Department of Defense
Fiscal Year (FY) 2021 Budget Estimates

February 2020

Navy

Justification Book Volume 3 of 5

Other Procurement, Navy

BA 03

The estimated cost of this report for the Department of the Navy (DON) is $13,887.

The estimated total cost for supporting the DON budget justification material is approximately $2,970,459 for the 2020 fiscal year. This includes $82,977 in supplies and $2,887,482 in labor.

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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, $11,292,044,000, to remain available for obligation until September 30, 2023.

FY 2021 Overseas Contingency Operations funding can be separated into the following categories:

- OCO for Direct War Costs ($130,526,000): 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 ($213,000,000): 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.

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Department of the Navy
FY 2021President's Budget
Exhibit P-1 FY 2021 President's Budget
Total Obligational Authority
(Dollars in Thousands)

Appropriation	FY 2019 (Base + OCO)	FY 2020 Base Enacted	FY 2020 Emergency	FY 2020 OCO Enacted
Other Procurement, Navy	9,350,479	10,075,257	75,015	351,250
Total Department of the Navy	9,350,479	10,075,257	75,015	351,250

Department of the Navy
FY 2021President's Budget
Exhibit P-1 FY 2021 President's Budget
Total Obligational Authority
(Dollars in Thousands)

Appropriation	FY 2020 Total Enacted (Base+Emerg+ OCO)	FY 2021 Base	FY 2021 OCO for Base Requirements	FY 2021 OCO for Direct War and Enduring Costs
Other Procurement, Navy	10,501,522	10,948,518		343,526
Total Department of the Navy	10,501,522	10,948,518		343,526

Department of the Navy
FY 2021President's Budget
Exhibit P-1 FY 2021 President's Budget
Total Obligational Authority
(Dollars in Thousands)

Appropriation	FY 2021 Total OCO	FY 2021 Total (Base + OCO)
Other Procurement, Navy	343,526	11,292,044
Total Department of the Navy	343,526	11,292,044

Department of the Navy
FY 2021President's Budget
Exhibit P-1 FY 2021 President's Budget
Total Obligational Authority
(Dollars in Thousands)

Appropriation: Other Procurement, Navy

Budget Activity	FY 2019 (Base + OCO)	FY 2020 Base Enacted	FY 2020 Emergency	FY 2020 OCO Enacted
01. Ships Support Equipment	3,040,114	3,592,390		5,800
02. Communications & Electronics Equip	3,163,993	3,051,805		310,503
03. Aviation Support Equipment	536,637	666,577	39,295	16,830
04. Ordnance Support Equipment	1,005,000	1,042,658		9,007
05. Civil Engineering Support Equip	129,266	157,880		1,316
06. Supply Support Equipment	604,256	639,641		610
07. Personnel & Command Support Equip	564,711	582,715	35,720	7,184
08. Spares and Repair Parts	306,502	341,591		
Total Other Procurement, Navy	9,350,479	10,075,257	75,015	351,250

Department of the Navy
FY 2021President's Budget
Exhibit P-1 FY 2021 President's Budget
Total Obligational Authority
(Dollars in Thousands)

Appropriation: Other Procurement, Navy

Budget Activity	FY 2020 Total Enacted (Base+Emerg+ OCO)	FY 2021 Base	FY 2021 OCO for Base Requirements	FY 2021 OCO for Direct War and Enduring Costs
01. Ships Support Equipment	3,598,190	3,994,366		22,050
02. Communications & Electronics Equip	3,362,308	3,323,695		213,000
03. Aviation Support Equipment	722,702	673,367		86,413
04. Ordnance Support Equipment	1,051,665	1,172,843		2,124
05. Civil Engineering Support Equip	159,196	149,717		1,394
06. Supply Support Equipment	640,251	693,288		520
07. Personnel & Command Support Equip	625,619	567,047		18,025
08. Spares and Repair Parts	341,591	374,195		
Total Other Procurement, Navy	10,501,522	10,948,518		343,526

Department of the Navy
FY 2021President's Budget
Exhibit P-1 FY 2021 President's Budget
Total Obligational Authority
(Dollars in Thousands)

Appropriation: Other Procurement, Navy

Budget Activity	FY 2021 Total OCO	FY 2021 Total (Base + OCO)
01. Ships Support Equipment	22,050	4,016,416
02. Communications & Electronics Equip	213,000	3,536,695
03. Aviation Support Equipment	86,413	759,780
04. Ordnance Support Equipment	2,124	1,174,967
05. Civil Engineering Support Equip	1,394	151,111
06. Supply Support Equipment	520	693,808
07. Personnel & Command Support Equip	18,025	585,072
08. Spares and Repair Parts		374,195
Total Other Procurement, Navy	343,526	11,292,044

Department of the Navy
FY 2021President's Budget
Exhibit P-1 FY 2021 President's Budget
Total Obligational Authority
(Dollars in Thousands)

Appropriation: 1810N Other Procurement, Navy

Line No	Item Nomenclature	Ident Code	FY 2019 (Base + OCO) Quantity	FY 2019 (Base + OCO) Cost	FY 2020 Base Enacted Quantity	FY 2020 Base Enacted Cost	FY 2020 Emergency Quantity	FY 2020 Emergency Cost	FY 2020 OCO Enacted Quantity	FY 2020 OCO Enacted Cost	Sec
	Budget Activity 01: Ships Support Equipment										
	Ship Propulsion Equipment										
1	Surface Power Equipment	A		19,196		14,490					U
	Generators										
2	Surface Combatant HM&E	A		23,495		66,561					U
	Navigation Equipment										
3	Other Navigation Equipment	A		70,270		72,744					U
	Other Shipboard Equipment										
4	Sub Periscope, Imaging and Supt Equip Prog	A		179,293		160,803					U
5	DDG Mod	A		452,908		564,966					U
6	Firefighting Equipment	A		28,143		17,547					U
7	Command and Control Switchboard	A		2,248		2,086					U
8	LHA/LHD Midlife	A		31,453		79,563					U
9	Pollution Control Equipment	B		20,883		21,820					U
10	Submarine Support Equipment	A		37,155		44,895					U
11	Virginia Class Support Equipment	A		66,328		28,465					U
12	LCS Class Support Equipment			38,701		23,426					U
13	Submarine Batteries			24,460		22,690					U
14	LPD Class Support Equipment			55,726		46,945					U

Department of the Navy
FY 2021President'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 Enacted (Base+Emerg+ OCO) Quantity	FY 2020 Total Enacted (Base+Emerg+ OCO) Cost	FY 2021 Base Quantity	FY 2021 Base Cost	FY 2021 OCO for Base Requirements Quantity	FY 2021 OCO for Base Requirements Cost	FY 2021 OCO for Direct War and Enduring Costs Quantity	FY 2021 OCO for Direct War and Enduring Costs Cost	Sec
Budget Activity 01: Ships Support Equipment											
	Ship Propulsion Equipment										
1	Surface Power Equipment	A		14,490		11,738					U
	Generators										
2	Surface Combatant HM&E	A		66,561		58,497					U
	Navigation Equipment										
3	Other Navigation Equipment	A		72,744		74,084					U
	Other Shipboard Equipment										
4	Sub Periscope, Imaging and Supt Equip Prog	A		160,803		204,806					U
5	DDG Mod	A		564,966		547,569					U
6	Firefighting Equipment	A		17,547		18,394					U
7	Command and Control Switchboard	A		2,086		2,374					U
8	LHA/LHD Midlife	A		79,563		78,265					U
9	Pollution Control Equipment	B		21,820		23,035					U
10	Submarine Support Equipment	A		44,895		64,632					U
11	Virginia Class Support Equipment	A		28,465		22,868					U
12	LCS Class Support Equipment			23,426		3,976					U
13	Submarine Batteries			22,690		31,322					U
14	LPD Class Support Equipment			46,945		50,475					U

Department of the Navy
FY 2021President's Budget
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Total Obligational Authority
(Dollars in Thousands)

Appropriation: 1810N Other Procurement, Navy

Line No	Item Nomenclature	Ident Code	FY 2021 Total OCO Quantity	FY 2021 Total OCO Cost	FY 2021 Total (Base + OCO) Quantity	FY 2021 Total (Base + OCO) Cost	Sec
Budget Activity 01: Ships Support Equipment							
	Ship Propulsion Equipment						
1	Surface Power Equipment	A				11,738	U
	Generators						
2	Surface Combatant HM&E	A				58,497	U
	Navigation Equipment						
3	Other Navigation Equipment	A				74,084	U
	Other Shipboard Equipment						
4	Sub Periscope, Imaging and Supt Equip Prog	A				204,806	U
5	DDG Mod	A				547,569	U
6	Firefighting Equipment	A				18,394	U
7	Command and Control Switchboard	A				2,374	U
8	LHA/LHD Midlife	A				78,265	U
9	Pollution Control Equipment	B				23,035	U
10	Submarine Support Equipment	A				64,632	U
11	Virginia Class Support Equipment	A				22,868	U
12	LCS Class Support Equipment					3,976	U
13	Submarine Batteries					31,322	U
14	LPD Class Support Equipment					50,475	U

Department of the Navy
FY 2021President's Budget
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Total Obligational Authority
(Dollars in Thousands)

Appropriation: 1810N Other Procurement, Navy

Line No	Item Nomenclature	Ident Code	FY 2019 (Base + OCO) Quantity	FY 2019 (Base + OCO) Cost	FY 2020 Base Enacted Quantity	FY 2020 Base Enacted Cost	FY 2020 Emergency Quantity	FY 2020 Emergency Cost	FY 2020 OCO Enacted Quantity	FY 2020 OCO Enacted Cost	Sec
15	DDG 1000 Class Support Equipment	A		57,700		8,530					U
16	Strategic Platform Support Equip	A		22,254		14,331					U
17	DSSP Equipment	A		3,629		2,909					U
18	CG Modernization	A		268,509		193,990					U
19	LCAC	A		3,709		3,392					U
20	Underwater EOD Equipment			82,200		71,240				5,800	U
21	Items Less Than $5 Million	A		122,985		87,857					U
22	Chemical Warfare Detectors	A		2,966		2,961					U
23	Submarine Life Support System	A		6,924		6,635					U
	Reactor Plant Equipment										
24	Ship Maintenance, Repair and Modernization	A				1,000,000					U
25	Reactor Power Units	A		346,325		5,340					U
26	Reactor Components	A		496,439		452,692					U
	Ocean Engineering										
27	Diving and Salvage Equipment	A		10,706		11,854					U
	Small Boats										
28	Standard Boats	A		68,607		67,102					U
	Production Facilities Equipment										
29	Operating Forces Ipe	A		284,429		202,238					U

Department of the Navy
FY 2021President'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 Enacted (Base+Emerg+ OCO) Quantity	FY 2020 Total Enacted (Base+Emerg+ OCO) Cost	FY 2021 Base Quantity	FY 2021 Base Cost	FY 2021 OCO for Base Requirements Quantity	FY 2021 OCO for Base Requirements Cost	FY 2021 OCO for Direct War and Enduring Costs Quantity	FY 2021 OCO for Direct War and Enduring Costs Cost	Sec
15	DDG 1000 Class Support Equipment	A		8,530		42,279					U
16	Strategic Platform Support Equip	A		14,331		15,429					U
17	DSSP Equipment	A		2,909		2,918					U
18	CG Modernization	A		193,990		87,978					U
19	LCAC	A		3,392		9,366					U
20	Underwater EOD Equipment			77,040		16,842					U
21	Items Less Than $5 Million	A		87,857		105,715					U
22	Chemical Warfare Detectors	A		2,961		3,044					U
23	Submarine Life Support System	A		6,635		5,885					U
	Reactor Plant Equipment										
24	Ship Maintenance, Repair and Modernization	A		1,000,000		1,260,721					U
25	Reactor Power Units	A		5,340		5,305					U
26	Reactor Components	A		452,692		415,404					U
	Ocean Engineering										
27	Diving and Salvage Equipment	A		11,854		11,143					U
	Small Boats										
28	Standard Boats	A		67,102		52,371				19,104	U
	Production Facilities Equipment										
29	Operating Forces Ipe	A		202,238		233,667					U

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 2021 Total OCO Quantity	FY 2021 Total OCO Cost	FY 2021 Total (Base + OCO) Quantity	FY 2021 Total (Base + OCO) Cost	Sec
15	DDG 1000 Class Support Equipment	A				42,279	U
16	Strategic Platform Support Equip	A				15,429	U
17	DSSP Equipment	A				2,918	U
18	CG Modernization	A				87,978	U
19	LCAC	A				9,366	U
20	Underwater EOD Equipment					16,842	U
21	Items Less Than $5 Million	A				105,715	U
22	Chemical Warfare Detectors	A				3,044	U
23	Submarine Life Support System	A				5,885	U
	Reactor Plant Equipment						
24	Ship Maintenance, Repair and Modernization	A				1,260,721	U
25	Reactor Power Units	A				5,305	U
26	Reactor Components	A				415,404	U
	Ocean Engineering						
27	Diving and Salvage Equipment	A				11,143	U
	Small Boats						
28	Standard Boats	A		19,104		71,475	U
	Production Facilities Equipment						
29	Operating Forces Ipe	A				233,667	U

Department of the Navy
FY 2021President's Budget
Exhibit P-1 FY 2021 President's Budget
Total Obligational Authority
(Dollars in Thousands)

Appropriation: 1810N Other Procurement, Navy

Line No	Item Nomenclature	Ident Code	FY 2019 (Base + OCO) Quantity	FY 2019 (Base + OCO) Cost	FY 2020 Base Enacted Quantity	FY 2020 Base Enacted Cost	FY 2020 Emergency Quantity	FY 2020 Emergency Cost	FY 2020 OCO Enacted Quantity	FY 2020 OCO Enacted Cost	Sec
	Other Ship Support										
30	LCS Common Mission Modules Equipment			33,237		38,730					U
31	LCS MCM Mission Modules			98,901		64,789					U
32	LCS ASW Mission Modules					24,617					U
33	LCS SUW Mission Modules			13,025		14,598					U
34	LCS In-Service Modernization	A		62,526		85,714					U
35	Small & Medium UUV	A				25,601					U
	Logistic Support										
36	LSD Midlife & Modernization			4,784		40,269					U
	Total Ships Support Equipment			3,040,114		3,592,390				5,800	
	Budget Activity 02: Communications & Electronics Equip										
	Ship Sonars										
37	SPQ-9B Radar	A		19,179		21,664					U
38	AN/SQQ-89 Surf ASW Combat System	A		114,344		121,966					U
39	SSN Acoustic Equipment	A		331,338		367,620					U
40	Undersea Warfare Support Equipment	A		10,134		8,967					U
	ASW Electronic Equipment										
41	Submarine Acoustic Warfare System	A		21,615		22,331					U
42	SSTD	A		4,777		12,439					U

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 Enacted (Base+Emerg+ OCO) Quantity	FY 2020 Total Enacted (Base+Emerg+ OCO) Cost	FY 2021 Base Quantity	FY 2021 Base Cost	FY 2021 OCO for Base Requirements Quantity	FY 2021 OCO for Base Requirements Cost	FY 2021 OCO for Direct War and Enduring Costs Quantity	FY 2021 OCO for Direct War and Enduring Costs Cost	Sec
	Other Ship Support										
30	LCS Common Mission Modules Equipment			38,730		39,714					U
31	LCS MCM Mission Modules			64,789		218,822					U
32	LCS ASW Mission Modules			24,617		61,759					U
33	LCS SUW Mission Modules			14,598		24,412					U
34	LCS In-Service Modernization	A		85,714		121,848					U
35	Small & Medium UUV	A		25,601		67,709				2,946	U
	Logistic Support										
36	LSD Midlife & Modernization			40,269							U
	Total Ships Support Equipment			3,598,190		3,994,366				22,050	
	Budget Activity 02: Communications & Electronics Equip										
	Ship Sonars										
37	SPQ-9B Radar	A		21,664		27,517					U
38	AN/SQQ-89 Surf ASW Combat System	A		121,966		128,664					U
39	SSN Acoustic Equipment	A		367,620		374,737					U
40	Undersea Warfare Support Equipment	A		8,967		9,286					U
	ASW Electronic Equipment										
41	Submarine Acoustic Warfare System	A		22,331		26,066					U
42	SSTD	A		12,439		13,241					U

Department of the Navy
FY 2021President's Budget
Exhibit P-1 FY 2021 President's Budget
Total Obligational Authority
(Dollars in Thousands)

Appropriation: 1810N Other Procurement, Navy

Line No	Item Nomenclature	Ident Code	FY 2021 Total OCO Quantity	FY 2021 Total OCO Cost	FY 2021 Total (Base + OCO) Quantity	FY 2021 Total (Base + OCO) Cost	Sec
	Other Ship Support						
30	LCS Common Mission Modules Equipment					39,714	U
31	LCS MCM Mission Modules					218,822	U
32	LCS ASW Mission Modules					61,759	U
33	LCS SUW Mission Modules					24,412	U
34	LCS In-Service Modernization	A				121,848	U
35	Small & Medium UUV	A		2,946		70,655	U
	Logistic Support						
36	LSD Midlife & Modernization						U
	Total Ships Support Equipment			22,050		4,016,416	
	Budget Activity 02: Communications & Electronics Equip						
	Ship Sonars						
37	SPQ-9B Radar	A				27,517	U
38	AN/SQQ-89 Surf ASW Combat System	A				128,664	U
39	SSN Acoustic Equipment	A				374,737	U
40	Undersea Warfare Support Equipment	A				9,286	U
	ASW Electronic Equipment						
41	Submarine Acoustic Warfare System	A				26,066	U
42	SSTD	A				13,241	U

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 2019 (Base + OCO) Quantity	FY 2019 (Base + OCO) Cost	FY 2020 Base Enacted Quantity	FY 2020 Base Enacted Cost	FY 2020 Emergency Quantity	FY 2020 Emergency Cost	FY 2020 OCO Enacted Quantity	FY 2020 OCO Enacted Cost	Sec
43	Fixed Surveillance System	A		293,731		128,441				310,503	U
44	SURTASS	A		56,873		21,923					U
	Electronic Warfare Equipment										
45	AN/SLQ-32	A		366,147		340,706					U
	Reconnaissance Equipment										
46	Shipboard IW Exploit	A		218,103		188,486					U
47	Automated Identification System (AIS)			4,000		5,368					U
	Other Ship Electronic Equipment										
48	Cooperative Engagement Capability	B		39,076		30,452					U
49	Naval Tactical Command Support System (NTCSS)	A		11,391		15,154					U
50	ATDLS	A		29,822		52,753					U
51	Navy Command and Control System (NCCS)			3,769		3,390					U
52	Minesweeping System Replacement	A		32,367		19,448					U
53	Shallow Water MCM	B		8,616		8,730					U
54	Navstar GPS Receivers (SPACE)	A		10,703		23,294					U
55	American Forces Radio and TV Service	A		2,626		2,617					U
56	Strategic Platform Support Equip	A		9,467		7,973					U
	Aviation Electronic Equipment										
57	Ashore ATC Equipment	A		70,849		71,037					U
58	Afloat ATC Equipment	A		47,890		63,279					U

Department of the Navy
FY 2021President'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 Enacted (Base+Emerg+ OCO) Quantity	FY 2020 Total Enacted (Base+Emerg+ OCO) Cost	FY 2021 Base Quantity	FY 2021 Base Cost	FY 2021 OCO for Base Requirements Quantity	FY 2021 OCO for Base Requirements Cost	FY 2021 OCO for Direct War and Enduring Costs Quantity	FY 2021 OCO for Direct War and Enduring Costs Cost	Sec
43	Fixed Surveillance System	A		438,944		193,446				213,000	U
44	SURTASS	A		21,923		63,838					U
	Electronic Warfare Equipment										
45	AN/SLQ-32	A		340,706		387,195					U
	Reconnaissance Equipment										
46	Shipboard IW Exploit	A		188,486		235,744					U
47	Automated Identification System (AIS)			5,368		3,862					U
	Other Ship Electronic Equipment										
48	Cooperative Engagement Capability	B		30,452		26,006					U
49	Naval Tactical Command Support System (NTCSS)	A		15,154		15,385					U
50	ATDLS	A		52,753		103,835					U
51	Navy Command and Control System (NCCS)			3,390		3,594					U
52	Minesweeping System Replacement	A		19,448		15,744					U
53	Shallow Water MCM	B		8,730		5,493					U
54	Navstar GPS Receivers (SPACE)	A		23,294		38,043					U
55	American Forces Radio and TV Service	A		2,617		2,592					U
56	Strategic Platform Support Equip	A		7,973		7,985					U
	Aviation Electronic Equipment										
57	Ashore ATC Equipment	A		71,037		83,475					U
58	Afloat ATC Equipment	A		63,279		65,113					U

Department of the Navy
FY 2021President's Budget
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Total Obligational Authority
(Dollars in Thousands)

Appropriation: 1810N Other Procurement, Navy

Line No	Item Nomenclature	Ident Code	FY 2021 Total OCO Quantity	FY 2021 Total OCO Cost	FY 2021 Total (Base + OCO) Quantity	FY 2021 Total (Base + OCO) Cost	Sec
43	Fixed Surveillance System	A		213,000		406,446	U
44	SURTASS	A				63,838	U
	Electronic Warfare Equipment						
45	AN/SLQ-32	A				387,195	U
	Reconnaissance Equipment						
46	Shipboard IW Exploit	A				235,744	U
47	Automated Identification System (AIS)					3,862	U
	Other Ship Electronic Equipment						
48	Cooperative Engagement Capability	B				26,006	U
49	Naval Tactical Command Support System (NTCSS)	A				15,385	U
50	ATDLS	A				103,835	U
51	Navy Command and Control System (NCCS)					3,594	U
52	Minesweeping System Replacement	A				15,744	U
53	Shallow Water MCM	B				5,493	U
54	Navstar GPS Receivers (SPACE)	A				38,043	U
55	American Forces Radio and TV Service	A				2,592	U
56	Strategic Platform Support Equip	A				7,985	U
	Aviation Electronic Equipment						
57	Ashore ATC Equipment	A				83,475	U
58	Afloat ATC Equipment	A				65,113	U

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 2019 (Base + OCO) Quantity	FY 2019 (Base + OCO) Cost	FY 2020 Base Enacted Quantity	FY 2020 Base Enacted Cost	FY 2020 Emergency Quantity	FY 2020 Emergency Cost	FY 2020 OCO Enacted Quantity	FY 2020 OCO Enacted Cost	Sec
59	ID Systems	A		22,777		25,506					U
60	Joint Precision Approach And Landing System (			38,094		85,445					U
61	Naval Mission Planning Systems	A		11,966		15,296					U
	Other Shore Electronic Equipment										
62	Maritime Integrated Broadcast System										U
63	Tactical/Mobile C4I Systems	A		42,666		33,419					U
64	DCGS-N	A		10,219		18,677					U
65	CANES			404,891		409,571					U
66	RADIAC	A		8,175		6,450					U
67	CANES-Intell			53,465		52,713					U
68	GPETE	A		5,985		12,214					U
69	MASF			6,223		5,193					U
70	Integ Combat System Test Facility	A		6,251		6,028					U
71	EMI Control Instrumentation	A		4,183		4,209					U
72	Items Less Than $5 Million	A		143,089		153,334					U
	Shipboard Communications										
73	Shipboard Tactical Communications	A		43,196		47,811					U
74	Ship Communications Automation	A		109,152		128,728					U
75	Communications Items Under $5M	A		37,308		29,486					U

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59	ID Systems	A		25,506		23,815					U
60	Joint Precision Approach And Landing System (			85,445		100,751					U
61	Naval Mission Planning Systems	A		15,296		13,947					U
	Other Shore Electronic Equipment										
62	Maritime Integrated Broadcast System					1,375					U
63	Tactical/Mobile C4I Systems	A		33,419		22,771					U
64	DCGS-N	A		18,677		18,872					U
65	CANES			409,571		389,585					U
66	RADIAC	A		6,450		10,335					U
67	CANES-Intell			52,713		48,654					U
68	GPETE	A		12,214		8,133					U
69	MASF			5,193		4,150					U
70	Integ Combat System Test Facility	A		6,028		5,934					U
71	EMI Control Instrumentation	A		4,209		4,334					U
72	Items Less Than $5 Million	A		153,334		159,815					U
	Shipboard Communications										
73	Shipboard Tactical Communications	A		47,811		56,106					U
74	Ship Communications Automation	A		128,728		124,288					U
75	Communications Items Under $5M	A		29,486		45,120					U

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59	ID Systems	A				23,815	U
60	Joint Precision Approach And Landing System (					100,751	U
61	Naval Mission Planning Systems	A				13,947	U
	Other Shore Electronic Equipment						
62	Maritime Integrated Broadcast System					1,375	U
63	Tactical/Mobile C4I Systems	A				22,771	U
64	DCGS-N	A				18,872	U
65	CANES					389,585	U
66	RADIAC	A				10,335	U
67	CANES-Intell					48,654	U
68	GPETE	A				8,133	U
69	MASF					4,150	U
70	Integ Combat System Test Facility	A				5,934	U
71	EMI Control Instrumentation	A				4,334	U
72	Items Less Than $5 Million	A				159,815	U
	Shipboard Communications						
73	Shipboard Tactical Communications	A				56,106	U
74	Ship Communications Automation	A				124,288	U
75	Communications Items Under $5M	A				45,120	U

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	Submarine Communications										
76	Submarine Broadcast Support	A		25,752		50,833					U
77	Submarine Communication Equipment	A		71,190		60,794					U
	Satellite Communications										
78	Satellite Communications Systems	A		41,902		45,084					U
79	Navy Multiband Terminal (NMT)			108,985		76,715					U
	Shore Communications										
80	Joint Communications Support Element (JCSE)	A		4,292		4,293					U
	Cryptographic Equipment										
81	Info Systems Security Program (ISSP)	A		150,099		166,540					U
82	MIO Intel Exploitation Team	A		988		968					U
	Cryptologic Equipment										
83	Cryptologic Communications Equip	A		31,994		13,090					U
	Other Electronic Support										
84	Navy METOC-1	A		231							U
85	NAVY METOC-4	A		231							U
86	DON UAS 1	A		3,158							U
87	DON UAS 2	A		2,305							U
88	DON ACTS	A		3,090							U
89	DON UAS Video 5 (Afloat)	A		4,376							U

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	Submarine Communications										
76	Submarine Broadcast Support	A		50,833		31,133					U
77	Submarine Communication Equipment	A		60,794		62,214					U
	Satellite Communications										
78	Satellite Communications Systems	A		45,084		47,421					U
79	Navy Multiband Terminal (NMT)			76,715		64,552					U
	Shore Communications										
80	Joint Communications Support Element (JCSE)	A		4,293		4,398					U
	Cryptographic Equipment										
81	Info Systems Security Program (ISSP)	A		166,540		157,551					U
82	MIO Intel Exploitation Team	A		968		985					U
	Cryptologic Equipment										
83	Cryptologic Communications Equip	A		13,090		15,906					U
	Other Electronic Support										
84	Navy METOC-1	A									U
85	NAVY METOC-4	A									U
86	DON UAS 1	A									U
87	DON UAS 2	A									U
88	DON ACTS	A									U
89	DON UAS Video 5 (Afloat)	A									U

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	Submarine Communications						
76	Submarine Broadcast Support	A				31,133	U
77	Submarine Communication Equipment	A				62,214	U
	Satellite Communications						
78	Satellite Communications Systems	A				47,421	U
79	Navy Multiband Terminal (NMT)					64,552	U
	Shore Communications						
80	Joint Communications Support Element (JCSE)	A				4,398	U
	Cryptographic Equipment						
81	Info Systems Security Program (ISSP)	A				157,551	U
82	MIO Intel Exploitation Team	A				985	U
	Cryptologic Equipment						
83	Cryptologic Communications Equip	A				15,906	U
	Other Electronic Support						
84	Navy METOC-1	A					U
85	NAVY METOC-4	A					U
86	DON UAS 1	A					U
87	DON UAS 2	A					U
88	DON ACTS	A					U
89	DON UAS Video 5 (Afloat)	A					U

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90	Coast Guard Equipment	A		40,649		61,370					U
	Drug Interdiction Support										
91	Other Drug Interdiction Support	A		20,294							U
	Total Communications & Electronics Equip			3,163,993		3,051,805				310,503	
	Budget Activity 03: Aviation Support Equipment										
	Sonobuoys										
92	Sonobuoys - All Types	A		237,347		310,644				2,910	U
	Aircraft Support Equipment										
93	Minotaur	A				5,000					U
94	Weapons Range Support Equipment	A		92,664		101,843					U
95	Aircraft Support Equipment	A		105,693		135,211		39,295		13,420	U
96	Advanced Arresting Gear (AAG)	A		11,054		4,725					U
97	Meteorological Equipment	A		21,437		12,407					U
98	DCRS/DPL	A		656							U
99	Legacy Airborne MCM	A		11,299		15,998					U
100	Lamps Equipment			594		792					U
101	Aviation Support Equipment	A		37,874		62,389				500	U
102	UMCS-Unman Carrier Aviation(UCA)Mission Cntrl	A		18,019		17,568					U
	Total Aviation Support Equipment			536,637		666,577		39,295		16,830	

