 0.183		- / -		- / -		- / -		- / -		0 / 0.000		4 / 0.183		4 / 0.183						
FY 2019		- / -	- / -		- / -		- / -		- / -		- / -		- / -		- / -		6 / 0.734		- / -		0 / 0.000		6 / 0.734		6 / 0.734						
FY 2020		- / -	- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -						
FY 2021		- / -	- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -						
FY 2022		- / -	- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -						
FY 2023		- / -	- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -						
FY 2024		- / -	- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -						
To Complete		- / -	- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -						
Total		- / -	- / -		- / -		4 / 0.183		0 / 0.000		4 / 0.183		- / -		- / -		6 / 0.734		- / -		0 / 0.000		10 / 0.917		10 / 0.917						
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	-	-	-	-	-	-	-	-	-	-	-	-	6	-	-	-	-	-	-	-	10
Out	-	-	-	-	-	-	-	-	-	-	-	4	-	-	-	-	-	-	-	-	-	-	-	-	6	-	-	-	-	-	10

UNCLASSIFIED

Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019																					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 03 / 3										P-1 Line Item Number / Title: 4217 / Advanced Arresting Gear (AAG)										Modification Number / Title: 1 / Advanced Arresting Gear (AAG)											
ID Code (A=Service Ready, B=Not Service Ready) :															MDAP/MAIS Code:																
Installation 2 of 6: GRP: 1.1.2) Halfbridge Reliability, Performance, and Gen 3 Obsolescence																															
Manufacturer Information																															
Manufacturer Name: General Atomics														Manufacturer Location: San Diego, CA																	
Administrative Leadtime (in Months): 5														Production Leadtime (in Months): 4																	
Dates		FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024					
Contract Dates										Feb 2020												Feb 2023				Feb 2024					
Delivery Dates										Jun 2020												Jun 2023				Jun 2024					
Installation Information																															
Method of Implementation: AIT Install:: Installation Name: 1.1.2) Halfbridge Reliability, Performance, and Gen 3 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		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
FY 2018		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
FY 2019		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
FY 2020		- / -		- / -		- / -		48 / 0.192		0 / 0.000		48 / 0.192		- / -		- / -		- / -		- / -		- / -		0 / 0.000		48 / 0.192					
FY 2021		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
FY 2022		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
FY 2023		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		32 / 0.138		- / -		0 / 0.000		32 / 0.138							
FY 2024		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		16 / 0.070		0 / 0.000		16 / 0.070							
To Complete		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
Total		- / -		- / -		- / -		48 / 0.192		0 / 0.000		48 / 0.192		- / -		- / -		32 / 0.138		16 / 0.070		0 / 0.000		96 / 0.400							
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	-	-	-	-	-	-	-	-	-	-	-	48	-	-	-	-	-	-	-	-	-	-	-	32	-	-	-	16	-		
Out	-	-	-	-	-	-	-	-	-	-	-	-	48	-	-	-	-	-	-	-	-	-	-	-	32	-	-	-	16		

UNCLASSIFIED

Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019																					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 03 / 3					P-1 Line Item Number / Title: 4217 / Advanced Arresting Gear (AAG)										Modification Number / Title: 1 / Advanced Arresting Gear (AAG)																
ID Code (A=Service Ready, B=Not Service Ready) :										MDAP/MAIS Code:																					
Installation 3 of 6: GRP: 1.1.3) AAG AES/EAS - PCD/CSA Sheave Grease Manifold																															
Manufacturer Information																															
Manufacturer Name: General Atomics										Manufacturer Location: San Diego, CA																					
Administrative Leadtime (in Months): 5										Production Leadtime (in Months): 3																					
Dates	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024																								
Contract Dates	May 2018				Feb 2022																										
Delivery Dates	Aug 2018				May 2022																										
Installation Information																															
Method of Implementation: AIT Install:: Installation Name: 1.1.3) AAG AES/EAS - PCD/CSA Sheave Grease Manifold																															
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 / 0.234	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	6 / 0.234																			
FY 2019	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -																			
FY 2020	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -																			
FY 2021	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -																			
FY 2022	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	6 / 0.126	- / -	0 / 0.000	6 / 0.126																			
FY 2023	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -																			
FY 2024	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -																			
To Complete	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -																			
Total	- / -	- / -	6 / 0.234	- / -	- / -	- / -	- / -	- / -	6 / 0.126	- / -	0 / 0.000	12 / 0.360																			
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	-	-	-	-	-	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6	-	-	-	-	-	-	-	12
Out	-	-	-	-	-	-	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6	-	-	-	-	-	-	12

UNCLASSIFIED

Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019																					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 03 / 3					P-1 Line Item Number / Title: 4217 / Advanced Arresting Gear (AAG)										Modification Number / Title: 1 / Advanced Arresting Gear (AAG)																
ID Code (A=Service Ready, B=Not Service Ready) :										MDAP/MAIS Code:																					
Installation 4 of 6: GRP: 1.1.4) Reconfiguration of AAG ROCS																															
Manufacturer Information																															
Manufacturer Name: General Atomics										Manufacturer Location: San Diego, CA																					
Administrative Leadtime (in Months): 5										Production Leadtime (in Months): 3																					
Dates		FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024					
Contract Dates						Feb 2019																									
Delivery Dates						May 2019																									
Installation Information																															
Method of Implementation: AIT Install:: Installation Name: 1.1.4) Reconfiguration of AAG ROCS																															
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		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -																		
FY 2018		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -																		
FY 2019		- / -	- / -	1 / 0.006	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	1 / 0.006																	
FY 2020		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -																		
FY 2021		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -																		
FY 2022		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -																		
FY 2023		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -																		
FY 2024		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -																		
To Complete		- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -																		
Total		- / -	- / -	1 / 0.006	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	1 / 0.006																	
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

UNCLASSIFIED

Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019																					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 03 / 3										P-1 Line Item Number / Title: 4217 / Advanced Arresting Gear (AAG)										Modification Number / Title: 1 / Advanced Arresting Gear (AAG)											
ID Code (A=Service Ready, B=Not Service Ready) :															MDAP/MAIS Code:																
Installation 5 of 6: GRP: 1.1.5) Encoder Replacement																															
Manufacturer Information																															
Manufacturer Name: General Atomics															Manufacturer Location: San Diego, CA																
Administrative Leadtime <i>(in Months)</i> : 5															Production Leadtime <i>(in Months)</i> : 11																
Dates		FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024					
Contract Dates						Feb 2019												Feb 2022													
Delivery Dates						Jan 2020												Jan 2023													
Installation Information																															
Method of Implementation: AIT Install:: Installation Name: 1.1.5) Encoder Replacement																															
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		- / -		- / -		- / -		3 / 0.040		0 / 0.000		3 / 0.040		- / -		- / -		- / -		- / -		- / -		0 / 0.000		3 / 0.040					
FY 2020		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
FY 2021		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
FY 2022		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		3 / 0.041		- / -		0 / 0.000		3 / 0.041							
FY 2023		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
FY 2024		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
To Complete		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -					
Total		- / -		- / -		- / -		3 / 0.040		0 / 0.000		3 / 0.040		- / -		- / -		3 / 0.041		- / -		0 / 0.000		6 / 0.081							
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 / 03 / 3											P-1 Line Item Number / Title: 4217 / Advanced Arresting Gear (AAG)											Modification Number / Title: 1 / Advanced Arresting Gear (AAG)										
ID Code (A=Service Ready, B=Not Service Ready) :											MDAP/MAIS Code:																					
Installation 6 of 6: GRP: 1.1.6) Mechanical Brake S3 Valve Pressure Monitoring																																
Manufacturer Information																																
Manufacturer Name: General Atomics													Manufacturer Location: San Diego, CA																			
Administrative Leadtime (in Months): 5													Production Leadtime (in Months): 3																			
Dates		FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024						
Contract Dates										Feb 2020								Feb 2022														
Delivery Dates										May 2020								May 2022														
Installation Information																																
Method of Implementation: AIT Install:: Installation Name: 1.1.6) Mechanical Brake S3 Valve Pressure Monitoring																																
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		- / -		- / -		- / -		3 / 0.030		0 / 0.000		3 / 0.030		- / -		- / -		- / -		- / -		- / -		0 / 0.000		3 / 0.030						
FY 2021		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -						
FY 2022		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		3 / 0.031		- / -		0 / 0.000		3 / 0.031								
FY 2023		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -						
FY 2024		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -						
To Complete		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -						
Total		- / -		- / -		- / -		3 / 0.030		0 / 0.000		3 / 0.030		- / -		- / -		3 / 0.031		- / -		0 / 0.000		6 / 0.061								
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	
Footnotes:																																
⁽¹⁾ Cost Element 1.1.1 Water Twister - The shift in the procurement quantities from PB 2019 with six (6) in FY 2018 and four (4) in FY 2019 to this budget with four (4) in FY 2018 and (6) in FY 2019 is due to a change in the design and procurement strategy for the Mod-II Water Twisters. In the PB 2019 budget, the program office was targeting CVN78's FY 2020 Planned Incremental Availability (PIA) for installation. Due to delays in completing the design and testing of Mod II it is no longer possible to get Mod II installed on CVN78 during the FY 2020 Planned Incremental Availability (PIA). The effort is compounded by the long lead times for the material and the length of time for the actual installation and alignment of the Water Twister onboard the ship. The Mod-II Water Twisters for CVN78 will now be installed during the FY																																

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Exhibit P-3a, Individual Modification: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 03 / 3	P-1 Line Item Number / Title: 4217 / Advanced Arresting Gear (AAG)	Modification Number / Title: 1 / Advanced Arresting Gear (AAG)
ID Code (A=Service Ready, B=Not Service Ready) :		MDAP/MAIS Code:
2023 PIA. Although this is a delay in the installation of the units for CVN78, the manufacturing lead time requires that the procurements occur as described within this budget exhibit. The four (4) units procured in FY 2018 will be installed in the land-based test facilities, two (2) into the Runway Arrested Landing Site (RALS), and two (2) at the Jet Car Track Site (JCTS), both located in Lakehurst, NJ. The six (6) units procured in FY 2019 will be installed into CVN78 during the FY 2023 PIA. Keeping the procurement obligations in consecutive years allows for a reduced price due to economic order of quantity pricing. Lastly, the decreased unit cost for the six (6) units being procured in FY 2019 is due to the rotor shaft component for each of these Water Twisters being covered under a concurrency clause within the contract with General Atomics, and therefore these six (6) rotors are being delivered to the government at no charge. (2) Cost Element 1.1.2 Halfbridge Reliability, Performance Gen 3 was state-of-the-art when originally designed. The current design rating does not support requirements for faulted inverter operating modes. This upgrade is required for Halfbridge reliability and to address Insulated-Gate Bipolar Transistors (IGBT's) obsolescence. Halfbridges are quantity 48 per shipset. FY20 installs are for CVN78, and FY 2023/24 installs are for CVN79. (3) Cost Element 1.1.3 AAG Arresting Engine System (AES)/Energy Absorber System (EAS)Purchase Cable Drum (PCD)/Cable Shock Absorber (CSA) Sheave Grease Manifold: This is an urgent safety item added in FY 2018. Quantity of (6) in FY 2018 are for CVN 78; to be installed during the Post Shakedown Availability in FY19. The (6) in FY 2022 are for CVN79 and will be installed in FY 2023 during their Phase II maintenance availability. Quantities are based on the requirement to add it to each Purchase Cable Drum (PCD) and each Cable Shock Absorber (CSA) which is a requirement of 6 for the ship; 2 per wire. The Sheave Grease manifold will make greasing much safer, faster, and is a more easily accessible operation for the sailors who would normally have to shut down the arresting engine to be in the engine room to grease it after every 20 arrestments. (4) Cost Element 1.1.4 Reconfiguration of the Retract Operator Control Station (ROCS) was a necessary safety of flight operations upgrade required onboard CVN78. It was discovered during CVN78s Independent Steaming Event (ISE) that under active flight operations the current ROCS configuration does not allow the ships operator to have full visual line of sight of the aircraft landing area. This upgrade/ reconfiguration of the ROCS control handle provides the ROCS operator full visibility of the landing area for safe flight operation. The installation will be done on CVN78 during Post Shakedown Availability (PSA) in FY 2019. (5) Cost Element 1.1.5 AAG uses Encoders to measure rotation movement of the Energy Absorber Shaft. Encoder issues discovered during CVN78s Independent Steaming Event (ISE) found numerous encoder issues including deficient mounting, Electro Magnetic Interference (EMI) susceptibility, accuracy, drift and robustness which would impede the pace of flight operations and would require excessive maintenance resulting in reduced AAG system availability and reduced ship effectivity. The upgraded Encoder will be installed as a forced change during CVN78s next PIA which begins in 4Q FY 2020 and provides the Dynamic Control System (DCS) with more precise, reliable and robust qualities to provided shaft rotation data and will allow AAG to maintain required flight operations. Encoders are in quantities of 3. One per wire per ship (3) for CVN78 to be installed in FY 2020 during its maintenance period and (3) for CVN79 in FY 2023 and installed during its Phase II availability. (6) Cost Element 1.1.6 The current Mechanical Brake Hydraulic Power Unit (HPU) utilizes an Allen-Bradley PLC 5 Platform which is obsolete. Also, the SV3 Valve lacks pressure monitoring redundancy to ensure Critical Safety Item (CSI) failsafe. The SV3 Valve is a CSI component. As configured there is no means to monitor produced brake pressure to ensure it matches commanded pressure. SV3 performance malfunction or degradation could result in catastrophic consequences. This upgrade to the Mechanical Brake HPU provides an additional sensor and/or switch to military grade component and adds redundant external pressure sensors to SV3 Valve to ensure failsafe. Quantities of 3 is calculated by numbers of engine rooms; there are 3 in CVN78 to be installed in FY 2020 during the PIA, and 3 on CVN79 to be installed in FY 2023 in its Phase II availability. (7) Cost Element 1.1.7 The control board within the legacy retractable sheave electric control panel has become obsolete and is no longer available and is a required upgrade for CVN79. A fully functional and operational Retractable Sheave is mandatory for the continued and successful flight operations aboard CVN78 Class Carriers. The quantity of 8 will be installed as follows; one at each of the test sites, RALS and JCTS. The remaining six (6) will be installed on CVN79. The installation will be performed by Lakehurst Manufacturing. (8) Cost Element 1.2.1 Non-Recurring Engineering - The updated and increased FY19 NRE from the PB19 budget is due to the emergent NRE required to address critical safety and reliability issues discovered during CVN78's first Independent Steaming Event (ISE). Those specific upgrades are identified in the updated Recurring HW section of the FY19 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 03: Aviation Support Equipment / BSA 3: Aircraft Support Equipment						P-1 Line Item Number / Title: 4226 / Meteorological 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)	138.715	21.000	21.072	14.687	0.000	14.687	14.876	13.366	13.814	13.357	Continuing	Continuing
Less PY Advance Procurement (\$ in Millions)	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (\$ in Millions)	138.715	21.000	21.072	14.687	0.000	14.687	14.876	13.366	13.814	13.357	Continuing	Continuing
Plus CY Advance Procurement (\$ in Millions)	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority (\$ in Millions)	138.715	21.000	21.072	14.687	0.000	14.687	14.876	13.366	13.814	13.357	Continuing	Continuing
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)												
Initial Spares (\$ in Millions)	-	0.001	0.752	0.736	-	0.736	0.864	0.168	0.171	0.175	Continuing	Continuing
Flyaway Unit Cost (\$ in Thousands)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost (\$ in Thousands)	-	-	-	-	-	-	-	-	-	-	-	-
Description:												
The Meteorological Equipment budget line item provides new and replacement meteorological equipment for Navy and Marine Corps Air Stations, Navy ships, United States Marine Corps (USMC) Operational Force units and other activities required to provide weather observations and provide safety of flight capabilities. It also provides new Intelligence Preparation of the Operational Environment (IPOE) equipment for submarines. The Meteorological Equipment procurement has been coordinated with other Department of Defense (DoD) and civilian agencies.												
[P40A / SP051 Satellite Receiver Upgrades (Space)]: Environmental Satellite Receiver Systems receive and process remotely sensed data in L and S frequency bands from several National and International Meteorology and Oceanography (METOC) Satellite families such as the Defense Meteorological Program (DMSP) Polar Satellites, the National Oceanic and Atmospheric Administration (NOAA) satellites, and the Geostationary Operational Environmental Satellites (GOES-R). Integration and assembly of next generation polar and geostationary orbiting satellite families' broadcasts and new sensors of opportunity are accomplished to ensure continued ingest of METOC data into existing Environmental Receiver Systems. Geostationary upgrades include GOES-R, subsequent GOES-S and Himawari re-broadcast capability (C band).												
[P40A / SP550 METOC SASC Upgrades]: Procurement of Government Off-The-Shelf/Commercial Off-The-Shelf hardware, and associated software upgrades for the 68 fielded Automated Surface Observing Systems (ASOS) and the 9 fielded Supplemental Weather Radars (SWR). Both atmospheric sensing systems are essential for aviation safety, Naval Aviation operations and resource protection. ASOS procurements under this project will provide system upgrades as required by the National Weather Service Interagency Agreement. SWR upgrades of End of Life components, software and subsystems under this project provide System Life Extension by mitigating CYBER risk and Diminishing Manufacturing Sources and Material Shortages (DMSMS).												
[P40A / SP600 Littoral Battlespace Sensors - Unmanned Undersea Vehicles (LBS-UUV)]: Procures Unmanned Undersea Vehicle (UUV) ocean sensor systems. These include electrical powered, short duration (~days) Autonomous Undersea Vehicles (AUV) and long duration (~months) buoyancy driven ocean Gliders which carry sensors that characterize the ocean bottom (bathymetry, imagery, etc.) and sense ocean volume parameters (conductivity, temperature, depth, optical clarity, currents, etc.). The LBS-AUV (Submarine variant) LBS-AUV(S)/Razorback provides Intelligence Preparation of the Operational Environment (IPOE) payload capabilities for submarine launched missions. The AUVs are preprogrammed with mission profiles and once launched are totally autonomous. The Ocean Gliders are controlled remotely from the Naval Oceanographic Office (NAVOCEANO), Stennis Space Center, Mississippi from the Glider Operations Center (GOC).												
[P40A / SP660 Tactical METOC Applications]: The Naval Integrated Tactical Environmental-Next Generation (NITES-Next) program identifies and transitions state-of-the-art decision support software and hardware technologies from the government and commercial industry's technology base, and then demonstrates and validates these capabilities before fielding. These software decision support tools provide platform, sensor, communications, and weapon systems performance assessments for warfighters in terms of their littoral and deep-strike battlespace environments. These assessments allow mission planners												