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90	Coast Guard Equipment	A		61,370		70,689					U
	Drug Interdiction Support										
91	Other Drug Interdiction Support	A									U
	Total Communications & Electronics Equip			3,362,308		3,323,695				213,000	
	Budget Activity 03: Aviation Support Equipment										
	Sonobuoys										
92	Sonobuoys - All Types	A		313,554		237,639				26,196	U
	Aircraft Support Equipment										
93	Minotaur	A		5,000		5,077					U
94	Weapons Range Support Equipment	A		101,843		83,969					U
95	Aircraft Support Equipment	A		187,926		187,758				60,217	U
96	Advanced Arresting Gear (AAG)	A		4,725		16,059					U
97	Meteorological Equipment	A		12,407		15,192					U
98	DCRS/DPL	A									U
99	Legacy Airborne MCM	A		15,998		6,674					U
100	Lamps Equipment			792		1,189					U
101	Aviation Support Equipment	A		62,889		58,873					U
102	UMCS-Unman Carrier Aviation(UCA)Mission Cntrl	A		17,568		60,937					U
	Total Aviation Support Equipment			722,702		673,367				86,413	

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90	Coast Guard Equipment	A				70,689	U
	Drug Interdiction Support						
91	Other Drug Interdiction Support	A					U
	Total Communications & Electronics Equip			213,000		3,536,695	
	Budget Activity 03: Aviation Support Equipment						
	Sonobuoys						
92	Sonobuoys - All Types	A		26,196		263,835	U
	Aircraft Support Equipment						
93	Minotaur	A				5,077	U
94	Weapons Range Support Equipment	A				83,969	U
95	Aircraft Support Equipment	A		60,217		247,975	U
96	Advanced Arresting Gear (AAG)	A				16,059	U
97	Meteorological Equipment	A				15,192	U
98	DCRS/DPL	A					U
99	Legacy Airborne MCM	A				6,674	U
100	Lamps Equipment					1,189	U
101	Aviation Support Equipment	A				58,873	U
102	UMCS-Unman Carrier Aviation(UCA)Mission Cntrl	A				60,937	U
	Total Aviation Support Equipment			86,413		759,780	

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Budget Activity 04: Ordnance Support Equipment											
	Ship Gun System Equipment										
103	Ship Gun Systems Equipment	A		5,337		5,451					U
	Ship Missile Systems Equipment										
104	Harpoon Support Equipment	A									U
105	Ship Missile Support Equipment	A		194,258		208,326					U
106	Tomahawk Support Equipment	A		86,045		59,436					U
	FBM Support Equipment										
107	Strategic Missile Systems Equip	A		253,579		258,933					U
	ASW Support Equipment										
108	SSN Combat Control Systems	A		133,651		143,678					U
109	ASW Support Equipment	A		21,309		18,181					U
	Other Ordnance Support Equipment										
110	Explosive Ordnance Disposal Equip	B		41,838		15,244				9,007	U
111	Items Less Than $5 Million	A		5,378		5,071					U
	Other Expendable Ordnance										
112	Anti-Ship Missile Decoy System	A				38,462					U
113	Submarine Training Device Mods	A		56,834		67,229					U

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Budget Activity 04: Ordnance Support Equipment											
	Ship Gun System Equipment										
103	Ship Gun Systems Equipment	A		5,451		5,540					U
	Ship Missile Systems Equipment										
104	Harpoon Support Equipment	A				208					U
105	Ship Missile Support Equipment	A		208,326		262,077					U
106	Tomahawk Support Equipment	A		59,436		84,087					U
	FBM Support Equipment										
107	Strategic Missile Systems Equip	A		258,933		258,910					U
	ASW Support Equipment										
108	SSN Combat Control Systems	A		143,678		173,770					U
109	ASW Support Equipment	A		18,181		26,584					U
	Other Ordnance Support Equipment										
110	Explosive Ordnance Disposal Equip	B		24,251		7,470				2,124	U
111	Items Less Than $5 Million	A		5,071		6,356					U
	Other Expendable Ordnance										
112	Anti-Ship Missile Decoy System	A		38,462		86,356					U
113	Submarine Training Device Mods	A		67,229		69,240					U

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Budget Activity 04: Ordnance Support Equipment							
	Ship Gun System Equipment						
103	Ship Gun Systems Equipment	A				5,540	U
	Ship Missile Systems Equipment						
104	Harpoon Support Equipment	A				208	U
105	Ship Missile Support Equipment	A				262,077	U
106	Tomahawk Support Equipment	A				84,087	U
	FBM Support Equipment						
107	Strategic Missile Systems Equip	A				258,910	U
	ASW Support Equipment						
108	SSN Combat Control Systems	A				173,770	U
109	ASW Support Equipment	A				26,584	U
	Other Ordnance Support Equipment						
110	Explosive Ordnance Disposal Equip	B		2,124		9,594	U
111	Items Less Than $5 Million	A				6,356	U
	Other Expendable Ordnance						
112	Anti-Ship Missile Decoy System	A				86,356	U
113	Submarine Training Device Mods	A				69,240	U

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114	Surface Training Equipment	A		206,771		222,647					U
	Total Ordnance Support Equipment			1,005,000		1,042,658				9,007	
	Budget Activity 05: Civil Engineering Support Equip										
	Civil Engineering Support Equipment										
115	Passenger Carrying Vehicles	A		5,037		4,562				173	U
116	General Purpose Trucks	A		2,474		9,474				408	U
117	Construction & Maintenance Equip	A		24,022		43,191					U
118	Fire Fighting Equipment	A		17,984		11,376				735	U
119	Tactical Vehicles	B		27,222		32,004					U
120	Amphibious Equipment	A		6,176							U
121	Pollution Control Equipment	A		2,713		2,633					U
122	Items less than $5 Million	A		42,498		53,467					U
123	Physical Security Vehicles	A		1,140		1,173					U
	Total Civil Engineering Support Equip			129,266		157,880				1,316	
	Budget Activity 06: Supply Support Equipment										
	Supply Support Equipment										
124	Supply Equipment	A		17,386		16,730				100	U
125	First Destination Transportation	A		6,499		5,389				510	U

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114	Surface Training Equipment	A		222,647		192,245					U
	Total Ordnance Support Equipment			1,051,665		1,172,843				2,124	
	Budget Activity 05: Civil Engineering Support Equip										
	Civil Engineering Support Equipment										
115	Passenger Carrying Vehicles	A		4,735		6,123				177	U
116	General Purpose Trucks	A		9,882		2,693				416	U
117	Construction & Maintenance Equip	A		43,191		47,301					U
118	Fire Fighting Equipment	A		12,111		10,352				801	U
119	Tactical Vehicles	B		32,004		31,475					U
120	Amphibious Equipment	A									U
121	Pollution Control Equipment	A		2,633		2,630					U
122	Items less than $5 Million	A		53,467		47,972					U
123	Physical Security Vehicles	A		1,173		1,171					U
	Total Civil Engineering Support Equip			159,196		149,717				1,394	
	Budget Activity 06: Supply Support Equipment										
	Supply Support Equipment										
124	Supply Equipment	A		16,830		19,693					U
125	First Destination Transportation	A		5,899		4,956				520	U

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114	Surface Training Equipment	A				192,245	U
	Total Ordnance Support Equipment			2,124		1,174,967	
	Budget Activity 05: Civil Engineering Support Equip						
	Civil Engineering Support Equipment						
115	Passenger Carrying Vehicles	A		177		6,300	U
116	General Purpose Trucks	A		416		3,109	U
117	Construction & Maintenance Equip	A				47,301	U
118	Fire Fighting Equipment	A		801		11,153	U
119	Tactical Vehicles	B				31,475	U
120	Amphibious Equipment	A					U
121	Pollution Control Equipment	A				2,630	U
122	Items less than $5 Million	A				47,972	U
123	Physical Security Vehicles	A				1,171	U
	Total Civil Engineering Support Equip			1,394		151,111	
	Budget Activity 06: Supply Support Equipment						
	Supply Support Equipment						
124	Supply Equipment	A				19,693	U
125	First Destination Transportation	A		520		5,476	U

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126	Special Purpose Supply Systems	A		580,371		617,522					U
	Total Supply Support Equipment			604,256		639,641				610	
	Budget Activity 07: Personnel & Command Support Equip										
	Training Devices										
127	Training Support Equipment	A		3,400		3,633					U
128	Training and Education Equipment	A		20,511		87,471					U
	Command Support Equipment										
129	Command Support Equipment	A		68,736		56,102		35,720		2,800	U
130	Medical Support Equipment	A		17,127		10,633				1,794	U
132	Naval MIP Support Equipment	A		5,784		6,097					U
133	Operating Forces Support Equipment	A		16,281		16,905				1,090	U
134	C4ISR Equipment	A		3,576		25,831					U
135	Environmental Support Equipment	A		33,856		21,986				200	U
136	Physical Security Equipment	A		225,979		160,046				1,300	U
137	Enterprise Information Technology	A		21,445		54,833					U
	Other										
140	Next Generation Enterprise Service	A		127,535		122,832					U

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126	Special Purpose Supply Systems	A		617,522		668,639					U
	Total Supply Support Equipment			640,251		693,288				520	
	Budget Activity 07: Personnel & Command Support Equip										
	Training Devices										
127	Training Support Equipment	A		3,633		4,026					U
128	Training and Education Equipment	A		87,471		73,454				11,500	U
	Command Support Equipment										
129	Command Support Equipment	A		94,622		32,390					U
130	Medical Support Equipment	A		12,427		974				3,525	U
132	Naval MIP Support Equipment	A		6,097		5,606					U
133	Operating Forces Support Equipment	A		17,995		16,024					U
134	C4ISR Equipment	A		25,831		6,697					U
135	Environmental Support Equipment	A		22,186		27,503					U
136	Physical Security Equipment	A		161,346		138,281				3,000	U
137	Enterprise Information Technology	A		54,833		42,680					U
	Other										
140	Next Generation Enterprise Service	A		122,832		184,443					U

Department of the Navy
FY 2021President's Budget
Exhibit P-1 FY 2021 President's Budget
Total Obligational Authority
(Dollars in Thousands)

Appropriation: 1810N Other Procurement, Navy

Line No	Item Nomenclature	Ident Code	FY 2021 Total OCO Quantity	FY 2021 Total OCO Cost	FY 2021 Total (Base + OCO) Quantity	FY 2021 Total (Base + OCO) Cost	Sec
126	Special Purpose Supply Systems	A				668,639	U
	Total Supply Support Equipment			520		693,808	
	Budget Activity 07: Personnel & Command Support Equip						
	Training Devices						
127	Training Support Equipment	A				4,026	U
128	Training and Education Equipment	A		11,500		84,954	U
	Command Support Equipment						
129	Command Support Equipment	A				32,390	U
130	Medical Support Equipment	A		3,525		4,499	U
132	Naval MIP Support Equipment	A				5,606	U
133	Operating Forces Support Equipment	A				16,024	U
134	C4ISR Equipment	A				6,697	U
135	Environmental Support Equipment	A				27,503	U
136	Physical Security Equipment	A		3,000		141,281	U
137	Enterprise Information Technology	A				42,680	U
	Other						
140	Next Generation Enterprise Service	A				184,443	U

Department of the Navy
FY 2021President's Budget
Exhibit P-1 FY 2021 President's Budget
Total Obligational Authority
(Dollars in Thousands)

Appropriation: 1810N Other Procurement, Navy

Line No	Item Nomenclature	Ident Code	FY 2019 (Base + OCO) Quantity	FY 2019 (Base + OCO) Cost	FY 2020 Base Enacted Quantity	FY 2020 Base Enacted Cost	FY 2020 Emergency Quantity	FY 2020 Emergency Cost	FY 2020 OCO Enacted Quantity	FY 2020 OCO Enacted Cost	Sec
141	Cyberspace Activities	A									U
999	Classified Programs			20,481		16,346					U
	Total Personnel & Command Support Equip			564,711		582,715		35,720		7,184	
	Budget Activity 08: Spares and Repair Parts										
	Spares and Repair Parts										
142	Spares and Repair Parts	A		306,502		341,591					U
	Total Spares and Repair Parts			306,502		341,591					
	Total Other Procurement, Navy			9,350,479		10,075,257		75,015		351,250	

Department of the Navy
FY 2021President's Budget
Exhibit P-1 FY 2021 President's Budget
Total Obligational Authority
(Dollars in Thousands)

Appropriation: 1810N Other Procurement, Navy

Line No	Item Nomenclature	Ident Code	FY 2020 Total Enacted (Base+Emerg+ OCO) Quantity	FY 2020 Total Enacted (Base+Emerg+ OCO) Cost	FY 2021 Base Quantity	FY 2021 Base Cost	FY 2021 OCO for Base Requirements Quantity	FY 2021 OCO for Base Requirements Cost	FY 2021 OCO for Direct War and Enduring Costs Quantity	FY 2021 OCO for Direct War and Enduring Costs Cost	Sec
141	Cyberspace Activities	A				16,523					U
999	Classified Programs			16,346		18,446					U
	Total Personnel & Command Support Equip			625,619		567,047				18,025	
	Budget Activity 08: Spares and Repair Parts										
	Spares and Repair Parts										
142	Spares and Repair Parts	A		341,591		374,195					U
	Total Spares and Repair Parts			341,591		374,195					
	Total Other Procurement, Navy			10,501,522		10,948,518				343,526	

Department of the Navy
FY 2021President's Budget
Exhibit P-1 FY 2021 President's Budget
Total Obligational Authority
(Dollars in Thousands)

Appropriation: 1810N Other Procurement, Navy

Line No	Item Nomenclature	Ident Code	FY 2021 Total OCO Quantity	FY 2021 Total OCO Cost	FY 2021 Total (Base + OCO) Quantity	FY 2021 Total (Base + OCO) Cost	Sec
141	Cyberspace Activities	A				16,523	U
999	Classified Programs					18,446	U
	Total Personnel & Command Support Equip			18,025		585,072	
	Budget Activity 08: Spares and Repair Parts						
	Spares and Repair Parts						
142	Spares and Repair Parts	A				374,195	U
	Total Spares and Repair Parts					374,195	
	Total Other Procurement, Navy			343,526		11,292,044	

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Master Line Item Table of Contents (by Appropriation then Line Number)

Appropriation 1810N: Other Procurement, Navy

Line #	BA	BSA	Line Item Number	Line Item Title	Page
1	01	01	0131	Surface Power Equipment	Volume 1 - 1
2	01	02	0200	Surface Combatant HM&E	Volume 1 - 15
3	01	06	0670	Other Navigation Equipment	Volume 1 - 29
4	01	09	0840	Sub Periscope, Imaging and Supt Equip Prog	Volume 1 - 109
5	01	09	0900	DDG Mod	Volume 1 - 163
6	01	09	0910	Firefighting Equipment	Volume 1 - 243
7	01	09	0925	Command and Control Switchboard	Volume 1 - 259
8	01	09	0933	LHA/LHD Midlife	Volume 1 - 267
9	01	09	0935	Pollution Control Equipment	Volume 1 - 327
10	01	09	0941	Submarine Support Equipment	Volume 1 - 345
11	01	09	0942	Virginia Class Support Equipment	Volume 1 - 359
12	01	09	0944	LCS Class Support Equipment	Volume 1 - 369
13	01	09	0945	Submarine Batteries	Volume 1 - 381
14	01	09	0946	LPD Class Support Equipment	Volume 1 - 389
15	01	09	0947	DDG 1000 Class Support Equipment	Volume 1 - 433
16	01	09	0950	Strategic Platform Support Equip	Volume 1 - 445

Appropriation 1810N: Other Procurement, Navy

Line #	BA	BSA	Line Item Number	Line Item Title	Page
17	01	09	0955	Deep Subm Sys Proj (DSSP) Equip	Volume 1 - 453
18	01	09	0960	CG Modernization	Volume 1 - 457
19	01	09	0970	LCAC	Volume 1 - 491
20	01	09	0977	Underwater EOD Equipment	Volume 1 - 495
21	01	09	0981	Items less than $5 Million	Volume 1 - 519
22	01	09	0989	Chemical Warfare Detectors	Volume 1 - 561
23	01	09	0990	Submarine Life Support System	Volume 1 - 589
24	01	10	1000	Ship Maintenance, Repair and Modernization	Volume 1 - 597
25	01	10	1010	Reactor Power Units	Volume 1 - 603
26	01	10	1020	Reactor Components	Volume 1 - 607
27	01	11	1130	Diving and Salvage Equipment	Volume 1 - 611
28	01	12	1210	Standard Boats	Volume 1 - 627
29	01	14	1445	Operating Forces IPE	Volume 1 - 641
30	01	15	1600	LCS Common Mission Modules Equipment	Volume 1 - 655
31	01	15	1601	LCS MCM Mission Modules	Volume 1 - 669
32	01	15	1602	LCS ASW Mission Modules	Volume 1 - 685
33	01	15	1603	LCS SUW Mission Modules	Volume 1 - 697
34	01	15	1604	LCS In-Service Modernization	Volume 1 - 707

Appropriation 1810N: Other Procurement, Navy

Line #	BA	BSA	Line Item Number	Line Item Title	Page
35	01	15	1611	Small & Medium UUV	Volume 1 - 723
36	01	16	1610	LSD Midlife & Modernization	Volume 1 - 733

Appropriation 1810N: Other Procurement, Navy

Line #	BA	BSA	Line Item Number	Line Item Title	Page
37	02	02	2026	SPQ-9B Radar	Volume 2 - 1
38	02	02	2136	AN/SQQ-89 Surf ASW Cmbt Sys	Volume 2 - 11
39	02	02	2150	SSN Acoustic Equipment	Volume 2 - 39
40	02	02	2176	Undersea Warfare Support Equipment	Volume 2 - 79
41	02	03	2210	Submarine Acoustic Warfare System	Volume 2 - 87
42	02	03	2213	Surface Ship Torpedo Def (SSTD)	Volume 2 - 115
43	02	03	2225	Fixed Surveillance System	Volume 2 - 125
44	02	03	2237	SURTASS	Volume 2 - 129
45	02	04	2312	AN/SLQ-32	Volume 2 - 153
46	02	05	2360	Shipboard IW Exploit	Volume 2 - 185
47	02	05	2361	Automatic Identification System (AIS)	Volume 2 - 217

Appropriation 1810N: Other Procurement, Navy

Line #	BA	BSA	Line Item Number	Line Item Title	Page
48	02	07	2606	Cooperative Engagement Capability	Volume 2 - 223
49	02	07	2611	Naval Tact Cmd Supt Sys (NTCSS)	Volume 2 - 251
50	02	07	2614	Adv Tact Data Link Sys (ATDLS)	Volume 2 - 261
51	02	07	2618	Navy Command and Control System (NCCS)	Volume 2 - 273
52	02	07	2622	Minesweeping System Replacement	Volume 2 - 281
53	02	07	2624	Shallow Water MCM	Volume 2 - 293
54	02	07	2657	NAVSTAR GPS Receivers (Space)	Volume 2 - 303
55	02	07	2666	American Forces Radio and TV Service (AFRTS)	Volume 2 - 317
56	02	07	2676	Strategic Platform Support Equip	Volume 2 - 325
57	02	09	2820	Ashore ATC Equipment	Volume 2 - 329
58	02	09	2830	Afloat ATC Equipment	Volume 2 - 385
59	02	09	2851	ID Systems	Volume 2 - 429
60	02	09	2867	Joint Precision Approach and Landing System(JPALS)	Volume 2 - 465
61	02	09	2876	Naval Mission Planning Systems	Volume 2 - 471
62	02	10	2900	Maritime Integrated Broadcast System	Volume 2 - 479
63	02	10	2906	Tactical/Mobile C4I Systems	Volume 2 - 493
64	02	10	2914	Distributed Common Ground System-Navy (DCGS-N)	Volume 2 - 511
65	02	10	2915	CANES	Volume 2 - 535

Appropriation 1810N: Other Procurement, Navy

Line #	BA	BSA	Line Item Number	Line Item Title	Page
66	02	10	2920	RADIAC	Volume 2 - 549
67	02	10	2925	CANES Intell	Volume 2 - 561
68	02	10	2940	Gen Purp Elec Test Equip (GPETE)	Volume 2 - 571
69	02	10	2950	Network Tactical Common Data Link (CDL)	Volume 2 - 577
70	02	10	2960	Integ Combat System Test Facility	Volume 2 - 585
71	02	10	2970	EMI Control Instrumentation	Volume 2 - 589
72	02	10	2980	Items less than $5 Million	Volume 2 - 593
73	02	11	3010	Shipboard Tactical Comms	Volume 2 - 631
74	02	11	3050	Ship Communications Automation	Volume 2 - 645
75	02	11	3057	Communications Items under $5M	Volume 2 - 669
76	02	12	3107	Submarine Broadcast Support	Volume 2 - 685
77	02	12	3130	Submarine Communication Equipment	Volume 2 - 689
78	02	13	3215	Satellite Communications Systems	Volume 2 - 693
79	02	13	3216	Navy Multiband Terminal (NMT)	Volume 2 - 709
80	02	14	3302	Joint Communications Support Element (JCSE)	Volume 2 - 727
81	02	15	3415	Info Systems Security Program (ISSP)	Volume 2 - 731
82	02	15	3417	MIO Intel Exploitation Team	Volume 2 - 769
83	02	16	3501	Cryptologic Communications Equip	Volume 2 - 773

Appropriation 1810N: Other Procurement, Navy

Line #	BA	BSA	Line Item Number	Line Item Title	Page
90	02	17	3620	Coast Guard Equipment	Volume 2 - 787

Appropriation 1810N: Other Procurement, Navy

Line #	BA	BSA	Line Item Number	Line Item Title	Page
92	03	01	4048	Sonobuoys - All Types	Volume 3 - 1
93	03	03	3640	Minotaur	Volume 3 - 17
94	03	03	4204	Weapons Range Support Equipment	Volume 3 - 21
95	03	03	4213	Aircraft Support Equipment	Volume 3 - 31
96	03	03	4217	Advanced Arresting Gear (AAG)	Volume 3 - 89
97	03	03	4226	Meteorological Equipment	Volume 3 - 103
98	03	03	4242	DCRS/DPL	Volume 3 - 111
99	03	03	4248	Legacy Airborne MCM	Volume 3 - 115
100	03	03	4250	Common Control System	Volume 3 - 129
101	03	03	4268	Aviation Support Equipment	Volume 3 - 133
102	03	03	4269	UMCS-Unman Carrier Aviation(UCA)Mission Cntrl Stn	Volume 3 - 161

Appropriation 1810N: Other Procurement, Navy

Line #	BA	BSA	Line Item Number	Line Item Title	Page
103	04	02	5111	Ship Gun Systems Equipment	Volume 4 - 1
104	04	03	5227	HARPOON Support Equipment	Volume 4 - 5
105	04	03	5231	Ship Missile Support Equipment	Volume 4 - 9
106	04	03	5253	Tomahawk Support Equipment	Volume 4 - 63
107	04	04	5358	Strategic Missile Systems Equip	Volume 4 - 69
108	04	05	5420	SSN Combat Control Systems	Volume 4 - 91
109	04	05	5429	ASW Support Equipment	Volume 4 - 119
110	04	06	5509	EOD Equipment	Volume 4 - 135
111	04	06	5543	Items Less Than $5 Million	Volume 4 - 147
112	04	07	5530	Anti-ship Missile Decoy System	Volume 4 - 153
113	04	07	5661	Submarine Training Device Mods	Volume 4 - 165
114	04	07	5664	Surface Training Equipment	Volume 4 - 179

Appropriation 1810N: Other Procurement, Navy

Line #	BA	BSA	Line Item Number	Line Item Title	Page
115	05	01	6003	Passenger Carrying Vehicles	Volume 5 - 1
116	05	01	6007	General Purpose Trucks	Volume 5 - 15
117	05	01	6024	Construction & Maint Equip	Volume 5 - 27
118	05	01	6027	Fire Fighting Equipment	Volume 5 - 47
119	05	01	6028	Tactical Vehicles	Volume 5 - 53
120	05	01	6033	Amphibious Equipment	Volume 5 - 59
121	05	01	6058	Pollution Control Equipment	Volume 5 - 63
122	05	01	6060	Items less than $5 Million	Volume 5 - 69
123	05	01	6075	Physical Security Vehicles	Volume 5 - 97

Appropriation 1810N: Other Procurement, Navy

Line #	BA	BSA	Line Item Number	Line Item Title	Page
124	06	01	7025	Supply Equipment	Volume 5 - 101
125	06	01	7066	First Destination Transportation	Volume 5 - 111

Appropriation 1810N: Other Procurement, Navy

Line #	BA	BSA	Line Item Number	Line Item Title	Page
126	06	01	7069	Special Purpose Supply Systems	Volume 5 - 115

Appropriation 1810N: Other Procurement, Navy

Line #	BA	BSA	Line Item Number	Line Item Title	Page
127	07	01	8081	Training Support Equipment	Volume 5 - 119
128	07	01	8101	Training and Education Equipment	Volume 5 - 141
129	07	02	8106	Command Support Equipment	Volume 5 - 171
130	07	02	8109	Medical Support Equipment	Volume 5 - 197
132	07	02	8114	Naval MIP Support Equipment	Volume 5 - 205
133	07	02	8118	Operating Forces Support Equipment	Volume 5 - 213
134	07	02	8120	C4ISR Equipment	Volume 5 - 221
135	07	02	8126	Environmental Support Equipment	Volume 5 - 229
136	07	02	8128	Physical Security Equipment	Volume 5 - 243
137	07	02	8161	Enterprise Information Technology	Volume 5 - 253
140	07	05	8164	Next Generation Enterprise Service	Volume 5 - 265
141	07	05	8645	Cyberspace Activities	Volume 5 - 273

Appropriation 1810N: Other Procurement, Navy

Line #	BA	BSA	Line Item Number	Line Item Title	Page
142	08	01	9020	Spares and Repair Parts	Volume 5 - 279

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Line Item Title	Line Item Number	Line #	BA	BSA	Page
AN/SLQ-32	2312	45	02	04	Volume 2 - 153
AN/SQQ-89 Surf ASW Cmbt Sys	2136	38	02	02	Volume 2 - 11
ASW Support Equipment	5429	109	04	05	Volume 4 - 119
Adv Tact Data Link Sys (ATDLS)	2614	50	02	07	Volume 2 - 261
Advanced Arresting Gear (AAG)	4217	96	03	03	Volume 3 - 89
Afloat ATC Equipment	2830	58	02	09	Volume 2 - 385
Aircraft Support Equipment	4213	95	03	03	Volume 3 - 31
American Forces Radio and TV Service (AFRTS)	2666	55	02	07	Volume 2 - 317
Amphibious Equipment	6033	120	05	01	Volume 5 - 59
Anti-ship Missile Decoy System	5530	112	04	07	Volume 4 - 153
Ashore ATC Equipment	2820	57	02	09	Volume 2 - 329
Automatic Identification System (AIS)	2361	47	02	05	Volume 2 - 217
Aviation Support Equipment	4268	101	03	03	Volume 3 - 133
C4ISR Equipment	8120	134	07	02	Volume 5 - 221
CANES	2915	65	02	10	Volume 2 - 535
CANES Intell	2925	67	02	10	Volume 2 - 561
CG Modernization	0960	18	01	09	Volume 1 - 457

Line Item Title	Line Item Number	Line #	BA	BSA	Page
Chemical Warfare Detectors	0989	22	01	09	Volume 1 - 561
Coast Guard Equipment	3620	90	02	17	Volume 2 - 787
Command Support Equipment	8106	129	07	02	Volume 5 - 171
Command and Control Switchboard	0925	7	01	09	Volume 1 - 259
Common Control System	4250	100	03	03	Volume 3 - 129
Communications Items under $5M	3057	75	02	11	Volume 2 - 669
Construction & Maint Equip	6024	117	05	01	Volume 5 - 27
Cooperative Engagement Capability	2606	48	02	07	Volume 2 - 223
Cryptologic Communications Equip	3501	83	02	16	Volume 2 - 773
Cyberspace Activities	8645	141	07	05	Volume 5 - 273
DCRS/DPL	4242	98	03	03	Volume 3 - 111
DDG 1000 Class Support Equipment	0947	15	01	09	Volume 1 - 433
DDG Mod	0900	5	01	09	Volume 1 - 163
Deep Subm Sys Proj (DSSP) Equip	0955	17	01	09	Volume 1 - 453
Distributed Common Ground System-Navy (DCGS-N)	2914	64	02	10	Volume 2 - 511
Diving and Salvage Equipment	1130	27	01	11	Volume 1 - 611
EMI Control Instrumentation	2970	71	02	10	Volume 2 - 589
EOD Equipment	5509	110	04	06	Volume 4 - 135
Enterprise Information Technology	8161	137	07	02	Volume 5 - 253
Environmental Support Equipment	8126	135	07	02	Volume 5 - 229

Line Item Title	Line Item Number	Line #	BA	BSA	Page
Fire Fighting Equipment	6027	118	05	01	Volume 5 - 47
Firefighting Equipment	0910	6	01	09	Volume 1 - 243
First Destination Transportation	7066	125	06	01	Volume 5 - 111
Fixed Surveillance System	2225	43	02	03	Volume 2 - 125
Gen Purp Elec Test Equip (GPETE)	2940	68	02	10	Volume 2 - 571
General Purpose Trucks	6007	116	05	01	Volume 5 - 15
HARPOON Support Equipment	5227	104	04	03	Volume 4 - 5
ID Systems	2851	59	02	09	Volume 2 - 429
Info Systems Security Program (ISSP)	3415	81	02	15	Volume 2 - 731
Integ Combat System Test Facility	2960	70	02	10	Volume 2 - 585
Items Less Than $5 Million	5543	111	04	06	Volume 4 - 147
Items less than $5 Million	0981	21	01	09	Volume 1 - 519
Items less than $5 Million	2980	72	02	10	Volume 2 - 593
Items less than $5 Million	6060	122	05	01	Volume 5 - 69
Joint Communications Support Element (JCSE)	3302	80	02	14	Volume 2 - 727
Joint Precision Approach and Landing System(JPALS)	2867	60	02	09	Volume 2 - 465
LCAC	0970	19	01	09	Volume 1 - 491
LCS ASW Mission Modules	1602	32	01	15	Volume 1 - 685
LCS Class Support Equipment	0944	12	01	09	Volume 1 - 369
LCS Common Mission Modules Equipment	1600	30	01	15	Volume 1 - 655