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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 03: Aviation Support Equipment / BSA 3: Aircraft Support Equipment		P-1 Line Item Number / Title: 4226 / Meteorological 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 warfighters, from Unit to Theater level, to optimize their sensor employment on airborne, surface, and subsurface platforms in support of Naval Composite Warfare mission areas including Undersea Warfare (USW), Anti-Submarine Warfare (ASW), Mine Warfare (MIW), Amphibious Warfare (AMW), Anti-Surface Warfare (ASUW), Anti-Air Warfare (AAW), Strike Warfare (STW), Expeditionary Warfare (EXW), Electronic Warfare (EW), Information Operations (IO), Intelligence Operations (INT), Non-Combat Operations (NCO), Command, Control, Communication (CCC), and Naval Special Warfare (NSW). Performance assessments leading to improvements in operational and tactical control are conducted through a two-tiered approach: 1) Meteorological and Oceanographic (METOC) Decision Aids and, 2) Operational Effects Decision Aids (OEDAs). METOC Decision Aides consist of a series of analysis tools which characterize the physical environment conditions of the battlespace based on the best set of physical environment data available at the time (i.e., some combination of historical and/or real-time (or near real-time) in-situ, and numerically modeled forecast data). OEDAs use the METOC Decision Aide information by fusing it with relevant, often-classified, sensor and target data to predict how weapons and sensor systems will perform. Performance results are displayed in tabular and graphic formats integrated into net-centric visualization tools for use by mission planners, and combat/weapon system operators to develop localization plans, Undersea Warfare (USW)/Anti-Air Warfare (AAW)/Anti-Surface Warfare (ASUW) screens, Strike Warfare (STW) profiles, and Amphibious Warfare (AMW) ingress and egress points. METOC Decision Aides and OEDAs typically use data derived from sensors developed in Project 2341 (METOC Data Acquisition) and assimilated by software produced by Project 2342 (METOC Data Assimilation and Modeling). METOC Decision Aides and OEDAs also use data obtained through direct interfaces to Navy combat systems. Cyber secure capabilities are a current emphasis required to characterize and/or predict sensor and weapons system performance in the highly complex littoral environments in support of regional conflict scenarios. It addresses multi-warfare areas, particularly shallow water Anti Submarine Warfare (ASW), Naval Surface Warfare (NSW), and missile and air defense/strike capabilities.		
[P40A / SP220 Hazardous Weather Detection and Display Capability (HWDDC)]: The HWDDC provides near real-time severe weather information (thunderstorms, high winds, turbulence, etc.) to ship personnel. HWDDC is a key safety of aviation and navigation enabler and also supports efficient planning and execution of aircraft and small boat launch/recovery operations. The HWDDC technology is integrated with the AN/SPS-48E radar, & the next generation AN/SPS-48G radar, three-dimensional (3D) Frequency Scan (FRESCAN) air search and weapons control radar. A similar weather radar capability for ships, the Tactical Environmental Processor (TEP), leverages HWDDC technology for use on AN/SPY-1 configured 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 03: Aviation Support Equipment / BSA 3: Aircraft Support Equipment						P-1 Line Item Number / Title: 4226 / Meteorological 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	Meteorological Equipment	P-5a			- / 138.715	- / 21.000	- / 21.072	- / 14.686	- / -	- / 14.686
P-40	Total Gross/Weapon System Cost				- / 138.715	- / 21.000	- / 21.072	- / 14.687	- / 0.000	- / 14.687
*Title represents 1) the Number / Title for Items; 2) the Number / Title [DODIC] for Ammunition; and/or 3) the Number / Title (Modification Type) for Modifications. Title represents the P-40a Title when only the P-40a Summary/Total is shown.										
Note: Totals in this Exhibit P-40 set may not be exact or sum exactly due to rounding.										
Justification: Beginning in FY2020 all LBS-AUV(S)/Razorback funding will be moved from BLI 4226 to BLI 1611. The Littoral Battlespace Sensors-Unmanned Undersea Vehicles (LBS-UUV) primary focus for the FY2020 request for is the procurement of 15 ocean Gliders. The Naval Integrated Tactical Environmental-Next Generation (NITES-Next) primary focus for the FY2020 request is for the procurement of 437 mobile variant laptops to be deployed in support of unit-level ships, Anti-Submarine Warfare support commands, Naval Special Warfare (NSW), and Navy Expeditionary Combat Command (NECC). In addition, these laptops will be the primary support equipment for the US Marine Corps METOC personnel in support of the Intelligence Battalions and Marine Expeditionary Units. The FY2020 request will allow for the procurement of one Himawari Receiver Processor and upgrades to one Satellite Receiver and one Antenna Pedestal in support of the Meteorological and Oceanographic Surface-based Atmospheric Sensing Capability (METOC SASC) family of systems. The Hazardous Weather Detection and Display Capability (HWDDC) primary focus for the FY2020 request is for the procurement of 6 HWDDC systems for installations on LPD 17 San Antonio Class LPD's beginning in FY2020. In FY2020 Meteorological Surface-based Atmospheric Sensing Capability (METOC SASC) Upgrade plans for 20 ACU/DCP hardware and software upgrades for the Automated Surface Observing System (ASOS) and 14 Supplemental Weather Radars (SWR) RCU integration and workstation upgrades.										

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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 / 03 / 3							P-1 Line Item Number / Title: 4226 / Meteorological Equipment								Aggregated Items Title: Meteorological 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 (\$ 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) SP051 Satellite Receiver Upgrades (Space)																				
1.1) AN/FMQ-17 GOES-R Antenna/ Pedestal ^(†)	A		-	-	-	789.000	1	0.789	724.000	1	0.724	-	-	-	-	-	-	-	-	-
1.2) AN/FMQ-17 Himawari Receiver Processor ^(†)	A		-	-	-	196.000	1	0.196	-	-	-	204.000	1	0.204	-	-	-	204.000	1	0.204
1.3) AN/FMQ-17 Satellite Receiver Upgrade Kit ^(†)	A		107.600	20	2.152	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.4) AN/SMQ-11 Satellite Receiver Upgrade Kit ^(†)	A		71.583	24	1.718	524.000	1	0.524	544.000	1	0.544	555.370	1	0.555	-	-	-	555.370	1	0.555
1.5) AN/FMQ-17 Antenna Positioner Upgrade Kit ^(†)	A		248.000	2	0.496	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.6) AN/SMQ-11 Antenna Pedestal Upgrade Kit ^(†)	A		231.690	29	6.719	939.000	1	0.939	957.780	1	0.958	976.936	1	0.977	-	-	-	976.936	1	0.977
Subtotal: 1) SP051 Satellite Receiver Upgrades (Space)			-	-	11.085	-	-	2.448	-	-	2.226	-	-	1.736	-	-	-	-	-	1.736
2) SP550 METOC SASC Upgrades																				
2.1) ASOS Upgrades ^{(1)(†)}	A		44.080	373	16.442	77.606	33	2.561	75.176	34	2.556	190.700	20	3.814	-	-	-	190.700	20	3.814
2.2) SWR Upgrades ^{(2)(†)}	A		46.447	94	4.366	123.500	12	1.482	119.333	12	1.432	141.429	14	1.980	-	-	-	141.429	14	1.980
Subtotal: 2) SP550 METOC SASC Upgrades			-	-	20.808	-	-	4.043	-	-	3.988	-	-	5.794	-	-	-	-	-	5.794
3) SP600 Littoral Battlespace Sensors - Unmanned Undersea Vehicles (LBS-UUV) ⁽³⁾																				
3.1) LBS-G ^(†)	A		1,549.400	20	30.988	193.717	18	3.487	199.524	16	3.192	205.290	15	3.079	-	-	-	205.290	15	3.079
3.2) LBS-AUV(S)/ Razorback ^(†)	A		2,060.000	6	12.360	2,098.000	2	4.196	2,140.000	2	4.280	-	-	-	-	-	-	-	-	-
3.3) LBS-AUV(S)/ Razorback DDS Sub Spt Sys ^(†)	A		2,911.000	2	5.822	3,090.600	1	3.091	3,152.412	1	3.152	-	-	-	-	-	-	-	-	-
3.4) LBS-UUV Upgrades/Backfits	A		-	-	2.938	-	-	0.884	-	-	0.751	-	-	-	-	-	-	-	-	-
Subtotal: 3) SP600 Littoral Battlespace Sensors - Unmanned Undersea Vehicles (LBS-UUV)			-	-	52.108	-	-	11.658	-	-	11.375	-	-	3.079	-	-	-	-	-	3.079
4) SP660 Tactical METOC Applications																				

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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 / 03 / 3									P-1 Line Item Number / Title: 4226 / Meteorological Equipment						Aggregated Items Title: Meteorological 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 (\$ 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)
4.1) Naval Integrated Tactical Environmental Next Generation (NITES-Next) ^{(4)(t)}	A		-	-	-	-	-	-	-	-	-	3.023	437	1.321	-	-	-	3.023	437	1.321
Subtotal: 4) SP660 Tactical METOC Applications			-	-	0.000	-	-	-	-	-	-	-	-	1.321	-	-	-	-	-	1.321
5) SP220 Hazardous Weather Detection and Display Capability (HWDDC)																				
5.1) SPS-48G Variant ^{(5)(t)}	A		-	-	-	-	-	-	-	-	-	161.833	6	0.971	-	-	-	161.833	6	0.971
Subtotal: 5) SP220 Hazardous Weather Detection and Display Capability (HWDDC)			-	-	0.000	-	-	-	-	-	-	-	-	0.971	-	-	-	-	-	0.971
6) SP555 Production Support																				
6.1) Satellite Receiver Upgrades	A		-	-	0.565	-	-	0.147	-	-	0.139	-	-	0.193	-	-	-	-	-	0.193
6.2) LBS-UUV	A		-	-	2.878	-	-	0.588	-	-	0.576	-	-	0.206	-	-	-	-	-	0.206
Subtotal: 6) SP555 Production Support			-	-	3.443	-	-	0.735	-	-	0.715	-	-	0.399	-	-	-	-	-	0.399
7) SP776 Non-FMP																				
7.1) Satellite Receiver Upgrades	A		-	-	1.939	-	-	0.051	-	-	0.089	-	-	0.091	-	-	-	-	-	0.091
Subtotal: 7) SP776 Non-FMP			-	-	1.939	-	-	0.051	-	-	0.089	-	-	0.091	-	-	-	-	-	0.091
8) SP777 FMP																				
8.1) LBS-AUV(S)/Razorback DSA	A		-	-	-	-	-	1.291	-	-	0.712	-	-	-	-	-	-	-	-	-
8.2) LBS-AUV(S)/Razorback Install ⁽⁶⁾	A		-	-	-	-	-	-	-	-	0.973	-	-	-	-	-	-	-	-	-
8.3) Satellite Receiver Upgrades	A		-	-	2.608	-	-	0.774	-	-	0.994	-	-	1.215	-	-	-	-	-	1.215
8.4) HWDDC ⁽⁷⁾	A		-	-	-	-	-	-	-	-	-	-	-	0.044	-	-	-	-	-	0.044
Subtotal: 8) SP777 FMP			-	-	2.608	-	-	2.065	-	-	2.679	-	-	1.259	-	-	-	-	-	1.259
9) DSA																				
9.1) HWDDC	A		-	-	-	-	-	-	-	-	-	-	-	0.036	-	-	-	-	-	0.036
Subtotal: 9) DSA			-	-	0.000	-	-	-	-	-	-	-	-	0.036	-	-	-	-	-	0.036
10) Consolidated Prior Year Requirements ⁽⁸⁾																				
10.1) Consolidated Prior Year Requirements	A		73.006	640	46.724	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: 10) Consolidated Prior Year Requirements			-	-	46.724	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total			-	-	138.715	-	-	21.000	-	-	21.072	-	-	14.686	-	-	-	-	-	14.686

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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 / 03 / 3	P-1 Line Item Number / Title: 4226 / Meteorological Equipment	Aggregated Items Title: Meteorological Equipment

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) Quantities represent the number of equipment upgrades annually for ASOS and SWR Upgrades; multiple upgrades may occur at a single site in a given year. Upgrades are GOTS/COTS hardware and associated software for installed Automated Surface Observing System (ASOS). Unit costs represent the average unit cost of each planned Hardware/Software procurement or refresh which varies based on subsystem, site or platform. ASOS Upgrades - FY 2020 quantities represent 20 ACU/DCP (hardware and software) upgrades.

(2) Quantities represent the number of equipment upgrades annually for ASOS and SWR Upgrades; multiple upgrades may occur at a single site in a given year. Upgrades are GOTS/COTS hardware and associated software for installed Automated Surface Observing System (ASOS). Unit costs represent the average unit cost of each planned Hardware/Software procurement or refresh which varies based on subsystem, site or platform. SWR Upgrades - FY 2020 quantities represent 14 RCU integration upgrades.

(3) Littoral Battlespace Sensors - Autonomous Undersea Vehicles (LBS-AUV) are broken out between AUV units and AUV Shipsets. Shipsets consist of the operation van, maintenance van, and launch & recovery system. AUV (Submarine)/Razorback (AUV(S)/Razorback) launched variants include LBS-AUV(S)/Razorback vehicles, AUV(S)/Razorback Dry-deck Shelter (DDS) Submarine Support Systems, Torpedo-tube Launch (TTL) Submarine Support Systems and TTL Safecaps. LBS-AUV(S)/Razorback DDS Submarine Support Systems consist of operational and maintenance equipment including launch, mooring and submarine modification kits for DDS operations. LBS-AUV(S)/Razorback TTL Submarine Support Systems consist of operational and maintenance equipment including launch, mooring and submarine modification kits for TTL operations. The LBS-AUV(S)/Razorback TTL Safecap consists of operational and maintenance equipment required to safely ship, stow, and deploy an AUV with lithium batteries from a submarine torpedo tube. Beginning in FY2020 all LBS-AUV(S)/Razorback funding will be moved from BLI 4226 to BLI 1611. Littoral Battlespace Sensors - Gliders (LBS-G) FY20 quantities represent replacement units. LBS-UUV Upgrades/Backfits represent AUV and Glider system improvements via back-fits and forward-fits.

(4) Naval Integrated Tactical Environmental Next Generation (NITES-Next) systems procurements are for the mobile variant of the NITES-Next system and will not require any install costs. Unit cost fluctuation is a result of a mixture of procurements of laptops and man-packable mobile sensors. Laptops will be procured in FY20 and FY24 and sensors in FY21, FY22, and FY23.

(5) Hazardous Weather Detection and Display Capability (HWDDC) unit cost consists of two shock certified servers and one shock certified rack.

(6) A single Dry Dock Shelter (DDS), AUV(S) Razorback install consists of two AUV(S) vehicles and a DDS submarine support system. A single Torpedo Tube Launch (TTL) install consists of a TTL submarine support system and an equal amount of TTL Safecaps and AUV(S) vehicles. The submarine support system and AUV(S) Razorback installs are based on mission requirements.

(7) HWDDC unit cost fluctuations in installation cost are due to different configurations based on individual ship installs.

(8) Consolidated Prior Year Requirements: Programs included in this Cost Element include: TESS/NITES (Mobile Tactical System and Hardware Components, METMF(R) NEXGEN/Subsystems, METOC Satellite Data Exploitation Readiness (FNMOC Upgrades and NAVOCEANO Upgrades), Hazardous Weather Detection & Display Capability (HWDDC)SPS-48E/G Variant, Littoral Battlespace Sensors - Autonomous Undersea Vehicles (LBS-AUV), Littoral Battlespace Sensors - (LBS-AUV) Shipset and Satellite Receiver Upgrades (Space) (FNMOC Upgrades and NAVOCEANO Upgrades).