Line Item Title	Line Item Number	Line #	BA	BSA	Page
LCS In-Service Modernization	1604	34	01	15	Volume 1 - 707
LCS MCM Mission Modules	1601	31	01	15	Volume 1 - 669
LCS SUW Mission Modules	1603	33	01	15	Volume 1 - 697
LHA/LHD Midlife	0933	8	01	09	Volume 1 - 267
LPD Class Support Equipment	0946	14	01	09	Volume 1 - 389
LSD Midlife & Modernization	1610	36	01	16	Volume 1 - 733
Legacy Airborne MCM	4248	99	03	03	Volume 3 - 115
MIO Intel Exploitation Team	3417	82	02	15	Volume 2 - 769
Maritime Integrated Broadcast System	2900	62	02	10	Volume 2 - 479
Medical Support Equipment	8109	130	07	02	Volume 5 - 197
Meteorological Equipment	4226	97	03	03	Volume 3 - 103
Minesweeping System Replacement	2622	52	02	07	Volume 2 - 281
Minotaur	3640	93	03	03	Volume 3 - 17
NAVSTAR GPS Receivers (Space)	2657	54	02	07	Volume 2 - 303
Naval MIP Support Equipment	8114	132	07	02	Volume 5 - 205
Naval Mission Planning Systems	2876	61	02	09	Volume 2 - 471
Naval Tact Cmd Supt Sys (NTCSS)	2611	49	02	07	Volume 2 - 251
Navy Command and Control System (NCCS)	2618	51	02	07	Volume 2 - 273
Navy Multiband Terminal (NMT)	3216	79	02	13	Volume 2 - 709
Network Tactical Common Data Link (CDL)	2950	69	02	10	Volume 2 - 577

Line Item Title	Line Item Number	Line #	BA	BSA	Page
Next Generation Enterprise Service	8164	140	07	05	Volume 5 - 265
Operating Forces IPE	1445	29	01	14	Volume 1 - 641
Operating Forces Support Equipment	8118	133	07	02	Volume 5 - 213
Other Navigation Equipment	0670	3	01	06	Volume 1 - 29
Passenger Carrying Vehicles	6003	115	05	01	Volume 5 - 1
Physical Security Equipment	8128	136	07	02	Volume 5 - 243
Physical Security Vehicles	6075	123	05	01	Volume 5 - 97
Pollution Control Equipment	0935	9	01	09	Volume 1 - 327
Pollution Control Equipment	6058	121	05	01	Volume 5 - 63
RADIAC	2920	66	02	10	Volume 2 - 549
Reactor Components	1020	26	01	10	Volume 1 - 607
Reactor Power Units	1010	25	01	10	Volume 1 - 603
SPQ-9B Radar	2026	37	02	02	Volume 2 - 1
SSN Acoustic Equipment	2150	39	02	02	Volume 2 - 39
SSN Combat Control Systems	5420	108	04	05	Volume 4 - 91
SURTASS	2237	44	02	03	Volume 2 - 129
Satellite Communications Systems	3215	78	02	13	Volume 2 - 693
Shallow Water MCM	2624	53	02	07	Volume 2 - 293
Ship Communications Automation	3050	74	02	11	Volume 2 - 645
Ship Gun Systems Equipment	5111	103	04	02	Volume 4 - 1

Line Item Title	Line Item Number	Line #	BA	BSA	Page
Ship Maintenance, Repair and Modernization	1000	24	01	10	Volume 1 - 597
Ship Missile Support Equipment	5231	105	04	03	Volume 4 - 9
Shipboard IW Exploit	2360	46	02	05	Volume 2 - 185
Shipboard Tactical Comms	3010	73	02	11	Volume 2 - 631
Small & Medium UUV	1611	35	01	15	Volume 1 - 723
Sonobuoys - All Types	4048	92	03	01	Volume 3 - 1
Spares and Repair Parts	9020	142	08	01	Volume 5 - 279
Special Purpose Supply Systems	7069	126	06	01	Volume 5 - 115
Standard Boats	1210	28	01	12	Volume 1 - 627
Strategic Missile Systems Equip	5358	107	04	04	Volume 4 - 69
Strategic Platform Support Equip	0950	16	01	09	Volume 1 - 445
Strategic Platform Support Equip	2676	56	02	07	Volume 2 - 325
Sub Periscope, Imaging and Supt Equip Prog	0840	4	01	09	Volume 1 - 109
Submarine Acoustic Warfare System	2210	41	02	03	Volume 2 - 87
Submarine Batteries	0945	13	01	09	Volume 1 - 381
Submarine Broadcast Support	3107	76	02	12	Volume 2 - 685
Submarine Communication Equipment	3130	77	02	12	Volume 2 - 689
Submarine Life Support System	0990	23	01	09	Volume 1 - 589
Submarine Support Equipment	0941	10	01	09	Volume 1 - 345
Submarine Training Device Mods	5661	113	04	07	Volume 4 - 165

Line Item Title	Line Item Number	Line #	BA	BSA	Page
Supply Equipment	7025	124	06	01	Volume 5 - 101
Surface Combatant HM&E	0200	2	01	02	Volume 1 - 15
Surface Power Equipment	0131	1	01	01	Volume 1 - 1
Surface Ship Torpedo Def (SSTD)	2213	42	02	03	Volume 2 - 115
Surface Training Equipment	5664	114	04	07	Volume 4 - 179
Tactical Vehicles	6028	119	05	01	Volume 5 - 53
Tactical/Mobile C4I Systems	2906	63	02	10	Volume 2 - 493
Tomahawk Support Equipment	5253	106	04	03	Volume 4 - 63
Training Support Equipment	8081	127	07	01	Volume 5 - 119
Training and Education Equipment	8101	128	07	01	Volume 5 - 141
UMCS-Unman Carrier Aviation(UCA)Mission Cntrl Stn	4269	102	03	03	Volume 3 - 161
Undersea Warfare Support Equipment	2176	40	02	02	Volume 2 - 79
Underwater EOD Equipment	0977	20	01	09	Volume 1 - 495
Virginia Class Support Equipment	0942	11	01	09	Volume 1 - 359
Weapons Range Support Equipment	4204	94	03	03	Volume 3 - 21

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Exhibit P-40, Budget Line Item Justification: PB 2021 Navy	Date: February 2020
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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	To Complete	Total
Procurement Quantity *(Units in Each)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost *($ in Millions)*	1,888.721	237.347	313.554	237.639	26.196	263.835	260.183	267.096	267.905	271.585	Continuing	Continuing
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	1,888.721	237.347	313.554	237.639	26.196	263.835	260.183	267.096	267.905	271.585	Continuing	Continuing
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**1,888.721**	**237.347**	**313.554**	**237.639**	**26.196**	**263.835**	**260.183**	**267.096**	**267.905**	**271.585**	**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.

FY20 Congressional Add of $50M results in increased economies of scale reducing unit costs for all buoy types in FY20.

[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.

Exhibit P-40, Budget Line Item Justification: PB 2021 Navy		Date: February 2020
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		

[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.

Exhibit P-40, Budget Line Item Justification: PB 2021 Navy	Date: February 2020
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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 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			- / 1,888.721	- / 237.347	- / 313.554	- / 237.639	- / 26.196	- / 263.835
P-40	**Total Gross/Weapon System Cost**				**- / 1,888.721**	**- / 237.347**	**- / 313.554**	**- / 237.639**	**- / 26.196**	**- / 263.835**

*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.

OCO:
FY 2021 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 Inherent Resolve (OIR-T).

Exhibit P-5, Cost Analysis: PB 2021 Navy		Date: February 2020
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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
Procurement Quantity *(Units in Each)*	-	-	-	-	-	-
Gross/Weapon System Cost *($ in Millions)*	1,888.721	237.347	313.554	237.639	26.196	263.835
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	1,888.721	237.347	313.554	237.639	26.196	263.835
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**1,888.721**	**237.347**	**313.554**	**237.639**	**26.196**	**263.835**
(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 2019			FY 2020			FY 2021 Base			FY 2021 OCO			FY 2021 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(†) (1)	624.86	26,430	16.515	544.72	2,981	1.624	464.49	6,962	3.234	529.25	3,499	1.852	529.25	340	0.180	529.25	3,839	2.032
1.1.2) AN/SSQ-53 (DIFAR) QZ002(†) (2)	760.84	674,238	512.985	832.01	87,632	72.911	791.07	126,301	99.913	862.50	46,836	40.396	862.50	3,239	2.794	862.50	50,075	43.190
1.1.3) AN/SSQ-62 (DICASS) QZ004(†)	1,691.86	78,528	132.858	1,605.51	24,500	39.335	1,644.00	20,995	34.516	1,664.99	16,500	27.472	1,664.99	3,098	5.158	1,664.99	19,598	32.630
Subtotal: Recurring Cost	-	-	*662.358*	-	-	*113.870*	-	-	*137.663*	-	-	*69.720*	-	-	*8.132*	-	-	*77.852*
Subtotal: Hardware - Sonobuoys (Common) Cost	**-**	**-**	***662.358***	**-**	**-**	***113.870***	**-**	**-**	***137.663***	**-**	**-**	***69.720***	**-**	**-**	***8.132***	**-**	**-**	***77.852***
Hardware - Sonobuoys (Multistatic) Cost																		
Recurring Cost																		
2.1.1) AN/SSQ-101 (Multi-static Coherent Receiver) QZ006(†) (3)	3,743.09	51,127	191.373	3,043.05	14,490	44.094	2,962.25	17,982	53.267	3,155.69	9,000	28.401	3,155.69	1,745	5.507	3,155.69	10,745	33.908
2.1.2) AN/SSQ-125 (Multi-static Coherent Source) QZ010(†) (4)	4,642.99	54,009	250.763	7,380.22	9,534	70.363	4,901.33	23,222	113.819	4,999.35	26,183	130.898	4,999.35	1,993	9.964	4,999.35	28,176	140.862
Subtotal: Recurring Cost	-	-	*442.136*	-	-	*114.457*	-	-	*167.086*	-	-	*159.299*	-	-	*15.471*	-	-	*174.770*
Subtotal: Hardware - Sonobuoys (Multistatic) Cost	**-**	**-**	***442.136***	**-**	**-**	***114.457***	**-**	**-**	***167.086***	**-**	**-**	***159.299***	**-**	**-**	***15.471***	**-**	**-**	***174.770***
Hardware - Sonobuoys (Other) Cost																		
Recurring Cost																		

Exhibit P-5, Cost Analysis: PB 2021 Navy		Date: February 2020
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 2019			FY 2020			FY 2021 Base			FY 2021 OCO			FY 2021 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	286.50	20,454	5.860	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: Recurring Cost	-	-	*5.860*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: Hardware - Sonobuoys (Other) Cost	**-**	**-**	***5.860***	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Hardware - Acceptance Testing Cost																		
Recurring Cost																		
4.1.1) Common QZ860	-	-	22.865	-	-	2.495	-	-	2.311	-	-	2.257	-	-	0.479	-	-	2.736
4.1.2) Multi-static QZ860	-	-	13.734	-	-	2.430	-	-	2.439	-	-	2.420	-	-	0.947	-	-	3.367
4.1.3) Other QZ860	-	-	0.152	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: Recurring Cost	-	-	*36.751*	-	-	*4.925*	-	-	*4.750*	-	-	*4.677*	-	-	*1.426*	-	-	*6.103*
Subtotal: Hardware - Acceptance Testing Cost	**-**	**-**	***36.751***	**-**	**-**	***4.925***	**-**	**-**	***4.750***	**-**	**-**	***4.677***	**-**	**-**	***1.426***	**-**	**-**	***6.103***
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	-	-	21.449	-	-	2.025	-	-	1.978	-	-	1.899	-	-	0.392	-	-	2.291
6.2) Multi-static QZ830	-	-	11.996	-	-	2.070	-	-	2.077	-	-	2.044	-	-	0.775	-	-	2.819
6.3) Other QZ830	-	-	0.128	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: Support - Production Engineering Cost	**-**	**-**	***33.573***	**-**	**-**	***4.095***	**-**	**-**	***4.055***	**-**	**-**	***3.943***	**-**	**-**	***1.167***	**-**	**-**	***5.110***
Gross/Weapon System Cost	**-**	**-**	**1,888.721**	**-**	**-**	**237.347**	**-**	**-**	**313.554**	**-**	**-**	**237.639**	**-**	**-**	**26.196**	**-**	**-**	**263.835**

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

Exhibit P-5, Cost Analysis: PB 2021 Navy		Date: February 2020
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) PLEASE NOTE: The Congressional Add of $50M in FY20 results in increased economies of scale for all buoy types in FY20. The decrease in the AN/SSQ-36, AN/SSQ-53, and AN/SSQ-101 sonobuoy unit costs in FY20 is a direct result from the increase in quantities made possible by the additional $50M. Therefore, it appears the unit costs for these buoys increase significantly in FY21; whereas, the unit costs in FY21 are actually on track with inflation given the lower quantities procured in FY21.

(2) Footnote (1) applies.

(3) Footnote (1) applies.

(4) AN/SSQ-125 UNIT COSTS IN FY20 and FY21: The FY20 and FY21 unit costs for the AN/SSQ-125 sonobuoys decreased significantly due to procuring primarily AN/SSQ-125 vice AN/SSQ-125A sonobuoys. The AN/SSQ-125 is a less complex buoy and therefore has a lower unit cost.

Exhibit P-5a, Procurement History and Planning: PB 2021 Navy		Date: February 2020
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	OCO	FY	Contractor and Location	Method/Type or Funding Vehicle	Location of PCO	Award Date	Date of First Delivery	Qty (Each)	Unit Cost ($)	Specs Avail Now?	Date Revision Available	RFP Issue Date
1.1.1) 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	SS / IDIQ	NAVAIR	Jul 2019	Jul 2020	2,304	544.72	Y		Aug 2017
1.1.1) AN/SSQ-36 (BT) QZ001	✓	2019	ERAPSCO / Columbia City IN	SS / IDIQ	NAVAIR	Jul 2019	Jul 2020	677	544.72	Y		Aug 2017
1.1.1) AN/SSQ-36 (BT) QZ001		2020	ERAPSCO / Columbia City IN	SS / IDIQ	NAVAIR	Mar 2020	Mar 2021	6,900	464.49	Y		Aug 2017
1.1.1) AN/SSQ-36 (BT) QZ001	✓	2020	ERAPSCO / Columbia City IN	SS / IDIQ	NAVAIR	Mar 2020	Mar 2021	62	464.49	Y		Aug 2017
1.1.1) AN/SSQ-36 (BT) QZ001		2021	ERAPSCO / Columbia City IN	SS / IDIQ	NAVAIR	Dec 2020	Dec 2021	3,499	529.25	Y		Aug 2017
1.1.1) AN/SSQ-36 (BT) QZ001	✓	2021	ERAPSCO / Columbia City IN	SS / IDIQ	NAVAIR	Dec 2020	Dec 2021	340	529.25	Y		Aug 2017
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	SS / IDIQ	NAVAIR	Jul 2019	Jul 2020	69,388	832.01	Y		Aug 2017
1.1.2) AN/SSQ-53 (DIFAR) QZ002(†)	✓	2019	ERAPSCO / Columbia City IN	SS / IDIQ	NAVAIR	Jul 2019	Jul 2020	18,244	832.01	Y		Aug 2017
1.1.2) AN/SSQ-53 (DIFAR) QZ002(†)		2020	ERAPSCO / Columbia City IN	SS / IDIQ	NAVAIR	Mar 2020	Mar 2021	125,029	791.07	Y		Aug 2017
1.1.2) AN/SSQ-53 (DIFAR) QZ002(†)	✓	2020	ERAPSCO / Columbia City IN	SS / IDIQ	NAVAIR	Mar 2020	Mar 2021	1,272	791.07	Y		Aug 2017
1.1.2) AN/SSQ-53 (DIFAR) QZ002(†)		2021	ERAPSCO / Columbia City IN	SS / IDIQ	NAVAIR	Dec 2020	Dec 2021	46,836	862.50	Y		Aug 2017
1.1.2) AN/SSQ-53 (DIFAR) QZ002(†)	✓	2021	ERAPSCO / Columbia City IN	SS / IDIQ	NAVAIR	Dec 2020	Dec 2021	3,239	862.50	Y		Aug 2017
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	SS / IDIQ	NAVAIR	Jul 2019	Jul 2020	23,051	1,605.51	Y		Aug 2017
1.1.3) AN/SSQ-62 (DICASS) QZ004(†)	✓	2019	ERAPSCO / Columbia City IN	SS / IDIQ	NAVAIR	Jul 2019	Jul 2020	1,449	1,605.51	Y		Aug 2017
1.1.3) AN/SSQ-62 (DICASS) QZ004(†)		2020	ERAPSCO / Columbia City IN	SS / IDIQ	NAVAIR	Mar 2020	Mar 2021	20,905	1,644.00	Y		Aug 2017
1.1.3) AN/SSQ-62 (DICASS) QZ004(†)	✓	2020	ERAPSCO / Columbia City IN	SS / IDIQ	NAVAIR	Mar 2020	Mar 2021	90	1,644.00	Y		Aug 2017
1.1.3) AN/SSQ-62 (DICASS) QZ004(†)		2021	ERAPSCO / Columbia City IN	SS / IDIQ	NAVAIR	Dec 2020	Dec 2021	16,500	1,664.99	Y		Aug 2017
1.1.3) AN/SSQ-62 (DICASS) QZ004(†)	✓	2021	ERAPSCO / Columbia City IN	SS / IDIQ	NAVAIR	Dec 2020	Dec 2021	3,098	1,664.99	Y		Aug 2017

Exhibit P-5a, Procurement History and Planning: PB 2021 Navy		Date: February 2020
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	OCO	FY	Contractor and Location	Method/Type or Funding Vehicle	Location of PCO	Award Date	Date of First Delivery	Qty (Each)	Unit Cost ($)	Specs Avail Now?	Date Revision Available	RFP Issue Date
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
2.1.1) AN/SSQ-101 (Multi-static Coherent Receiver) QZ006(†)		2019	ERAPSCO / Columbia City IN	SS / IDIQ	NAVAIR	Jul 2019	Jul 2020	14,414	3,043.05	Y		Aug 2017
2.1.1) AN/SSQ-101 (Multi-static Coherent Receiver) QZ006(†)	✓	2019	ERAPSCO / Columbia City IN	SS / IDIQ	NAVAIR	Jul 2019	Jul 2020	76	3,043.05	Y		Aug 2017
2.1.1) AN/SSQ-101 (Multi-static Coherent Receiver) QZ006(†)		2020	ERAPSCO / Columbia City IN	SS / IDIQ	NAVAIR	Mar 2020	Mar 2021	17,762	2,962.25	Y		Aug 2017
2.1.1) AN/SSQ-101 (Multi-static Coherent Receiver) QZ006(†)	✓	2020	ERAPSCO / Columbia City IN	SS / IDIQ	NAVAIR	Mar 2020	Mar 2021	220	2,962.25	Y		Aug 2017
2.1.1) AN/SSQ-101 (Multi-static Coherent Receiver) QZ006(†)		2021	ERAPSCO / Columbia City IN	SS / IDIQ	NAVAIR	Dec 2020	Dec 2021	9,000	3,155.69	Y		Aug 2017
2.1.1) AN/SSQ-101 (Multi-static Coherent Receiver) QZ006(†)	✓	2021	ERAPSCO / Columbia City IN	SS / IDIQ	NAVAIR	Dec 2020	Dec 2021	1,745	3,155.69	Y		Aug 2017
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 (5) / 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 (5) / 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 (5) / Various	C / FFP	NAVAIR	Jun 2020	Jun 2021	23,030	4,901.33	Y		Aug 2017
2.1.2) AN/SSQ-125 (Multi-static Coherent Source) QZ010(†)	✓	2020	Various (5) / Various	C / FFP	NAVAIR	Jun 2020	Jun 2021	192	4,901.33	Y		Aug 2017
2.1.2) AN/SSQ-125 (Multi-static Coherent Source) QZ010(†)		2021	Various (5) / Various	C / FFP	NAVAIR	Dec 2020	Dec 2021	26,183	4,999.35	Y		Aug 2017
2.1.2) AN/SSQ-125 (Multi-static Coherent Source) QZ010(†)	✓	2021	Various (5) / Various	C / FFP	NAVAIR	Dec 2020	Dec 2021	1,993	4,999.35	Y		Aug 2017

(†) indicates the presence of a P-21

Footnotes:
(5) ERAPSCO, Columbia City IN and Lockheed Martin, Manassas VA

Exhibit P-21, Production Schedule: PB 2021 Navy		**Date:** February 2020
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 (Units in Thousands)							Fiscal Year 2018												Fiscal Year 2019												BALANCE
										Calendar Year 2018												Calendar Year 2019									
OCO	MFR #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2017	BAL DUE AS OF 1 OCT	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/SSQ-53 (DIFAR) QZ002 (2)																															
Prior Years Deliveries: 595827																															
	1	2018	NAVY	78.411	.000	78.411							A -	-	-	-	-	-	-	-	-	-	-	-	8.600	8.600	8.800	8.800	8.800	8.800	26.011
	1	2019	NAVY	69.388	.000	69.388																						A -	-	-	69.388
✓	1	2019	NAVY	18.244	.000	18.244																						A -	-	-	18.244
	1	2020	NAVY	125.029	.000	125.029																									125.029
✓	1	2020	NAVY	1.272	.000	1.272																									1.272
	1	2021	NAVY	46.836	.000	46.836																									46.836
✓	1	2021	NAVY	3.239	.000	3.239																									3.239
1.1.3) AN/SSQ-62 (DICASS) QZ004																															
Prior Years Deliveries: 66330																															
	2	2018	NAVY	12.198	.000	12.198			A -	-	-	-	-	-	-	-	-	-	-	-	1.358	1.355	1.355	1.355	1.355	1.355	1.355	1.355	1.355		.000
	2	2019	NAVY	23.051	.000	23.051																						A -	-	-	23.051
✓	2	2019	NAVY	1.449	.000	1.449																						A -	-	-	1.449
	2	2020	NAVY	20.905	.000	20.905																									20.905
✓	2	2020	NAVY	.090	.000	.090																									.090
	2	2021	NAVY	16.500	.000	16.500																									16.500
✓	2	2021	NAVY	3.098	.000	3.098																									3.098
2.1.1) AN/SSQ-101 (Multi-static Coherent Receiver) QZ006 (3)																															
Prior Years Deliveries: 41127																															
	3	2018	NAVY	10.000	.000	10.000						A -	-	-	-	-	-	-	-	-	-	-	-	1.000	1.100	1.100	1.200	1.200	1.200	1.100	2.100
	3	2019	NAVY	14.414	.000	14.414																						A -	-	-	14.414
✓	3	2019	NAVY	.076	.000	.076																						A -	-	-	.076
	3	2020	NAVY	17.762	.000	17.762																									17.762
✓	3	2020	NAVY	.220	.000	.220																									.220
	3	2021	NAVY	9.000	.000	9.000																									9.000
✓	3	2021	NAVY	1.745	.000	1.745																									1.745
2.1.2) AN/SSQ-125 (Multi-static Coherent Source) QZ010 (4)																															
Prior Years Deliveries: 45550																															
	4	2018	NAVY	8.459	.000	8.459						A -	-	-	-	-	-	-	-	-	-	-	-	.800	.900	1.000	1.000	1.000	1.000	1.000	1.759
	5	2019	NAVY	9.479	.000	9.479															A -	-	-	-	-	-	-	-	-	-	9.479
✓	5	2019	NAVY	.055	.000	.055															A -	-	-	-	-	-	-	-	-	-	.055
	5	2020	NAVY	23.030	.000	23.030																									23.030
							OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	

Exhibit P-21, Production Schedule: PB 2021 Navy		Date: February 2020
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 (Units in Thousands)							Fiscal Year 2018												Fiscal Year 2019												BALANCE
										Calendar Year 2018												Calendar Year 2019									
OCO	MFR #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2017	BAL DUE AS OF 1 OCT	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	
✓	5	2020	NAVY	.192	.000	.192																									.192
	5	2021	NAVY	26.183	.000	26.183																									26.183
✓	5	2021	NAVY	1.993	.000	1.993																									1.993
							OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	

Exhibit P-21, Production Schedule: PB 2021 Navy | **Date:** February 2020

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 (Units in Thousands)							Fiscal Year 2020													Fiscal Year 2021												BALANCE
							Calendar Year 2020																Calendar Year 2021									
OCO	MFR #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2019	BAL DUE AS OF 1 OCT	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/SSQ-53 (DIFAR) QZ002 (2)																																
Prior Years Deliveries: 595827																																
	1	2018	NAVY	78.411	52.400	26.011	8.800	8.600	8.611																							.000
	1	2019	NAVY	69.388	.000	69.388	-	-	-	-	-	-	-	-	-	3.053	8.000	8.300	8.900	9.000	8.900	8.300	8.000	6.935								.000
✓	1	2019	NAVY	18.244	.000	18.244	-	-	-	-	-	-	-	-	-	1.000	1.500	2.250	3.250	3.250	3.250	2.000	1.500	.244								.000
	1	2020	NAVY	125.029	.000	125.029						A -	-	-	-	-	-	-	-	-	-	-	-	12.000	13.000	14.000	15.000	15.000	15.000	14.500	26.529
✓	1	2020	NAVY	1.272	.000	1.272						A -	-	-	-	-	-	-	-	-	-	-	-	.075	.150	.150	.175	.175	.175	.150	.222
	1	2021	NAVY	46.836	.000	46.836															A -	-	-	-	-	-	-	-	-	-	46.836
✓	1	2021	NAVY	3.239	.000	3.239															A -	-	-	-	-	-	-	-	-	-	3.239
1.1.3) AN/SSQ-62 (DICASS) QZ004																																
Prior Years Deliveries: 66330																																
	2	2018	NAVY	12.198	12.198	.000																										.000
	2	2019	NAVY	23.051	.000	23.051	-	-	-	-	-	-	-	-	-	2.563	2.561	2.561	2.561	2.561	2.561	2.561	2.561	2.561								.000
✓	2	2019	NAVY	1.449	.000	1.449	-	-	-	-	-	-	-	-	-	.161	.161	.161	.161	.161	.161	.161	.161	.161								.000
	2	2020	NAVY	20.905	.000	20.905						A -	-	-	-	-	-	-	-	-	-	-	-	2.200	2.250	2.400	2.400	2.400	2.400	2.400	4.455
✓	2	2020	NAVY	.090	.000	.090						A -	-	-	-	-	-	-	-	-	-	-	-	.010	.010	.010	.010	.010	.010	.010	.020
	2	2021	NAVY	16.500	.000	16.500															A -	-	-	-	-	-	-	-	-	-	16.500
✓	2	2021	NAVY	3.098	.000	3.098															A -	-	-	-	-	-	-	-	-	-	3.098
2.1.1) AN/SSQ-101 (Multi-static Coherent Receiver) QZ006 (3)																																
Prior Years Deliveries: 41127																																
	3	2018	NAVY	10.000	7.900	2.100	1.100	1.000																								.000
	3	2019	NAVY	14.414	.000	14.414	-	-	-	-	-	-	-	-	-	1.614	1.600	1.600	1.600	1.600	1.600	1.600	1.600	1.600								.000
✓	3	2019	NAVY	.076	.000	.076	-	-	-	-	-	-	-	-	-	.009	.009	.009	.009	.008	.008	.008	.008	.008								.000
	3	2020	NAVY	17.762	.000	17.762						A -	-	-	-	-	-	-	-	-	-	-	-	.750	1.500	2.000	3.100	3.100	3.100	2.000	2.212
✓	3	2020	NAVY	.220	.000	.220						A -	-	-	-	-	-	-	-	-	-	-	-	.025	.025	.025	.025	.025	.025	.025	.045
	3	2021	NAVY	9.000	.000	9.000															A -	-	-	-	-	-	-	-	-	-	9.000
✓	3	2021	NAVY	1.745	.000	1.745															A -	-	-	-	-	-	-	-	-	-	1.745
2.1.2) AN/SSQ-125 (Multi-static Coherent Source) QZ010 (4)																																
Prior Years Deliveries: 45550																																
	4	2018	NAVY	8.459	6.700	1.759	.900	.859																								.000
	5	2019	NAVY	9.479	.000	9.479	-	-	.600	.875	1.000	1.500	1.500	1.500	1.000	.875	.629															.000
✓	5	2019	NAVY	.055	.000	.055	-	-	.005	.006	.006	.007	.007	.007	.006	.006	.005															.000
	5	2020	NAVY	23.030	.000	23.030									A -	-	-	-	-	-	-	-	-	-	-	-	1.000	2.500	2.700	3.500	13.330
							OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	