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Exhibit P-5a, Procurement History and Planning: PB 2020 Navy									Date: March 2019			
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 03 / 3				P-1 Line Item Number / Title: 4226 / Meteorological Equipment					Aggregated Items: Meteorological 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 (\$ K)	Specs Avail Now?	Date Revision Available	RFP Issue Date
1) SP051 Satellite Receiver Upgrades (Space)												
1.1) AN/FMQ-17 GOES-R Antenna/ Pedestal		2018 ⁽⁹⁾	Raytheon / Indianapolis	SS / CPFF	SPAWAR	Feb 2018	Jun 2018	1	789.000	Y		Sep 2017
1.1) AN/FMQ-17 GOES-R Antenna/ Pedestal		2019	Raytheon / Indianapolis	SS / CPFF	SPAWAR	Feb 2019	Jun 2019	1	724.000	Y		Sep 2018
1.2) AN/FMQ-17 Himawari Receiver Processor		2018 ⁽¹⁰⁾	Raytheon / Indianapolis	SS / CPFF	SPAWAR	Feb 2018	Jun 2018	1	196.000	Y		Sep 2016
1.2) AN/FMQ-17 Himawari Receiver Processor		2020	Raytheon / Indianapolis	SS / CPFF	SPAWAR	Feb 2020	Jun 2020	1	204.000	Y		Sep 2018
1.3) AN/FMQ-17 Satellite Receiver Upgrade Kit		2017	Raytheon / Indianapolis	SS / CPFF	SPAWAR	Feb 2017	Jun 2017	1	449.000	Y		Sep 2016
1.4) AN/SMQ-11 Satellite Receiver Upgrade Kit		2017	Raytheon / Indianapolis.	SS / CPFF	SPAWAR	Feb 2017	Jun 2017	1	551.000	Y		Sep 2016
1.4) AN/SMQ-11 Satellite Receiver Upgrade Kit		2018	Raytheon / Indianapolis.	SS / CPFF	SPAWAR	Feb 2018	Jun 2018	1	524.000	Y		Sep 2017
1.4) AN/SMQ-11 Satellite Receiver Upgrade Kit		2019	Raytheon / Indianapolis.	SS / CPFF	SPAWAR	Feb 2019	Jun 2019	1	544.000	Y		Sep 2018
1.4) AN/SMQ-11 Satellite Receiver Upgrade Kit		2020	Raytheon / Indianapolis.	SS / CPFF	SPAWAR	Feb 2020	Jun 2020	1	555.370	Y		Sep 2019
1.5) AN/FMQ-17 Antenna Positioner Upgrade Kit		2017	Raytheon / Indianapolis	SS / CPFF	SPAWAR	Feb 2017	Jun 2017	1	251.000	Y		Sep 2016
1.6) AN/SMQ-11 Antenna Pedestal Upgrade Kit		2017	Raytheon / Indianapolis	SS / CPFF	SPAWAR	Feb 2017	Jun 2017	1	1,077.000	Y		Sep 2016
1.6) AN/SMQ-11 Antenna Pedestal Upgrade Kit		2018	Raytheon / Indianapolis	SS / CPFF	SPAWAR	Feb 2018	Jun 2018	1	939.000	Y		Sep 2017
1.6) AN/SMQ-11 Antenna Pedestal Upgrade Kit		2019	Raytheon / Indianapolis	SS / CPFF	SPAWAR	Feb 2019	Jun 2019	1	957.780	Y		Sep 2018
1.6) AN/SMQ-11 Antenna Pedestal Upgrade Kit		2020	Raytheon / Indianapolis	SS / CPFF	SPAWAR	Feb 2020	Jun 2020	1	976.936	Y		Sep 2019
2) SP550 METOC SASC Upgrades												
2.1) ASOS Upgrades ⁽¹⁾		2017	National Weather Service (NWS) / MD	MIPR	NWS	Dec 2016	Apr 2017	48	48.771	Y		
2.1) ASOS Upgrades ⁽¹⁾		2018	National Weather Service (NWS) / MD	MIPR	NWS	Dec 2017	Apr 2018	33	77.606	Y		
2.1) ASOS Upgrades ⁽¹⁾		2019	National Weather Service (NWS) / MD	MIPR	NWS	Dec 2018	Apr 2019	34	75.176	Y		
2.1) ASOS Upgrades ⁽¹⁾		2020	National Weather Service (NWS) / MD	MIPR	NWS	Dec 2019	Apr 2020	20	190.700	Y		
2.2) SWR Upgrades ⁽²⁾		2017	Enterprise Electronics Corp. / AL	C / FP	SSC LANT	Dec 2016	May 2017	15	58.533	Y		Nov 2010
2.2) SWR Upgrades ⁽²⁾		2018	Enterprise Electronics Corp. / AL	C / FP	SSC LANT	Dec 2017	May 2018	12	123.500	Y		Nov 2010

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Exhibit P-5a, Procurement History and Planning: PB 2020 Navy								Date: March 2019				
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 03 / 3			P-1 Line Item Number / Title: 4226 / Meteorological Equipment					Aggregated Items: Meteorological 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 (\$ K)	Specs Avail Now?	Date Revision Available	RFP Issue Date
2.2) SWR Upgrades ⁽²⁾		2019	Enterprise Electronics Corp. / AL	C / FP	SSC LANT	Dec 2018	May 2019	12	119.333	Y		Feb 2018
2.2) SWR Upgrades ⁽²⁾		2020	Enterprise Electronics Corp. / AL	C / FP	SSC LANT	Oct 2019	Mar 2020	14	141.429	Y		Jul 2018
3) SP600 Littoral Battlespace Sensors - Unmanned Undersea Vehicles (LBS-UUV)												
3.1) LBS-G		2017	Teledyne Brown Eng / AL	C / CPIF	SPAWAR	Mar 2017	Feb 2018	20	187.398	Y		Apr 2008
3.1) LBS-G		2018	Teledyne Brown Eng / AL	C / CPIF	SPAWAR	Mar 2018	Feb 2019	18	193.717	Y		Apr 2008
3.1) LBS-G		2019	Teledyne Brown Eng / AL	C / TBD	SPAWAR	Mar 2019	Feb 2020	16	199.524	Y		Apr 2008
3.1) LBS-G		2020	Teledyne Brown Eng / AL	C / TBD	SPAWAR	Mar 2020	Feb 2021	15	205.290	Y		Apr 2008
3.2) LBS-AUV(S)/Razorback		2017	Hydroid, Inc. ⁽¹¹⁾ / MA.	C / FFP	SPAWAR	Dec 2016	Jul 2019	6	2,060.000	Y		
3.2) LBS-AUV(S)/Razorback		2018	Hydroid, Incorp / MA.	C / FFP	SPAWAR	Mar 2018	Apr 2020	2	2,098.000	Y		
3.2) LBS-AUV(S)/Razorback		2019	Hydroid, Inc. ⁽¹¹⁾ / MA.	C / FFP	SPAWAR	Dec 2018	Jan 2021	2	2,140.000	Y		
3.3) LBS-AUV(S)/Razorback DDS Sub Spt Sys		2017	FY17 NUWC NPT / NEWPORT, RI	C / CPFF	SPAWAR	Dec 2016	Jul 2019	2	2,911.000	Y		
3.3) LBS-AUV(S)/Razorback DDS Sub Spt Sys		2018	FY18 NUWC NPT / NEWPORT, RI	C / TBD	SPAWAR	Mar 2018	Apr 2020	1	3,090.600	Y		
3.3) LBS-AUV(S)/Razorback DDS Sub Spt Sys		2019	FY19 TBD / TBD	C / TBD	SPAWAR	Jan 2019	Feb 2021	1	3,152.412	N	Jan 2019	
4) SP660 Tactical METOC Applications												
4.1) Naval Integrated Tactical Environmental Next Generation (NITES-Next) ⁽⁴⁾		2020	TBD ⁽¹²⁾ / TBD	C / TBD	TBD	Dec 2019	Mar 2020	437	3.023	N	Oct 2019	
5) SP220 Hazardous Weather Detection and Display Capability (HWDDC)												
5.1) SPS-48G Variant ⁽⁵⁾		2020	TBD / TBD	C / TBD	TBD	Dec 2019	Dec 2020	6	161.833	N	Oct 2019	

Footnotes:

⁽⁹⁾ FY18 vendor equipment includes AN/FMQ-17 GOES-R Hardware to support new sensor and view capability.

⁽¹⁰⁾ FY18 vendor equipment includes AN/FMQ-17 Himawari Hardware to support new sensor and view capability.

⁽¹¹⁾ Littoral Battlespace Sensing-Autonomous Unmanned Vehicle (Submarine variant) (LBS-AUV(S)/Razorback) Production Lead Time for procurement includes 18 months for Non Recurring Engineering (NRE) and Production as well as 13 months for Off-Gas testing, Off-gas test report (Submarine safety requirement) and Temporary Alteration (TEMPALT) approval. Procurements for FY18 and beyond will not include NRE (6 months).

⁽¹²⁾ Naval Integrated Tactical NITES-Next laptop procurements will be Commercial off the Shelf (COTS) equipment items which will not require production and will be turnkey not requiring installation.

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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 03: Aviation Support Equipment / BSA 3: Aircraft Support Equipment							P-1 Line Item Number / Title: 4242 / DCRS/DPL					
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>)	98.420	0.660	0.656	0.000	0.000	0.000	0.000	0.000	0.000	0.000	-	99.736
Less PY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (<i>\$ in Millions</i>)	98.420	0.660	0.656	0.000	0.000	0.000	0.000	0.000	0.000	0.000	-	99.736
Plus CY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority (<i>\$ in Millions</i>)	98.420	0.660	0.656	0.000	0.000	0.000	0.000	0.000	0.000	0.000	-	99.736
<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>)	-	0.069	0.055	-	-	-	-	-	-	-	-	0.124
Flyaway Unit Cost (<i>\$ in Dollars</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost (<i>\$ in Dollars</i>)	-	-	-	-	-	-	-	-	-	-	-	-

Description:
 Digital Camera Receiving Station (DCRS) supports visual information requirements outlined in the Fleet Visual Information Concept of Operations dated July 2, 2015.

The DCRS is a combat system located in the Carrier Intelligence Center that processes classified Bomb Hit Assessment and target imagery. DCRS supports near real-time imagery transfer, as well as post-mission playback, analysis, and distribution of imagery obtained from aircraft and other sources (e.g. Distributed Common Ground System- Navy (DCGS-N), Theater Battle Management Core System (TBMCS), Global Command and Control System-Maritime (GCCS-M) in support of mission planning, mission execution and mission analysis. DCRS is a rack system with multiple PC workstations for video editing and playback, media receptacles for aircraft data transfer devices, and communications equipment to support Fast Tactical Imagery. Equipment and software are updated through field change/tech refresh installations scheduled at least every three years for each aircraft carrier.

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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 03: Aviation Support Equipment / BSA 3: Aircraft Support Equipment					P-1 Line Item Number / Title: 4242 / DCRS/DPL					
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	DCRS/AMMPS				- / 98.420	- / 0.660	- / 0.656	- / -	- / -	- / -
P-40	Total Gross/Weapon System Cost				- / 98.420	- / 0.660	- / 0.656	- / 0.000	- / 0.000	- / 0.000
*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 2019 is the last FY of support for legacy DCRS systems.

DCRS supports near real-time imagery transfer, as well as post-mission playback analysis, and distribution of imagery obtained from aircraft and other sources (e.g. Distributed Common Ground System- Navy (DCGS-N), Theater Battle Management Core System (TBMCS), Global Command and Control System-Maritime (GCCS-M) in support of mission planning, mission execution and mission analysis.

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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 / 03 / 3						P-1 Line Item Number / Title: 4242 / DCRS/DPL									Aggregated Items Title: DCRS/AMMPS					
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) DCRS/DPL																				
1.1) SX020 Afloat Multi-Media Production System Workcenter	A		140,848.10	79	11.127	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.2) SX021 Digital SLR Color Camera	A		16,347.31	167	2.730	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.3) SX100 Digital Camera Receiving Station	A		163,256.41	78	12.734	163,666.67	3	0.491	162,333.33	3	0.487	-	-	-	-	-	-	-	-	-
1.4) AMMPS Other Costs	A		-	-	32.144	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.5) DCRS Other Costs	A		-	-	39.685	-	-	0.169	-	-	0.169	-	-	-	-	-	-	-	-	-
Subtotal: 1) DCRS/DPL			-	-	98.420	-	-	0.660	-	-	0.656	-	-	-	-	-	-	-	-	-
Total			-	-	98.420	-	-	0.660	-	-	0.656	-	-	-	-	-	-	-	-	-

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 03: Aviation Support Equipment / BSA 3: Aircraft Support Equipment							P-1 Line Item Number / Title: 4248 / Legacy Airborne MCM					
ID Code (A=Service Ready, B=Not Service Ready): A				Program Elements for Code B Items: N/A				Other Related Program Elements: 0604373N				
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>)	477.009	19.297	11.299	19.250	0.000	19.250	6.732	4.536	4.629	4.722	-	547.474
Less PY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (<i>\$ in Millions</i>)	477.009	19.297	11.299	19.250	0.000	19.250	6.732	4.536	4.629	4.722	-	547.474
Plus CY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority (<i>\$ in Millions</i>)	477.009	19.297	11.299	19.250	0.000	19.250	6.732	4.536	4.629	4.722	-	547.474
<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>)	-	0.733	0.359	0.648	-	0.648	0.435	0.431	-	-	-	2.606
Flyaway Unit Cost (<i>\$ in Dollars</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost (<i>\$ in Dollars</i>)	-	-	-	-	-	-	-	-	-	-	-	-

Description:

Airborne Mine Countermeasures (AMCM) Equipment is currently deployed on MH-53E helicopters to counter the threat of sea mines. The MH-60S helicopter will be adapted for the AMCM mission in support of the development of an Organic Fleet AMCM program. The equipment is divided into three categories -- minesweeping, minehunting and mine neutralization. (1) Minesweeping is performed by mechanical or influence sweeps. In mechanical sweeping, the mine mooring is severed by the sweep gear allowing the mine to float to the surface where it is destroyed. In influence sweeping, a magnetic or acoustic field which simulates the magnetic/acoustic signature of a ship is introduced into the water. This field causes the mine mechanism to actuate. (2) In minehunting, mine-like objects are located and classified (usually by means of high resolution sonar). (3) Then neutralize mines using explosive devices. AMCM squadrons currently have mechanical, magnetic, and acoustic sweeping capabilities, and mine surveillance and marking capabilities. Their mission is to locate, classify, identify and neutralize moored, surface and bottom mines.

Current world mining threats have resulted in increased operational demand of systems to perform AMCM missions. Fleet requires increased AMCM capability to address warfighting gaps and the reliability, maintainability, and availability of critical systems to perform world-wide operations. AMCM Program provides systems to address a global threat and serve to deter placement of mines to allow ships to transit freely. Lack of AMCM capability will result in loss of the Fleet's ability to conduct freedom of maneuver, increasing risk to ships while operating in mine threat areas.

Modifications: Funds will support the modification and product improvements of Airborne Mine Countermeasures (AMCM) systems to accommodate replacement of subsystems/components because of safety, maintainability, reliability and obsolescence issues. Engineering Change Proposals (ECPs) generated from obsolescence issues and parts failures are necessary to sustain the operational availability and reliability of the Fleet's neutralization through end of service life. Additionally, as the systems have aged operational and intermediate level maintenance actions on the systems have failed to return assets to Ready for Issue (RFI) condition. Depot level overhauls of the neutralization systems and components are required to ensure the systems are sustainable through the end of their service life. ECPs are analyzed, prioritized and screened to accommodate replacement of subsystems/components.

Specifically, an upgrade of the AN/ASQ-232A SeaFox trainer from Version 0 to Version 1 will be executed, providing interoperability of the SeaFox simulator on the SeaFox Air Mine Neutralization system (AMNS), and will provide video simulations on the control panels monitors, include different bottom types, add bottom and buried targets to the system's software simulations, and inject additional failure modes into the simulated missions. Funds will also support upgrades of hardware to maintain their system's operational availability as more demanding operational support and software requirements are levied on aging hardware. As cybersecurity becomes a more urgent issue within the Navy, there are necessary upgrades to the systems utilizing windows based operating systems in order to remain in compliance under the new risk management framework of the Navy.

AN/AQS-24 sonar: Funds support an in-service mine detection system that detects, classifies, localizes, and identifies sea mines. The sonar sensor is deployed from the MH-53E helicopter and is used against moored and bottom mines. AN/AQS-24B provides High Speed Synthetic Aperture Sonar (SAS). AN/AQS-24C provides Volume Search Capability.

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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 03: Aviation Support Equipment / BSA 3: Aircraft Support Equipment		P-1 Line Item Number / Title: 4248 / Legacy Airborne MCM
ID Code (A=Service Ready, B=Not Service Ready): A	Program Elements for Code B Items: N/A	Other Related Program Elements: 0604373N
Line Item MDAP/MAIS Code: N/A		
AN/ASQ-235 AMNS: Funds support a mine neutralization system that provides a remotely controlled expendable neutralizer vehicle deployed from the MH-60S and MH-53E helicopter platform to reacquire, identify, and neutralize moored or proud bottom sea mines. AN/AES-1 Airborne Laser Mine Detection System (ALMDS): Funds support a mine detection system that provides a light detection and ranging (LIDAR) system for rapid detection, classification, and localization of near surface sea mines. It is deployed on the MH-60S helicopter as part of the Organic Airborne Mine Countermeasures (OAMCM) suite of systems. This funding line supports the procurement of certified shipping containers to meet the shipping and storage needs of the ALMDS pods over the fleet service lifespan. This procurement line supports the AMNS and ALMDS program of record, delivering AMNS and ALMDS systems to Navy helicopter wings to provide initial proficiency training to Navy aircrews and ALMDS certified shipping containers. AMNS and ALMDS systems utilized for the Littoral Combat Ship (LCS) Mission Package (MP) are procured under the OPN Line Item 1601 LCS MCM Mission Modules.		

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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 03: Aviation Support Equipment / BSA 3: Aircraft Support Equipment						P-1 Line Item Number / Title: 4248 / Legacy Airborne MCM				
ID Code (A=Service Ready, B=Not Service Ready): A			Program Elements for Code B Items: N/A			Other Related Program Elements: 0604373N				
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 / MODIFICATIONS				- / 81.765	- / 4.622	- / 4.455	- / 7.464	- / 0.000	- / 7.464
P-5	2 / AN/AQS-24 Sonar	P-5a, P-21			- / 82.614	- / 7.391	- / 4.829	- / 10.970	- / 0.000	- / 10.970
P-5	3 / MK-105				- / 20.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000
P-5	4 / AMNS				- / 68.817	- / 7.284	- / 1.408	- / 0.408	- / 0.000	- / 0.408
P-5	5 / ALMDS [ALMDS]				- / 108.719	- / 0.000	- / 0.607	- / 0.408	- / 0.000	- / 0.408
P-5	7 / OAMCM [OAMCM]				- / 115.094	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000
P-40	Total Gross/Weapon System Cost				- / 477.009	- / 19.297	- / 11.299	- / 19.250	- / 0.000	- / 19.250
*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: Baseline FY 2020 funding supports the procurement of fifteen (15) AN/AQS-24C upgrade kits and the procurement of six (6) AN/AQS-24C trainers. FY20 funding will upgrade the remaining fifteen (15) AN/AQS-24B systems to be compatible with the AN/AQS-24C configuration, bringing all systems to a common configuration that will increase fleet operational flexibility, reduce logistics cost and reduce service life operational cost. Six (6) AQS-24 trainers will be upgraded to support AQS-24C training requirements. Naval Air Warfare Center Training System Division (NAWC TSD) will conduct requirements analysis, perform system upgrades to implement utilization of ATLAS sensor data in trainers. FY 2020 funding also supports the AMCM baseline programs, required hardware and software upgrades for the AMNS and the Airborne Laser Mine Detection System (ALMDS), as well as support equipment, including shipping containers for ALMDS. Funding is also included for modifications, product improvements and engineering change proposals of the AMNS, ALMDS, SeaFox and AN/AQS-24 systems. These capabilities will be deployed around the world to meet the current operational mine warfare mission demand.										

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Exhibit P-5, Cost Analysis: PB 2020 Navy												Date: March 2019							
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 03 / 3						P-1 Line Item Number / Title: 4248 / Legacy Airborne MCM						Item Number / Title [DODIC]: 1 / 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					
Procurement Quantity (Units in Each)				-		-		-		-		-		-					
Gross/Weapon System Cost (\$ in Millions)				81.765		4.622		4.455		7.464		0.000		7.464					
Less PY Advance Procurement (\$ in Millions)				-		-		-		-		-		-					
Net Procurement (P-1) (\$ in Millions)				81.765		4.622		4.455		7.464		0.000		7.464					
Plus CY Advance Procurement (\$ in Millions)				-		-		-		-		-		-					
Total Obligation Authority (\$ in Millions)				81.765		4.622		4.455		7.464		0.000		7.464					
(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 - S0020 MODIFICATIONS Cost																			
Recurring Cost																			
1.1.1) S0020 - MODIFICATION		-	-	81.765	-	-	4.622	-	-	4.455	-	-	7.464	-	-	0.000	-	-	7.464
Subtotal: Recurring Cost		-	-	81.765	-	-	4.622	-	-	4.455	-	-	7.464	-	-	0.000	-	-	7.464
Subtotal: Hardware - S0020 MODIFICATIONS Cost		-	-	81.765	-	-	4.622	-	-	4.455	-	-	7.464	-	-	0.000	-	-	7.464
Gross/Weapon System Cost		-	-	81.765	-	-	4.622	-	-	4.455	-	-	7.464	-	-	0.000	-	-	7.464

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Exhibit P-5, Cost Analysis: PB 2020 Navy												Date: March 2019						
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 03 / 3						P-1 Line Item Number / Title: 4248 / Legacy Airborne MCM						Item Number / Title [DODIC]: 2 / AN/AQS-24 Sonar						
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>				82.614		7.391		4.829		10.970		0.000		10.970				
Less PY Advance Procurement <i>(\$ in Millions)</i>				-		-		-		-		-		-				
Net Procurement (P-1) <i>(\$ in Millions)</i>				82.614		7.391		4.829		10.970		0.000		10.970				
Plus CY Advance Procurement <i>(\$ in Millions)</i>				-		-		-		-		-		-				
Total Obligation Authority <i>(\$ in Millions)</i>				82.614		7.391		4.829		10.970		0.000		10.970				
(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 - S0024 AN/AQS-24 Sonar Cost																		
Recurring Cost																		
1.1.1) AN/AQS-24B - upgrade kit	2,126K	27	57.400	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000
1.1.2) AN/AQS-24C - Upgrade kit ^(†) (1)	2,352K	8	18.819	2,518K	2	5.035	-	-	0.000	560,000.00	15	8.400	-	-	0.000	560,000.00	15	8.400
1.1.3) Training Equipment ^(†) (2)	5,920K	1	5.920	-	-	1.871	664,500.00	2	1.329	428,333.00	6	2.570	-	-	0.000	428,333.00	6	2.570
1.1.4) ILS/Tech Pubs	-	-	0.475	-	-	0.485	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000
1.1.5) Q-24 Laser Line Scan Upgrade ^(†)	-	-	0.000	-	-	0.000	350,000.00	10	3.500	-	-	0.000	-	-	0.000	-	-	0.000
Subtotal: Recurring Cost	-	-	82.614	-	-	7.391	-	-	4.829	-	-	10.970	-	-	0.000	-	-	10.970
Subtotal: Hardware - S0024 AN/AQS-24 Sonar Cost	-	-	82.614	-	-	7.391	-	-	4.829	-	-	10.970	-	-	0.000	-	-	10.970
Gross/Weapon System Cost	-	-	82.614	-	-	7.391	-	-	4.829	-	-	10.970	-	-	0.000	-	-	10.970
(†) indicates the presence of a P-5a																		
Footnotes:																		
(1) FY 2020 funding will support the procurement of fifteen (15) AQS-24C Upgrade kits.																		
(2) FY 2020 funding will support procurement of six (6) AQS-24C trainers.																		

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Exhibit P-5a, Procurement History and Planning: PB 2020 Navy									Date: March 2019			
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 03 / 3				P-1 Line Item Number / Title: 4248 / Legacy Airborne MCM				Item Number / Title [DODIC]: 2 / AN/AQS-24 Sonar				
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
1.1.2) AN/AQS-24C - Upgrade kit ^(†)		2017	Northrop Grumman* / Annapolis, MD	C / FFP	NAVSEA	Jun 2018	Dec 2019	8	2,352K	Y		
1.1.2) AN/AQS-24C - Upgrade kit ^(†)		2018	Northrop Grumman* / Annapolis, MD	SS / FFP	NAVSEA	Jun 2018	Dec 2019	2	2,518K	Y		
1.1.2) AN/AQS-24C - Upgrade kit ^(†)		2020	Northrop Grumman* / Annapolis, MD	SS / FFP	NAVSEA	Dec 2019	Jun 2021	15	560,000.00	Y		
1.1.3) Training Equipment		2019	TBD / NAWC TSD	SS / FFP	** NO PCO **	Jun 2019	Jun 2020	2	664,500.00	Y		
1.1.3) Training Equipment		2020	TBD / NAWC TSD	SS / FFP	** NO PCO **	Dec 2019	Dec 2020	6	428,333.00	Y		
1.1.5) Q-24 Laser Line Scan Upgrade		2019	Northrop Grumman* / Annapolis, MD	C / CPFF	** NO PCO **	Nov 2018	Aug 2019	10	350,000.00	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 / 03 / 3										P-1 Line Item Number / Title: 4248 / Legacy Airborne MCM										Item Number / Title [DODIC]: 2 / AN/AQS-24 Sonar															
Cost Elements <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					
1.1.2) AN/AQS-24C - Upgrade kit ⁽¹⁾																																			
	1	2017	NAVY	8	0	8											A -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8
	1	2018	NAVY	2	0	2											A -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2
	1	2020	NAVY	15	0	15																									15				
							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 / 03 / 3										P-1 Line Item Number / Title: 4248 / Legacy Airborne MCM										Item Number / Title [DODIC]: 2 / AN/AQS-24 Sonar													
Cost Elements <i>(Units in Each)</i>							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		
1.1.2) AN/AQS-24C - Upgrade kit ⁽¹⁾																																	
	1	2017	NAVY	8	0	8	-	-	2	2	2	2																				0	
	1	2018	NAVY	2	0	2	-	-	1	-	-	-	1																				0
	1	2020	NAVY	15	0	15	A -			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	2	-	11			
							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 / 03 / 3										P-1 Line Item Number / Title: 4248 / Legacy Airborne MCM										Item Number / Title [DODIC]: 2 / AN/AQS-24 Sonar											
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) AN/AQS-24C - Upgrade kit ⁽¹⁾																															
	1	2017	NAVY	8	8	0																									0
	1	2018	NAVY	2	2	0																									0
	1	2020	NAVY	15	4	11	2	-	3	-	3	-	3																	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 / 03 / 3				P-1 Line Item Number / Title: 4248 / Legacy Airborne MCM				Item Number / Title [DODIC]: 2 / AN/AQS-24 Sonar

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* - Annapolis, MD	2	5	18	0	0	18	18	0	8	18	26

"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 / 03 / 3							P-1 Line Item Number / Title: 4248 / Legacy Airborne MCM							Item Number / Title [DODIC]: 3 / MK-105							
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)				20.000			0.000			0.000			0.000			0.000			0.000		
Less PY Advance Procurement (\$ in Millions)				-			-			-			-			-			-		
Net Procurement (P-1) (\$ in Millions)				20.000			0.000			0.000			0.000			0.000			0.000		
Plus CY Advance Procurement (\$ in Millions)				-			-			-			-			-			-		
Total Obligation Authority (\$ in Millions)				20.000			0.000			0.000			0.000			0.000			0.000		
(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 - S0061 - MK-105 MOD 4 Cost																					
Recurring Cost																					
1.1.1) MK-105 MOD 4	16,600K	1	16.600	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000			
1.1.2) Production Line Set-Up	-	-	3.400	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000			
Subtotal: Recurring Cost	-	-	20.000	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000			
Subtotal: Hardware - S0061 - MK-105 MOD 4 Cost	-	-	20.000	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000			
Gross/Weapon System Cost	-	-	20.000	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000			

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Exhibit P-5, Cost Analysis: PB 2020 Navy												Date: March 2019							
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 03 / 3						P-1 Line Item Number / Title: 4248 / Legacy Airborne MCM						Item Number / Title [DODIC]: 4 / AMNS							
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>				68.817		7.284		1.408		0.408		0.000		0.408					
Less PY Advance Procurement <i>(\$ in Millions)</i>				-		-		-		-		-		-					
Net Procurement (P-1) <i>(\$ in Millions)</i>				68.817		7.284		1.408		0.408		0.000		0.408					
Plus CY Advance Procurement <i>(\$ in Millions)</i>				-		-		-		-		-		-					
Total Obligation Authority <i>(\$ in Millions)</i>				68.817		7.284		1.408		0.408		0.000		0.408					
(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 - S0065 - AMNS Cost																			
Recurring Cost																			
1.1.1) AMNS		2,116K	17	35.965	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000
1.1.2) AMNS (MH-53E)		-	-	3.860	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000
1.1.3) PRODUCTION ENGINEERING		-	-	2.587	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000
1.1.4) TRAINING EQUIPMENT		-	-	4.967	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000
1.1.5) ILS/PUBS/TECH DATA		-	-	2.089	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000
1.1.6) SUPPORT EQUIPMENT		-	-	7.114	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000
1.1.7) ECP (HW/SW) and Upgrades ⁽³⁾		-	-	12.235	-	-	7.284	-	-	1.408	-	-	0.408	-	-	0.000	-	-	0.408
Subtotal: Recurring Cost		-	-	68.817	-	-	7.284	-	-	1.408	-	-	0.408	-	-	0.000	-	-	0.408
Subtotal: Hardware - S0065 - AMNS Cost		-	-	68.817	-	-	7.284	-	-	1.408	-	-	0.408	-	-	0.000	-	-	0.408
Gross/Weapon System Cost		-	-	68.817	-	-	7.284	-	-	1.408	-	-	0.408	-	-	0.000	-	-	0.408
Footnotes:																			
⁽³⁾ AMNS ECP and upgrade funding in FY18-20 will support upgrading procured units to a uniform configuration, test bed procurements, and the upgrades of necessary support equipment.																			

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Exhibit P-5, Cost Analysis: PB 2020 Navy												Date: March 2019						
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 03 / 3						P-1 Line Item Number / Title: 4248 / Legacy Airborne MCM						Item Number / Title [DODIC]: 5 / ALMDS [ALMDS]						
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>				108.719		0.000		0.607		0.408		0.000		0.408				
Less PY Advance Procurement <i>(\$ in Millions)</i>				-		-		-		-		-		-				
Net Procurement (P-1) <i>(\$ in Millions)</i>				108.719		0.000		0.607		0.408		0.000		0.408				
Plus CY Advance Procurement <i>(\$ in Millions)</i>				-		-		-		-		-		-				
Total Obligation Authority <i>(\$ in Millions)</i>				108.719		0.000		0.607		0.408		0.000		0.408				
(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 - S0075 - ALMDS Cost																		
Recurring Cost																		
1.1.1) ALMDS	7,354K	12	88.247	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000
1.1.2) PRODUCTION ENGINEERING	-	-	8.776	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000
1.1.3) PRODUCTION ECP (HW/SW)	-	-	7.535	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000
1.1.4) TRAINING EQUIPMENT	-	-	0.976	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000
1.1.5) ILS/PUBS/ TECH DATA	-	-	2.429	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000
1.1.6) SUPPORT EQUIPMENT	-	-	0.756	-	-	0.000	-	-	0.607	-	-	0.408	-	-	0.000	-	-	0.408
Subtotal: Recurring Cost	-	-	108.719	-	-	0.000	-	-	0.607	-	-	0.408	-	-	0.000	-	-	0.408
Subtotal: Hardware - S0075 - ALMDS Cost	-	-	108.719	-	-	0.000	-	-	0.607	-	-	0.408	-	-	0.000	-	-	0.408
Gross/Weapon System Cost	-	-	108.719	-	-	0.000	-	-	0.607	-	-	0.408	-	-	0.000	-	-	0.408

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Exhibit P-5, Cost Analysis: PB 2020 Navy													Date: March 2019								
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 03 / 3							P-1 Line Item Number / Title: 4248 / Legacy Airborne MCM						Item Number / Title [DODIC]: 7 / OAMCM [OAMCM]								
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>				115.094			0.000			0.000			0.000			0.000			0.000		
Less PY Advance Procurement <i>(\$ in Millions)</i>				-			-			-			-			-			-		
Net Procurement (P-1) <i>(\$ in Millions)</i>				115.094			0.000			0.000			0.000			0.000			0.000		
Plus CY Advance Procurement <i>(\$ in Millions)</i>				-			-			-			-			-			-		
Total Obligation Authority <i>(\$ in Millions)</i>				115.094			0.000			0.000			0.000			0.000			0.000		
(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 - S0090 - OAMCM Support Equipment Cost																					
Recurring Cost																					
1.1.1) OPMA		-	-	1.668	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000		
1.1.2) SNIUTT		-	-	1.380	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000		
1.1.3) ORCA		3,098K	2	6.195	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000		
1.1.4) Tow Cables		125,000.00	20	2.500	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000		
Subtotal: Recurring Cost		-	-	11.743	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000		
Subtotal: Hardware - S0090 - OAMCM Support Equipment Cost		-	-	11.743	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000		
Hardware - Prior Years Cost																					
Recurring Cost																					
2.1.1) Prior Years Cumulative Funding		-	-	103.351	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000		
Subtotal: Recurring Cost		-	-	103.351	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000		
Subtotal: Hardware - Prior Years Cost		-	-	103.351	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000		
Gross/Weapon System Cost		-	-	115.094	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000		

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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 03: Aviation Support Equipment / BSA 3: Aircraft Support Equipment							P-1 Line Item Number / Title: 4250 / Common Control 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>)	0.000	0.000	0.594	0.792	0.000	0.792	1.188	1.484	11.787	12.023	Continuing	Continuing
Less PY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (<i>\$ in Millions</i>)	0.000	0.000	0.594	0.792	0.000	0.792	1.188	1.484	11.787	12.023	Continuing	Continuing
Plus CY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority (<i>\$ in Millions</i>)	0.000	0.000	0.594	0.792	0.000	0.792	1.188	1.484	11.787	12.023	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:
OPN funding is required to procure and modify Common Control System (CCS) software.

This line item provides funding to CCS Software Production, Software/Production Engineering Support and Integrated Logistics Support for all platforms. The primary mission of CCS is to provide common control across the Navy's Unmanned Systems (UxSs) portfolio to add scalable and adaptable warfighting capability, implement robust cyber security attributes, leverage existing government owned products, eliminate redundant software development efforts, consolidate product support, encourage innovation, improve cost control and enable rapid integration of unmanned system (UxS) capabilities across Aviation, Surface, Sub-Surface, and Ground domains.