Exhibit P-21, Production Schedule: PB 2021 Navy | **Date:** February 2020

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 (Units in Thousands)							Fiscal Year 2020												Fiscal Year 2021												BALANCE
										Calendar Year 2020												Calendar Year 2021									
OCO	MFR #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2019	BAL DUE AS OF 1 OCT	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	
✓	5	2020	NAVY	.192	.000	.192									A -	-	-	-	-	-	-	-	-	-	-	-	.010	.020	.025	.025	.112
	5	2021	NAVY	26.183	.000	26.183															A -	-	-	-	-	-	-	-	-	-	26.183
✓	5	2021	NAVY	1.993	.000	1.993															A -	-	-	-	-	-	-	-	-	-	1.993
							OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	

Exhibit P-21, Production Schedule: PB 2021 Navy | **Date:** February 2020

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 (Units in Thousands)							Fiscal Year 2022												Fiscal Year 2023												BALANCE
							Calendar Year 2022												Calendar Year 2023												
OCO	MFR #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2021	BAL DUE AS OF 1 OCT	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/SSQ-53 (DIFAR) QZ002 (2)																															
Prior Years Deliveries: 595827																															
	1	2018	NAVY	78.411	78.411	.000																									.000
	1	2019	NAVY	69.388	69.388	.000																									.000
✓	1	2019	NAVY	18.244	18.244	.000																									.000
	1	2020	NAVY	125.029	98.500	26.529	14.000	12.529																							.000
✓	1	2020	NAVY	1.272	1.050	.222	.150	.072																							.000
	1	2021	NAVY	46.836	.000	46.836	-	-	4.900	5.000	5.000	5.500	5.500	5.500	5.500	5.000	4.936														.000
✓	1	2021	NAVY	3.239	.000	3.239	-	-	.300	.360	.360	.400	.400	.360	.360	.360	.339														.000
1.1.3) AN/SSQ-62 (DICASS) QZ004																															
Prior Years Deliveries: 66330																															
	2	2018	NAVY	12.198	12.198	.000																									.000
	2	2019	NAVY	23.051	23.051	.000																									.000
✓	2	2019	NAVY	1.449	1.449	.000																									.000
	2	2020	NAVY	20.905	16.450	4.455	2.250	2.205																							.000
✓	2	2020	NAVY	.090	.070	.020	.010	.010																							.000
	2	2021	NAVY	16.500	.000	16.500	-	-	1.835	1.834	1.833	1.833	1.833	1.833	1.833	1.833	1.833														.000
✓	2	2021	NAVY	3.098	.000	3.098	-	-	.320	.350	.350	.350	.350	.350	.350	.350	.328														.000
2.1.1) AN/SSQ-101 (Multi-static Coherent Receiver) QZ006 (3)																															
Prior Years Deliveries: 41127																															
	3	2018	NAVY	10.000	10.000	.000																									.000
	3	2019	NAVY	14.414	14.414	.000																									.000
✓	3	2019	NAVY	.076	.076	.000																									.000
	3	2020	NAVY	17.762	15.550	2.212	1.500	.712																							.000
✓	3	2020	NAVY	.220	.175	.045	.025	.020																							.000
	3	2021	NAVY	9.000	.000	9.000	-	-	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000														.000
✓	3	2021	NAVY	1.745	.000	1.745	-	-	.100	.150	.250	.250	.250	.250	.250	.150	.095														.000
2.1.2) AN/SSQ-125 (Multi-static Coherent Source) QZ010 (4)																															
Prior Years Deliveries: 45550																															
	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	23.030	9.700	13.330	3.500	3.500	2.700	2.600	1.030																				.000
							OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	

Exhibit P-21, Production Schedule: PB 2021 Navy | **Date:** February 2020

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 (Units in Thousands)							Fiscal Year 2022												Fiscal Year 2023												BALANCE
										Calendar Year 2022												Calendar Year 2023									
OCO	MFR #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2021	BAL DUE AS OF 1 OCT	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	
✓	5	2020	NAVY	.192	.080	.112	.030	.030	.025	.020	.007																				.000
	5	2021	NAVY	26.183	.000	26.183	-	-	1.000	3.000	3.500	3.500	3.750	3.750	3.500	3.000	1.183														.000
✓	5	2021	NAVY	1.993	.000	1.993	-	-	.150	.175	.260	.275	.275	.275	.260	.175	.148														.000
							OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	

Exhibit P-21, Production Schedule: PB 2021 Navy		Date: February 2020
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)							
					Initial				Reorder			
		MSR For 2021	1-8-5 For 2021	MAX For 2021	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	40,000	70,000	137,000	24	3	12	15	0	0	0	0
2	ERAPSCO - Columbia City IN	6,000	7,500	24,000	24	1	12	13	0	0	0	0
3	ERAPSCO - Columbia City IN	4,000	15,000	18,000	24	5	12	17	0	0	0	0
4	ERAPSCO - Columbia City IN	10,000	15,000	20,000	24	2	12	14	0	0	0	0
5	Various (5) - Various	1,048	8,400	36,000	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:
(5) ERAPSCO, Columbia City IN and Lockheed Martin, Manassas VA

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Exhibit P-40, Budget Line Item Justification: PB 2021 Navy	Date: February 2020
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

Resource Summary	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	To Complete	Total
Procurement Quantity *(Units in Each)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost *($ in Millions)*	0.000	0.000	5.000	5.077	0.000	5.077	5.172	5.272	5.371	5.506	Continuing	Continuing
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	0.000	0.000	5.000	5.077	0.000	5.077	5.172	5.272	5.371	5.506	Continuing	Continuing
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**0.000**	**0.000**	**5.000**	**5.077**	**0.000**	**5.077**	**5.172**	**5.272**	**5.371**	**5.506**	**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:

Minotaur OPN provides for the 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 (TDPs) 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 (MAPP, formerly 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.

Exhibit P-40, Budget Line Item Justification: PB 2021 Navy		Date: February 2020
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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
Exhibit Type	Title*	Subexhibits	ID CD	MDAP/ MAIS Code	Quantity / Total Cost *(Each) I ($ M)*	Quantity / Total Cost *(Each) I ($ M)*	Quantity / Total Cost *(Each) I ($ M)*	Quantity / Total Cost *(Each) I ($ M)*	Quantity / Total Cost *(Each) I ($ M)*	Quantity / Total Cost *(Each) I ($ M)*
P-5	1 / Minotaur				- / 0.000	- / 0.000	- / 5.000	- / 5.077	- / 0.000	- / 5.077
P-40	**Total Gross/Weapon System Cost**				**- / 0.000**	**- / 0.000**	**- / 5.000**	**- / 5.077**	**- / 0.000**	**- / 5.077**

*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:
FY2021 funding provides support infrastructure and surface/shore unit of fielding Minotaur FOS Appliance in Sea-based and Shore-based for Targeting with Minotaur Reach/Web applications supporting server software. FY2021 funding commences integration, procurement, production and delivery of Minotaur FoS and SME for ship and shore-based installations. Will initiate production-level software releases to support resolution of defects, inclusion of new capability, and information assurance/cyber vulnerability changes for both ship and shore installations; obsolescence upgrades to pace the threat; and delivery of data products to support configuration of Minotaur Web on designated ships.

Exhibit P-5, Cost Analysis: PB 2021 Navy		Date: February 2020
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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
Procurement Quantity *(Units in Each)*	-	-	-	-	-	-
Gross/Weapon System Cost *($ in Millions)*	0.000	0.000	5.000	5.077	0.000	5.077
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	0.000	0.000	5.000	5.077	0.000	5.077
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**0.000**	**0.000**	**5.000**	**5.077**	**0.000**	**5.077**
(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 2019			FY 2020			FY 2021 Base			FY 2021 OCO			FY 2021 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	-	-	2.639	-	-	-	-	-	2.639
1.1.2) Shore-Based	-	-	-	-	-	-	-	-	0.867	-	-	0.875	-	-	-	-	-	0.875
Subtotal: Recurring Cost	-	-	-	-	-	-	-	-	*3.468*	-	-	*3.514*	-	-	-	-	-	*3.514*
Subtotal: Hardware Cost	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	***3.468***	**-**	**-**	***3.514***	**-**	**-**	**-**	**-**	**-**	***3.514***
Support Cost																		
2.1) Data	-	-	-	-	-	-	-	-	0.200	-	-	0.204	-	-	-	-	-	0.204
2.2) Training Equipment	-	-	-	-	-	-	-	-	0.500	-	-	0.510	-	-	-	-	-	0.510
2.3) Support Equipment	-	-	-	-	-	-	-	-	0.525	-	-	0.536	-	-	-	-	-	0.536
2.4) ILS	-	-	-	-	-	-	-	-	0.150	-	-	0.153	-	-	-	-	-	0.153
2.5) Other Support	-	-	-	-	-	-	-	-	0.157	-	-	0.160	-	-	-	-	-	0.160
Subtotal: Support Cost	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	***1.532***	**-**	**-**	***1.563***	**-**	**-**	**-**	**-**	**-**	***1.563***
Gross/Weapon System Cost	**-**	**-**	**0.000**	**-**	**-**	**0.000**	**-**	**-**	**5.000**	**-**	**-**	**5.077**	**-**	**-**	**0.000**	**-**	**-**	**5.077**

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Exhibit P-40, Budget Line Item Justification: PB 2021 Navy	Date: February 2020
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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	To Complete	Total
Procurement Quantity *(Units in Each)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost *($ in Millions)*	710.668	92.664	101.843	83.969	0.000	83.969	111.756	113.581	116.172	120.489	Continuing	Continuing
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	710.668	92.664	101.843	83.969	0.000	83.969	111.756	113.581	116.172	120.489	Continuing	Continuing
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**710.668**	**92.664**	**101.843**	**83.969**	**0.000**	**83.969**	**111.756**	**113.581**	**116.172**	**120.489**	**Continuing**	**Continuing**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)												
Initial Spares *($ in Millions)*	-	5.960	3.480	1.068	-	1.068	4.711	5.493	6.002	6.319	Continuing	Continuing
Flyaway Unit Cost *($ in Dollars)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Dollars)*	-	-	-	-	-	-	-	-	-	-	-	-

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

Exhibit P-40, Budget Line Item Justification: PB 2021 Navy		Date: February 2020
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 Subsystem]: 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 I 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 I systems have been procured and fielded. Procurements for Increment II systems with encrypted communication capability will begin in FY21.

[P5 / SC040 TCTS Shipboard Ground Subsystem]: 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 I systems have been procured and fielded. Procurements for Increment II systems with encrypted communication capability will begin in FY25.

[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.

Exhibit P-40, Budget Line Item Justification: PB 2021 Navy		Date: February 2020
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 / 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.

[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.

Exhibit P-40, Budget Line Item Justification: PB 2021 Navy	Date: February 2020
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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 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	P-5a			- / 710.668	- / 92.664	- / 101.843	- / 83.969	- / 0.000	- / 83.969
P-40	**Total Gross/Weapon System Cost**				**- / 710.668**	**- / 92.664**	**- / 101.843**	**- / 83.969**	**- / 0.000**	**- / 83.969**

*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 2021 funds fleet priorities for modernization efforts at Navy training ranges in support of fleet training wholeness.

Funds in FY 2021 for Ocean Systems will continue the effort to replace the in-water sensor system and shore electronics at the Barking Sands Tactical Underwater Range (BARSTUR) at Pacific Missile Range Facility (PMRF), HI. 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 BARSTUR effort will be a time-phased procurement exception to the full funding policy. Hardware buys will vary in cost from year to year to meet the Fleet's required date for Full Operational Capability (FOC). FY 2021 also funds a second complete Portable Undersea Training Range (PUTR) system.

The increase in FY 2021 for Tactical Combat Training System (TCTS) Increment II funds the procurement of six Ground Subsystems (GS) and five Remote Range Units (RRU) to provide encryption capability for Fleet training exercises. TCTS Inc II achieves MS-C in FY 2021 and converts from RDTEN 0204571N PU 3093 to OPN Line Item 4204 / Weapons Range Support Equipment & APN Line Item 0725 / Other Production Charges.

Electronic Warfare (EW) Threat Presentation fluctuates 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. Funds in FY 2021 will procure additional Encrypted Range Radios and additional Anti-Ship Cruise Missile (ASCM) Digital Radio Frequency Memory (DRFM) modules for use at the East and West Coast Opposition Force (OPFOR) Training areas.

Funds in FY 2021 for Live-Virtual-Constructive (LVC) will modify various East Coast Tactical Training Ranges (TTR) with voice communication and datalink equipment in support of LVC capabilities. Install distributed network capabilities at various West Coast TTR's, according to Fleet priorities, in support of LVC capabilities.

Exhibit P-5, Cost Analysis: PB 2021 Navy		Date: February 2020
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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
Procurement Quantity *(Units in Each)*	-	-	-	-	-	-
Gross/Weapon System Cost *($ in Millions)*	710.668	92.664	101.843	83.969	0.000	83.969
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	710.668	92.664	101.843	83.969	0.000	83.969
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**710.668**	**92.664**	**101.843**	**83.969**	**0.000**	**83.969**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)						
Initial Spares *($ in Millions)*	-	5.960	3.480	1.068	-	1.068
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 2019			FY 2020			FY 2021 Base			FY 2021 OCO			FY 2021 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)	-	-	178.803	-	-	9.860	-	-	9.848	-	-	9.486	-	-	-	-	-	9.486
Subtotal: Recurring Cost	-	-	*178.803*	-	-	*9.860*	-	-	*9.848*	-	-	*9.486*	-	-	-	-	-	*9.486*
Subtotal: Hardware - Systems Replacement and Modernization Cost	**-**	**-**	***178.803***	**-**	**-**	***9.860***	**-**	**-**	***9.848***	**-**	**-**	***9.486***	**-**	**-**	**-**	**-**	**-**	***9.486***
Hardware - Ocean Systems Cost																		
Recurring Cost																		
2.1.1) SC012 OS - Ocean Systems (2)	-	-	63.370	-	-	-	-	-	10.795	-	-	15.502	-	-	-	-	-	15.502
2.1.2) SC161 OS - East Coast USWTR (3)	-	-	142.665	-	-	16.594	-	-	15.068	-	-	6.784	-	-	-	-	-	6.784
Subtotal: Recurring Cost	-	-	*206.035*	-	-	*16.594*	-	-	*25.863*	-	-	*22.286*	-	-	-	-	-	*22.286*
Subtotal: Hardware - Ocean Systems Cost	**-**	**-**	***206.035***	**-**	**-**	***16.594***	**-**	**-**	***25.863***	**-**	**-**	***22.286***	**-**	**-**	**-**	**-**	**-**	***22.286***
Hardware - Large Area Tracking Range Cost																		
Recurring Cost																		
3.1.1) SC034 LATR Shipboard Rotary Technology Upgrade	-	-	3.308	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Exhibit P-5, Cost Analysis: PB 2021 Navy		Date: February 2020
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 2019			FY 2020			FY 2021 Base			FY 2021 OCO			FY 2021 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	-	-	*8.154*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: Hardware - Large Area Tracking Range Cost	**-**	**-**	***8.154***	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Hardware - Tactical Combat Training System Cost																		
Recurring Cost																		
4.1.1) SC158 TCTS Ground Subsystem(†) (4)	-	-	-	-	-	-	-	-	-	395,000.00	6	2.370	-	-	-	395,000.00	6	2.370
4.1.2) SC140 TCTS Remote Range Unit(†) (5)	-	-	-	-	-	-	-	-	-	168,000.00	5	0.840	-	-	-	168,000.00	5	0.840
Subtotal: Recurring Cost	-	-	-	-	-	-	-	-	-	-	-	*3.210*	-	-	-	-	-	*3.210*
Subtotal: Hardware - Tactical Combat Training System Cost	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	***3.210***	**-**	**-**	**-**	**-**	**-**	***3.210***
Hardware - Electronic Warfare Training Equipment Cost																		
Recurring Cost																		
5.1.1) SC105 EW - Threat Presentation (6)	-	-	111.096	-	-	36.268	-	-	38.405	-	-	19.395	-	-	-	-	-	19.395
Subtotal: Recurring Cost	-	-	*111.096*	-	-	*36.268*	-	-	*38.405*	-	-	*19.395*	-	-	-	-	-	*19.395*
Subtotal: Hardware - Electronic Warfare Training Equipment Cost	**-**	**-**	***111.096***	**-**	**-**	***36.268***	**-**	**-**	***38.405***	**-**	**-**	***19.395***	**-**	**-**	**-**	**-**	**-**	***19.395***
Hardware - Aerial Targets Range Support Equipment (PMA208) Cost																		
Recurring Cost																		
6.1.1) SC151 MLT Hardware (7)	-	-	16.034	-	-	0.302	-	-	1.817	-	-	1.504	-	-	-	-	-	1.504
6.1.2) SC152 MLT Engineering Change Proposals (8)	-	-	0.760	-	-	0.035	-	-	0.035	-	-	0.035	-	-	-	-	-	0.035
6.1.3) SC106 TTSP (9)	-	-	-	-	-	0.447	-	-	0.106	-	-	0.108	-	-	-	-	-	0.108
Subtotal: Recurring Cost	-	-	*16.794*	-	-	*0.784*	-	-	*1.958*	-	-	*1.647*	-	-	-	-	-	*1.647*
Subtotal: Hardware - Aerial Targets Range Support Equipment (PMA208) Cost	**-**	**-**	***16.794***	**-**	**-**	***0.784***	**-**	**-**	***1.958***	**-**	**-**	***1.647***	**-**	**-**	**-**	**-**	**-**	***1.647***

Exhibit P-5, Cost Analysis: PB 2021 Navy		Date: February 2020
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 2019			FY 2020			FY 2021 Base			FY 2021 OCO			FY 2021 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 - Live-Virtual-Constructive Cost																		
Recurring Cost																		
7.1.1) SC711 LVC Range Integration (10)	-	-	2.098	-	-	8.049	-	-	11.214	-	-	9.863	-	-	-	-	-	9.863
Subtotal: Recurring Cost	-	-	*2.098*	-	-	*8.049*	-	-	*11.214*	-	-	*9.863*	-	-	-	-	-	*9.863*
Subtotal: Hardware - Live-Virtual-Constructive Cost	**-**	**-**	***2.098***	**-**	**-**	***8.049***	**-**	**-**	***11.214***	**-**	**-**	***9.863***	**-**	**-**	**-**	**-**	**-**	***9.863***
Software - SC158 TCTS Block Upgrade Cost																		
Recurring Cost																		
8.1.1) SC158 - TCTS Block Upgrade	-	-	7.131	-	-	0.700	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: Recurring Cost	-	-	*7.131*	-	-	*0.700*	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: Software - SC158 TCTS Block Upgrade Cost	**-**	**-**	***7.131***	**-**	**-**	***0.700***	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Support - Production Support Cost																		
9.1) SC820 Ocean Systems (11)	-	-	7.645	-	-	2.330	-	-	2.496	-	-	2.917	-	-	-	-	-	2.917
9.2) SC820 LATR	-	-	0.539	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
9.3) SC820 TCTS (12)	-	-	1.107	-	-	0.976	-	-	-	-	-	0.181	-	-	-	-	-	0.181
9.4) SC820 EW	-	-	1.534	-	-	2.098	-	-	1.971	-	-	2.011	-	-	-	-	-	2.011
9.5) SC820 LVC Range Integration (13)	-	-	0.100	-	-	0.147	-	-	-	-	-	0.392	-	-	-	-	-	0.392
Subtotal: Support - Production Support Cost	**-**	**-**	***10.925***	**-**	**-**	***5.551***	**-**	**-**	***4.467***	**-**	**-**	***5.501***	**-**	**-**	**-**	**-**	**-**	***5.501***
Support - Production Engineering Cost																		
10.1) SC831 SRAM (14)	-	-	12.434	-	-	3.161	-	-	1.560	-	-	1.580	-	-	-	-	-	1.580
10.2) SC831 Ocean Systems (15)	-	-	32.265	-	-	6.260	-	-	5.202	-	-	6.625	-	-	-	-	-	6.625
10.3) SC831 LATR	-	-	1.081	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10.4) SC831 TCTS (16)	-	-	21.264	-	-	2.077	-	-	-	-	-	0.441	-	-	-	-	-	0.441
10.5) SC831 EW (17)	-	-	24.746	-	-	1.025	-	-	1.045	-	-	1.066	-	-	-	-	-	1.066
10.6) SC832 MLT	-	-	1.872	-	-	0.328	-	-	0.437	-	-	0.445	-	-	-	-	-	0.445
10.7) SC831 LVC Range Integration (18)	-	-	-	-	-	0.444	-	-	0.558	-	-	0.724	-	-	-	-	-	0.724
10.8) SC831 Prior Years	-	-	67.969	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Exhibit P-5, Cost Analysis: PB 2021 Navy		Date: February 2020
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 2019			FY 2020			FY 2021 Base			FY 2021 OCO			FY 2021 Total		
	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)
Subtotal: Support - Production Engineering Cost	-	-	***161.631***	-	-	***13.295***	-	-	***8.802***	-	-	***10.881***	-	-	-	-	-	***10.881***
Support - Acceptance Testing Cost																		
11.1) SC860 SRAM	-	-	1.906	-	-	0.326	-	-	0.250	-	-	0.245	-	-	-	-	-	0.245
11.2) SC860 Ocean Systems (19)	-	-	2.094	-	-	0.337	-	-	0.301	-	-	0.303	-	-	-	-	-	0.303
11.3) SC860 LATR	-	-	0.025	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11.4) SC860 TCTS (20)	-	-	0.233	-	-	0.179	-	-	-	-	-	0.196	-	-	-	-	-	0.196
11.5) SC860 EW	-	-	0.200	-	-	0.721	-	-	0.735	-	-	0.750	-	-	-	-	-	0.750
11.6) SC860 LVC Range Integration (21)	-	-	-	-	-	-	-	-	-	-	-	0.206	-	-	-	-	-	0.206
11.7) SC860 Prior Years	-	-	3.543	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: Support - Acceptance Testing Cost	-	-	***8.001***	-	-	***1.563***	-	-	***1.286***	-	-	***1.700***	-	-	-	-	-	***1.700***
Gross/Weapon System Cost	-	-	**710.668**	-	-	**92.664**	-	-	**101.843**	-	-	**83.969**	-	-	**0.000**	-	-	**83.969**

(†) indicates the presence of a P-5a

Footnotes:

(1) SC004 SRAM: Systems Replacement and Modernization: The increase in FY 2021 funds fleet priorities for modernization efforts at Navy training ranges in support of fleet training wholeness.

(2) SC012 Ocean Systems: The increase in FY 2021 funds a replacement of the in-water sensor system and shore electronics at the Barking Sands Tactical Underwater Range (BARSTUR) at Pacific Missile Range Facility (PMRF), HI. 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 BARSTUR effort will be a time- phased procurement exception to the full funding policy. Hardware buys will vary in cost from year to year to meet the Fleet's required date for Full Operational Capability (FOC). FY 2021 also funds a second complete Portable Undersea Training Range (PUTR) system.

(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) SC158 TCTS Ground Subsystem: The increase in TCTS Increment II in FY 2021 funds the procurement of six Ground Subsystems (GS) to provide encryption capability for Fleet training exercises.

(5) SC140 TCTS Remote Range Unit: The increase in TCTS Increment II in FY 2021 funds the procurement of five Remote Range Units (RRU) to provide encryption capability for Fleet training exercises.

(6) 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. Funds in FY 2021 will procure additional Encrypted Range Radios and additional Anti-Ship Cruise Missile (ASCM) Digital Radio Frequency Memory (DRFM) modules for use at the East and West Coast Opposition Force (OPFOR) Training areas.

Exhibit P-5, Cost Analysis: PB 2021 Navy		Date: February 2020
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:	

(7) 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.

(8) 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.

(9) 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.

(10) SC711 LVC Range Integration: FY 2021 funds the modification of various East Coast Tactical Training Ranges (TTR) with voice communication and datalink equipment in support of Live Virtual Constructive (LVC) capabilities. Install distributed network capabilities at various West Coast TTR's, according to Fleet priorities, in support of LVC capabilities.

(11) SC820 Ocean Systems: The increase in FY 2021 funds the additional production support required for the Barking Sands Tactical Underwater Range (BARSTUR) effort at Pacific Missile Range Facility (PMRF), HI.

(12) SC820 TCTS: The increase in FY 2021 for Tactical Combat Training System (TCTS) Increment II funds the initial year of production support for the procurement of six Ground Subsystems (GS) and five Remote Range Units (RRU) to provide encryption capability for Fleet training exercises.

(13) SC820 LVC Range Integration: The increase in FY 2021 funds the additional production support required for the modification of various East Coast Tactical Training Ranges (TTR) with voice communication and datalink equipment in support of Live Virtual Constructive (LVC) capabilities.

(14) SC831 SRAM: Production Engineering includes costs previously broken out under a separate line as Integrated Logistics Support. Consolidation increases Program Office efficiency and better aligns program technical support costs in accordance with DoD Financial Management Regulations (FMR) guidance.

(15) SC831 Ocean Systems: Production Engineering includes costs previously broken out under a separate line as Integrated Logistics Support. Consolidation increases Program Office efficiency and better aligns program technical support costs in accordance with DoD Financial Management Regulations (FMR) guidance. The increase in FY 2021 funds the additional production engineering support required for the Barking Sands Tactical Underwater Range (BARSTUR) effort at Pacific Missile Range Facility (PMRF), HI.

(16) SC831 TCTS: Production Engineering includes costs previously broken out under a separate line as Integrated Logistics Support. Consolidation increases Program Office efficiency and better aligns program technical support costs in accordance with DoD Financial Management Regulations (FMR) guidance. The increase in FY 2021 for Tactical Combat Training System (TCTS) Increment II funds the initial year of engineering support for the procurement of six Ground Subsystems (GS) and five Remote Range Units (RRU) to provide encryption capability for Fleet training exercises.

(17) SC831 EW: Production Engineering includes costs previously broken out under a separate line as Integrated Logistics Support. Consolidation increases Program Office efficiency and better aligns program technical support costs in accordance with DoD Financial Management Regulations (FMR) guidance.

(18) SC831 LVC Range Integration: Production Engineering includes costs previously broken out under a separate line as Integrated Logistics Support. Consolidation increases Program Office efficiency and better aligns program technical support costs in accordance with DoD Financial Management Regulations (FMR) guidance. The increase in FY 2021 funds the additional production engineering support required for the modification of various East Coast Tactical Training Ranges (TTR) with voice communication and datalink equipment in support of Live Virtual Constructive (LVC) capabilities.

(19) SC860 Ocean Systems: The increase in FY 2021 funds the additional test support required for the Barking Sands Tactical Underwater Range (BARSTUR) effort at Pacific Missile Range Facility (PMRF), HI.

(20) SC820 TCTS: The increase in FY 2021 for Tactical Combat Training System (TCTS) Increment II funds the initial year of test support for the procurement of six Ground Subsystems (GS) and five Remote Range Units (RRU) to provide encryption capability for Fleet training exercises.

(21) SC860 LVC Range Integration: The increase in FY 2021 funds the additional test support required for the modification of various East Coast Tactical Training Ranges (TTR) with voice communication and datalink equipment in support of Live Virtual Constructive (LVC) capabilities.

Exhibit P-5a, Procurement History and Planning: PB 2021 Navy		Date: February 2020
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

Cost Elements	OCO	FY	Contractor and Location	Method/Type or Funding Vehicle	Location of PCO	Award Date	Date of First Delivery	Qty (Each)	Unit Cost ($)	Specs Avail Now?	Date Revision Available	RFP Issue Date
4.1.1) SC158 TCTS Ground Subsystem		2021	Collins Aerospace / Cedar Rapids, IA	C / FPIF	NAWCTSD	Apr 2021	Oct 2021	6	395,000.00	Y		Oct 2020
4.1.2) SC140 TCTS Remote Range Unit		2021	Collins Aerospace / Cedar Rapids, IA	C / FPIF	NAWCTSD	Apr 2021	Oct 2021	5	168,000.00	Y		Oct 2020

Exhibit P-40, Budget Line Item Justification: PB 2021 Navy	Date: February 2020
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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	To Complete	Total
Procurement Quantity *(Units in Each)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost *($ in Millions)*	401.860	105.693	187.926	187.758	60.217	247.975	214.070	334.429	184.828	145.928	Continuing	Continuing
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	401.860	105.693	187.926	187.758	60.217	247.975	214.070	334.429	184.828	145.928	Continuing	Continuing
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**401.860**	**105.693**	**187.926**	**187.758**	**60.217**	**247.975**	**214.070**	**334.429**	**184.828**	**145.928**	**Continuing**	**Continuing**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)												
Initial Spares *($ in Millions)*	-	2.597	2.059	2.160	-	2.160	1.538	1.500	2.637	1.790	Continuing	Continuing
Flyaway Unit Cost *($ in Dollars)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Dollars)*	-	-	-	-	-	-	-	-	-	-	-	-

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.

Exhibit P-40, Budget Line Item Justification: PB 2021 Navy		Date: February 2020
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.

[P5 - 4 / Natural Disaster Recovery]: Severe earthquakes in the Ridgecrest, CA area impacted Naval Air Warfare Station (NAWS) China Lake on 4 July (magnitude 6.4) and 5 July (magnitude 7.1) 2019. As a result, NAWS experienced severe damage to equipment within buildings, magazines, airfield pavements, other structures, and infrastructure. Numerous facilities were either partially damaged or rendered uninhabitable. Restoration efforts identified buildings, structures, and equipment that either require repair or complete replacement.

[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.