CCS is a ship/shore/airborne/expeditionary based common control system that provides Vehicle Management (VM) and Mission Management/Mission Planning (MM/MP) capabilities for Naval Group 1 through 5 Unmanned Air Vehicles (UAVs) as well as other domain UxSs. VM is the software that allows the operator to control the UxS. MM/MP is the software that allows the operator to create mission plans and control the UxS's sensors and payloads. CCS software is based on the OSD Unmanned Control Segment (UCS) architecture which is a service oriented open architecture that is modular and scalable to meet evolving Service requirements and is also supportive of safety/airworthiness certification and cybersecurity certification and accreditation.

This program delivers CCS capability that enables the flexibility for Ground Control Systems (GCS) that could be ship, shore, airborne, or expeditionary based to operate multiple and dissimilar Naval UxSs. CCS includes a common framework, user interface, and common components that are integrated and tested with legacy platform components. CCS is constructed with an open and modular business model with robust cybersecurity implementation and provided as Government Furnished Equipment (GFE) to UxS contractors as required.

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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 03: Aviation Support Equipment / BSA 3: Aircraft Support Equipment					P-1 Line Item Number / Title: 4250 / Common Control 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	Common Control System				- / 0.000	- / -	- / 0.594	- / 0.792	- / -	- / 0.792
P-40	Total Gross/Weapon System Cost				- / 0.000	- / 0.000	- / 0.594	- / 0.792	- / 0.000	- / 0.792
*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:
CCS deliveries to MQ-25 commence in 2020 to support planned MQ-25 control station installations. FY 2020 funding is required to continue to support production, procurement, and delivery of CCS software to MQ-8 Fire Scout that was previously initiated in FY 2019, while also initiating the production, procurement, and delivery of CCS software to MQ-25 Stingray starting in FY 2020.

Items to be funded in this line include:

Software Production - CCS is comprised of government off-the shelf (GOTS) and commercial off-the-shelf (COTS) software which will initially be hosted on legacy platform hardware. CCS funding will procure all necessary items for software production and installation (discs, hard drives, network drawings, installation manuals, and software licenses required at installation).

Software/Production Engineering Support - The CCS program produces software releases via an incremental development process. These releases contain changes required to retain commonality and compatibility with supported platforms, correct deficiencies, and incrementally-field new capabilities. CCS software releases are independent of platform hardware buys. Software/Production and Engineering Support includes production support services, engineering support services, acceptance tests, certifications, site activation, cybersecurity compliance and quality assurance efforts. Increases across the FYDP are due to the increased number of systems being supported.

Integrated Logistics Support - The CCS program will conduct on-site logistics evaluations to verify installation configurations and installation media compliant with the specified configuration. This includes the production, update and delivery of technical documentation (Technical Directives and associated compliance).

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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 / 03 / 3						P-1 Line Item Number / Title: 4250 / Common Control System									Aggregated Items Title: Common Control 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) Common Control System																				
1.1) Software Production	A		-	-	-	-	-	-	-	-	0.146	-	-	0.148	-	-	-	-	-	0.148
1.2) Software/ Production Engineering Support (1)	A		-	-	-	-	-	-	-	-	0.351	-	-	0.547	-	-	-	-	-	0.547
1.3) Integrated Logistics Support	A		-	-	-	-	-	-	-	-	0.097	-	-	0.097	-	-	-	-	-	0.097
Subtotal: 1) Common Control System			-	-	0.000	-	-	-	-	-	0.594	-	-	0.792	-	-	-	-	-	0.792
Total			-	-	0.000	-	-	-	-	-	0.594	-	-	0.792	-	-	-	-	-	0.792

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

Footnotes:

(1) Software/Production and Engineering Support includes production support services, engineering support services, acceptance tests, certifications, site activation, cybersecurity compliance and quality assurance efforts. Software/Production and Engineering Support increases in proportion to delivered CCS units in the Fleet. Increases across the FYDP are due to the increased number of systems being supported.

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Exhibit P-40, Budget Line Item Justification: PB 2020 Navy	Date: March 2019
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Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 03: Aviation Support Equipment / BSA 3: Aircraft Support Equipment	P-1 Line Item Number / Title: 4268 / Aviation Support Equipment
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ID Code (A=Service Ready, B=Not Service Ready): B	Program Elements for Code B Items: N/A	Other Related Program Elements: N/A
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Line Item MDAP/MAIS Code: N/A

Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity (<i>Units in Each</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost (\$ <i>in Millions</i>)	126.899	63.995	37.874	55.415	0.500	55.915	58.072	61.614	73.629	74.812	Continuing	Continuing
Less PY Advance Procurement (\$ <i>in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (\$ <i>in Millions</i>)	126.899	63.995	37.874	55.415	0.500	55.915	58.072	61.614	73.629	74.812	Continuing	Continuing
Plus CY Advance Procurement (\$ <i>in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority (\$ <i>in Millions</i>)	126.899	63.995	37.874	55.415	0.500	55.915	58.072	61.614	73.629	74.812	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>)	-	-	-	0.039	-	0.039	0.397	0.478	0.579	0.590	Continuing	Continuing
Flyaway Unit Cost (\$ <i>in Dollars</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost (\$ <i>in Dollars</i>)	-	-	-	-	-	-	-	-	-	-	-	-

Description:

Decision Knowledge Programming for Logistics Analysis and Technical Evaluation (DECKPLATE) (S7039): DECKPLATE is the next generation of Naval Aviation Logistics Data Analysis (NALDA) and will interface with Navy Enterprise Resource Planning (ERP) as the Naval Aviation Business Warehouse. It provides the technological improvements and process streamlining required to enable a cost wise transition from the NALDA program to the capabilities required in Joint Vision 2020 and the Naval Transformation Road Map. DECKPLATE is a Commercial Off the Shelf (COTS) intensive system under which numerous stovepipe legacy systems will migrate to create an integrated data environment through the use of Data Warehouse tools and concepts in support of Naval aviation logistics needs. This is being accomplished by upgrading current Naval Aviation logistics reporting mechanisms through the procurement and installation of a fully-licensed, warranted, secure, standardized, COTS, user-friendly, web-based relational database environment. Funding is required to procure the necessary hardware, networking, systems, applications software, infrastructure, and associated engineering and installation support.

Naval Aviation Logistics Command Management Information System/NAVAIR Fleet System Array (NALCOMIS/NFSA) (S7041): Funding supports procurement of HW/SW for technical refresh for both shipboard and afloat units. As Optimized Organizational Maintenance Activity (OOMA) and Optimized Intermediate Maintenance Activity (OIMA) approach full implementation, NALCOMIS (also identified as Naval Air Systems Command Fleet Systems Array (NFSA)) is responsible for implementation of Mid Tier Servers at 75+ sites both shipboard and shore based. These Mid Tier Servers replicate data from the Organizational and Intermediate level maintenance activities to the NALDA Upline processing center to provide near-real time data to decision makers at all levels. The Mid Tier also allows data to be pushed from Headquarters activities to the fleet to support maintenance activities.

Joint Technical Data Integration (JTDI) (S7042): Funding supports procurement of JTDI for installation on all Carrier (CV) and Amphibious Assault (L) class ships and up to 104 Navy/Marine Corps aviation activities. JTDI is a digital technical data access, delivery and local O&I level library management toolset and telemaintenance collaboration process enabler. It improves accuracy and timeliness of technical manual and other technical data delivery and minimizes the Fleet's library management burden. JTDI reduces maintenance manhours with savings Return on Investment (ROI) of 2.5:1 and savings/avoidance ROI of 9.5:1. It facilitates the transition of the Joint Distance Support and Response (JDSR) Advanced Concept Technology Demonstration (ACTD) for telemaintenance and provides for process efficiencies to support ongoing Aviation Fleet Technical Representative reductions. The ability to realize the full benefits of investment in smart aircraft systems and associated prognostics and health management technologies and the ability to deliver CBM+ data to improve decision making related to the design, acquisition, engineering, and maintenance of Ready Basic Aircraft (RBA) will be lost without the implementation and technical refresh of the SDR.

Automated Data Capture System (ADCS) (S7047): ADCS is a user friendly, interactive mobile computing system currently in use at depot-level Fleet Readiness Centers to document and analyze aircraft discrepancies discovered during scheduled maintenance events. Inspectors use menu driven checklists plus digital aircraft and engine drawings during inspection and evaluation to create immediate discrepancy records and produce real time reports that fulfill customer and specification requirements. Requested funding will provide hardware and software for a lead-the-Fleet effort that will enable the organizational

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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 03: Aviation Support Equipment / BSA 3: Aircraft Support Equipment		P-1 Line Item Number / Title: 4268 / Aviation Support Equipment
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		
maintenance level to utilize ADCS to better document vital corrosion and wiring related discrepancy information. Once captured, this information will be analyzed by organizational level maintenance department personnel and depot level engineers to develop targeted mitigation strategies aimed at reducing or removing corrosion in identified areas. The results of the analysis made possible by using ADCS will greatly improve our understanding of where and how corrosion is affecting our aircraft, resulting in the formulation of statistically targeted area identification and sound attack strategies. Condition Based Maintenance Plus (CBM+) (S7048): Condition Based Maintenance Plus (CBM+) The CBM+ solution is an initiative which provides Naval Aviation Enterprise with common enabling capabilities which deliver timely data-driven decisional information to optimize aircraft availability and materiel readiness by incorporating health and usage leading indicators into the failure mode mitigation process, enabling the Warfighter to more efficiently meet mission requirements through automated analysis and decision making processes. The CBM+ Initiative increases readiness through streamlined maintenance processes, actionable logistics/engineering data and integrated analytics not previously available, enabling engineers and acquisition professionals to support system improvements based on CBM+ acquired data and analytic results. CBM+ provides the enabling infrastructure and storage solutions within an Enterprise common environment needed to store and analyze weapon system sensor data to extend the life of current and new acquisition aircraft, realizing savings from reductions in field (organizational and intermediate) maintenance actions, reduced functional check flight hours, mishap mitigation, and reduced parts usage. [P5 / CSEL - SY060]: COMBAT SURVIVOR EVADER LOCATOR - SY060 (Baseline) CSEL has been designated as an ACAT III Joint Service Program with the USAF as lead service. The CSEL Radio system provides U.S. combat forces with secure, encrypted, low probability of exploitation, two-way, over the horizon, near real time databurst communications with integral precise geopositioning; and non-secure, unencrypted line-of-sight voice and beacon capability to support survival, evasion, and personnel recovery operations. The user segment of the CSEL system is composed of a battery operated Hand Held Radio (HHR) (AN/PRQ-7), a Radio Set Adapter (J-6431/PRQ-7), a Global Positioning System (GPS) antenna and coupler, and a laptop Central Processing Unit with software for loading the HHR CSEL Planning Computer. Fielding of CSEL radios will provide 100% coverage of radios to Aviation personnel that currently lack military GPS enabled radios today. [P5 / LEP- SY080]: LASER EYE PROTECTION (LEP) - SY080 (Baseline) The LEP program is a family of eye protection solutions that will provide Fixed Wing Ejection, Fixed Wing Non-Ejection and Rotary Wing/Tilt Rotor pilots and aircrew with multiple wavelength fixed threat and hazard protection during day and night unaided and Night Vision Goggle aided missions. LEP will consist of a suite of products to include spectacles, goggles, and visors. The LEP (visor, spectacle or goggle format) is being developed for compatibility with all required USN/USMC Aviation Life Support Equipment as well as cockpit displays, night vision, and fire control systems. [P5 / JHMCS Night Vision - SY215]: JOINT HELMET MOUNTED CUEING SYSTEM NIGHT VISION (JHMCS) - SY215 (Baseline) This system provides aircraft equipped with the JHMCS the ability to cue and display weapons and sensors at night using a Night Vision Cueing and Display device that integrates the JHMCS cueing and display symbology. The system is compatible with the current JHMCS helmet and will use the power and data provided by the JHMCS Universal Connector on the helmet. The system includes a high resolution image intensifier assembly and a camera to record the pilot's visual scene and display. The system is fully adjustable by the operator and is detachable from the helmet. [P5 / FDC - SY505]: FLIGHT DECK CRANIAL AND HEARING PROTECTION - SY505 (Baseline) The Flight Deck Cranial program has been divided into three increments by the Milestone Decision Authority. Increment 1 is the Flight Deck Double Hearing Protection (DHP) program and is providing improved hearing protection for aircrew, maintainers, and flight deck personnel, which can be integrated into current legacy helmet and cranial assemblies. Communications versions interface with existing flight deck communications system and F/A-18 Inter-aircraft Communication System. Increment 1 Milestone C (MS C) was successfully completed on 27 April 2011. Increment 2 is the Triple Hearing Protection (THP) program and will provide hearing protection and speech intelligibility for aircrew, maintainers and flight deck personnel in the most extreme noise environments. Communications versions will interface with the shipboard Sound-Powered Phone, existing flight deck communications systems and multiple aircraft communications systems. Increment 3 will provide lightweight head protection devices/helmets with advancements in head impact protection, and Night Vision Device, Chemical Biological and Radiological protective equipment, and eye protection compatibility. These products will greatly improve the level of head and hearing protection available to aircrew, maintainers, and flight deck personnel. [P5 / EKB - SY450]: ELECTRONIC KNEE BOARD (EKB) - SY450 (Baseline) The EKB is an aircrew mounted tablet device system. Currently, printed Gridded Reference Graphics (GRG) charts are used to provide aircrew with required information to complete their missions. Evolving flight operations show the need for aircrew to be re-tasked to any part of a large area of operations resulting in the need to carry many more GRG charts in the aircraft. Physical space constraints in the cockpit for printed GRG's and insufficient aircraft memory to store electronic GRG files are adversely affecting the Fleets' ability to perform their mission. The EKB provides a digital means to store and display all required GRG information, which will increase mission flexibility, situational awareness, and overall mission effectiveness. In addition, the EKB will also store and display other information that is currently printed, to include, but not limited to, NATOPS procedures, flight information publications and related mission planning products.		

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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 03: Aviation Support Equipment / BSA 3: Aircraft Support Equipment		P-1 Line Item Number / Title: 4268 / Aviation Support Equipment
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		
[P5 / EVA - SY217]: ENHANCED VISUAL ACUITY (EVA) - SY217 (Baseline) EVA provides an advanced night vision/Head Up Display (HUD) capability to address critical capability gaps in low and no light illumination levels (night vision) and higher visibility in a degraded visual environment. The digital architecture of the system provides the ability to field capabilities incrementally. Increment 1 will include capabilities to address the low and no light illumination issues. The increment 1 capability will also provide a sharper image at all light levels by reducing scintillation and will reduce halo/blooming when operating in urban environments. Increment 2 will build on the Increment 1 performance by adding capability to address the need for higher visibility in degraded visual environments, digital interoperability and future sensor integration. [P5 / ASIP - SY126]: AIRCREW SYSTEMS IMPROVEMENT PROGRAM (ASIP)- SY126 (Baseline) The Aircrew Systems Improvement Program (ASIP) targets initiatives to improve the performance, safety, reliability and mission endurance of Aviation Aircrew and Maintainer Life Support Systems in support of fleet readiness and mission objectives. The ASIP will correct operational discrepancies or major obsolescence issues in ALSS discovered during testing and evaluations, sustainment activities, engineering analysis, standard depot level evaluations, and during fleet operations. The ASIP provides the resources to correct such issues via Engineering Change Proposals (ECPs), minor Non-Recurring Engineering (NRE) efforts that can be rapidly qualified, leading to production efforts or simple qualification and production of Commercial Off-the-Shelf (COTS), Non-Developmental Items (NDI) or Personnel Gear qualified through other Services. Modifications include, but are not limited to, Escape and Crashworthy Systems such as ejection seat, Survival kit items, Survival Signaling Devices, Personnel Seats, and aircraft emergency escape parachutes; Aviation Life Support Systems such as hearing protection, laser eye protection, cranial communication systems, anti-exposure suits and safety boots; Night Vision Systems such as helmet-mounted displays and Night Vision Goggles and Image Intensifier Tubes; Chemical Biological Defense items such as CBR decontamination, CBR Detection and CBR Clothing and skin protection, masks, filters and hoods; Hypoxia Mitigation efforts to include Oxygen systems and devices such as Oxygen masks and filters and Oxygen generation systems; Mission Endurance efforts such as reduction of bulk, moisture wicking materials, improved support devices and cushioning, hydration technology and bodily waste collection and storage. [P5 - 2 / S6001 Portable Electronic Maintenance Aids (PEMAs)]: Portable Electronic Maintenance Aids (PEMAs) are Aviation Support Equipment end items used by fleet technicians to assist in performing maintenance and diagnostics of aircraft. Funding is required to procure the necessary hardware, software applications, initial stand up, and production support. PEMAs are a portable display device used in the Automated Logistics Environment (ALE) to read digital maintenance publications and Integrated Electronic Technical Manuals (IETMs). PEMAs with IETMs applications interpret aircraft Binary Digit (BIT) Data to diagnose the aircraft systems and direct maintenance actions. [P3A / ALIS - Program Support]: Autonomic Logistics Information System (ALIS) Ship Integration - CVN, LHD, LHA: ALIS controls all aspects of F-35 mission planning, maintenance, logistics, and supply functions. Funding for ALIS Ship Integration efforts (Programmatic Support, Engineering Support Services, Material, and Installation efforts) will enable shipboard (CVN, LHD, LHA) modification, classified/unclassified network integration, the installation of ALIS-related shipboard equipment, ALIS security accreditation, and verification of ALIS operation and functionality to include the integration of ALIS with shipboard Command, Control, Communications and Computers & Intelligence (C4I) Networks and the Prognostic Health Management (PHM) downlink. At the completion of each installation, the respective ship's ALIS will enable the F-35 system to provide, at the appropriate security levels via Navy Local Area Networks (LANs)/Wide Area Networks (WANs), the ability to transfer time-sensitive data for logistics support, mission planning, mission execution, and mission debriefing.		