Exhibit P-40, Budget Line Item Justification: PB 2021 Navy	Date: February 2020
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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 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			- / 27.164	- / 8.484	- / 25.894	- / 9.245	- / 60.217	- / 69.462
P-5	2 / Acft Rearming Equip	P-5a, P-21			- / 46.477	- / 11.790	- / 12.058	- / 12.151	- / 0.000	- / 12.151
P-5	3 / Air Launch & Recovery Equip				- / 125.613	- / 39.965	- / 52.047	- / 54.517	- / 0.000	- / 54.517
P-5	4 / Natural Disaster Recovery				- / 0.000	- / 0.000	- / 39.295	- / 50.871	- / 0.000	- / 50.871
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)				- / 106.579	- / 17.064	- / 19.378	- / 19.827	- / 0.000	- / 19.827
P-3a	3 / ALRE - Electromagnetic Aircraft Launch System (EMALS) (SJ306) (Reliability and Maintainability)				- / 5.772	- / 6.453	- / 13.882	- / 5.553	- / 0.000	- / 5.553
P-3a	4 / LAMPS MK III - SRQ(KU)-4 (S1010) (Non-Organic)				- / 74.681	- / 21.937	- / 25.372	- / 35.594	- / 0.000	- / 35.594
P-40	**Total Gross/Weapon System Cost**				**- / 401.860**	**- / 105.693**	**- / 187.926**	**- / 187.758**	**- / 60.217**	**- / 247.975**

Exhibits Schedule					FY 2022	FY 2023	FY 2024	FY 2025	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 / Acft Rearming Equip	P-5a, P-21			- / -	- / -	- / -	- / -	- / -	- / -
P-5	3 / Air Launch & Recovery Equip				- / -	- / -	- / -	- / -	- / -	- / -
P-5	4 / Natural Disaster Recovery				- / -	- / -	- / -	- / -	- / -	- / -
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)				- / 18.691	- / 30.678	- / 35.592	- / 43.155	Continuing	Continuing
P-3a	3 / ALRE - Electromagnetic Aircraft Launch System (EMALS) (SJ306) (Reliability and Maintainability)				- / 4.975	- / 14.689	- / 4.129	- / 4.212	Continuing	Continuing
P-3a	4 / LAMPS MK III - SRQ(KU)-4 (S1010) (Non-Organic)				- / 18.247	- / 16.797	- / 17.535	- / 14.075	Continuing	Continuing
P-40	**Total Gross/Weapon System Cost**				**- / 214.070**	**- / 334.429**	**- / 184.828**	**- / 145.928**	**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 2021 baseline funding is required for EAF Surfacing equipment, EAF Lighting Equipment, EAF Arresting Gear, associated ECPs and supports 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. The decrease from FY 2020 to FY 2021 is due to the inclusion of $13.420M of OCO funding and a $4M reprogramming effort to support the USMC.

Exhibit P-40, Budget Line Item Justification: PB 2021 Navy		Date: February 2020
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 Rearming Equipment - FY 2021 baseline funding is required for MHU-191/M CILOP, MHU-126/202 Trailer Replacement, USMC A/S32K-1E Weapons Loader Replacement, and associated support costs.

Aircraft Launch and Recovery Equipment (ALRE) - FY 2021 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 2021 baseline funding is required for the procurement of 16 AN/SRQ-4(Ku) field install kits and associated support and installation costs to meet the ship yard availability plan.

Natural Disaster Recovery - FY 2021 funding is required to outfit, update, recalibrate, and replace peculiar support equipment needed to restore mission capability due to severe earthquakes in the Ridgecrest, CA area which impacted Naval Air Warfare Station (NAWS) China Lake.

OCO:
Expeditionary Airfields (EAF) - FY 2021 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).

Exhibit P-5, Cost Analysis: PB 2021 Navy		Date: February 2020
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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
Procurement Quantity *(Units in Each)*	-	-	-	-	-	-
Gross/Weapon System Cost *($ in Millions)*	27.164	8.484	25.894	9.245	60.217	69.462
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	27.164	8.484	25.894	9.245	60.217	69.462
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**27.164**	**8.484**	**25.894**	**9.245**	**60.217**	**69.462**
(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 2019			FY 2020			FY 2021 Base			FY 2021 OCO			FY 2021 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)	7,153.85	91	0.651	8,493.00	87	0.739	8,493.00	998	8.476	8,274.00	184	1.522	8,274.00	3,980	32.931	8,274.00	4,164	34.453
1.1.2) AM-2 Matting (F73)(†)	9,400.00	5	0.047	11,944.00	3	0.036	11,944.00	3	0.036	11,641.00	4	0.047	-	-	0.000	11,641.00	4	0.047
1.1.3) AM-2 Matting (F71)(†)	11,379.45	253	2.879	13,508.00	69	0.932	13,508.00	302	4.079	13,091.00	42	0.550	13,091.00	990	12.960	13,091.00	1,032	13.510
1.1.4) AM-2 Accessory Packs (1) (2)	-	-	1.150	-	-	0.398	-	-	2.981	-	-	0.512	-	-	2.295	-	-	2.807
1.1.5) Surfacing engineering change proposals (3)	-	-	6.482	-	-	2.107	-	-	1.948	-	-	1.922	-	-	0.000	-	-	1.922
Subtotal: Recurring Cost	-	-	*11.209*	-	-	*4.212*	-	-	*17.520*	-	-	*4.553*	-	-	*48.186*	-	-	*52.739*
Subtotal: Hardware - (SE010) EAF Surfacing Equipment Cost	**-**	**-**	***11.209***	**-**	**-**	***4.212***	**-**	**-**	***17.520***	**-**	**-**	***4.553***	**-**	**-**	***48.186***	**-**	**-**	***52.739***
Hardware - (SE860) Acceptance Testing and Evaluation - Surfacing Cost																		
Recurring Cost																		
2.1.1) EAF Surfacing Equipment	-	-	1.301	-	-	0.368	-	-	0.369	-	-	0.352	-	-	0.000	-	-	0.352
Subtotal: Recurring Cost	-	-	*1.301*	-	-	*0.368*	-	-	*0.369*	-	-	*0.352*	-	-	*0.000*	-	-	*0.352*
Subtotal: Hardware - (SE860) Acceptance Testing	**-**	**-**	***1.301***	**-**	**-**	***0.368***	**-**	**-**	***0.369***	**-**	**-**	***0.352***	**-**	**-**	***0.000***	**-**	**-**	***0.352***

Exhibit P-5, Cost Analysis: PB 2021 Navy		Date: February 2020
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 2019			FY 2020			FY 2021 Base			FY 2021 OCO			FY 2021 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 [4]	-	-	1.362	-	-	0.000	-	-	3.708	-	-	0.000	-	-	12.031	-	-	12.031
3.1.2) Lighting Engineering Change Proposals [5]	-	-	5.226	-	-	1.978	-	-	2.315	-	-	2.300	-	-	0.000	-	-	2.300
Subtotal: Recurring Cost	-	-	*6.588*	-	-	*1.978*	-	-	*6.023*	-	-	*2.300*	-	-	*12.031*	-	-	*14.331*
Subtotal: Hardware - (SE010) EAF Lighting Equipment Cost	**-**	**-**	***6.588***	**-**	**-**	***1.978***	**-**	**-**	***6.023***	**-**	**-**	***2.300***	**-**	**-**	***12.031***	**-**	**-**	***14.331***
Hardware - Acceptance Testing - Lighting Cost																		
Recurring Cost																		
4.1.1) EAF Lighting Equipment [6]	-	-	1.302	-	-	0.170	-	-	0.185	-	-	0.163	-	-	0.000	-	-	0.163
Subtotal: Recurring Cost	-	-	*1.302*	-	-	*0.170*	-	-	*0.185*	-	-	*0.163*	-	-	*0.000*	-	-	*0.163*
Subtotal: Hardware - Acceptance Testing - Lighting Cost	**-**	**-**	***1.302***	**-**	**-**	***0.170***	**-**	**-**	***0.185***	**-**	**-**	***0.163***	**-**	**-**	***0.000***	**-**	**-**	***0.163***
Hardware - (SE0210) EAF Arresting Gear Cost																		
Recurring Cost																		
5.1.1) M-31 Engineering Change Proposals [7]	-	-	1.515	-	-	0.479	-	-	0.489	-	-	0.525	-	-	0.000	-	-	0.525
Subtotal: Recurring Cost	-	-	*1.515*	-	-	*0.479*	-	-	*0.489*	-	-	*0.525*	-	-	*0.000*	-	-	*0.525*
Subtotal: Hardware - (SE0210) EAF Arresting Gear Cost	**-**	**-**	***1.515***	**-**	**-**	***0.479***	**-**	**-**	***0.489***	**-**	**-**	***0.525***	**-**	**-**	***0.000***	**-**	**-**	***0.525***
Hardware - Acceptance Testing - Arresting Gear Cost																		
Recurring Cost																		
6.1.1) EAF Arresting Gear [8]	-	-	0.364	-	-	0.039	-	-	0.048	-	-	0.067	-	-	0.000	-	-	0.067
Subtotal: Recurring Cost	-	-	*0.364*	-	-	*0.039*	-	-	*0.048*	-	-	*0.067*	-	-	*0.000*	-	-	*0.067*
Subtotal: Hardware - Acceptance Testing - Arresting Gear Cost	**-**	**-**	***0.364***	**-**	**-**	***0.039***	**-**	**-**	***0.048***	**-**	**-**	***0.067***	**-**	**-**	***0.000***	**-**	**-**	***0.067***
Support - (SE800) Integrated Logistics Cost																		

Exhibit P-5, Cost Analysis: PB 2021 Navy		Date: February 2020
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 2019			FY 2020			FY 2021 Base			FY 2021 OCO			FY 2021 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	-	-	1.852	-	-	0.437	-	-	0.434	-	-	0.442	-	-	0.000	-	-	0.442
7.2) EAF Lighting Equipment (9)	-	-	0.266	-	-	0.044	-	-	0.051	-	-	0.053	-	-	0.000	-	-	0.053
7.3) EAF Arresting Gear (10)	-	-	0.268	-	-	0.042	-	-	0.046	-	-	0.049	-	-	0.000	-	-	0.049
Subtotal: Support - (SE800) Integrated Logistics Cost	**-**	**-**	***2.386***	**-**	**-**	***0.523***	**-**	**-**	***0.531***	**-**	**-**	***0.544***	**-**	**-**	***0.000***	**-**	**-**	***0.544***
Support - (SE830) Production Engineering Cost																		
8.1) EAF Surfacing Equipment	-	-	1.484	-	-	0.485	-	-	0.495	-	-	0.497	-	-	0.000	-	-	0.497
8.2) EAF Lighting Equipment	-	-	0.460	-	-	0.071	-	-	0.069	-	-	0.065	-	-	0.000	-	-	0.065
8.3) EAF Arresting Gear (11)	-	-	0.555	-	-	0.159	-	-	0.165	-	-	0.179	-	-	0.000	-	-	0.179
Subtotal: Support - (SE830) Production Engineering Cost	**-**	**-**	***2.499***	**-**	**-**	***0.715***	**-**	**-**	***0.729***	**-**	**-**	***0.741***	**-**	**-**	***0.000***	**-**	**-**	***0.741***
Gross/Weapon System Cost	**-**	**-**	**27.164**	**-**	**-**	**8.484**	**-**	**-**	**25.894**	**-**	**-**	**9.245**	**-**	**-**	**60.217**	**-**	**-**	**69.462**

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) 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. FY 2020 includes OCO funding. 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. Previously, unit costs for AM-2 Matting remained constant in FY18 and prior due to the contract that was in place. A new contract for AM-2 Matting was awarded in May 2019 and will show increases in unit costs each year, mostly driven by inflation and the fluctuating rate in a given FY for the price of aluminum.

Exhibit P-5, Cost Analysis: PB 2021 Navy		Date: February 2020
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:**	

(2) AM-2 Accessory Packs (1.1.4) AM-2 Accessory Packs 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. FY 2020 includes OCO funding.

(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) 3.1.1) EAF Lighting Equipment - FY 2021 includes OCO funding.

(5) Lighting Engineering Change Proposals (3.1.2) address the obsolescence and reliability of an aging legacy system. The ECP work for the Legacy Lighting System and Minimum Operating Strip Lighting System (MOSLS) provides upgrades to obsolescent incandescent bulbs, unreliable battery systems, poor mobility, and other deficiencies. Obsolescence issues have increased the need of an ECP to correct and allow for sustainability and capability the fleet. These ECPs 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.

(6) Lighting Equipment Acceptance Test & Evaluation (4.1.1) address the Acceptance Testing required to support multiple Lighting ECPs; specifically the Minimum Operating Strip Lighting System (MOSLS) ECP to undergo acceptance testing to finalize the ECP and allow procurement of MOSLS ECP hardware kits.

(7) M-31 Engineering Change Proposals (5.1.1) supports the aging M-31 Marine Corps Expeditionary Arresting Gear System (MCEAGS) by providing ECP Hardware and engineering support to improve readiness, increase safety, and replacement of obsolescent assemblies. FY 2020 - 2024 increases in Hardware are to support the M-31 Coral Anchoring ECP to support pacific deployments and the M-31 Hard Soil Anchoring Reconfiguration ECP. These ECPs will help meet HQMC capability gap for quicker embarkment and installation requirements of forward deployed Expeditionary Airfields.

(8) EAF Arresting Gear (6.1.1) increase in FY 2021 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 coral 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.

(9) 7.2) EAF Lighting Equipment ILS - The increase in FY 2020 - FY 2021 provides logistics support for the Legacy Lighting System and Minimum Operating Strip Lighting System (MOSLS) ECPs.

(10) 7.3) EAF Arresting Gear ILS - The increase in FY 2020 - FY 2021 is to provide logistics support for M-31 Marine Corps Expeditionary Arresting Gear System (MCEAGS) ECPs.

(11) 8.3) EAF Arresting Gear PE - The increase in FY 2020 - FY 2021 is to provide production engineering support for the M-31 Marine Corps Expeditionary Arresting Gear System (MCEAGS) ECPs.

Exhibit P-5a, Procurement History and Planning: PB 2021 Navy		Date: February 2020
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	OCO	FY	Contractor and Location	Method/Type or Funding Vehicle	Location of PCO	Award Date	Date of First Delivery	Qty (Each)	Unit Cost ($)	Specs Avail Now?	Date Revision Available	RFP Issue Date
1.1.1) AM-2-Matting (F72)(†)		2019	ALFAB / Enterprise, AL	C / FFP	LKE	May 2019	Nov 2019	87	8,493.00	Y		Apr 2018
1.1.1) AM-2-Matting (F72)(†)		2020	ALFAB / Enterprise, AL	C / FFP	LKE	Nov 2019	May 2020	384	8,493.00	Y		Apr 2018
1.1.1) AM-2-Matting (F72)(†)	✓	2020	ALFAB / Enterprise, AL	C / FFP	LKE	Nov 2019	May 2020	614	8,493.00	Y		Apr 2018
1.1.1) AM-2-Matting (F72)(†)		2021	ALFAB / Enterprise, AL	C / FFP	LKE	Nov 2020	May 2021	184	8,274.00	Y		Apr 2018
1.1.1) AM-2-Matting (F72)(†)	✓	2021	ALFAB / Enterprise, AL	C / FFP	LKE	Nov 2020	May 2021	3,980	8,274.00	Y		Apr 2018
1.1.2) AM-2 Matting (F73)		2019	ALFAB / Enterprise, AL	C / FFP	LKE	May 2019	Nov 2019	3	11,944.00	Y		Apr 2018
1.1.2) AM-2 Matting (F73)		2020	ALFAB / Enterprise, AL	C / FFP	LKE	Nov 2019	May 2020	3	11,944.00	Y		Apr 2018
1.1.2) AM-2 Matting (F73)		2021	ALFAB / Enterprise, AL	C / FFP	LKE	Nov 2020	May 2021	4	11,641.00	Y		Apr 2018
1.1.3) AM-2 Matting (F71)(†)		2019	ALFAB / Enterprise, AL	C / FFP	LKE	May 2019	Nov 2019	69	13,508.00	Y		Apr 2018
1.1.3) AM-2 Matting (F71)(†)		2020	ALFAB / Enterprise, AL	C / FFP	LKE	Nov 2019	May 2020	156	13,508.00	Y		Apr 2018
1.1.3) AM-2 Matting (F71)(†)	✓	2020	ALFAB / Enterprise, AL	C / FFP	LKE	Nov 2019	May 2020	146	13,508.00	Y		Apr 2018
1.1.3) AM-2 Matting (F71)(†)		2021	ALFAB / Enterprise, AL	C / FFP	LKE	Nov 2020	May 2021	42	13,091.00	Y		Apr 2018
1.1.3) AM-2 Matting (F71)(†)	✓	2021	ALFAB / Enterprise, AL	C / FFP	LKE	Nov 2020	May 2021	990	13,091.00	Y		Apr 2018

(†) indicates the presence of a P-21

Exhibit P-21, Production Schedule: PB 2021 Navy | **Date:** February 2020

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
										Calendar Year 2019												Calendar Year 2020									
OCO	MFR #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2018	BAL DUE AS OF 1 OCT	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) AM-2-Matting (F72) (1)																															
Prior Years Deliveries: 91																															
	1	2019	NAVY	87	0	87								A -	-	-	-	-	-	87											0
	1	2020	NAVY	384	0	384														A -	-	-	-	-	-	218	166				0
✓	1	2020	NAVY	614	0	614														A -	-	-	-	-	-	250	250	114			0
	1	2021	NAVY	184	0	184																									184
✓	1	2021	NAVY	3,980 (12)	0	3,980																									3,980
1.1.3) AM-2 Matting (F71)																															
Prior Years Deliveries: 253																															
	2	2019	NAVY	69	0	69								A -	-	-	-	-	-	69											0
	2	2020	NAVY	156	0	156														A -	-	-	-	-	-	156					0
✓	2	2020	NAVY	146	0	146														A -	-	-	-	-	-	146					0
	2	2021	NAVY	42	0	42																									42
✓	2	2021	NAVY	990	0	990																									990
							OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	

Exhibit P-21, Production Schedule: PB 2021 Navy | **Date:** February 2020

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 2021												Fiscal Year 2022												BALANCE
										Calendar Year 2021												Calendar Year 2022									
OCO	MFR #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2020	BAL DUE AS OF 1 OCT	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) AM-2-Matting (F72) (1)																															
Prior Years Deliveries: 91																															
	1	2019	NAVY	87	87	0																									0
	1	2020	NAVY	384	384	0																									0
✓	1	2020	NAVY	614	614	0																									0
	1	2021	NAVY	184	0	184		A -	-	-	-	-	-	184																	0
✓	1	2021	NAVY	3,980 (12)	0	3,980		A -	-	-	-	-	-	331	331	331	331	332	332	332	332	332	332	332	332						0
1.1.3) AM-2 Matting (F71)																															
Prior Years Deliveries: 253																															
	2	2019	NAVY	69	69	0																									0
	2	2020	NAVY	156	156	0																									0
✓	2	2020	NAVY	146	146	0																									0
	2	2021	NAVY	42	0	42		A -	-	-	-	-	-	42																	0
✓	2	2021	NAVY	990	0	990		A -	-	-	-	-	-	256	256	256	222														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	

Exhibit P-21, Production Schedule: PB 2021 Navy		**Date:** February 2020
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)							
					Initial				Reorder			
		MSR For 2021	1-8-5 For 2021	MAX For 2021	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	ALFAB - Enterprise, AL	256	256	4,164	0	8	6	14	0	2	6	8
2	ALFAB - Enterprise, AL	256	256	3,072	0	8	6	14	0	2	6	8

"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:
(12) Production Rates refer to the production and delivery of AM2 F71, F72 and F73s.

Exhibit P-5, Cost Analysis: PB 2021 Navy		Date: February 2020
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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
Procurement Quantity *(Units in Each)*	-	-	-	-	-	-
Gross/Weapon System Cost *($ in Millions)*	46.477	11.790	12.058	12.151	0.000	12.151
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	46.477	11.790	12.058	12.151	0.000	12.151
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**46.477**	**11.790**	**12.058**	**12.151**	**0.000**	**12.151**
(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 2019			FY 2020			FY 2021 Base			FY 2021 OCO			FY 2021 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) (13)	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) (14)	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(†)	5,709.10	2,066	11.795	6,494.59	600	3.897	6,624.49	600	3.975	6,756.48	500	3.378	-	-	0.000	6,756.48	500	3.378
2.1.3) SH045 - MHU-126/202 TRLR REPLACEMENT - (MHU-230/M)(†)	250,000.00	4	1.000	-	-	0.000	20,000.00	80	1.600	20,463.00	80	1.637	-	-	0.000	20,463.00	80	1.637

Exhibit P-5, Cost Analysis: PB 2021 Navy		Date: February 2020
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 2019			FY 2020			FY 2021 Base			FY 2021 OCO			FY 2021 Total		
	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)
Subtotal: Recurring Cost	-	-	*27.118*	-	-	*3.897*	-	-	*5.575*	-	-	*5.015*	-	-	*0.000*	-	-	*5.015*
Subtotal: Hardware - HARDWARE - Ordnance Transport Cost	**-**	**-**	***27.118***	**-**	**-**	***3.897***	**-**	**-**	***5.575***	**-**	**-**	***5.015***	**-**	**-**	***0.000***	**-**	**-**	***5.015***
Hardware - HARDWARE - Ordnance Loading Cost																		
Recurring Cost																		
3.1.1) SH046 - USMC A/S32K-1E WEAPONS LOADER REPLACEMENT(†)	99,538.46	26	2.588	139,791.00	24	3.355	137,705.00	34	4.682	129,975.00	41	5.329	-	-	0.000	129,975.00	41	5.329
3.1.3) SH049 - FARP ORDNANCE LOADING SE(†)	159,000.00	1	0.159	159,000.00	14	2.226	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000
Subtotal: Recurring Cost	-	-	*2.747*	-	-	*5.581*	-	-	*4.682*	-	-	*5.329*	-	-	*0.000*	-	-	*5.329*
Subtotal: Hardware - HARDWARE - Ordnance Loading Cost	**-**	**-**	***2.747***	**-**	**-**	***5.581***	**-**	**-**	***4.682***	**-**	**-**	***5.329***	**-**	**-**	***0.000***	**-**	**-**	***5.329***
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	-	-	3.241	-	-	0.000	-	-	0.250	-	-	0.100	-	-	0.000	-	-	0.100
4.1.3) Ordnance Loading (15)	-	-	2.276	-	-	0.304	-	-	0.155	-	-	0.100	-	-	0.000	-	-	0.100
Subtotal: Non Recurring Cost	-	-	*5.632*	-	-	*0.304*	-	-	*0.405*	-	-	*0.200*	-	-	*0.000*	-	-	*0.200*
Subtotal: Hardware - SH920 NON-RECURRING Cost	**-**	**-**	***5.632***	**-**	**-**	***0.304***	**-**	**-**	***0.405***	**-**	**-**	***0.200***	**-**	**-**	***0.000***	**-**	**-**	***0.200***
Hardware - SH010 ECP Cost																		
Recurring Cost																		
5.1.1) Ordnance Transport ECP (16)	-	-	2.374	-	-	0.089	-	-	0.070	-	-	0.120	-	-	0.000	-	-	0.120
5.1.2) Ordnance Loading ECP (17)	-	-	0.315	-	-	0.090	-	-	0.072	-	-	0.140	-	-	0.000	-	-	0.140
Subtotal: Recurring Cost	-	-	*2.689*	-	-	*0.179*	-	-	*0.142*	-	-	*0.260*	-	-	*0.000*	-	-	*0.260*
Subtotal: Hardware - SH010 ECP Cost	**-**	**-**	***2.689***	**-**	**-**	***0.179***	**-**	**-**	***0.142***	**-**	**-**	***0.260***	**-**	**-**	***0.000***	**-**	**-**	***0.260***
Hardware - SH860 Acceptance Test & Eval Cost																		

Exhibit P-5, Cost Analysis: PB 2021 Navy		Date: February 2020
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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 2019			FY 2020			FY 2021 Base			FY 2021 OCO			FY 2021 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)
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	-	-	0.643	-	-	0.277	-	-	0.200	-	-	0.242	-	-	0.000	-	-	0.242
6.1.3) Ordnance Loading Acceptance Testing	-	-	0.809	-	-	0.306	-	-	0.198	-	-	0.197	-	-	0.000	-	-	0.197
Subtotal: Recurring Cost	-	-	*1.561*	-	-	*0.583*	-	-	*0.398*	-	-	*0.439*	-	-	*0.000*	-	-	*0.439*
Subtotal: Hardware - SH860 Acceptance Test & Eval Cost	**-**	**-**	***1.561***	**-**	**-**	***0.583***	**-**	**-**	***0.398***	**-**	**-**	***0.439***	**-**	**-**	***0.000***	**-**	**-**	***0.439***
Support - SH800 ILS Cost																		
7.1) Ordnance Assembly	-	-	0.286	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000
7.2) Ordnance Transport	-	-	0.725	-	-	0.212	-	-	0.109	-	-	0.188	-	-	0.000	-	-	0.188
7.3) Ordnance Loading	-	-	1.163	-	-	0.303	-	-	0.209	-	-	0.208	-	-	0.000	-	-	0.208
Subtotal: Support - SH800 ILS Cost	**-**	**-**	***2.174***	**-**	**-**	***0.515***	**-**	**-**	***0.318***	**-**	**-**	***0.396***	**-**	**-**	***0.000***	**-**	**-**	***0.396***
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	-	-	1.005	-	-	0.370	-	-	0.267	-	-	0.256	-	-	0.000	-	-	0.256
8.3) Ordnance Loading PE (18)	-	-	1.212	-	-	0.361	-	-	0.271	-	-	0.256	-	-	0.000	-	-	0.256
Subtotal: Support - SH830 Production Engineering Cost	**-**	**-**	***2.914***	**-**	**-**	***0.731***	**-**	**-**	***0.538***	**-**	**-**	***0.512***	**-**	**-**	***0.000***	**-**	**-**	***0.512***
Gross/Weapon System Cost	**-**	**-**	**46.477**	**-**	**-**	**11.790**	**-**	**-**	**12.058**	**-**	**-**	**12.151**	**-**	**-**	**0.000**	**-**	**-**	**12.151**

(†) indicates the presence of a P-5a

Footnotes:

(13) (SH0342) - All units delivered, Program is complete and ready for closure.

(14) (SH036) - All units delivered, program complete and ready for closure.

(15) (SH920) Non- recurring cost ordnance loading- Labor for completion of MHU-191 CILOP due to contract POP ends April 2023.

Exhibit P-5, Cost Analysis: PB 2021 Navy		Date: February 2020
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:**	

(16) FY25 ECP efforts include future transport equipment such as bomb hoisting units.

(17) FY25 ECP efforts include future loading equipment such as SHOLS gear.

(18) The FY 2021 funding request was reduced by $35k due to NWCF Rate Model Adjustments.

Exhibit P-5a, Procurement History and Planning: PB 2021 Navy		Date: February 2020
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	OCO	FY	Contractor and Location	Method/Type or Funding Vehicle	Location of PCO	Award Date	Date of First Delivery	Qty (Each)	Unit Cost ($)	Specs Avail Now?	Date Revision Available	RFP Issue Date
2.1.2) SH043 - MHU-191/M CILOP - MHU-191A/M MUN TRANSPORTER		2018	DEVAL CORPORATION / PHILADELPHIA, PA	C / FFP	NAWCADLKE	Feb 2018	Sep 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	Jul 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 / FFP	NAWCADLKE	Jan 2020	Aug 2020	600	6,624.49	Y		Jun 2011
2.1.2) SH043 - MHU-191/M CILOP - MHU-191A/M MUN TRANSPORTER		2021	DEVAL CORPORATION / PHILADELPHIA, PA	C / FFP	NAWCADLKE	Oct 2020	May 2021	500	6,756.48	Y		Oct 2019
2.1.3) SH045 - MHU-126/202 TRLR REPLACEMENT - (MHU-230/M)		2018	CHOCTAW DEFENSE / McALESTER, OK	C / FFP	NAWCADLKE	Oct 2019	Feb 2020	4	250,000.00	Y		Mar 2018
2.1.3) SH045 - MHU-126/202 TRLR REPLACEMENT - (MHU-230/M)		2020	CHOCTAW DEFENSE / McALESTER, OK	C / FFP	NAWCADLKE	Apr 2020	Sep 2020	80	20,000.00	Y		Mar 2018
2.1.3) SH045 - MHU-126/202 TRLR REPLACEMENT - (MHU-230/M)		2021	CHOCTAW DEFENSE / McALESTER, OK	C / TBD	NAWCADLKE	Oct 2020	Mar 2021	80	20,463.00	N		
3.1.1) SH046 - USMC A/ S32K-1E WEAPONS LOADER REPLACEMENT(†)		2019	HYDRAULICS INTERNATIONAL INC / CALABASAS CA	C / FFP	NAWCADLKE	Oct 2018	Apr 2019	24	139,791.00	Y		
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	137,705.00	Y		Mar 2018
3.1.1) SH046 - USMC A/ S32K-1E WEAPONS LOADER REPLACEMENT(†)		2021	HYDRAULICS INTERNATIONAL INC / CALABASAS CA	C / FFP	NAWCADLKE	Oct 2020	Apr 2021	41	129,975.00	Y		
3.1.3) SH049 - FARP ORDNANCE LOADING SE		2018 (19)	TBD / TBD	C / FFP	NAWCADLKE	Sep 2020	Jun 2021	1	159,000.00	Y		Mar 2020
3.1.3) SH049 - FARP ORDNANCE LOADING SE		2019 (20)	TBD / TBD	C / FFP	NAWCADLKE	Sep 2020	Jun 2021	14	159,000.00	Y		Mar 2020

(†) indicates the presence of a P-21

Footnotes:

(19) Contracting time extended due to manufacturer taking longer than anticipated to reply to RFP. Final requirements determination delayed RFP release.

(20) Contracting time extended due to manufacturer taking longer than anticipated to reply to RFP. Final requirements determination delayed RFP release.

Exhibit P-21, Production Schedule: PB 2021 Navy		Date: February 2020
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 (Units in Each)							Fiscal Year 2018												Fiscal Year 2019												BALANCE
							Calendar Year 2018												Calendar Year 2019												
OCO	MFR #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2017	BAL DUE AS OF 1 OCT	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																															
Prior Years Deliveries: 26																															
	1	2019	NAVY	24	0	24													A -	-	-	-	-	-	1	1	2	2	2	2	14
	1	2020	NAVY	34	0	34																									34
	1	2021	NAVY	41	0	41																									41
							OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	

Exhibit P-21, Production Schedule: PB 2021 Navy		Date: February 2020
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 (Units in Each)							Fiscal Year 2020												Fiscal Year 2021												BALANCE
										Calendar Year 2020												Calendar Year 2021									
COO	MFR #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2019	BAL DUE AS OF 1 OCT	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																															
Prior Years Deliveries: 26																															
	1	2019	NAVY	24	10	14	2	2	2	2	3	3																			0
	1	2020	NAVY	34	0	34	A -	-	-	-	-	-	3	3	3	3	3	3	3	3	3	3	3	1							0
	1	2021	NAVY	41	0	41													A -	-	-	-	-	-	3	4	3	4	3	4	20
							OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	

Exhibit P-21, Production Schedule: PB 2021 Navy		Date: February 2020
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 (Units in Each)							Fiscal Year 2022												Fiscal Year 2023												BALANCE
										Calendar Year 2022												Calendar Year 2023									
OCO	MFR #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2021	BAL DUE AS OF 1 OCT	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																															
Prior Years Deliveries: 26																															
	1	2019	NAVY	24	24	0																									0
	1	2020	NAVY	34	34	0																									0
	1	2021	NAVY	41	21	20	3	4	3	4	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	

Exhibit P-21, Production Schedule: PB 2021 Navy		**Date:** February 2020
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)							
					Initial				Reorder			
		MSR For 2021	1-8-5 For 2021	MAX For 2021	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

"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).

Exhibit P-5, Cost Analysis: PB 2021 Navy		Date: February 2020
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ID Code (A=Service Ready, B=Not Service Ready) :	MDAP/MAIS Code:	

Resource Summary	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
Procurement Quantity *(Units in Each)*	-	-	-	-	-	-
Gross/Weapon System Cost *($ in Millions)*	125.613	39.965	52.047	54.517	0.000	54.517
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	125.613	39.965	52.047	54.517	0.000	54.517
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**125.613**	**39.965**	**52.047**	**54.517**	**0.000**	**54.517**
(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 2019			FY 2020			FY 2021 Base			FY 2021 OCO			FY 2021 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) (21)	-	-	9.626	-	-	1.688	-	-	2.825	-	-	3.266	-	-	0.000	-	-	3.266
1.1.2) Visual Landing Aids (SJ040) (22)	-	-	16.177	-	-	1.639	-	-	1.751	-	-	7.064	-	-	0.000	-	-	7.064
1.1.3) Launcher (SJ040) (23)	-	-	2.298	-	-	1.173	-	-	1.125	-	-	4.091	-	-	0.000	-	-	4.091
1.1.4) Recovery (SJ040) (24)	-	-	12.078	-	-	5.100	-	-	4.678	-	-	2.658	-	-	0.000	-	-	2.658
1.1.5) SLMP (25)	-	-	0.000	-	-	0.000	-	-	4.173	-	-	4.108	-	-	0.000	-	-	4.108
1.1.6) ALLE (26)	-	-	0.263	-	-	0.772	-	-	0.000	-	-	1.519	-	-	0.000	-	-	1.519
Subtotal: Recurring Cost	-	-	*40.442*	-	-	*10.372*	-	-	*14.552*	-	-	*22.706*	-	-	*0.000*	-	-	*22.706*
Subtotal: Hardware - SJ040 - Service Change Kits Cost	**-**	**-**	***40.442***	**-**	**-**	***10.372***	**-**	**-**	***14.552***	**-**	**-**	***22.706***	**-**	**-**	***0.000***	**-**	**-**	***22.706***
Hardware - - SJ305 - Non-Recurring Engineering Cost																		
Non Recurring Cost																		
2.1.1) Information Systems - NRE (27)	-	-	13.925	-	-	1.862	-	-	0.192	-	-	1.393	-	-	0.000	-	-	1.393
2.1.2) Visual Landing Aids (28)	-	-	15.158	-	-	5.129	-	-	5.856	-	-	6.590	-	-	0.000	-	-	6.590
2.1.3) Launcher (29)	-	-	4.003	-	-	1.619	-	-	1.978	-	-	0.715	-	-	0.000	-	-	0.715

Exhibit P-5, Cost Analysis: PB 2021 Navy		Date: February 2020
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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 2019			FY 2020			FY 2021 Base			FY 2021 OCO			FY 2021 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) Recovery	-	-	10.448	-	-	4.745	-	-	10.288	-	-	2.600	-	-	0.000	-	-	2.600
2.1.5) ALLE	-	-	0.000	-	-	2.500	-	-	6.235	-	-	4.908	-	-	0.000	-	-	4.908
Subtotal: Non Recurring Cost	-	-	*43.534*	-	-	*15.855*	-	-	*24.549*	-	-	*16.206*	-	-	*0.000*	-	-	*16.206*
Subtotal: Hardware - - SJ305 - Non-Recurring Engineering Cost	**-**	**-**	***43.534***	**-**	**-**	***15.855***	**-**	**-**	***24.549***	**-**	**-**	***16.206***	**-**	**-**	***0.000***	**-**	**-**	***16.206***
Support - SJ800 - Integrated Logistics Cost																		
3.1) Information Systems (30)	-	-	1.659	-	-	0.776	-	-	0.135	-	-	0.502	-	-	0.000	-	-	0.502
3.2) Visual Landing Aids	-	-	1.673	-	-	0.227	-	-	0.934	-	-	0.686	-	-	0.000	-	-	0.686
3.3) Launcher (31)	-	-	0.714	-	-	0.139	-	-	0.337	-	-	0.469	-	-	0.000	-	-	0.469
3.4) Recovery	-	-	2.429	-	-	0.812	-	-	1.046	-	-	0.749	-	-	0.000	-	-	0.749
3.5) SLMP (32)	-	-	0.000	-	-	0.000	-	-	0.019	-	-	0.044	-	-	0.000	-	-	0.044
3.6) ALLE	-	-	0.314	-	-	0.320	-	-	0.250	-	-	0.177	-	-	0.000	-	-	0.177
Subtotal: Support - SJ800 - Integrated Logistics Cost	**-**	**-**	***6.789***	**-**	**-**	***2.274***	**-**	**-**	***2.721***	**-**	**-**	***2.627***	**-**	**-**	***0.000***	**-**	**-**	***2.627***
Support - SJ830 - Production Engineering Cost																		
4.1) Information Systems (33)	-	-	4.165	-	-	1.066	-	-	0.298	-	-	0.407	-	-	0.000	-	-	0.407
4.2) Visual Landing Aids (34)	-	-	6.491	-	-	0.969	-	-	0.823	-	-	1.402	-	-	0.000	-	-	1.402
4.3) Launcher (35)	-	-	1.289	-	-	0.277	-	-	0.350	-	-	0.696	-	-	0.000	-	-	0.696
4.4) Recovery	-	-	4.838	-	-	0.755	-	-	0.972	-	-	0.902	-	-	0.000	-	-	0.902
4.5) SLMP	-	-	0.000	-	-	0.000	-	-	0.083	-	-	0.071	-	-	0.000	-	-	0.071
4.6) ALLE	-	-	0.354	-	-	0.353	-	-	0.882	-	-	0.766	-	-	0.000	-	-	0.766
Subtotal: Support - SJ830 - Production Engineering Cost	**-**	**-**	***17.137***	**-**	**-**	***3.420***	**-**	**-**	***3.408***	**-**	**-**	***4.244***	**-**	**-**	***0.000***	**-**	**-**	***4.244***
Support - SJ900 - Installation -NonFMP Cost																		
5.1) Information Systems	-	-	0.720	-	-	0.272	-	-	0.098	-	-	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	-	-	0.098	-	-	0.079	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000
Subtotal: Support - SJ900 - Installation -NonFMP Cost	**-**	**-**	***1.275***	**-**	**-**	***0.351***	**-**	**-**	***0.098***	**-**	**-**	***0.000***	**-**	**-**	***0.000***	**-**	**-**	***0.000***
Support - SJ910 - Installation -FMP Cost																		

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Note: Subtotals or Totals in this Exhibit P-5 may not be exact or sum exactly due to rounding.

Cost Elements	Prior Years			FY 2019			FY 2020			FY 2021 Base			FY 2021 OCO			FY 2021 Total		
	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)
6.1) Information Systems (36)	-	-	3.162	-	-	3.395	-	-	1.959	-	-	3.669	-	-	0.000	-	-	3.669
6.2) Visual Landing Aids (37)	-	-	5.119	-	-	2.473	-	-	2.421	-	-	1.941	-	-	0.000	-	-	1.941
6.3) Launcher (38)	-	-	3.144	-	-	0.069	-	-	0.362	-	-	1.061	-	-	0.000	-	-	1.061
6.4) Recovery (39)	-	-	5.011	-	-	1.642	-	-	1.977	-	-	1.963	-	-	0.000	-	-	1.963
6.5) SLMP (40)	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.100	-	-	0.000	-	-	0.100
6.6) ALLE (41)	-	-	0.000	-	-	0.114	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000
Subtotal: Support - SJ910 - Installation -FMP Cost	***-***	***-***	***16.436***	***-***	***-***	***7.693***	***-***	***-***	***6.719***	***-***	***-***	***8.734***	***-***	***-***	***0.000***	***-***	***-***	***8.734***
Gross/Weapon System Cost	**-**	**-**	**125.613**	**-**	**-**	**39.965**	**-**	**-**	**52.047**	**-**	**-**	**54.517**	**-**	**-**	**0.000**	**-**	**-**	**54.517**

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] Non-Recurring Engineering (NRE) costs are associated with system modification, upgrade analysis, verification and regression testing, tooling, logistics and associated NRE of hardware or software Engineering Changes.

[Support Cost] (Support Cost) Provides the associated production engineering and logistics support.

[Support Cost] Installation Support:
1. Installations are subject to change with ship availability schedules.
2. The year-to-year unit installations costs will vary and can exceed the projected yearly inflation rate due to the hardware installation cost being dependent on quantity and location of the ship (i.e. Norfolk, Japan), ship class (DDG, ACS, AAS, CVN), and the ships baseline configuration.
3. Production lead time includes pre-installation checkout, kitting with other installation hardware and drawings, and time to ship the hardware to the installation site.

Footnotes:

(21) C.E. 1.1.1 Information Systems: The increase from FY 2020 to FY 2021 is due to hardware (HW) procurements for Moriah Wind System (MWS) shipsets for LHD 5 and LPD 23. If these kits are not completed, ships LHD 5, LPD 23, and LPD 22 will not receive the most technically current operational wind system and will operate on older Type F or Digital Wind Systems which are not planned for upgrade until later years which exceed availability for correction driven by encroaching obsolescence issues before current ship availabilities. Additional MWS cybersecurity HW will be procured for LHD 1, LHD 2, LHD 6, and LHA 6. If this HW is not procured, ship wind data will be vulnerable to cyber attack, potentially causing ships to have inaccurate wind direction and speed data required for safe launch and landing of aircraft.

(22) C.E. 1.1.2 Visual Landing Aids: The increase from FY 2020 to FY 2021 is driven by an increase in quantity of hardware (HW) procurements for three ECPs in FY 2021. ECP-0442 Improved Manually Operated Visual Landing Aid System (IMOVLAS) procurement quantity increased from 3 in FY 2020 to 5 in FY 2021. If equipment is not procured, then MOVLAS will not mirror the shipboard Improved Fresnel Lens Optical Landing System (IFLOLS) Phase IV presentation for pilots, allowing discrepancy in visual cues for pilots upon approach to the ship. Landbased Optical Landing Aid (LOLA) procurement quantity

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increased from 0 in FY 2020 to 11 in FY 2021. If the equipment is not procured, then landbased sites will not have shipboard equivalent optical landing aids for pilot training. LOLA has been a top priority request from the Landing Signal Operator (LSO) school for the past ten years. Aviation Lighting System-Control Panel Set (ALS-CPS) ECP-256 quantity increased from 0 in FY 2020 to 8 in FY 2021. The ALS-CPS ECP is required to address high maintenance costs, obsolescence, and Night Vision Device (NVD) compatibility issues with current Visual Landing Aids. If the equipment is not procured, then the fielded systems will be unsupportable due to obsolescence and the system will not be NVD compatible. Visual Landing Aids include the following systems: Integrated Launch and Recovery Television Surveillance System (ILARTS), IFLOLS and sustainment of 3 different configurations, Improved Manually Operated Visual Landing Aid System (IMOVLAS), Long Range Lineup System (LRLS), Deck Marking/Lighting/Night Vision Display (NVD), Vertical Short Take Off and Landing - Optical Landing System (VSTOL-OLS), Hover Position Indicator (HPI), Helicopter Operations Surveillance System (HOSS), Advanced Stabilized Glide Slope Indicator (ASGSI), Stabilized Glide Slope Indicator (SGSI), Horizontal Reference Set (HRS), Flight Deck Status Signaling System (FDSSS), Aviation Lighting System-Control Panel Set (ALS-CPS), Advanced Flight Deck Lighting (AFDL) (2 configurations), Precision Approach Path Indicator (PAPI), Deck Status Lighting, Short Take Off (STO) Lighting, Amphibious Low Light Surveillance System (ALLSS) and Land based Optical Landing Aid (LOLA).

(23) C.E. 1.1.3 Launcher: The increase in funding in FY 2021 is due to the department adding funding to support the procurement of Joint Strike Fighter (JSF) Jet Blast Deflectors (JBD); from a quantity of 0 in FY 2020 to a quantity of 25 in FY 2021. Joint Strike Fighters deployed in FY15 and early testing during OT showed severe degradation of the two outside JBD's from launching JSF's. It was discovered that due to the increased heat signature from JSF that all four JBD panels needed to be modified to support additional heat signature to enable full combat operational capability. There is currently only one Carriers (CVN72) configured with four (4) water cooled panels. CVN70 panels were procured with a prior year funding transfer and will be installed in FY20 and becomes the second carrier with all four panels cooled. If JSF JBDs are not procured, then JSF aircraft will not be able to launch with full operational capability from any CVN's other than CVN70 and CVN72 at full combat capability with required weapons loads to support operational requirements. Launcher systems include C-13 Steam Catapult, Integrated Catapult Control System (ICCS), Jet Blast Deflector (JBD) and Holdback Bars.

(24) 1.1.4 Recovery: Recovery systems include Mk-7 Arresting, Advanced Recovery Control (ARC), Barricade, Compact Swaging Machine (CSM), Recovery Assist Securing and Traversing (RAST) and Aircraft Ship Integrated Secure and Traverse (ASIST).

(25) C.E. 1.1.5 Service Life Management Program (SLMP): FY21 provides funding for forging buys for critical safety ECP-0365 Crosshead and ECP-0366 Fixed Sheave that address cracking, which has caused inadequate service life on the MK-7 Engine Crosshead and Fixed Sheave. This is a safety and readiness issue for the carrier aircraft recovery. The Service Life Management Program includes service life management support of any of the 48 systems in all of ALRE.

(26) C.E. 1.1.6 Aviation Land and Launch Enclave (ALLE): The increase from FY 2020 to FY 2021 is for the procurement of ADMACS ECP-0530 kits for CVNs 70 through 79. The ADMACS kits will provide the hardware required for cybersecurity network authentication and event monitoring. 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 shipboards with different configurations due to obsolescence and excessive cost spent on annual requalification of updated HW. Bundled procurements of several kits are required in order to avoid obsolescence. If the ALLE hardware is not procured then a central network will not be established so other ALRE systems may interface, thus rendering the cybersecurity enclave at a halt. A shipboard enclave environment will not be established and aviation land and launch systems will not be able to conduct manned and unmanned flight operations in a cyber-protected battlespace.

(27) C.E. 2.1.1 Information Systems: The increase from FY 2020 to FY 2021 is driven by Non-recurring engineering to modify the MWS Wind Processing Unit (WPU) due to CVN shock deficiency, and to address obsolescence for the MWS displays and Sub Processor Unit (SPU). If non-recurring engineering support is not completed, then critical obsolescence and survivability updates cannot be implemented for the MWS to operate accurately on over 100 ships in the Fleet, leaving ships vulnerable to inaccurate wind direction and speed data required for safe launch and landing of aircraft.

(28) CE 2.1.2 Visual Landing Aids: Increase in cost from FY 2020 to FY 2021 provides additional NRE required to address the complexity of two obsolescence ECPs. The Integrated Launch and Recovery Television Surveillance System (ILARTS) must be updated from an antiquated analog system to a digital system to address numerous equipment obsolescence issues. Analog equipment is no longer available for procurement and if there is no transition to digital data, then CVNs will no longer be able to survey, record, and distribute video of flight deck and surrounding airspace. The Vertical Take Off and Landing Optical Landing System (VSTOL-OLS) is experiencing obsolescence and updates are required to resolve inboard and outboard ball screws, circuit card assemblies, Stabilized Optics Table (SOT), and Night Vision Device compatibility. These obsolescence issues must be resolved since VSTOL-OLS is the primary visual landing aid for AV-8B and F-35B aircraft landings.

(29) C.E. 2.1.3 Launcher: Decrease from FY20 to FY21 due to finalizing Non-recurring engineering on Shooter Tablet, ECP-0171 Water Brake Preventative Maintenance System (PMS) and ECP-0517 Improved Nose Gear Landing Deck Tensioner in FY20.

(30) C.E. 3.1 Information Systems: The increase from FY20 to FY21 is to manage multiple ECPs that began in FY20, such as the modification to the WPU for CVN Shock deficiency, and two ECPs for MWS display and SPU obsolescence. The increase from FY 2020 to FY 2021 is for work required on logistics products to support MWS obsolescence ECPs. If logistics work is not completed, then critical obsolescence and survivability updates cannot be implemented for the MWS to operate accurately on over 100 ships in the Fleet, leaving ships vulnerable to inaccurate wind direction and speed data required for safe launch and landing of aircraft.

(31) C.E. 3.1 Launcher: Increase from FY20 to FY21 for the logistic products updates required to support the Jet Blast Deflector (JBD) Panel update in FY21.

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(32) C.E. 3.5 SLMP: The increase from FY 2020 to FY 2021 is for additional logistics product updates for Crosshead and Fixed Sheave ECPs in FY 2021.

(33) CE 4.1 Information Systems: The increase from FY 2020 to FY 2021 is for production engineering required to support MWS obsolescence ECPs. If the engineering work is not completed, then critical obsolescence and survivability updates cannot be implemented for the MWS to operate accurately on over 100 ships in the Fleet, leaving ships vulnerable to inaccurate wind direction and speed data required for safe launch and landing of aircraft.

(34) C.E. 4.2 Visual Landing Aids: The increase in production engineering from FY20 to FY21 is driven by production engineering support required for multiple ECPs, such as Digital ILARTS, ALS-CPS (Aviation Lighting System-Control Panel Set), Landbased Optical Landing Aid (LOLA), and IMOVLAS installations on multiple CVNs. If Digital ILARTS is not transitioned from analog to digital data, then CVNs will no longer be able to meet safety of flight requirements to survey, record, and distribute video of flight deck and surrounding airspace. If ALS-CPS equipment is not fielded, then the visual landing aid systems will be unsupportable due to obsolescence and the system will not be NVD compatible. If LOLA equipment is not fielded, then landbased sites will not have shipboard equivalent optical landing aids for pilot training. LOLA has been a top priority request from the Landing Signal Operator (LSO) school for the past ten years. If IMOVLAS equipment is not fielded, then MOVLAS will not mirror the shipboard Improved Fresnel Lens Optical Landing System (IFLOLS) Phase IV presentation for pilots, allowing discrepancy in visual cues for pilots upon approach to the ship.

(35) CE 4.3 Launcher: The increase in production engineering from FY 2020 to FY 2021 is driven by production engineering required to support Joint Strike Fighter (JSF) Jet Blast Deflectors (JBD). Joint Strike Fighters deployed in FY15 and require numerous Carrier modifications, including JBD panels, due to the excessive heat generated by the JSF aircraft engine. If JSF JBDs are not implemented, then JSF aircraft will not be able to launch from any CVN without the modified water cooled panels.

(36) C.E. 6.1 Information Systems: Increase from FY20 to FY21 is due to numerous installs in FY21 for: LSODS Tech Refresh installs on CVN 69, 71, and 76; MWS installs on LPD22, LHD 1, LHD2, LHD7, LHD8, and DDG 118. Install cost aboard all ship types include planning costs, such as ship checks and Ship Installation Drawings (SIDs). If installs are not executed, then critical obsolescence updates will not be resolved for LSODS on CVN 69, 71, and 76 and LPD22, LHD 1, LHD2, LHD7, LHD8, and DDG 118 will not receive the most technically current wind system and must operate on older, Type F or Digital Wind Systems, which are not planned for upgrade and have obsolescence issues.

(37) C.E. 6.2 (Visual Landing Aids) Fluctuation of install costs from FY20 to FY25 reflects various unit costs/quantities for differing fiscal years for several VLA systems, rendering unit cost indistinct and causing install cost to vary significantly from year to year.

(38) C.E. 6.3 Launcher: The increase from FY 2020 to FY 2021 is due to installs for ECP-0504 Catapult Relay Replacement and ECP-0535 Launch Valve Cut Out Switch Replacement, and ECP-0517 Improved Nose Gear Landing Deck Tensioner. If these engineering changes are not installed, then catapult parts updated in these ECPs will be obsolete with no parts available, since DLA supplies are now exhausted.

(39) C.E. 6.4 (Recovery) Variation in install cost from FY20 to FY25 is due to installs of hardware for various Arresting Gear systems targeted in a ship's availability period. FY20 and FY21: Compact Swaging Machine installs; FY22 through FY24: ECP-0455 ARC Long Term Display and ECP-0495 Improved Arresting Engine Fluid Cooler installs.

(40) C.E. 6.5 SLMP: Increase in cost from FY 2020 to FY 2021 due to increased installations from 0 in FY 2020 to 2 in FY 2021 for Crosshead and Fixed Sheave, two critical safety installs for the Arresting Gear system onboard CVNs. If these installs do not happen, then MK-7 Engine Crossheads and Fixed Sheaves will continue to be prone to cracking due to deformation experienced during high energy arrestments, which is a safety and readiness issue for carrier aircraft recovery.

(41) C.E. 6.6 (ALLE): Ship installations vary greatly across ALRE systems and year of install. The eight Programs of Record (PORs) participating in the enclave effort have different unit costs and different install years. FY 2019 is the install of a test directive on CVN 72 for tamper evident devices only. FY 2023 includes installs for ADMACS and MK-7/ARC on CVNs 77, 78, and 79. FY 2024 is an install for AAG only on CVN 78. FY 2025 shows installs for ADMACS, EMALS, and AAG on CVNs 70, 71, 76 and an install for EMALS and AAG only on CVN 79.

Exhibit P-5, Cost Analysis: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 03 / 3	P-1 Line Item Number / Title: 4213 / Aircraft Support Equipment	Item Number / Title [DODIC]: 4 / Natural Disaster Recovery
ID Code (A=Service Ready, B=Not Service Ready) :	MDAP/MAIS Code:	

Resource Summary	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
Procurement Quantity *(Units in Each)*	-	-	-	-	-	-
Gross/Weapon System Cost *($ in Millions)*	0.000	0.000	39.295	50.871	0.000	50.871
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	0.000	0.000	39.295	50.871	0.000	50.871
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**0.000**	**0.000**	**39.295**	**50.871**	**0.000**	**50.871**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)						
Initial Spares *($ in Millions)*	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Dollars)*	-	-	-	-	-	-

Note: Subtotals or Totals in this Exhibit P-5 may not be exact or sum exactly due to rounding.

Cost Elements	Prior Years			FY 2019			FY 2020			FY 2021 Base			FY 2021 OCO			FY 2021 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 - SJ307- Natural Disaster Recovery Support Equipment Cost																		
1.1) Propulsion Lab Support Equipment (42)	-	-	0.000	-	-	0.000	-	-	6.788	-	-	16.533	-	-	0.000	-	-	16.533
1.3) Peculiar Aviation Support Equipment (43)	-	-	0.000	-	-	0.000	-	-	32.507	-	-	34.338	-	-	0.000	-	-	34.338
Subtotal: Support - SJ307- Natural Disaster Recovery Support Equipment Cost	***-***	***-***	***0.000***	***-***	***-***	***0.000***	***-***	***-***	***39.295***	***-***	***-***	***50.871***	***-***	***-***	***0.000***	***-***	***-***	***50.871***
Gross/Weapon System Cost	**-**	**-**	**0.000**	**-**	**-**	**0.000**	**-**	**-**	**39.295**	**-**	**-**	**50.871**	**-**	**-**	**0.000**	**-**	**-**	**50.871**

Footnotes:

(42) C.E 1.1 Propulsion Lab Support Equipment: Funds are required FY20-24 for recalibration, repair, and updates associated with synthesis and formulation, combustion science, mass properties, energetics, and test capabilities. These requirements include but are not limited to the following: optical microscopes, pad fixtures, instrument spectrometers, microscopes, optical components and gas turbines required to restore mission capability.

(43) C.E 1.3 Peculiar Aviation Support Equipment: Funds required to replace, repair, and update required Class 3 peculiar aviation support equipment. These requirements include but are not limited to spectrum analyzers, electrodynamic shakers, data acquisition units, molding machines, XRAY machines, laser cutters and water jet systems required to restore mission capability.

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	To Complete	Total
Procurement Quantity *(Units in Each)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost *($ in Millions)*	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 *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	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 *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**15.574**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**15.574**
(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:

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.

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	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: ALRE - Advanced Arresting Gear (SJ301)												
B Kits												
Non-Recurring												
1.1.1) Non-Recurring Engineering - Organic [44]	- / 8.173	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / 8.173
1.1.2) Data - Organic - Organic	- / 2.982	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / 2.982
Subtotal: Non-Recurring	*- / 11.155*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / 0.000*	*- / 11.155*
Subtotal: ALRE - Advanced Arresting Gear (SJ301)	*- / 11.155*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / 11.155*
Subtotal: Procurement, All Modification Items	*- / 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
Subtotal: Support	*- / 4.419*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / 0.000*	*- / 4.419*
Installation												
Subtotal: Installation	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*
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**

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
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:

(44) 1.2.1 - FY18 and out funded under Advanced Arresting Gear (AAG) (BLI 4217) for OSD MDAP Transparency.