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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 03: Aviation Support Equipment / BSA 3: Aircraft Support Equipment						P-1 Line Item Number / Title: 4268 / Aviation Support Equipment			
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	Other Aviation Support Equipment	P-5a			- / 17.160	- / 5.661	- / 7.688	- / 7.785	- / -	- / 7.785
P-5	1 / Aviation Life Support	P-5a, P-21			- / 73.216	- / 41.967	- / 14.570	- / 32.862	- / 0.500	- / 33.362
P-5	2 / Portable Electronic Maintenance Aids	P-5a, P-21			- / 25.052	- / 12.909	- / 11.885	- / 10.988	- / 0.000	- / 10.988
P-3a	1 / ALIS SHIP INSTALLATION (Add Capability)				- / 11.471	- / 3.458	- / 3.731	- / 3.780	- / 0.000	- / 3.780
P-40	Total Gross/Weapon System Cost				- / 126.899	- / 63.995	- / 37.874	- / 55.415	- / 0.500	- / 55.915

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 Aviation Support Equipment	P-5a			- / -	- / -	- / -	- / -	- / -	- / -
P-5	1 / Aviation Life Support	P-5a, P-21			- / -	- / -	- / -	- / -	- / -	- / -
P-5	2 / Portable Electronic Maintenance Aids	P-5a, P-21			- / -	- / -	- / -	- / -	- / -	- / -
P-3a	1 / ALIS SHIP INSTALLATION (Add Capability)				- / 3.853	- / 3.928	- / 3.998	- / 4.079	- / 0.000	- / 38.298
P-40	Total Gross/Weapon System Cost				- / 58.072	- / 61.614	- / 73.629	- / 74.812	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 2020 Budget Request includes funding for the following (+\$55.915M):

P-40a (S7042), \$2.172M
Other Aviation Support Equipment - the procurement of hardware and associated support costs for JTDI (S7042). Funding includes procurement of hardware, software, and installation costs to modernize CBM + standard data repository (SDR), scale the CBM+ SDR analytics infrastructure to integrate additional weapon system platforms, and provide core analytics at the edge. SDR & CBM+ capabilities will drive NAE Total Ownership Cost down. The ability to realize the full benefits of investment in smart aircraft systems and associated prognostics and health management technologies and the ability to deliver CBM+ data to improve decision making related to the design, acquisition, engineering, and maintenance of Ready Basic Aircraft (RBA) will be lost without the implementation and technical refresh of the SDR.

P-40a (S7048), \$.243M
Other Aviation Support Equipment - the procurement of hardware and associated support costs for CBM+ (S7048).

P-40a (S7071), \$2.468M
Other Aviation Support Equipment - Naval Aviation Logistics Command Management Information System/Naval Air Systems Command Fleet System Array (NALCOMIS/NFSA)(S7041) consists of the purchase of multiple components, which includes servers, peripheral hardware and software rack mounted into one server suite. Funds are required to manage obsolescence and comply with CYBER WARFARE/XP Migration and fleet data replication and analysis processes used to monitor safety and readiness of the Fleet as well as the ability to comply with mandatory Information Security (IA) mandates, which would lead to IT system shutdown without adherence.

P-40A (S7039), \$1.7M

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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 03: Aviation Support Equipment / BSA 3: Aircraft Support Equipment		P-1 Line Item Number / Title: 4268 / Aviation Support Equipment
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		
Naval Aviation Logistics Data Analysis Decision Knowledge Programming for Logistics Analysis and Technical Evaluation (DECKPLATE)(S7039) consists of the purchase of multiple components, which includes servers, peripheral hardware and software rack mounted into one server suite. Funds are required to manage obsolescence and comply with CYBER WARFARE/ and fleet data replication and analysis processes used to monitor safety and readiness of the Fleet as well as the ability to comply with mandatory Information Security (IA) mandates, which would lead to IT system shutdown without adherence. Analysis of cloud solutions may be required as we modernize and align DECKPLATE to future warehousing requirements such as Vision 2020, the future Naval Aviation Maintenance System (NAMS), and the Automated Logistics Environment. P-40a (S7833), \$1.202M Other Aviation Support Equipment - Production Engineering Support provided in support of Naval Aviation Logistics Data Analysis Decision Knowledge Programming for Logistics Analysis and Technical Evaluation (DECKPLATE)(S7039), Joint Technical Data Integration (JTDI) (S7042), Condition Based Maintenance Plus (CBM+) (S7048), and Naval Aviation Logistics Command Management Information System/NAVAIR Fleet System Array (NALCOMIS/NFSA) (S7041). P-5/1, \$33.362M (Baseline: \$32.862M; OCO: \$.500M) Aviation Life Support - the procurement of hardware and associated support costs for JHMCS Night Vision Cueing and Display devices, JHMCS Night Vision Peculiar Support Equipment, FDC helmets and Combat Survivor Evader Locator programming computers along with Inflight Bladder Relief Kits and Joint Combined Aircrew Systems Tester under the Aircrew Systems Improvement Program (ASIP). FY19 to FY20 increases by \$17.5M due to increased quantities for JHMCS Night Vision, FDC and ASIP. P-5/2, \$10.988M Portable Electronic Maintenance Aids (PEMA) - the procurement of hardware and associated support costs for 2,218 PEMA units in FY 2020. Units/costs decrease from FY19 to FY20 P-3a/1 \$3.780 Autonomic Logistics Info Systems (ALIS) - supports Design Support Activities (DSA) to include material purchases for the installation of two (2) ALIS in FY 2019.		

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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 / 03 / 3								P-1 Line Item Number / Title: 4268 / Aviation Support Equipment							Aggregated Items Title: Other Aviation 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) Naval Aviation Logistics Data Analysis Decision Knowledge Programming for Logistics Analys																					
1.1) S7039 - Aviation Data Warehouse Environment ^{(2)(t)}		A		4,350K	1	4.350	-	-	1.485	1,658K	1	1.658	1,700K	1	1.700	-	-	-	1,700K	1	1.700
Subtotal: 1) Naval Aviation Logistics Data Analysis Decision Knowledge Programming for Logistics Analys			-	-	4.350	-	-	1.485	-	-	1.658	-	-	1.700	-	-	-	-	-	1.700	
2) Naval Aviation Logistics Command Management Information System/Naval Air Systems Command F																					
2.1) S7041 - NFSA HW/SW ^{(3)(t)}		A		5,068K	1	5.068	-	-	2.215	2,434K	1	2.434	2,468K	1	2.468	-	-	-	2,468K	1	2.468
Subtotal: 2) Naval Aviation Logistics Command Management Information System/Naval Air Systems Command F			-	-	5.068	-	-	2.215	-	-	2.434	-	-	2.468	-	-	-	-	-	2.468	
3) Joint Technical Data Integration (JTDI)																					
3.1) S7042 - JTDI HW/SW ^(t)		A		1,917K	1	1.917	-	-	0.574	2,161K	1	2.161	2,172K	1	2.172	-	-	-	2,172K	1	2.172
Subtotal: 3) Joint Technical Data Integration (JTDI)			-	-	1.917	-	-	0.574	-	-	2.161	-	-	2.172	-	-	-	-	-	2.172	
4) Marine Aviation Logistics Enterprise Information Technology (MAL-EIT)/Expeditionary Pack U																					
4.1) S7046 - EPUK HW/SW ^{(4)(t)}		B		1,187K	1	1.187	-	-	0.179	199,000.00	1	0.199	-	-	-	-	-	-	-	-	
Subtotal: 4) Marine Aviation Logistics Enterprise Information Technology (MAL-EIT)/Expeditionary Pack U			-	-	1.187	-	-	0.179	-	-	0.199	-	-	-	-	-	-	-	-	-	
5) Automated Data Capture System (ADCS)																					
5.1) S7047 - ADCS HW/SW		B		207,000.00	1	0.207	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Subtotal: 5) Automated Data Capture System (ADCS)			-	-	0.207	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
6) Condition Based Maintenance Plus (CBM+)																					
6.1) S7048 - CBM+ HW/SW ^(t)		A		322,000.00	1	0.322	-	-	0.156	173,450.00	1	0.173	242,664.00	1	0.243	-	-	-	242,664.00	1	0.243
Subtotal: 6) Condition Based Maintenance Plus (CBM+)			-	-	0.322	-	-	0.156	-	-	0.173	-	-	0.243	-	-	-	-	-	0.243	
7) Production Engineering Support (AIR6.8)																					
7.1) S7833 - Marine Aviation Logistics Enterprise Information Technology		A		-	-	0.073	-	-	0.021	-	-	0.020	-	-	-	-	-	-	-	-	

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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 / 03 / 3								P-1 Line Item Number / Title: 4268 / Aviation Support Equipment							Aggregated Items Title: Other Aviation 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)
7.2) S7833 - Aviation Data Warehouse Environment ⁽⁵⁾	A		-	-	1.415	-	-	0.385	-	-	0.391	-	-	0.521	-	-	-	-	-	0.521
7.3) S7833 - Naval Air Systems Command Fleet System Arrays	A		-	-	1.480	-	-	0.425	-	-	0.430	-	-	0.445	-	-	-	-	-	0.445
7.4) S7833 - Joint Technical Data Integration ⁽⁶⁾	A		-	-	0.919	-	-	0.178	-	-	0.179	-	-	0.193	-	-	-	-	-	0.193
7.5) S7833 - Automated Data Capture System	A		-	-	0.124	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7.6) S7833 - Condition Based Maintenance Plus	A		-	-	0.098	-	-	0.043	-	-	0.043	-	-	0.043	-	-	-	-	-	0.043
Subtotal: 7) Production Engineering Support (AIR6.8)			-	-	4.109	-	-	1.052	-	-	1.063	-	-	1.202	-	-	-	-	-	1.202
Total			-	-	17.160	-	-	5.661	-	-	7.688	-	-	7.785	-	-	-	-	-	7.785

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) Program provides for the acquisition, upgrade, and production support of aviation life support systems required for the personal safety and protection of aircrew against the hazards encountered in the aircraft operating environment and for safe recovery of downed aircrew. Note: Elements of Cost that are not currently funded in the FYDP are no longer included in the "Prior Year" column.
- (2) Naval Aviation Logistics Data Analysis Decision Knowledge Programming for Logistics Analysis and Technical Evaluation (DECKPLATE)(S7039) - The unit cost reflects the total of all suites being procured in each fiscal year. Increase from FY 2019-FY 2020 is due to warehousing requirements such as Vision 2020, the future Naval Aviation Maintenance System (NAMS), and the Automated Logistics Environment.
- (3) Naval Aviation Logistics Command Management Information System/Naval Air Systems Command Fleet System Array (NALCOMIS/NFSA) (S7041): The unit cost reflects the total of all suites being procured in each fiscal year.
- (4) Marine Aviation Logistics Enterprise Information Technology (MAL-EIT)/Expeditionary Pack Up Kits (EPUK) (S7046)FY 2019-FY 2020 decrease due to EPUK kits no longer needing to be procured. The full requirement will be met and there are no OPN requirements after FY 2019.
- (5) S7833 - Aviation Data Warehouse Environment increased support cost from FY 2019-FY 2020 associated with the future warehousing requirements such as Vision 2020, the future Naval Aviation Maintenance System (NAMS), and the Automated Logistics Environment.
- (6) S7833 JTDI increases in FY 2020 support costs are due to significant tech refresh requirements. JTDI Tech Refresh is the initial procurement of hardware, software and the implementation of the CBM+ Standard Data Repository (SDR) incorporating Information Assurance and Cybersecurity updates supporting the F/A-18 and E/A-18 Physiological Episode Root Cause Corrective Action Group investigation efforts.

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LI 4268 - Aviation Support Equipment
Navy

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Exhibit P-5, Cost Analysis: PB 2020 Navy												Date: March 2019						
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 03 / 3						P-1 Line Item Number / Title: 4268 / Aviation Support Equipment						Item Number / Title [DODIC]: 1 / Aviation Life Support						
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)				73.216		41.967		14.570		32.862		0.500		33.362				
Less PY Advance Procurement (\$ in Millions)				-		-		-		-		-		-				
Net Procurement (P-1) (\$ in Millions)				73.216		41.967		14.570		32.862		0.500		33.362				
Plus CY Advance Procurement (\$ in Millions)				-		-		-		-		-		-				
Total Obligation Authority (\$ in Millions)				73.216		41.967		14.570		32.862		0.500		33.362				
(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 - Survival Electronics Cost																		
Recurring Cost																		
1.1.1) CSEL - SY060	8,244.90	49	0.404	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000
Subtotal: Recurring Cost	-	-	0.404	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000
Subtotal: Hardware - Survival Electronics Cost	-	-	0.404	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000
Hardware - Helmets, Hearing and Display Cost																		
Non Recurring Cost																		
2.1.1) JHMCS Night Vision NRE- SY215	-	-	1.050	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000
Subtotal: Non Recurring Cost	-	-	1.050	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000
Subtotal: Hardware - Helmets, Hearing and Display Cost	-	-	1.050	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000
Hardware - Helmets, Hearing and Display Cost																		
Recurring Cost																		
3.1.2) JHMCS Night Vision - SY215 ^(†) (7)	179,129.35	201	36.005	147,458.60	229	33.768	303,996.00	30	9.120	310,200.00	42	13.028	-	-	0.000	310,200.00	42	13.028
3.1.3) JHMCS Night Vision Pec Spt Equip - SY215 ^(†)	31,155.56	90	2.804	-	-	0.000	-	-	0.000	36,200.00	30	1.086	-	-	0.000	36,200.00	30	1.086
3.1.4) FDC - SY505 ^(†) (8)	-	-	0.000	-	-	0.000	-	-	0.000	6,727.59	1,231	8.282	-	-	0.000	6,727.59	1,231	8.282

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Exhibit P-5, Cost Analysis: PB 2020 Navy													Date: March 2019					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 03 / 3							P-1 Line Item Number / Title: 4268 / Aviation Support Equipment						Item Number / Title [DODIC]: 1 / Aviation Life Support					
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)
3.1.5) EKB - SY450	1,127.48	2,675	3.016	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000
Subtotal: Recurring Cost	-	-	41.825	-	-	33.768	-	-	9.120	-	-	22.396	-	-	0.000	-	-	22.396
Subtotal: Hardware - Helmets, Hearing and Display Cost	-	-	41.825	-	-	33.768	-	-	9.120	-	-	22.396	-	-	0.000	-	-	22.396
Hardware - Life Support Systems Cost																		
Recurring Cost																		
4.1.1) ASIP - SY126 ^(†) (9)	-	-	0.000	11,430.23	86	0.983	10,301.89	106	1.092	7,414.52	796	5.902	-	-	0.000	7,414.52	796	5.902
Subtotal: Recurring Cost	-	-	0.000	-	-	0.983	-	-	1.092	-	-	5.902	-	-	0.000	-	-	5.902
Subtotal: Hardware - Life Support Systems Cost	-	-	0.000	-	-	0.983	-	-	1.092	-	-	5.902	-	-	0.000	-	-	5.902
Support - Production Support Cost																		
5.1) Survival Electronics - SY830	-	-	0.258	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000
5.2) Helmets, Hearing and Displays - SY830 ⁽¹⁰⁾	-	-	29.679	-	-	5.816	-	-	3.887	-	-	4.154	-	-	0.500	-	-	4.654
5.3) Life Support Systems - SY830	-	-	0.000	-	-	1.400	-	-	0.471	-	-	0.410	-	-	0.000	-	-	0.410
Subtotal: Support - Production Support Cost	-	-	29.937	-	-	7.216	-	-	4.358	-	-	4.564	-	-	0.500	-	-	5.064
Gross/Weapon System Cost	-	-	73.216	-	-	41.967	-	-	14.570	-	-	32.862	-	-	0.500	-	-	33.362

(†) indicates the presence of a P-5a

Footnotes:

⁽⁷⁾ SY215 JHMCS: Quantity and unit prices in FY 2018 and out adjusted to reflect revised negotiated contract pricing and Life Cycle Cost Estimate. Night Vision Units are contracted via a Sole Source contract with the vendor. Unit costs and quantities vary due to quantity based step-ladder pricing which results in Economy of Scale unit cost savings for higher quantities procured and increased unit costs for lower quantities procured. Total inventory reduced to 798 units to reflect actual needed quantity.

⁽⁸⁾ SY505 FDC: Unit cost and quantities vary depending on mix of THP Communication and Non-Communication Hearing Protection devices being procured. Quantity and total cost increased in FY 2020-FY 2023 due to additional funds received for issues dealing with aviation personnel incurring temporary and permanent hearing loss.

⁽⁹⁾ SY126 ASIP: Quantities and the average unit cost vary each year due to a mix of ASIP items being procured. For example, in FY19, ASIP purchased Combat Survivor Evader Locator (CSEL) radio programming computers and Enhanced Emergency Oxygen System (EEOS) oxygen servicing carts. In FY20 ASIP purchases additional CSEL computers, bladder relief kits, and Joint Combined Aircrew Systems Testers. Consequently, the average unit cost varies.

⁽¹⁰⁾ SY830 Helmets, Hearing and Displays production support total cost increased in FY 2020-FY 2023 due to additional funds received for correlating Flight Deck Cranial (FDC) procurements in result of aviation personnel incurring temporary and permanent hearing loss.

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Exhibit P-5a, Procurement History and Planning: PB 2020 Navy								Date: March 2019				
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 03 / 3				P-1 Line Item Number / Title: 4268 / Aviation Support Equipment				Item Number / Title [DODIC]: 1 / Aviation Life Support				
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
3.1.2) JHMCS Night Vision - SY215 ^(†)		2015	Rockwell Collins - ESA Vision Systems / Dallas Ft. Worth, Texas	SS / FFP	NAVAIR	Mar 2016	May 2017	100	166,880.00	Y		Dec 2014
3.1.2) JHMCS Night Vision - SY215 ^(†)		2016	Rockwell Collins - ESA Vision Systems / Dallas Ft. Worth, Texas	SS / FFP	NAVAIR	Mar 2016	May 2017	72	196,740.00	Y		Dec 2014
3.1.2) JHMCS Night Vision - SY215 ^(†)		2017	Rockwell Collins - ESA Vision Systems / Dallas Ft. Worth, Texas	SS / FFP	NAVAIR	Mar 2017	May 2018	29	177,638.27	Y		Dec 2014
3.1.2) JHMCS Night Vision - SY215 ^(†)		2018	Rockwell Collins - ESA Vision Systems(2) / Dallas Ft. Worth, Texas	SS / FFP	NAVAIR	Aug 2018	Aug 2019	72	147,458.60	Y		Oct 2016
3.1.2) JHMCS Night Vision - SY215 ^(†)	✓	2018	Rockwell Collins - ESA Vision Systems(2) / Dallas Ft. Worth, Texas	SS / FFP	NAVAIR	Aug 2018	Aug 2019	157	147,458.60	Y		Oct 2016
3.1.2) JHMCS Night Vision - SY215 ^(†)		2019	Rockwell Collins - ESA Vision Systems(2) / Dallas Ft. Worth, Texas	SS / FFP	NAVAIR	Mar 2019	Mar 2020	30	303,996.00	Y		Oct 2017
3.1.2) JHMCS Night Vision - SY215 ^(†)		2020	Rockwell Collins - ESA Vision Systems(2) / Dallas Ft. Worth, Texas	SS / FFP	NAVAIR	Mar 2020	Mar 2021	42	310,200.00	Y		Oct 2018
3.1.3) JHMCS Night Vision Pec Spt Equip - SY215		2015	Rockwell Collins - ESA Vision Systems / Dallas Ft. Worth, Texas	SS / FFP	NAVAIR	Mar 2016	Jul 2016	30	32,533.33	Y		Dec 2014
3.1.3) JHMCS Night Vision Pec Spt Equip - SY215		2016	Rockwell Collins - ESA Vision Systems / Dallas Ft. Worth, Texas	SS / FFP	NAVAIR	Mar 2017	Jul 2017	60	30,466.67	Y		Dec 2014
3.1.3) JHMCS Night Vision Pec Spt Equip - SY215		2020	Rockwell Collins - ESA Vision Systems / Dallas Ft. Worth, Texas	C / TBD	** NO PCO **	Oct 2019	Feb 2020	30	36,200.00	N		
3.1.4) FDC - SY505 ^(†)		2020	Creare / Hanover, NH	C / TBD	** NO PCO **	May 2020	Jul 2020	1,231	6,727.59	Y		
4.1.1) ASIP - SY126 ^(†)		2018	VARIOUS / VARIOUS	Various	VARIOUS	Jun 2018	Aug 2018	86	11,430.23	Y		
4.1.1) ASIP - SY126 ^(†)		2019 ⁽¹¹⁾	VARIOUS / VARIOUS	Various	VARIOUS	Dec 2018	Feb 2019	106	10,301.89	Y		
4.1.1) ASIP - SY126 ^(†)		2020 ⁽¹²⁾	VARIOUS / VARIOUS	Various	VARIOUS	Dec 2019	Feb 2020	796	7,414.52	Y		

^(†) indicates the presence of a P-21

Footnotes:
⁽¹¹⁾ Contract vehicles and Vendors vary depending on mix of ASIP items being procured.
⁽¹²⁾ Contract vehicles and Vendors vary depending on mix of ASIP items being procured.

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Exhibit P-21, Production Schedule: PB 2020 Navy																				Date: March 2019													
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 03 / 3										P-1 Line Item Number / Title: 4268 / Aviation Support Equipment										Item Number / Title [DODIC]: 1 / Aviation Life Support													
Cost Elements (Units in Each)							Fiscal Year 2016										Fiscal Year 2017													B A L A N C E			
O C C #	M F R #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2015	BAL DUE AS OF 1 OCT	Calendar Year 2016										Calendar Year 2017																
							O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P	O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G		S E P		
3.1.2) JHMCS Night Vision - SY215 ⁽⁷⁾																																	
	1	2015	NAVY	100	0	100							A -	-	-	-	-	-	-	-	-	-	-	-	-	-	9	9	9	9	8	56	
	1	2016	NAVY	72 ⁽¹³⁾	0	72							A -	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	1	2	2	65	
	1	2017	NAVY	29 ⁽¹⁴⁾	0	29																				A -	-	-	-	-	-	-	29
	2	2018	NAVY	72	0	72																										72	
✓	2	2018	NAVY	157	0	157																										157	
	2	2019	NAVY	30	0	30																										30	
	2	2020	NAVY	42	0	42																										42	
3.1.4) FDC - SY505 ⁽⁸⁾																																	
	3	2020	NAVY	1,231	0	1,231																										1,231	
4.1.1) ASIP - SY126 ⁽⁹⁾																																	
	4	2018	NAVY	86	0	86																										86	
	4	2019	NAVY	106	0	106																										106	
	4	2020	NAVY	796	0	796																										796	
							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 / 03 / 3										P-1 Line Item Number / Title: 4268 / Aviation Support Equipment										Item Number / Title [DODIC]: 1 / Aviation Life Support											
Cost Elements (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
3.1.2) JHMCS Night Vision - SY215 (7)																															
	1	2015	NAVY	100	44	56	8	8	8	8	8	8																			0
	1	2016	NAVY	72 (13)	7	65	2	2	2	2	2	2	5	5	5	5	4	4	4	4	4	4	4	3							0
	1	2017	NAVY	29 (14)	0	29	-	-	-	-	-	-	1	-	1	-	1	-	-	-	7	7	6	6							0
	2	2018	NAVY	72	0	72										A -	-	-	-	-	-	-	-	-	-	-	-	-	6	6	60
✓	2	2018	NAVY	157	0	157										A -	-	-	-	-	-	-	-	-	-	-	-	-	14	14	129
	2	2019	NAVY	30	0	30																	A -	-	-	-	-	-	-	-	30
	2	2020	NAVY	42	0	42																									42
3.1.4) FDC - SY505 (8)																															
	3	2020	NAVY	1,231	0	1,231																									1,231
4.1.1) ASIP - SY126 (9)																															
	4	2018	NAVY	86	0	86									A -	-	7	7	7	7	7	8	8	7	7	7	7	7		0	
	4	2019	NAVY	106	0	106														A -	-	11	11	11	11	11	11	11	11	11	18
	4	2020	NAVY	796	0	796																									796
							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 / 03 / 3										P-1 Line Item Number / Title: 4268 / Aviation Support Equipment													Item Number / Title [DODIC]: 1 / Aviation Life Support										
Cost Elements (Units in Each)							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			
3.1.2) JHMCS Night Vision - SY215 ⁽⁷⁾																																	
	1	2015	NAVY	100	100	0																											0
	1	2016	NAVY	72 ⁽¹³⁾	72	0																											0
	1	2017	NAVY	29 ⁽¹⁴⁾	29	0																											0
	2	2018	NAVY	72	72	0																											0
✓	2	2018	NAVY	157	157	0																											0
	2	2019	NAVY	30	30	0																											0
	2	2020	NAVY	42	27	15	3	3	3	3	3																						0
3.1.4) FDC - SY505 ⁽⁸⁾																																	
	3	2020	NAVY	1,231	1,231	0																											0
4.1.1) ASIP - SY126 ⁽⁹⁾																																	
	4	2018	NAVY	86	86	0																											0
	4	2019	NAVY	106	106	0																											0
	4	2020	NAVY	796	796	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 / 03 / 3				P-1 Line Item Number / Title: 4268 / Aviation Support Equipment					Item Number / Title [DODIC]: 1 / Aviation Life Support		

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	Rockwell Collins - ESA Vision Systems - Dallas Ft. Worth, Texas	3	120	240	0	0	0	0	0	6	14	20
2	Rockwell Collins - ESA Vision Systems(2) - Dallas Ft. Worth, Texas	3	120	240	0	0	0	0	0	6	12	18
3	Creare - Hanover, NH	50	900	3,500	11	3	2	5	0	4	2	6
4	VARIOUS - VARIOUS			TBD	0	0	0	0	0	3	2	5

"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).

Footnotes:

⁽¹³⁾ FY 2017 Deliveries are from FRP1 and FY 2018 Deliveries are from FRP 2 contract awards.

⁽¹⁴⁾ FY 2017 Deliveries are from FRP 1 and FRP 2 contract awards.

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Exhibit P-5, Cost Analysis: PB 2020 Navy												Date: March 2019							
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 03 / 3						P-1 Line Item Number / Title: 4268 / Aviation Support Equipment						Item Number / Title [DODIC]: 2 / Portable Electronic Maintenance Aids							
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)				25.052		12.909		11.885		10.988		0.000		10.988					
Less PY Advance Procurement (\$ in Millions)				-		-		-		-		-		-					
Net Procurement (P-1) (\$ in Millions)				25.052		12.909		11.885		10.988		0.000		10.988					
Plus CY Advance Procurement (\$ in Millions)				-		-		-		-		-		-					
Total Obligation Authority (\$ in Millions)				25.052		12.909		11.885		10.988		0.000		10.988					
(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 - Hardware PEMA Cost																			
Recurring Cost																			
1.1.1) S6001 Portable Electronic Maintenance Aids (PEMAs) ^(†)		3,596.95	5,116	18.402	3,500.00	3,201	11.204	3,572.16	2,529	9.034	3,642.92	2,218	8.080	-	-	0.000	3,642.92	2,218	8.080
1.1.2) S6002 CH/MH-53 PEMAs		3,416.20	531	1.814	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000
Subtotal: Recurring Cost		-	-	20.216	-	-	11.204	-	-	9.034	-	-	8.080	-	-	0.000	-	-	8.080
Subtotal: Hardware - Hardware PEMA Cost		-	-	20.216	-	-	11.204	-	-	9.034	-	-	8.080	-	-	0.000	-	-	8.080
Support - Production Cost																			
2.1) S6820 Portable Electronic Maintenance Aids (PEMAs) Support (15)		-	-	4.701	-	-	1.705	-	-	2.851	-	-	2.908	-	-	0.000	-	-	2.908
2.2) S6830 CH/MH-53 PEMAs Support		-	-	0.135	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000
Subtotal: Support - Production Cost		-	-	4.836	-	-	1.705	-	-	2.851	-	-	2.908	-	-	0.000	-	-	2.908
Gross/Weapon System Cost		-	-	25.052	-	-	12.909	-	-	11.885	-	-	10.988	-	-	0.000	-	-	10.988
Remarks: [Hardware] Quantities of PEMAs are derived from actual current inventory, as reported by the fleet in the mandated asset tracking system Support Equipment Management System (SEMS). This program is a replenishment of these fielded systems on a one for one basis as required.																			

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Exhibit P-5, Cost Analysis: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 03 / 3	P-1 Line Item Number / Title: 4268 / Aviation Support Equipment	Item Number / Title [DODIC]: 2 / Portable Electronic Maintenance Aids
ID Code (A=Service Ready, B=Not Service Ready) :		MDAP/MAIS Code:
(t) indicates the presence of a P-5a Footnotes: (15) Increase in FY 2019 and FY 2020 production support growth driven by new type model series requirements becoming part of the program of record.		

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Exhibit P-5a, Procurement History and Planning: PB 2020 Navy								Date: March 2019			
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 03 / 3				P-1 Line Item Number / Title: 4268 / Aviation Support Equipment				Item Number / Title [DODIC]: 2 / Portable Electronic Maintenance Aids			

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) S6001 Portable Electronic Maintenance Aids (PEMAs) ^(†)		2018	Panasonic of North America / Secaucus, NJ	C / IDIQ	NAWCAD LKE	Mar 2018	May 2018	1,460	3,500.00	Y		Dec 2017
1.1.1) S6001 Portable Electronic Maintenance Aids (PEMAs) ^(†)	✓	2018	Panasonic of North America / Secaucus, NJ	C / IDIQ	NAWCADLKE	Jul 2018	Sep 2018	1,741	3,500.00	Y		Dec 2017
1.1.1) S6001 Portable Electronic Maintenance Aids (PEMAs) ^(†)		2019	Panasonic of North America / Secaucus, NJ	C / IDIQ	NAWCAD LKE	Dec 2018	Feb 2019	2,529	3,572.16	Y		Dec 2018
1.1.1) S6001 Portable Electronic Maintenance Aids (PEMAs) ^(†)		2020	Panasonic of North America / Secaucus, NJ	C / IDIQ	NAWCAD LKE	Dec 2019	Feb 2020	2,218	3,642.92	Y		Dec 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: 1810N / 03 / 3										P-1 Line Item Number / Title: 4268 / Aviation Support Equipment										Item Number / Title [DODIC]: 2 / Portable Electronic Maintenance Aids																
Cost Elements <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						
1.1.1) S6001 Portable Electronic Maintenance Aids (PEMAs)																																				
Prior Years Deliveries: 5116																																				
	1	2018	NAVY	1,460	0	1,460						A -	-	163	162	162	162	162	162	162	162	163											0			
✓	1	2018	NAVY	1,741	0	1,741									A -	-	291	290	290	290	290	290	290													0
	1	2019	NAVY	2,529	0	2,529															A -	-	210	210	210	211	211	211	211	211	211	211	844			
	1	2020	NAVY	2,218	0	2,218																											2,218			
							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 / 03 / 3										P-1 Line Item Number / Title: 4268 / Aviation Support Equipment										Item Number / Title [DODIC]: 2 / Portable Electronic Maintenance Aids																			
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								
1.1.1) S6001 Portable Electronic Maintenance Aids (PEMAs)																																							
Prior Years Deliveries: 5116																																							
	1	2018	NAVY	1,460	1,460	0																													0				
✓	1	2018	NAVY	1,741	1,741	0																													0				
	1	2019	NAVY	2,529	1,685	844																													211	211	211	211	0
	1	2020	NAVY	2,218	0	2,218																													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 / 03 / 3			P-1 Line Item Number / Title: 4268 / Aviation Support Equipment				Item Number / Title [DODIC]: 2 / Portable Electronic Maintenance Aids

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	Panasonic of North America - Secaucus, NJ	500	2,000	5,000	0	0	0	0	0	3	2	5

"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 / 03 / 3					P-1 Line Item Number / Title: 4268 / Aviation Support Equipment					Modification Number / Title: 1 / ALIS SHIP INSTALLATION		
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>)	11.471	3.458	3.731	3.780	0.000	3.780	3.853	3.928	3.998	4.079	0.000	38.298
Less PY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (<i>\$ in Millions</i>)	11.471	3.458	3.731	3.780	0.000	3.780	3.853	3.928	3.998	4.079	0.000	38.298
Plus CY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority (<i>\$ in Millions</i>)	11.471	3.458	3.731	3.780	0.000	3.780	3.853	3.928	3.998	4.079	0.000	38.298
<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: [ALIS - Program Support] Autonomic Logistics Information System (ALIS) Ship Integration - CVN, LHD, LHA: ALIS controls all aspects of F-35 mission planning, maintenance, logistics, and supply functions. Funding for ALIS Ship Integration efforts (Programmatic Support, Engineering Support Services, Material, and Installation efforts) will enable shipboard (CVN, LHD, LHA) modification, classified/unclassified network integration, the installation of ALIS-related shipboard equipment, ALIS security accreditation, and verification of ALIS operation and functionality to include the integration of ALIS with shipboard Command, Control, Communications and Computers & Intelligence (C4I) Networks and the Prognostic Health Management (PHM) downlink. At the completion of each installation, the respective ship's ALIS will enable the F-35 system to provide, at the appropriate security levels via Navy Local Area Networks (LANs)/Wide Area Networks (WANs), the ability to transfer time-sensitive data for logistics support, mission planning, mission execution, and mission debriefing.												