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	To Complete	Total
Procurement Quantity *(Units in Each)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost *($ in Millions)*	106.579	17.064	19.378	19.827	0.000	19.827	18.691	30.678	35.592	43.155	Continuing	Continuing
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	106.579	17.064	19.378	19.827	0.000	19.827	18.691	30.678	35.592	43.155	Continuing	Continuing
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**106.579**	**17.064**	**19.378**	**19.827**	**0.000**	**19.827**	**18.691**	**30.678**	**35.592**	**43.155**	**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) approved the ADMACS Block (Blk) II program re-baseline in 2013. The ADMACS program experienced an MDA directed re-baseline due to software deficiencies found during final Developmental Testing (DT)/Shipboard testing and the resultant need to defer Initial Operational Test and Evaluation. The re-baselined 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 2020 ADMACS will execute technical solutions for cybersecurity patching, HW obsolescence,
and the resolution of STRs through ECP-0285 (software interface with EMALS and AAG), ECP-0493 (interface with technical refresh of LSODS), ECP-0529 (addresses software and firmware obsolescence), 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)

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	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	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 - NonOrganic	- / 5.231	- / -	- / -	- / -	- / -	- / -	- / -	1 / 2.370	1 / 2.406	1 / 2.375	Continuing	Continuing
2.1.2) Cyber Security - Organic	- / 8.182	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	Continuing	Continuing
2.1.3) Systems Release Upgrade Kits - NonOrganic (45)	- / 6.379	6 / 0.324	7 / 0.393	3 / 0.173	- / -	3 / 0.173	5 / 0.295	4 / 0.245	5 / 0.320	5 / 0.325	Continuing	Continuing
Subtotal: Recurring	*- / 19.792*	*- / 0.324*	*- / 0.393*	*- / 0.173*	*- / -*	*- / 0.173*	*- / 0.295*	*- / 2.615*	*- / 2.726*	*- / 2.700*	*Continuing*	*Continuing*
Non-Recurring												
2.2.1) Block II System Release Upgrade - NonOrganic	7 / 1.795	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	Continuing	Continuing
2.2.2) Hardware Obsolescence ECPs NRE - Organic (46)	- / 3.365	- / 3.234	- / 4.619	- / 6.447	- / -	- / 6.447	- / 8.548	- / 14.913	- / 16.564	- / 15.630	- / -	- / 73.320
2.2.3) Cybersecurity ECPs NRE - Organic (47)	- / 5.041	- / 1.423	- / 1.573	- / 2.496	- / -	- / 2.496	- / 2.163	- / 2.238	- / 3.431	- / 3.653	- / -	- / 22.018
2.2.4) Systems SW Build Integration - Organic (48)	- / -	- / 0.453	- / 1.227	- / 2.149	- / -	- / 2.149	- / 2.070	- / 2.142	- / 2.229	- / 2.253	- / -	- / 12.523
Subtotal: Non-Recurring	*- / 10.201*	*- / 5.110*	*- / 7.419*	*- / 11.092*	*- / -*	*- / 11.092*	*- / 12.781*	*- / 19.293*	*- / 22.224*	*- / 21.536*	*Continuing*	*Continuing*
Subtotal: Block II	*7 / 29.993*	*6 / 5.434*	*7 / 7.812*	*3 / 11.265*	*- / -*	*3 / 11.265*	*5 / 13.076*	*5 / 21.908*	*6 / 24.950*	*6 / 24.236*	*Continuing*	*Continuing*
Subtotal: Procurement, All Modification Items	*- / 65.061*	*- / 5.434*	*- / 7.812*	*- / 11.265*	*- / -*	*- / 11.265*	*- / 13.076*	*- / 21.908*	*- / 24.950*	*- / 24.236*	*Continuing*	*Continuing*
Support *(All Modification Items)*												
3.1) ILS (49)	- / 5.076	- / 0.967	- / 1.810	- / 1.567	- / -	- / 1.567	- / 1.571	- / 2.671	- / 2.728	- / 3.574	Continuing	Continuing
3.2) PE (50)	- / 14.094	- / 1.341	- / 1.593	- / 1.542	- / -	- / 1.542	- / 1.647	- / 1.998	- / 2.696	- / 2.772	Continuing	Continuing
Subtotal: Support	*- / 19.170*	*- / 2.308*	*- / 3.403*	*- / 3.109*	*- / -*	*- / 3.109*	*- / 3.218*	*- / 4.669*	*- / 5.424*	*- / 6.346*	*Continuing*	*Continuing*

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	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												
Modification Item 1 of 2: Block I and Block I/ISNS	- / 15.168	- / 7.831	- / 3.649	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 26.648
Modification Item 2 of 2: Block II	- / 7.180	- / 1.491	- / 4.514	- / 5.453	- / 0.000	- / 5.453	- / 2.397	- / 4.101	- / 5.218	- / 12.573	- / 11.882	- / 54.809
Subtotal: Installation	*- / 22.348*	*- / 9.322*	*- / 8.163*	*- / 5.453*	*- / -*	*- / 5.453*	*- / 2.397*	*- / 4.101*	*- / 5.218*	*- / 12.573*	*- / 11.882*	*- / 81.457*
Total												
Total Cost (Procurement + Support + Installation)	**106.579**	**17.064**	**19.378**	**19.827**	**0.000**	**19.827**	**18.691**	**30.678**	**35.592**	**43.155**	**Continuing**	**Continuing**

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
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) (51)	Manufacturer Location: Plano, TX
Administrative Leadtime *(in Months)*: 2	Production Leadtime *(in Months)*: 11

Dates	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025
Contract Dates							
Delivery Dates							

Installation Information

Method of Implementation: AIT:: Installation Name: Blk I/ISNS Kits - (Full)

Installation Cost	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	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 / 15.168	0 / 7.831	0 / 3.649	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	3 / 26.648
FY 2019	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2020	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2021	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2022	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2023	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2024	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2025	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
To Complete	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
Total	3 / 15.168	0 / 7.831	0 / 3.649	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	3 / 26.648

Installation Schedule

	PYS	FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				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	2	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
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 (52) | Manufacturer Location: Plano, TX

Administrative Leadtime *(in Months)*: 3 | Production Leadtime *(in Months)*: 11

Dates	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025
Contract Dates	Dec 2018	Dec 2019					
Delivery Dates	Nov 2019	Nov 2020					

Manufacturer Name: Bowhead Manufacturing Technology - System Release Upgrade (53) | Manufacturer Location: Plano, TX

Administrative Leadtime *(in Months)*: 3 | Production Leadtime *(in Months)*: 6

Dates	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025
Contract Dates	Dec 2018	Dec 2019	Dec 2020	Dec 2021	Dec 2022	Dec 2023	Dec 2024
Delivery Dates	Jun 2019	Jun 2020	Jun 2021	Jun 2022	Jun 2023	Jun 2024	Jun 2025

Manufacturer Name: Bowhead Manufacturing Technology - Hardware Obsolescence | Manufacturer Location: Plano, TX

Administrative Leadtime *(in Months)*: 4 | Production Leadtime *(in Months)*: 7

Dates	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025
Contract Dates					Jan 2023	Jan 2024	Jan 2025
Delivery Dates					Aug 2023	Aug 2024	Aug 2025

Installation Information

Method of Implementation: AIT:: Installation Name: Hardware Obsolescence ECPs

Installation Cost	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	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 2019	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2020	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2021	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2022	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2023	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	1 / 1.753	- / -	0 / 0.000	1 / 1.753
FY 2024	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	1 / 8.171	0 / 0.000	1 / 8.171
FY 2025	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	1 / 8.291	1 / 8.291
To Complete	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
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

Installation Information

Method of Implementation: AIT:: Installation Name: Hardware Obsolescence ECPs

Installation Cost	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	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)*
Total	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	1 / 1.753	1 / 8.171	1 / 8.291	3 / 18.215

Installation Schedule

	PYS	FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				TC	Tot
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4		
In	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	1	-	-	1	3
Out	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	1	1	3

Method of Implementation: AIT:: Installation Name: Systems Release Upgrade Kits

Installation Cost	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	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 2019	- / -	- / -	6 / 4.514	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	6 / 4.514
FY 2020	- / -	- / -	- / -	7 / 5.453	0 / 0.000	7 / 5.453	- / -	- / -	- / -	- / -	0 / 0.000	7 / 5.453
FY 2021	- / -	- / -	- / -	- / -	- / -	- / -	3 / 2.397	- / -	- / -	- / -	0 / 0.000	3 / 2.397
FY 2022	- / -	- / -	- / -	- / -	- / -	- / -	- / -	5 / 4.101	- / -	- / -	0 / 0.000	5 / 4.101
FY 2023	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	4 / 3.465	- / -	0 / 0.000	4 / 3.465
FY 2024	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	5 / 4.402	0 / 0.000	5 / 4.402
FY 2025	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	5 / 3.591	5 / 3.591
To Complete	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
Total	- / -	- / -	6 / 4.514	7 / 5.453	0 / 0.000	7 / 5.453	3 / 2.397	5 / 4.101	4 / 3.465	5 / 4.402	5 / 3.591	35 / 27.923

Installation Schedule

	PYS	FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				TC	Tot
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4		
In	-	-	-	-	-	-	3	1	2	2	3	-	2	1	-	-	2	2	-	1	2	-	2	1	1	2	2	1	-	5	35
Out	-	-	-	-	-	-	3	1	2	2	3	-	2	1	-	-	2	2	-	1	2	-	2	1	1	2	2	1	-	5	35

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
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

Installation Information

Method of Implementation: AIT:: Installation Name: Block II System Release Upgrade

Installation Cost	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	To Complete	Total
	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*
Prior Years	5 / 7.180	2 / 1.491	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	7 / 8.671
FY 2019	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2020	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2021	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2022	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2023	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2024	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2025	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
To Complete	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	- / -
Total	5 / 7.180	2 / 1.491	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	7 / 8.671

Installation Schedule

	PYS	FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				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	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7
Out	5	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7

Footnotes:

(45) C.E. 2.1.3 - The ADMACS program transitioned from a common configuration effort to a system upgrade effort; the first system release procurement occurred in FY 2018 and installed 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.

(46) C.E. 2.2.2 - Hardware Obsolescence ECPs represent the organic work required to address obsolescent components in system hardware. The cost increase from FY 2020 to FY 2021 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.

(47) C.E. 2.2.3 - Cybersecurity ECPs represent the organic work required to mitigate emerging cyber threats as well as software obsolescence. Increase in FY 2020 and FY 2021 focuses on additional cybersecurity required to support CVN 76 in Japan for increment 3 install and the Aviation Weapons Information Management System / Ordnance Information System (AWIMS/OIS) Interface. Cybersecurity

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
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:**	

ECPs in ADMACS are critical to maintain and prioritize due to the nature of ADMACS being a highly integrated hardware and software operating system. ECPs to hardware and software intrusion are critical for ADMACS to maintain ship safety and maintain communications as ADMACS serves as the hub for communication of systems to systems within the ALRE portfolio.

(48) C.E. 2.2.4 - Includes costs for annual software (SW) builds. Captures cost of non-recurring engineering for the next ADMACS SW build and integration effort, required due to the complexity of critical SW integration and number of security mandates for incorporation in 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.

(49) C.E. 3.1 - Costs in ILS from FY 2020 to FY 2025 show support to complete logistics products updates (Tech Manuals, Maintenance Plan, Maintenance Requirement Card (MRCs), Training) for ADMACS Block II and ADMACS for AAS.

(50) C.E. 3.2 - Costs in Production Engineering support hardware obsolescence and cybersecurity engineering for ECPs reflected in C.E. 2.2.2, 2.2.3, and 2.2.4.

(51) 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.

(52) 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.

(53) System Release Upgrade installs occur once a year for 3 or more CVNs. System Release Upgrades addresses SW, cybersecurity, and obsolescence and installed on CVNs available when an update is complete and ready for release. Unit cost varies from ship to ship and across years due to the individual ship and length of ship availability, since ADMACS SW generated is unique to an individual ship to accommodate ship specific spaces (i.e. magazines are mapped to an individual ship's layout). The increase in install cost from FY 2020 to FY 2021 is due to an additional install, the timeframe constraints of each ship's availability, plus the unique modification of SW for those ships and coordination of installs for 7 ships in that year.

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	To Complete	Total
Procurement Quantity *(Units in Each)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost *($ in Millions)*	5.772	6.453	13.882	5.553	0.000	5.553	4.975	14.689	4.129	4.212	Continuing	Continuing
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	5.772	6.453	13.882	5.553	0.000	5.553	4.975	14.689	4.129	4.212	Continuing	Continuing
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**5.772**	**6.453**	**13.882**	**5.553**	**0.000**	**5.553**	**4.975**	**14.689**	**4.129**	**4.212**	**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 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 2021 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, address critical hardware obsolescence for Crystal Rugged Servers, continue to modify the Halfbridges to incorporate the next generation of Integrated Gate Bipolar Transistors (IGBT) to improve reliability and replace obsolete prior generation IGBTs and continue with associated Non-Recurring Engineering (NRE) funding to support CVN-78 Engineering Change Proposals (ECPs).

Notes for Installations:
1. Installations are subject to change with ship availability schedules.
2. The year-to-year unit installations costs will vary and can exceed the projected yearly inflation rate due to the hardware installation cost being dependent on quantity and location of the ship at the time of install, and the ship's baseline configuration.
3. Production lead time includes pre-installation checkout, kitting with other installation hardware and drawings, and time to ship the hardware to the installation site.

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	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 (54) *Installation 1 of 10*	- / -	4 / 0.029	- / -	4 / 0.026	- / -	4 / 0.026	- / -	- / -	- / -	- / -	- / -	8 / 0.055
1.1.2) Position Sensor - NonOrganic (55) *Installation 2 of 10*	5 / 2.261	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	5 / 2.261
1.1.3) Hardware Obsolescence - NonOrganic (56) *Installation 3 of 10*	- / -	- / -	- / -	8 / 0.351	- / -	8 / 0.351	- / -	- / -	- / -	- / -	Continuing	Continuing
1.1.4) Torsion Brake - NonOrganic (57) *Installation 4 of 10*	2 / 0.032	12 / 0.155	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	14 / 0.187
1.1.5) Halfbridges - NonOrganic (58) *Installation 5 of 10*	- / -	- / -	- / -	35 / 1.326	- / -	35 / 1.326	80 / 2.945	110 / 4.056	80 / 3.017	101 / 3.838	- / -	406 / 15.182
1.1.6) Sixnet Switches - NonOrganic (59) *Installation 6 of 10*	- / -	177 / 1.361	142 / 0.866	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	319 / 2.227
1.1.9) PC104 Hardware Obsolescence - NonOrganic (60) *Installation 7 of 10*	- / -	8 / 0.392	20 / 2.426	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	28 / 2.818
1.1.10) UIC 40 Urgent Obsolescence - NonOrganic (61) *Installation 8 of 10*	- / -	24 / 0.027	72 / 0.076	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	96 / 0.103
1.1.11) NGL Buffer and Tensioner - NonOrganic (62) *Installation 9 of 10*	- / -	- / -	9 / 0.086	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	9 / 0.086
1.1.12) PLC Urgent Obsolescence - NonOrganic (63) *Installation 10 of 10*	- / -	- / -	200 / 3.180	152 / 1.908	- / -	152 / 1.908	144 / 1.855	- / -	- / -	- / -	- / -	496 / 6.943
1.2.1) Non-Recurring Engineering - Organic(*) (64)	- / 2.383	- / 3.976	- / 4.532	- / 1.078	- / -	- / 1.078	- / -	- / 10.540	- / -	- / -	Continuing	Continuing
2.1.1) Non-Recurring Engineering EMALS Block I Upgrade - Organic(*)	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / 1.018	- / 0.308	- / -	- / 1.326
Subtotal: Procurement	*- / 4.676*	*- / 5.940*	*- / 11.166*	*- / 4.689*	*- / -*	*- / 4.689*	*- / 4.800*	*- / 14.596*	*- / 4.035*	*- / 4.146*	*Continuing*	*Continuing*
Support												
3.1) PE	- / 0.680	- / 0.081	- / 0.164	- / 0.025	- / -	- / 0.025	- / -	- / -	- / -	- / -	Continuing	Continuing
3.2) ILS	- / 0.312	- / 0.379	- / 1.300	- / 0.249	- / -	- / 0.249	- / 0.018	- / 0.027	- / -	- / -	Continuing	Continuing
Subtotal: Support	*- / 0.992*	*- / 0.460*	*- / 1.464*	*- / 0.274*	*- / -*	*- / 0.274*	*- / 0.018*	*- / 0.027*	*- / -*	*- / -*	*Continuing*	*Continuing*
Installation												
Installation 1 of 10: GRP: 1.1.1) Transformer Rectifier Fuse Detection Actuator	- / -	- / 0.028	- / -	- / 0.195	- / 0.000	- / 0.195	- / -	- / -	- / -	- / -	- / 0.000	- / 0.223
Installation 2 of 10: GRP: 1.1.2) Position Sensor	- / 0.101	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / 0.000	- / 0.101

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	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 3 of 10: GRP: 1.1.3) Hardware Obsolescence	- / -	- / -	- / -	- / 0.034	- / 0.000	- / 0.034	- / -	- / -	- / -	- / -	- / 0.000	- / 0.034
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	- / -	- / -	- / -	- / -	- / -	- / -	- / 0.087	- / 0.066	- / 0.094	- / 0.066	- / 0.091	- / 0.404
Installation 6 of 10: GRP: 1.1.6) Sixnet Switches	- / -	- / -	- / 1.036	- / 0.271	- / 0.000	- / 0.271	- / -	- / -	- / -	- / -	- / 0.000	- / 1.307
Installation 7 of 10: GRP: 1.1.9) PC104 Hardware Obsolescence	- / -	- / 0.005	- / 0.009	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / 0.000	- / 0.014
Installation 8 of 10: GRP: 1.1.10) UIC40 Urgent Obsolescence	- / -	- / 0.010	- / 0.018	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / 0.000	- / 0.028
Installation 9 of 10: NGL Buffer and Tensioner	- / -	- / -	- / 0.005	- / 0.020	- / 0.000	- / 0.020	- / -	- / -	- / -	- / -	- / 0.000	- / 0.025
Installation 10 of 10: PLC Urgent Obsolescence	- / -	- / -	- / 0.184	- / 0.070	- / 0.000	- / 0.070	- / 0.070	- / -	- / -	- / -	- / 0.000	- / 0.324
Subtotal: Installation	*- / 0.104*	*- / 0.053*	*- / 1.252*	*- / 0.590*	*- / -*	*- / 0.590*	*- / 0.157*	*- / 0.066*	*- / 0.094*	*- / 0.066*	*- / 0.091*	*- / 2.473*
Total												
Total Cost (Procurement + Support + Installation)	**5.772**	**6.453**	**13.882**	**5.553**	**0.000**	**5.553**	**4.975**	**14.689**	**4.129**	**4.212**	**Continuing**	**Continuing**

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
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 (65) | Manufacturer Location: San Diego, CA

Administrative Leadtime *(in Months)*: 4 | Production Leadtime *(in Months)*: 3

Dates	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025
Contract Dates	Jan 2019		Jan 2021				
Delivery Dates	Apr 2019		Apr 2021				

Installation Information

Method of Implementation: AIT:: Installation Name: 1.1.1) Transformer Rectifier Fuse Detection Actuator

Installation Cost	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	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 2019	- / -	4 / 0.028	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	4 / 0.028
FY 2020	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2021	- / -	- / -	- / -	4 / 0.195	0 / 0.000	4 / 0.195	- / -	- / -	- / -	- / -	0 / 0.000	4 / 0.195
FY 2022	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2023	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2024	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2025	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
To Complete	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
Total	- / -	4 / 0.028	- / -	4 / 0.195	0 / 0.000	4 / 0.195	- / -	- / -	- / -	- / -	0 / 0.000	8 / 0.223

Installation Schedule

	PYS	FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				TC	Tot
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4		
In	-	-	-	4	-	-	-	-	-	-	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8
Out	-	-	-	-	4	-	-	-	-	-	-	-	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
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 (66) | Manufacturer Location: San Diego, CA

Administrative Leadtime *(in Months)*: 8 | Production Leadtime *(in Months)*: 3

Dates	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025
Contract Dates							
Delivery Dates							

Installation Information

Method of Implementation: AIT:: Installation Name: 1.1.2) Position Sensor

Installation Cost	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	To Complete	Total
	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*
Prior Years	5 / 0.101	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	5 / 0.101
FY 2019	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2020	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2021	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2022	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2023	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2024	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2025	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
To Complete	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
Total	5 / 0.101	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	5 / 0.101

Installation Schedule

	PYS	FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				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

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
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 (67) | Manufacturer Location: San Diego, CA

Administrative Leadtime *(in Months)*: 4 | Production Leadtime *(in Months)*: 8

Dates	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025
Contract Dates			Jan 2021				
Delivery Dates			Aug 2021				

Installation Information

Method of Implementation: AIT:: Installation Name: 1.1.3) Hardware Obsolescence

Installation Cost	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	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 2019	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2020	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2021	- / -	- / -	- / -	8 / 0.034	0 / 0.000	8 / 0.034	- / -	- / -	- / -	- / -	0 / 0.000	8 / 0.034
FY 2022	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2023	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2024	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2025	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
To Complete	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
Total	- / -	- / -	- / -	8 / 0.034	0 / 0.000	8 / 0.034	- / -	- / -	- / -	- / -	0 / 0.000	8 / 0.034

Installation Schedule

	PYS	FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				TC	Tot
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4		
In	-	-	-	-	-	-	-	-	-	-	-	-	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8
Out	-	-	-	-	-	-	-	-	-	-	-	-	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
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 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025
Contract Dates	Jan 2019						
Delivery Dates	Mar 2019						

Installation Information

Method of Implementation: AIT:: Installation Name: 1.1.4) Torsion Brake

Installation Cost	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	To Complete	Total
	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*
Prior Years	2 / 0.003	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	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	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2025	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
To Complete	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
Total	2 / 0.003	12 / 0.010	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	14 / 0.013

Installation Schedule

	PYS	FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				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

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
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 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025
Contract Dates			Mar 2021	Mar 2022	Mar 2023	Mar 2024	Mar 2025
Delivery Dates			Sep 2021	Sep 2022	Sep 2023	Sep 2024	Sep 2025

Installation Information

Method of Implementation: AIT:: Installation Name: 1.1.5) Halfbridges

Installation Cost	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	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 2019	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2020	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2021	- / -	- / -	- / -	- / -	- / -	- / -	35 / 0.087	- / -	- / -	- / -	0 / 0.000	35 / 0.087
FY 2022	- / -	- / -	- / -	- / -	- / -	- / -	- / -	80 / 0.066	- / -	- / -	0 / 0.000	80 / 0.066
FY 2023	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	110 / 0.094	- / -	0 / 0.000	110 / 0.094
FY 2024	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	80 / 0.066	0 / 0.000	80 / 0.066
FY 2025	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	101 / 0.091	101 / 0.091
To Complete	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
Total	- / -	- / -	- / -	- / -	- / -	- / -	35 / 0.087	80 / 0.066	110 / 0.094	80 / 0.066	101 / 0.091	406 / 0.404

Installation Schedule

	PYS	FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				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	-	-	-	-	-	-	-	-	-	-	-	-	-	-	35	-	-	-	80	-	-	-	110	-	-	-	80	-	-	101	406
Out	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	35	-	-	-	-	80	-	-	-	110	-	-	24	56	101	406

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
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)*: 2 | Production Leadtime *(in Months)*: 6

Dates	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025
Contract Dates	Nov 2018	Nov 2019					
Delivery Dates	May 2019	May 2020					

Installation Information

Method of Implementation: AIT:: Installation Name: 1.1.6) Sixnet Switches

Installation Cost	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	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 2019	- / -	- / -	177 / 1.036	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	177 / 1.036
FY 2020	- / -	- / -	- / -	142 / 0.271	0 / 0.000	142 / 0.271	- / -	- / -	- / -	- / -	0 / 0.000	142 / 0.271
FY 2021	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2022	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2023	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2024	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2025	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
To Complete	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
Total	- / -	- / -	177 / 1.036	142 / 0.271	0 / 0.000	142 / 0.271	- / -	- / -	- / -	- / -	0 / 0.000	319 / 1.307

Installation Schedule

	PYS	FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				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

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
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: 1.1.9) 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 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025
Contract Dates	Jan 2019	Jan 2020					
Delivery Dates	Mar 2019	Mar 2020					

Installation Information

Method of Implementation: AIT:: Installation Name: 1.1.9) PC104 Hardware Obsolescence

Installation Cost	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	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 2019	- / -	8 / 0.005	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	8 / 0.005
FY 2020	- / -	- / -	20 / 0.009	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	20 / 0.009
FY 2021	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2022	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2023	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2024	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2025	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
To Complete	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
Total	- / -	8 / 0.005	20 / 0.009	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	28 / 0.014

Installation Schedule

	PYS	FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				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	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	28
Out	-	-	-	-	8	-	-	-	20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	28

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
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: 1.1.10) UIC40 Urgent Obsolescence

Manufacturer Information

Manufacturer Name: General Atomics | Manufacturer Location: San Diego, CA

Administrative Leadtime *(in Months)*: 4 | Production Leadtime *(in Months)*: 3

Dates	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025
Contract Dates	Jan 2019	Jan 2020					
Delivery Dates	Apr 2019	Apr 2020					

Installation Information

Method of Implementation: AIT:: Installation Name: 1.1.10) UIC40 Urgent Obsolescence

Installation Cost	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	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 2019	- / -	24 / 0.010	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	24 / 0.010
FY 2020	- / -	- / -	72 / 0.018	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	72 / 0.018
FY 2021	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2022	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2023	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2024	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2025	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
To Complete	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
Total	- / -	24 / 0.010	72 / 0.018	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	96 / 0.028

Installation Schedule

	PYS	FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				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	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	96
Out	-	-	-	-	24	-	-	-	72	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	96

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
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: NGL Buffer and Tensioner

Manufacturer Information

Manufacturer Name: Lakehurst PMD (Prototype Manufacturing Division | Manufacturer Location: Lakehurst, NJ

Administrative Leadtime *(in Months)*: 3 | Production Leadtime *(in Months)*: 6

Dates	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025
Contract Dates		Dec 2019					
Delivery Dates		Jun 2020					

Installation Information

Method of Implementation: [none specified]:: Installation Name: NGL Buffer and Tensioner

Installation Cost	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	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 2019	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2020	- / -	- / -	1 / 0.005	8 / 0.020	0 / 0.000	8 / 0.020	- / -	- / -	- / -	- / -	0 / 0.000	9 / 0.025
FY 2021	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2022	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2023	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2024	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2025	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
To Complete	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
Total	- / -	- / -	1 / 0.005	8 / 0.020	0 / 0.000	8 / 0.020	- / -	- / -	- / -	- / -	0 / 0.000	9 / 0.025

Installation Schedule

	PYS	FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				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	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	9
Out	-	-	-	-	-	-	-	-	1	-	-	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	9

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
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: PLC Urgent Obsolescence

Manufacturer Information

Manufacturer Name: General Atomics | Manufacturer Location: San Diego, CA

Administrative Leadtime *(in Months)*: 2 | Production Leadtime *(in Months)*: 3

Dates	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025
Contract Dates		Nov 2019	Nov 2020	Nov 2021			
Delivery Dates		Feb 2020	Feb 2021	Feb 2022			

Installation Information

Method of Implementation: [none specified]:: Installation Name: PLC Urgent Obsolescence

Installation Cost	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	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 2019	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2020	- / -	- / -	200 / 0.184	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	200 / 0.184
FY 2021	- / -	- / -	- / -	152 / 0.070	0 / 0.000	152 / 0.070	- / -	- / -	- / -	- / -	0 / 0.000	152 / 0.070
FY 2022	- / -	- / -	- / -	- / -	- / -	- / -	144 / 0.070	- / -	- / -	- / -	0 / 0.000	144 / 0.070
FY 2023	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2024	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2025	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
To Complete	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
Total	- / -	- / -	200 / 0.184	152 / 0.070	0 / 0.000	152 / 0.070	144 / 0.070	- / -	- / -	- / -	0 / 0.000	496 / 0.324

Installation Schedule

	PYS	FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				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	-	-	-	-	-	-	200	-	-	-	152	-	-	-	144	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	496
Out	-	-	-	-	-	-	-	-	200	-	-	-	152	-	-	-	144	-	-	-	-	-	-	-	-	-	-	-	-	-	496

Footnotes:

(54) 1.1.1 Transformer Rectifier Fuse Detection Actuator: Updated the cost element in FY20 and FY21. As a result of shock testing in FY19 this ECP became a 2 part ECP. The four (4) units procured in FY19 now contain shock tested items that are critical to the Fuse Detection Actuator's operational effectivity. They are still planned for installation, one (1) at the System Functional Demonstration (SFD) site in FY

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
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:**	

2019 and three (3) for installation on CVN-78 during its FY 2019 PIA (Planned Incremental Availability). The four (4) procured in FY21 are the rest of the upgrade that affect the fuse detection actuator's reliability. They too will be installed, one (1) at the System Functional Demonstration (SFD) site in FY 2021 and three (3) for installation on CVN-78 during its FY 2021 PIA1 (Planned Incremental Availability-1).

(55) 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 FY 2019 enacted 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.

(56) 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 install 8 in FY 2021, 2 at System Functional Demonstrator (SFD), 2 at Shipset Control Lab (SCL), 2 at Regression Test Lab (RTL), and 2 at CVN78.

(57) 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 FY 2019 enacted 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.

(58) 1.1.5 Halfbridges: Quantities were adjusted for procurement and production efficiencies. Installs adjusted for Admin and Procurement Lead times. 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 2021. The quantity 432 equates to 324 for CVN78, and 108 for SFD.

(59) 1.1.6 Sixnet Switches: In the FY 2019 budget the plan 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. Quantities in FY 2019 are 177 for the System Functional Demonstration (SFD) site and for Shipset Control Lab (SCL) testing. In FY 2020 a quantity of 142 will be procured for CVN-78. Installations will occur as described in the 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 PIA1 availability.

(60) 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 an 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.

(61) 1.1.10 Universal Interface Controller (UIC) 40 Urgent Obsolescence: UIC 40s are obsolete and need to be replaced in Power Conversion System (PCS) Inverters with UIC 100s. Without the new hardware, the system will be unable to secure an 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.

(62) 1.1.11 NGL Buffer and Trensioner - Nose Gear Landing (NGL) hydraulic hoses are susceptible to installation damage and tensioner hoses have loosened and leaked during operation. Hose degradation is a factor to air ingestion to the hydraulic system. The buffer slide assembly sticks in track and buffer hooks remain up during post-launch aft movement. This critical ECP provides the modified design and procurement to solve this NGL and buffer tensioner issue.

(63) 1.1.12 PLC Urgent Obsolescence - Programmable Logic Controller (PLC). Current PLCs are obsolete and are critical to operational effectivity of multiple systems on EMALS such as Transformer Rectifier T/R and Generator Control Tower (GCT), Thermal Management System, and Launch Motor Subsystem (LMS) Cooling System. PLC's do several things to include on and off fans to keep systems cool and turning pumps on to keep cold water flowing through them. Without these PLC component/assemblies, these system would fail due to heat limitations/failure modes and would risk and limit EMALS launching capability.

(64) CE 1.2.1 Non-Recurring Engineering addresses engineering changes, obsolescence of hardware, correction of deficiencies found during integration test and development test evaluation, cyber security compliance and the fielding of critical software updates. Resulting from FY 2020, the procurement of EMALS Transformer Rectifiers (T/R) in FY20 was eliminated. The subsequent installation dollars in FY23 were not removed from the FY 2021 President's Budget request and will be reprioritized to higher Navy priorities prior to the FY22 submission to the congress.