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Exhibit P-3a, Individual Modification: PB 2020 Navy								Date: March 2019				
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 03 / 3				P-1 Line Item Number / Title: 4268 / Aviation Support Equipment				Modification Number / Title: 1 / ALIS SHIP INSTALLATION				
ID Code (A=Service Ready, B=Not Service Ready) :							MDAP/MAIS Code:					
Models of Systems Affected: CVN, LHD, & LHA			Modification Type: Add Capability					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: ALIS SHIP INSTALLATION												
B Kits												
Recurring												
1.1.1) Installation Material - NonOrganic ⁽¹⁶⁾												
Subtotal: Recurring												
Subtotal: ALIS SHIP INSTALLATION												
Subtotal: Procurement, All Modification Items												
Support (All Modification Items)												
2.1) ALIS - Program Support ⁽¹⁷⁾												
2.2) ALIS - Production Engineering Support ⁽¹⁸⁾												
Subtotal: Support												
Installation												
Modification Item 1 of 1: ALIS SHIP INSTALLATION												
Subtotal: Installation												
Total												
Total Cost (Procurement + Support + Installation)												

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Exhibit P-3a, Individual Modification: PB 2020 Navy										Date: March 2019																					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 03 / 3										P-1 Line Item Number / Title: 4268 / Aviation Support Equipment										Modification Number / Title: 1 / ALIS SHIP INSTALLATION											
ID Code (A=Service Ready, B=Not Service Ready) :															MDAP/MAIS Code:																
Modification Item 1 of 1: ALIS SHIP INSTALLATION																															
Manufacturer Information																															
Manufacturer Name: NAWC AD 4.5.10															Manufacturer Location: St. Inigoes, NAS Patuxent River MD																
Administrative Leadtime (in Months): 3															Production Leadtime (in Months): 4																
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		Apr 2018				Apr 2019				Apr 2020				Apr 2021				Apr 2022				Apr 2023				Apr 2024					
Installation Information																															
Method of Implementation: [none specified]:: Installation Name: Installation Material																															
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 / 5.901		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.000		6 / 5.901							
FY 2018		- / -		2 / 2.024		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.000		2 / 2.024							
FY 2019		- / -		- / -		2 / 2.174		- / -		- / -		- / -		- / -		- / -		- / -		- / -		0 / 0.000		2 / 2.174							
FY 2020		- / -		- / -		- / -		2 / 2.774		0 / 0.000		2 / 2.774		- / -		- / -		- / -		- / -		0 / 0.000		2 / 2.774							
FY 2021		- / -		- / -		- / -		- / -		- / -		- / -		2 / 2.298		- / -		- / -		- / -		0 / 0.000		2 / 2.298							
FY 2022		- / -		- / -		- / -		- / -		- / -		- / -		- / -		2 / 2.302		- / -		- / -		0 / 0.000		2 / 2.302							
FY 2023		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		2 / 2.321		- / -		0 / 0.000		2 / 2.321							
FY 2024		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		2 / 2.299		0 / 0.000		2 / 2.299							
To Complete		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -		- / -							
Total		6 / 5.901		2 / 2.024		2 / 2.174		2 / 2.774		0 / 0.000		2 / 2.774		2 / 2.298		2 / 2.302		2 / 2.321		2 / 2.299		0 / 0.000		20 / 22.093							
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	-	-	-	2	-	-	-	2	-	-	2	-	-	-	2	-	-	-	2	-	-	-	2	-	-	-	20
Out	6	-	-	-	2	-	-	-	2	-	-	-	2	-	-	2	-	-	-	2	-	-	-	2	-	-	-	2	-	-	20
Footnotes:																															
⁽¹⁶⁾ FY 2020 Installation Material requested funding supports Design Support Activities (DSA) to include material purchases for the installation of two(2) ALIS in FY 2020.																															
⁽¹⁷⁾ FY 2020 Program Support requested funding supports Design Support Activities (DSA) to include Alteration Installation Team support for the installation of two (2) ALIS in FY 2020.																															

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Exhibit P-3a, Individual Modification: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 03 / 3	P-1 Line Item Number / Title: 4268 / Aviation Support Equipment	Modification Number / Title: 1 / ALIS SHIP INSTALLATION
ID Code (A=Service Ready, B=Not Service Ready) :		MDAP/MAIS Code:
(18) FY 2020 Production Engineering Support requested funding supports Design Support Activities (DSA) to include Ship Installation Drawings and Ship check in support of installation of two (2) ALIS in FY 2020. FY20 includes actual support costs associated with the affordable integration of the Autonomic Logistics Information System (ALIS) with new construction and in-service Aircraft Carriers (CVNs) and Amphibious Assault (L-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 03: Aviation Support Equipment / BSA 3: Aircraft Support Equipment	P-1 Line Item Number / Title: 4269 / UMCS-Unman Carrier Aviation(UCA)Mission Cntrl Stn
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ID Code (A=Service Ready, B=Not Service Ready): A	Program Elements for Code B Items: N/A	Other Related Program Elements: N/A
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Line Item MDAP/MAIS Code: N/A

Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity (<i>Units in Each</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost (<i>\$ in Millions</i>)	0.000	0.000	18.019	32.668	0.000	32.668	60.431	67.000	72.948	83.329	Continuing	Continuing
Less PY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (<i>\$ in Millions</i>)	0.000	0.000	18.019	32.668	0.000	32.668	60.431	67.000	72.948	83.329	Continuing	Continuing
Plus CY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority (<i>\$ in Millions</i>)	0.000	0.000	18.019	32.668	0.000	32.668	60.431	67.000	72.948	83.329	Continuing	Continuing
<i>(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)</i>												
Initial Spares (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Flyaway Unit Cost (<i>\$ in Dollars</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost (<i>\$ in Dollars</i>)	-	-	-	-	-	-	-	-	-	-	-	-

Description:

This Budget Line Item funds The Unmanned Carrier Aviation (UCA) Mission Control System (UMCS) program. This program builds, integrates, installs, and sustains control systems required to operate the MQ-25 and other ship installation associated with MQ-25.

UMCS consists of the Mission Control Station (MCS), the Video Management System (VidMS), ARC-210 the Radio Communication System (RCS), and the Mobile User Objective System (MUOS) Radio Communication System (MRCS). The MCS has a ship and shore variant designated the MD-5A and MD-5B, respectively. The MD-5 consists of the following subsystems: Common Display System (CDS), Common Processing System (CPS), Network Processing Group (NPG) which includes a redundant Network Attached Storage (NAS), and the Integrated Communication System (ICS), along with the Stingray Operating Software Suite (SOSS). MD-5A and B use the same common components with slight differences in the ICS, SOSS, and networking and transmission systems. The MD-5B requires an Automated Digital Network System (ADNS) Shore system and dedicated Command Data Link (CDL) terminals. The VidMS provides MQ-25 operators the required video situational awareness of the unmanned carrier environment. The ARC-210 RCS provides narrow band Line of Sight (LOS) command and control (C2) transmissions with the MQ-25A while the MRCS provides narrow band Beyond Line of Sight (BLOS) C2 transmissions with the MQ-25A using the MUOS satellite system. UMCS government personnel are performing the Lead Systems Integrator (LSI) role across all the hardware and software systems within UMCS which includes assembly, integration, system checkout and delivery.

UMCS integrates with the MQ-25A air system, local networks, voice networks, C2 networks, tactical networks, intelligence systems, and launch and recovery systems. The government also performs the LSI role between the control systems listed in the aforementioned paragraph and the externally managed systems required for MQ-25 operations.

UMCS will install aboard all NIMITZ class carriers (with the exception of CVN 68), all delivered and planned FORD class carriers, and the operational shore sites. All installation and some integration activities aboard NIMITZ and FORD class carriers are planned and executed using the Ship Change Document (SCD) process. These installation and integration activities are conducted serially across up to three carriers availability periods for each carrier where each availability period is preceded by three years of labor and material procurement in accordance with the NAVSEA SCD process. Normally, each availability is executed in four phases. Phase 1 begins with the SCD planning and technical data preparation three years prior to availability. Phase 2 starts with material procurement of hardware two years prior to availability. Phase 3 starts with installation final design one year prior to availability and finally Phase 4 is installation during the availability period. Installation and integration activities at the operational shore site are planned and executed via a method similar to the SCD process tailored to shore facilities.

The MD-5 control station production effort includes production planning (methodology), non-recurring engineering (NRE) for one MD-5 control station, quality plan and procedures, and the movement of the production line into a dedicated, government owned facility for systems storage, integration and checkout in order to provide sufficient capacity for future production demands.

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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 03: Aviation Support Equipment / BSA 3: Aircraft Support Equipment						P-1 Line Item Number / Title: 4269 / UMCS-Unman Carrier Aviation(UCA)Mission Cntrl Stn				
ID Code (A=Service Ready, B=Not Service Ready): A			Program Elements for Code B Items: N/A			Other Related Program Elements: N/A				
Line Item MDAP/MAIS Code: N/A										
Exhibits Schedule					Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Exhibit Type	Title*	Subexhibits	ID CD	MDAP/MAIS Code	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)
P-5	1 / UMCS-Unman Carrier Aviation(UCA)Mission Cntrl Stn	P-5a			- / 0.000	- / 0.000	- / 18.019	- / 32.668	- / 0.000	- / 32.668
P-40	Total Gross/Weapon System Cost				- / 0.000	- / 0.000	- / 18.019	- / 32.668	- / 0.000	- / 32.668
*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: * Hardware components (RCS, MRCS, and VidMS) to support carrier ship installation availability on the first operational MQ-25 carrier * Labor for installation planning aboard the first operational MQ-25 carrier * Modification and integration with externally managed landing system aboard the first operational MQ-25 carrier * Modification and integration with externally managed Command, Control, Communication, Computers, and Intelligence (C4I) systems * Product Support and Assembly (i.e. LSI activities) to assemble, integrate, system checkout and deliver UMCS hardware and software systems * Integration with shore networking, communication, and infrastructure at the operational shore sites * Software licensing and correction of deficiencies of the Stingray Operational Software Suite (SOSS) * Production Engineering Support that includes Systems Engineering and Program Management (SEPM) to include Lead Systems Integration functions and production planning. * Integrated Logistics Support to fund organic logistics planning and execution required for operational ship and shore systems										

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Exhibit P-5, Cost Analysis: PB 2020 Navy													Date: March 2019					
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 03 / 3							P-1 Line Item Number / Title: 4269 / UMCS-Unman Carrier Aviation(UCA)Mission Cntrl Stn						Item Number / Title [DODIC]: 1 / UMCS-Unman Carrier Aviation(UCA)Mission Cntrl Stn					
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		18.019		32.668		0.000		32.668				
Less PY Advance Procurement <i>(\$ in Millions)</i>				-		-		-		-		-		-				
Net Procurement (P-1) <i>(\$ in Millions)</i>				0.000		0.000		18.019		32.668		0.000		32.668				
Plus CY Advance Procurement <i>(\$ in Millions)</i>				-		-		-		-		-		-				
Total Obligation Authority <i>(\$ in Millions)</i>				0.000		0.000		18.019		32.668		0.000		32.668				
(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 - Hardware Cost																		
Recurring Cost																		
1.1.7) Video Management System (VidMS) ^{(†) (1)}	-	-	-	-	-	-	-	-	-	1,367K	1	1,367	-	-	-	1,367K	1	1,367
1.1.8) ARC-210 Radio Communication System (RCS) ^{(†) (2)}	-	-	-	-	-	-	-	-	-	2,611K	1	2,610	-	-	-	2,611K	1	2,610
1.1.9) MUOS Radio Communication System (MRCS) ^{(†) (3)}	-	-	-	-	-	-	-	-	-	1,040K	1	1,040	-	-	-	1,040K	1	1,040
Subtotal: Recurring Cost	-	-	-	-	-	-	-	-	-	-	-	5.017	-	-	-	-	-	5.017
Non Recurring Cost																		
1.2.1) Ship Change Document (SCD) ⁽⁴⁾	-	-	-	-	-	-	-	-	-	-	-	3.440	-	-	-	-	-	3.440
1.2.2) Launch and Recovery ⁽⁵⁾	-	-	-	-	-	-	-	-	-	-	-	0.090	-	-	-	-	-	0.090
1.2.3) C4I Integration ⁽⁶⁾	-	-	-	-	-	-	-	-	-	-	-	4.320	-	-	-	-	-	4.320
1.2.5) Product Support and Assembly ⁽⁷⁾	-	-	-	-	-	-	-	-	-	-	-	7.030	-	-	-	-	-	7.030
1.2.6) Shore Integration ⁽⁸⁾	-	-	-	-	-	-	-	-	-	-	-	1.030	-	-	-	-	-	1.030

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Exhibit P-5, Cost Analysis: PB 2020 Navy										Date: March 2019									
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 03 / 3					P-1 Line Item Number / Title: 4269 / UMCS-Unman Carrier Aviation(UCA)Mission Cntrl Stn					Item Number / Title [DODIC]: 1 / UMCS-Unman Carrier Aviation(UCA)Mission Cntrl Stn									
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)
<i>Subtotal: Non Recurring Cost</i>	-	-	-	-	-	-	-	-	-	-	-	15.910	-	-	-	-	-	15.910
<i>Subtotal: Hardware - Hardware Cost</i>	-	-	-	-	-	-	-	-	-	-	-	20.927	-	-	-	-	-	20.927
Software - Software Cost																		
Recurring Cost																		
2.1.1) Stingray Operating Software Suite (SOSS) ⁽⁹⁾	-	-	-	-	-	-	-	-	6.136	-	-	2.360	-	-	-	-	-	2.360
<i>Subtotal: Recurring Cost</i>	-	-	-	-	-	-	-	-	6.136	-	-	2.360	-	-	-	-	-	2.360
<i>Subtotal: Software - Software Cost</i>	-	-	-	-	-	-	-	-	6.136	-	-	2.360	-	-	-	-	-	2.360
Support - Support Cost																		
3.1) Production Engineering Support (PES) ⁽¹⁰⁾	-	-	-	-	-	-	-	-	9.230	-	-	7.241	-	-	-	-	-	7.241
3.2) Integrated Logistics Support (ILS) ⁽¹¹⁾	-	-	-	-	-	-	-	-	2.653	-	-	2.140	-	-	-	-	-	2.140
<i>Subtotal: Support - Support Cost</i>	-	-	-	-	-	-	-	-	11.883	-	-	9.381	-	-	-	-	-	9.381
Gross/Weapon System Cost	-	-	0.000	-	-	0.000	-	-	18.019	-	-	32.668	-	-	0.000	-	-	32.668

(†) indicates the presence of a P-5a

Footnotes:

- (1) Cost Element 1.1.7 funds procurement of the Video Management System (VidMS) supporting Unmanned Carrier Aviation Mission Control Station (UMCS) installations. FY 2020 procurement supports CVN ship installation availability schedule with one year procurement lead time. This cost element was previously submitted under the Ship Change Document (SCD) line and has been extracted into its own hardware line to support phased procurement required for UMCS installation aboard the carrier.
- (2) Cost Element 1.1.8 funds procurement of the ARC-210 Radio Communication System (RCS) supporting Unmanned Carrier Aviation Mission Control Station (UMCS) installations. FY 2020 procurement supports CVN ship installation availability schedule with one year procurement lead time. This cost element was previously submitted under the Ship Change Document (SCD) line and has been extracted into its own hardware line to support phased procurement required for UMCS installation aboard the carrier.
- (3) Cost Element 1.1.9 funds procurement of the MUOS RCS (MRCS) supporting Unmanned Carrier Aviation Mission Control Station (UMCS) installations. FY 2020 procurement supports CVN ship installation availability schedule with one year procurement lead time. This is a newly identified UMCS subsystem that now required after the previously externally managed MUOS subsystem failed to meet MQ-25 requirements.

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Exhibit P-5, Cost Analysis: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 03 / 3	P-1 Line Item Number / Title: 4269 / UMCS-Unman Carrier Aviation(UCA)Mission Cntrl Stn	Item Number / Title [DODIC]: 1 / UMCS-Unman Carrier Aviation(UCA)Mission Cntrl Stn
ID Code (A=Service Ready, B=Not Service Ready) :		MDAP/MAIS Code:
⁽⁴⁾ Cost Element 1.2.1 funds Ship Change Document (SCD) planning, design, tech data package, and installation labor of the UMCS systems aboard the NIMITZ and FORD class carriers. This begins three years prior to each carrier availability where UMCS and MQ-25 installations are conducted and can occur across up to three availability periods. ⁽⁵⁾ Cost Element 1.2.2 funds modification and integration with externally managed landing systems to include Aircraft Launch and Recovery Equipment (ALRE) and Joint Precision Approach Landing Systems (JPALS). ⁽⁶⁾ Cost Element 1.2.3 funds modification and integration with externally managed C4I systems to include Consolidated Afloat Networks and Enterprise Services (CANES), Automated Digital Networking System (ADNS), Ships Signal Exploitation Equipment (SSEE), Distributed Common Ground System - Navy (DCGS-N) and others. ⁽⁷⁾ Cost Element 1.2.5 Product Support funding will include production planning (methodology), Non-Recurring Engineering (NRE) for one MD-5 control station, and quality plan and procedures. NRE includes the assembly and delivery of one MD-5 control station. ⁽⁸⁾ Cost Element 1.2.6 funds planning, integration, installation, and checkout of the MD-5B system with the operational shore site networks, communication, and infrastructure. ⁽⁹⁾ Cost Element 2.1.1 funds integration, licensing, and correction of deficiencies in the Stingray Operating Software Suite, the UMCS software component. ⁽¹⁰⁾ Cost Element 3.1 (PES) The government is the Lead System Integrator (LSI) for the UMCS systems. Additionally, the PES required to perform the LSI role across this product line includes program, financial, schedule management, and production engineering. ⁽¹¹⁾ Cost Element 3.2 funds the organic logistics planning and execution across the UMCS product line for operational shore and carrier system support.		

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