(65) Transformer Rectifier Fuse Detection Actuator Installs: One (1) at the System Functional Demonstration (SFD) site in FY 2019 and three (3) for installation on CVN-78 during its FY 2019 PIA (Planned Incremental Availability). The four (4) procured in FY21 are the rest of the upgrade that affect the fuse detection actuator's reliability. They too will be installed, one (1) at the System Functional Demonstration (SFD) site in FY 2021 and three (3) for installation on CVN-78 during its FY 2021 PIA1 (Planned Incremental Availability-1).

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
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:**	

(66) 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.

(67) The program plans to install 8 in FY 2021, 2 at System Functional Demonstrator (SFD), 2 at Shipset Control Lab (SCL), 2 at Regression Test Lab (RTL), and 2 at CVN78.

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	To Complete	Total
Procurement Quantity *(Units in Each)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost *($ in Millions)*	74.681	21.937	25.372	35.594	0.000	35.594	18.247	16.797	17.535	14.075	Continuing	Continuing
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	74.681	21.937	25.372	35.594	0.000	35.594	18.247	16.797	17.535	14.075	Continuing	Continuing
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**74.681**	**21.937**	**25.372**	**35.594**	**0.000**	**35.594**	**18.247**	**16.797**	**17.535**	**14.075**	**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 2021 request funds the procurement of 16 AN/SRQ-4(Ku) field install kits and associated support and installation costs to meet the Ship Yard Availability plan for Shipalt 79719.

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.

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	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	46 / 29.602	8 / 9.758	8 / 9.999	16 / 20.047	- / -	16 / 20.047	- / -	- / -	- / -	- / -	- / -	78 / 69.406
Subtotal: Recurring	*- / 29.602*	*- / 9.758*	*- / 9.999*	*- / 20.047*	*- / -*	*- / 20.047*	*- / -*	*- / -*	*- / -*	*- / -*	*- / 0.000*	*- / 69.406*
Non-Recurring												
1.2.1) NRE - Organic [68]	- / 2.919	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / 11.118	- / -	- / 14.037
Subtotal: Non-Recurring	*- / 2.919*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / 11.118*	*- / 0.000*	*- / 14.037*
Subtotal: LAMPS MK III - SRQ(KU)-4 (S1010)	*46 / 32.521*	*8 / 9.758*	*8 / 9.999*	*16 / 20.047*	*- / -*	*16 / 20.047*	*- / -*	*- / -*	*- / -*	*- / 11.118*	*- / -*	*78 / 83.443*
Subtotal: Procurement, All Modification Items	*- / 32.521*	*- / 9.758*	*- / 9.999*	*- / 20.047*	*- / -*	*- / 20.047*	*- / -*	*- / -*	*- / -*	*- / 11.118*	*- / 0.000*	*- / 83.443*
Support *(All Modification Items)*												
2.1) Data [69]	- / 1.558	- / 0.573	- / 0.643	- / 0.562	- / -	- / 0.562	- / 1.050	- / 1.116	- / 0.516	- / -	- / -	- / 6.018
2.2) Support Equipment [70]	- / 1.507	- / 1.106	- / 1.126	- / 1.146	- / -	- / 1.146	- / 1.173	- / 1.192	- / 1.137	- / -	- / -	- / 8.387
2.3) ILS	- / 6.187	- / 1.978	- / 2.022	- / 2.058	- / -	- / 2.058	- / 2.102	- / 1.546	- / 0.795	- / 0.346	Continuing	Continuing
2.4) Government Engineering [71]	- / 4.961	- / 2.383	- / 2.435	- / 2.450	- / -	- / 2.450	- / 2.504	- / 2.560	- / 2.564	- / 2.611	Continuing	Continuing
2.5) Acceptance Test & Evaluation	- / 0.261	- / 0.088	- / 0.207	- / 0.211	- / -	- / 0.211	- / 0.219	- / 0.219	- / 0.199	- / -	Continuing	Continuing
2.6) GFE	- / 1.701	- / 0.363	- / 0.369	- / 0.376	- / -	- / 0.376	- / 0.387	- / 0.390	- / 0.197	- / -	- / -	- / 3.783
2.7) Production Line Support [72]	- / 1.165	- / 1.543	- / 1.626	- / 1.679	- / -	- / 1.679	- / 1.786	- / 1.851	- / 1.446	- / -	- / -	- / 11.096
Subtotal: Support	*- / 17.340*	*- / 8.034*	*- / 8.428*	*- / 8.482*	*- / -*	*- / 8.482*	*- / 9.221*	*- / 8.874*	*- / 6.854*	*- / 2.957*	*Continuing*	*Continuing*
Installation												
Modification Item 1 of 1: LAMPS MK III - SRQ(KU)-4 (S1010)	- / 24.820	- / 4.145	- / 6.945	- / 7.065	- / 0.000	- / 7.065	- / 9.026	- / 7.923	- / 10.681	- / 0.000	- / 0.000	- / 70.605
Subtotal: Installation	*- / 24.820*	*- / 4.145*	*- / 6.945*	*- / 7.065*	*- / -*	*- / 7.065*	*- / 9.026*	*- / 7.923*	*- / 10.681*	*- / -*	*- / 0.000*	*- / 70.605*
Total												
Total Cost (Procurement + Support + Installation)	**74.681**	**21.937**	**25.372**	**35.594**	**0.000**	**35.594**	**18.247**	**16.797**	**17.535**	**14.075**	**Continuing**	**Continuing**

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
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 *(in Months)*: 4	Production Leadtime *(in Months)*: 22

Dates	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025
Contract Dates	Jan 2019	Jan 2020	Jan 2021				
Delivery Dates	Nov 2020	Nov 2021	Nov 2022				

Installation Information

Method of Implementation: NAWCAD St. Inigoes Installation Team:: Installation Name: AN/SRQ-4 Installations

Installation Cost	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	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	30 / 24.820	4 / 4.145	9 / 6.945	3 / 2.382	0 / 0.000	3 / 2.382	- / -	- / -	- / -	- / -	0 / 0.000	46 / 38.292
FY 2019	- / -	- / -	- / -	6 / 4.683	0 / 0.000	6 / 4.683	2 / 2.563	- / -	- / -	- / -	0 / 0.000	8 / 7.246
FY 2020	- / -	- / -	- / -	- / -	- / -	- / -	5 / 6.463	3 / 2.593	- / -	- / -	0 / 0.000	8 / 9.056
FY 2021	- / -	- / -	- / -	- / -	- / -	- / -	- / -	6 / 5.330	10 / 10.681	- / -	0 / 0.000	16 / 16.011
FY 2022	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2023	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2024	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2025	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
To Complete	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
Total	30 / 24.820	4 / 4.145	9 / 6.945	9 / 7.065	0 / 0.000	9 / 7.065	7 / 9.026	9 / 7.923	10 / 10.681	- / -	0 / 0.000	78 / 70.605

Installation Schedule

	PYS	FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				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	30	3	1	-	-	-	2	3	4	1	2	3	3	2	-	2	3	1	2	3	3	5	5	-	-	-	-	-	-	-	78
Out	30	3	1	-	-	-	2	3	4	1	2	3	3	2	-	2	3	1	2	3	3	5	5	-	-	-	-	-	-	-	78

Footnotes:

(68) Cost Element 1.2.1, NRE, FY 2025 funding supports program close out and correction of several component level obsolescence issues as well as cyber security requirements related to modernizing the Aegis Weapon System (AWS) on Aegis guided missile cruisers and destroyers via Advanced Capability Build (ACB)-16 baseline upgrades. ACB-16 upgrades will be installed on both the DDG destroyers and CG cruisers.

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
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:**	

(69) Cost Element 2.1, Data funding, procure ship installation drawings and provides for ship checks on multiple CG and DDG class ships scheduled for SHIPALT 79719. This cost element provides the funds to procure the data packages eighteen months prior to ship installation start. 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.

(70) Cost Element 2.2, Support Equipment is for the procurement of KU-Band equipment for the fleet to replace the Test Set-4120s that allows trouble shooting of the LAMPS MK III system without an embarked helicopter.

(71) 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.

(72) Cost Element 2.7, Production Line support is related to the Prime Contractor System Engineering Program Management (SEPM) requirements to produce and deliver SRQ(KU)-4 installation kit. Production Line support is required until the last end item is delivered in FY24.

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Exhibit P-40, Budget Line Item Justification: PB 2021 Navy	Date: February 2020
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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	To Complete	Total
Procurement Quantity *(Units in Each)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost *($ in Millions)*	10.900	11.054	4.725	16.059	0.000	16.059	11.014	17.264	5.556	7.331	260.573	344.476
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	10.900	11.054	4.725	16.059	0.000	16.059	11.014	17.264	5.556	7.331	260.573	344.476
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**10.900**	**11.054**	**4.725**	**16.059**	**0.000**	**16.059**	**11.014**	**17.264**	**5.556**	**7.331**	**260.573**	**344.476**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)												
Initial Spares *($ in Millions)*	-	-	-	0.189	-	0.189	-	0.756	-	-	-	0.945
Flyaway Unit Cost *($ in Dollars)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Dollars)*	-	-	-	-	-	-	-	-	-	-	-	-

Description:

The FY 2021 funding request was reduced by $0.765 million to account for the availability of prior year execution balances.

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 CVN-78 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).

Exhibit P-40, Budget Line Item Justification: PB 2021 Navy	Date: February 2020
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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 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))				- / 10.900	- / 11.054	- / 4.725	- / 16.059	- / 0.000	- / 16.059
P-40	**Total Gross/Weapon System Cost**				**- / 10.900**	**- / 11.054**	**- / 4.725**	**- / 16.059**	**- / 0.000**	**- / 16.059**

Exhibits Schedule					FY 2022	FY 2023	FY 2024	FY 2025	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))				- / 11.014	- / 17.264	- / 5.556	- / 7.331	- / 260.573	- / 344.476
P-40	**Total Gross/Weapon System Cost**				**- / 11.014**	**- / 17.264**	**- / 5.556**	**- / 7.331**	**- / 260.573**	**- / 344.476**

*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 from FY 2020 to FY 2021 is due to the funding required for Mod II Water Twister (WT) procurements for CVN-79 and installation and completion of the material required for CVN-78. CVN-78's Mod II Water Twisters will be installed during the Planned Incremental Availability (PIA2) in FY24, and CVN-79 Mod II Water Twisters will be installed during Post-Shakedown Availability (PSA) beginning in 3Q FY23. CVN-79 is being constructed with Mod I WT onboard. The program will be using OPN to remove and modify the previously installed Mod I WTs on CVN-79 making them full up Mod II WTs. OPN is only funding the WT Mod II procurement/parts and the installation portion of WT Mod II.

The change in budget exhibit strategy in FY 2020 and out is to provide funding in Block upgrades to allow the program to address the most critical ECPs for the two land based units, Runway Arrested Landing Site (RALS), Jet Car Track Site (JCTS) and onboard CVN-78. With swift changes in software updates and associated subsystems, impending cybersecurity mandates and changes driven by continuing correction of deficiencies out of RDT&E, the limited funding profile creates a dynamic situation in effectively executing this OPN Line Item to support an ever-changing list of unanticipated priority updates.

The logic of Block upgrades will provide the program more flexibility to address competing priorities of what become the most critical obsolescence, reliability, operational or safety upgrades in a given year. It also avoids multiple overlapping software releases and design rework. The block upgrades are categorized as follows: Obsolescence, Reliability Improvement upgrades, Operational Capability Improvements and Safety of Flight/Operations as well as the associated non-recurring engineering (NRE). Each Block will generally be staggered by two (2) years to provide sufficient time for the design of each block and to level load Engineering Resources. Each block will conduct performance validation testing in the 3rd year, with kit manufacture in the 4th year and install in the 5th year. These lead times will also allow each Block to be available and leverage ship construction and availability schedules.

Notes for Installation Schedule:
1. Installations are subject to change with ship availability schedule updates.
2. The year-to-year unit installations costs will vary and can exceed the projected yearly inflation rate due to the hardware installation cost being dependent on quantity and location of the ship at the time of install or which site is being update, which CVN, and the ships baseline configuration.
3. Production lead time includes pre-installation checkout, kitting with other installation hardware and drawings, and time to deliver the hardware to the installation site.

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	To Complete	Total
Procurement Quantity *(Units in Each)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost *($ in Millions)*	10.900	11.054	4.725	16.059	0.000	16.059	11.014	17.264	5.556	7.331	260.573	344.476
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	10.900	11.054	4.725	16.059	0.000	16.059	11.014	17.264	5.556	7.331	260.573	344.476
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**10.900**	**11.054**	**4.725**	**16.059**	**0.000**	**16.059**	**11.014**	**17.264**	**5.556**	**7.331**	**260.573**	**344.476**
(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 CVN-78 and in two land based test sites at JCTS and RALS.

CVN-78 was delivered with several known deficiencies for AAG. FY 2021 funding provides Mod II Water Twister procurements for CVN-79 and installation and completion of the material required for CVN-78. FY 2021 also continues to provide funding for life cycle improvement Block I upgrades for the procurement and installation at RALS, JCTS and onboard CVN-78. The supporting non-recurring engineering (NRE) is required to continue to address and field critical software updates, maintain cyber security compliance and hardware obsolescence ECPs onboard CVN-78 and at RALS and JCTS.

CVN-78 has a Planned Incremental Availability (PIA) in FY 2021 when a significant amount of obsolescence issues will be addressed for CVN-78 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 ECPs are varying in cost as well as in quantities onboard CVN-78 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).

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	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 7*	4 / 7.147	6 / 5.592	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	10 / 12.739
1.1.2) Water Twister Mod II - NonOrganic (2) *Installation 2 of 7*	- / -	- / -	- / -	6 / 11.326	- / -	6 / 11.326	2 / 4.880	3 / 7.452	1 / 2.529	- / -	- / -	12 / 26.187
1.1.3) PCD/CSA Sheave Grease Manifold - NonOrganic *Installation 3 of 7*	6 / 0.034	- / -	- / -	- / -	- / -	- / -	- / -	6 / 0.523	- / -	- / -	- / -	12 / 0.557
1.1.4) Reconfiguration of ROCS - NonOrganic *Installation 4 of 7*	- / -	1 / 0.024	- / -	- / -	- / -	- / -	- / -	1 / 0.018	- / -	- / -	- / -	2 / 0.042
1.1.5) Encoder Replacement - NonOrganic *Installation 5 of 7*	- / -	3 / 0.166	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	3 / 0.166
1.1.6) Retractable Sheave Electric Control Panel Obsolescence - Organic(*)	- / -	8 / 0.461	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	8 / 0.461
1.2.1) Non-Recurring Engineering - Organic(*) (3)	- / 3.308	- / 4.150	- / -	- / 0.943	- / -	- / 0.943	- / 2.343	- / 2.484	- / 1.101	- / 1.089	- / 233.097	- / 248.515
2.1.1) AAG Block I Upgrade - NonOrganic (4) *Installation 6 of 7*	- / -	- / -	1 / 2.684	1 / 2.684	- / -	1 / 2.684	- / -	- / -	- / -	- / -	- / -	2 / 5.368
2.2.1) Non-Recurring Engineering - Organic(*) (5)	- / -	- / -	- / 1.318	- / 0.200	- / -	- / 0.200	- / -	- / -	- / -	- / -	- / -	- / 1.518
3.1.1) AAG Block II Upgrade - NonOrganic *Installation 7 of 7*	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	1 / 1.050	1 / 1.050	- / -	2 / 2.100
3.2.1) Non-Recurring Engineering - Organic(*)	- / -	- / -	- / -	- / -	- / -	- / -	- / 1.357	- / 0.096	- / -	- / -	- / -	- / 1.453
Subtotal: Procurement	*- / 10.489*	*- / 10.393*	*- / 4.002*	*- / 15.153*	*- / -*	*- / 15.153*	*- / 8.580*	*- / 10.573*	*- / 4.680*	*- / 2.139*	*- / 233.097*	*- / 299.106*
Support												
4.1) Integrated Logistics Support (6)	- / 0.186	- / 0.189	- / 0.250	- / 0.300	- / -	- / 0.300	- / 0.600	- / 0.500	- / 0.208	- / 0.250	- / 10.860	- / 13.343
4.2) Production Engineering Support (7)	- / 0.225	- / 0.232	- / 0.250	- / 0.606	- / -	- / 0.606	- / 1.232	- / 0.372	- / 0.668	- / 0.247	- / 15.712	- / 19.544
Subtotal: Support	*- / 0.411*	*- / 0.421*	*- / 0.500*	*- / 0.906*	*- / -*	*- / 0.906*	*- / 1.832*	*- / 0.872*	*- / 0.876*	*- / 0.497*	*- / 26.572*	*- / 32.887*
Installation												
Installation 1 of 7: GRP: 1.1.1) Water Twister	- / -	- / -	- / 0.183	- / -	- / -	- / -	- / -	- / 0.946	- / -	- / -	- / 0.000	- / 1.129
Installation 2 of 7: Water Twister Mod II	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / 3.896	- / -	- / 4.695	- / 0.000	- / 8.591
Installation 3 of 7: GRP: 1.1.3) AAG AES/EAS - PCD/ CSA Sheave Grease Manifold	- / -	- / 0.234	- / -	- / -	- / -	- / -	- / -	- / 0.357	- / -	- / -	- / 0.000	- / 0.591
Installation 4 of 7: GRP: 1.1.4) Reconfiguration of AAG ROCS	- / -	- / 0.006	- / -	- / -	- / -	- / -	- / -	- / 0.015	- / -	- / -	- / 0.000	- / 0.021
Installation 5 of 7: GRP: 1.1.5) Encoder Replacement	- / -	- / -	- / 0.040	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / 0.000	- / 0.040
Installation 6 of 7: AAG Block I Upgrade	- / -	- / -	- / -	- / -	- / -	- / -	- / 0.602	- / 0.605	- / -	- / -	- / 0.000	- / 1.207

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	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 7 of 7: AAG Block II Upgrade	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / 0.904	- / 0.904
Subtotal: Installation	- / 0.000	- / 0.240	- / 0.223	- / -	- / -	- / -	- / 0.602	- / 5.819	- / -	- / 4.695	- / 0.904	- / 12.483
Total												
Total Cost (Procurement + Support + Installation)	**10.900**	**11.054**	**4.725**	**16.059**	**0.000**	**16.059**	**11.014**	**17.264**	**5.556**	**7.331**	**260.573**	**344.476**

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
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 7: GRP: 1.1.1) Water Twister

Manufacturer Information

Manufacturer Name: General Atomics [8] | Manufacturer Location: San Diego, CA

Administrative Leadtime *(in Months)*: 6 | Production Leadtime *(in Months)*: 12

Dates	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025
Contract Dates	Mar 2019						
Delivery Dates	Mar 2020						

Installation Information

Method of Implementation: AIT Install:: Installation Name: 1.1.1) Water Twister

Installation Cost	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	To Complete	Total
	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*
Prior Years	- / -	- / -	4 / 0.183	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	4 / 0.183
FY 2019	- / -	- / -	- / -	- / -	- / -	- / -	- / -	6 / 0.946	- / -	- / -	0 / 0.000	6 / 0.946
FY 2020	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2021	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2022	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2023	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2024	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2025	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
To Complete	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
Total	- / -	- / -	4 / 0.183	- / -	- / -	- / -	- / -	6 / 0.946	- / -	- / -	0 / 0.000	10 / 1.129

Installation Schedule

	PYS	FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				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

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
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 7: Water Twister Mod II

Manufacturer Information

Manufacturer Name: General Atomics	Manufacturer Location: San Diego, CA
Administrative Leadtime *(in Months)*: 3	Production Leadtime *(in Months)*: 25

Dates	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025
Contract Dates			Dec 2020	Oct 2021	Oct 2022	Oct 2023	
Delivery Dates			Jan 2023	Jan 2024	Jan 2025	Jan 2026	

Installation Information

Method of Implementation: HII (Huntington Ingallls Industries):: Installation Name: Water Twister Mod II

Installation Cost	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	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 2019	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2020	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2021	- / -	- / -	- / -	- / -	- / -	- / -	- / -	6 / 3.896	- / -	- / -	0 / 0.000	6 / 3.896
FY 2022	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	2 / 1.575	0 / 0.000	2 / 1.575
FY 2023	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	3 / 2.340	0 / 0.000	3 / 2.340
FY 2024	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	1 / 0.780	0 / 0.000	1 / 0.780
FY 2025	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
To Complete	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
Total	- / -	- / -	- / -	- / -	- / -	- / -	- / -	6 / 3.896	- / -	6 / 4.695	0 / 0.000	12 / 8.591

Installation Schedule

	PYS	FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				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	-	-	-	-	-	5	1	-	-	-	12
Out	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6	-	-	-	-	-	-	6	-	12

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
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 7: 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)*: 6	Production Leadtime *(in Months)*: 3

Dates	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025
Contract Dates					Mar 2023		
Delivery Dates					Jun 2023		

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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	To Complete	Total
	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*
Prior Years	- / -	6 / 0.234	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	6 / 0.234
FY 2019	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2020	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2021	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2022	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2023	- / -	- / -	- / -	- / -	- / -	- / -	- / -	6 / 0.357	- / -	- / -	0 / 0.000	6 / 0.357
FY 2024	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2025	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
To Complete	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
Total	- / -	6 / 0.234	- / -	- / -	- / -	- / -	- / -	6 / 0.357	- / -	- / -	0 / 0.000	12 / 0.591

Installation Schedule

	PYS	FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				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

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
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 7: 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 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025
Contract Dates	Feb 2019				Feb 2023		
Delivery Dates	May 2019				May 2023		

Installation Information

Method of Implementation: AIT Install:: Installation Name: 1.1.4) Reconfiguration of AAG ROCS

Installation Cost	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	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 2019	- / -	1 / 0.006	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	1 / 0.006
FY 2020	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2021	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2022	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2023	- / -	- / -	- / -	- / -	- / -	- / -	- / -	1 / 0.015	- / -	- / -	0 / 0.000	1 / 0.015
FY 2024	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2025	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
To Complete	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
Total	- / -	1 / 0.006	- / -	- / -	- / -	- / -	- / -	1 / 0.015	- / -	- / -	0 / 0.000	2 / 0.021

Installation Schedule

	PYS	FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				TC	Tot
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4		
In	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	2
Out	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	2

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
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 7: GRP: 1.1.5) Encoder Replacement

Manufacturer Information

Manufacturer Name: General Atomics	Manufacturer Location: San Diego, CA
Administrative Leadtime *(in Months)*: 5	Production Leadtime *(in Months)*: 11

Dates	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025
Contract Dates	Feb 2019						
Delivery Dates	Jan 2020						

Installation Information

Method of Implementation: AIT Install:: Installation Name: 1.1.5) Encoder Replacement

Installation Cost	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	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 2019	- / -	- / -	3 / 0.040	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	3 / 0.040
FY 2020	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2021	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2022	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2023	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2024	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2025	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
To Complete	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
Total	- / -	- / -	3 / 0.040	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	3 / 0.040

Installation Schedule

	PYS	FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				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

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
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 7: AAG Block I Upgrade

Manufacturer Information

Manufacturer Name: General Atomics | Manufacturer Location: San Diego, CA

Administrative Leadtime *(in Months)*: 7 | Production Leadtime *(in Months)*: 24

Dates	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025
Contract Dates		Apr 2020	Apr 2021				
Delivery Dates		Apr 2022	Apr 2023				

Installation Information

Method of Implementation: AIT:: Installation Name: AAG Block I Upgrade

Installation Cost	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	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 2019	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2020	- / -	- / -	- / -	- / -	- / -	- / -	1 / 0.602	- / -	- / -	- / -	0 / 0.000	1 / 0.602
FY 2021	- / -	- / -	- / -	- / -	- / -	- / -	- / -	1 / 0.605	- / -	- / -	0 / 0.000	1 / 0.605
FY 2022	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2023	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2024	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2025	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
To Complete	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
Total	- / -	- / -	- / -	- / -	- / -	- / -	1 / 0.602	1 / 0.605	- / -	- / -	0 / 0.000	2 / 1.207

Installation Schedule

	PYS	FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				TC	Tot
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4		
In	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	1	-	-	-	-	-	-	-	-	-	-	2
Out	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	1	-	-	-	-	-	-	-	-	-	2

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
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 7 of 7: AAG Block II Upgrade

Manufacturer Information

Manufacturer Name: General Atomics	Manufacturer Location: San Diego, CA
Administrative Leadtime *(in Months)*: 8	Production Leadtime *(in Months)*: 12

Dates	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025
Contract Dates						Jun 2024	Jun 2025
Delivery Dates						Jun 2025	Jun 2026

Installation Information

Method of Implementation: [none specified]:: Installation Name: AAG Block II Upgrade

Installation Cost	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	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 2019	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2020	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2021	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2022	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2023	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2024	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	1 / 0.445	1 / 0.445
FY 2025	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	1 / 0.459	1 / 0.459
To Complete	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
Total	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	2 / 0.904	2 / 0.904

Installation Schedule

	PYS	FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				TC	Tot
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4		
In	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2
Out	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2

Footnotes:

(1) Cost Element 1.1.1 Water Twister - The funding in FY19 provided the rough machining for six (6) rotor shafts for CVN-78 provided at a reduced cost as a result of the concurrency clause in the CVN-78 contract. It also provided for the long lead items and materials provided by Lakehurst Prototype Manufacturing Department (PMD) for forgings (non-rotor) and inboard cover materials to expedite the CVN-78 upgrade to WT MOD II to be able to install them during PIA2 in FY24. Due to the lead times of the materials for the rough machining of the rotor shafts the procurement was required in FY19 to meet the

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
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 availability of CVN-78 and to take advantage of the economic order quantity pricing of the four (4) procured in FY18. Due to the time required to do the rough machining it was necessary to start in FY19 to meet CVN-78's maintenance availability.

(2) 1.1.2 Water Twister Mod II: The funding provides for a total quantity of twelve (12) Mod II WTs. (6 for CVN-78 and 6 for CVN-79). Variations in unit cost is due to the availability of long lead parts and learning curve efficiencies from 25 months to 17 months. As a result Mod II WT lead times decrease in FY21 through FY24. The six (6) procurements in FY21 benefit from long lead hardware provided from FY19 funding, but these are the first to be assembled in Production and are also dependent on Detail machining being released. The six (6) units in FY21 also benefit in cost savings from the Rough Machining provided in FY19 under consideration from the concurrency clause under the CVN-78 contract. To limit administrative lead times, efforts are worked in parallel to provide the most efficient delivery of Mod II WTs for CVN-78 and CVN-79.

(3) Cost Element 1.2.1 Non-Recurring Engineering - Provides the associated non recurring engineering associated with the Mod II Water Twister updates in FY21.

(4) Cost Element 2.1.1 - Block I Upgrade includes four (4) major categories of Block Upgrades: 1. Obsolescence: provides funding for ECPs used to address critical or obsolete parts in any of the major or subcomponent systems within AAG. 2. Reliability Improvements/Upgrades: provides funding for ECPs to address any issues that support reliability of AAG's system at RALS, JCTS and onboard CVN 78. 3. Operational Capability Improvements: provides funding for ECPs that specifically address operational capability improvements which are mostly driven by changes as a result of findings during Correction of Deficiency testing. 4. Safety of Operations/Flight: provides funding for ECPs that directly affect safety of flight operations that might limit flight operations during normal optempo. Additionally ECPs for items such as software upgrades to components or sub system components that cause issues under normal operating conditions of AAG will be included in each of the four categories when software updates are required within the Block of upgrades. Funding within the block will also be used to support directed cyber mandates to ensure compliance of cyber issues in AAG's operating system. The current Block I plans to address Halfbridge Reliability and Obsolescence (48 / shipset), Purchase Cable Drum (PCD) Follower Screw Failure / Reliability (6 / shipset), SV3 Valve Safety Failure modes (6/shipset); Supernut Reliability (6/Shipsets); PCD Pin Retention Safety (6 / Shipsets), Integrated Software and Cyber Testing and patches).

(5) 2.2.1 Non-Recurring Engineering - provides the associated non-recurring engineering with the various Block I upgrades that support Obsolescence, Reliability Improvements/Upgrades, Operational Capability Improvements and Safety of Operations/Flight.

(6) Cost Element 4.1 Integrated Logistics Support - The increase from FY20 to FY21 is to support the logistic products that need updated to support Mod II Water Twisters.

(7) Cost Element 4.2 Production Engineering - The increase from FY20 to FY21 is to provide the additional engineering support associated with Water Twister Mod II and the various engineering efforts related to the Block I upgrades for AAG.

(8) The 4 units being installed in FY20 are for the two land based test sites. Runway Arrested Landing Site (RALS) and Jet Car Track Site (JCTS) both in Lakehurst, NJ.

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Exhibit P-40, Budget Line Item Justification: PB 2021 Navy	Date: February 2020
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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	To Complete	Total
Procurement Quantity *(Units in Each)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost *($ in Millions)*	159.715	21.437	12.407	15.192	0.000	15.192	14.069	14.492	13.901	13.770	Continuing	Continuing
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	159.715	21.437	12.407	15.192	0.000	15.192	14.069	14.492	13.901	13.770	Continuing	Continuing
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**159.715**	**21.437**	**12.407**	**15.192**	**0.000**	**15.192**	**14.069**	**14.492**	**13.901**	**13.770**	**Continuing**	**Continuing**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)												
Initial Spares *($ in Millions)*	-	0.752	0.736	0.112	-	0.112	0.168	0.172	0.175	0.179	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, Marine Corps 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 (ESRP Ashore and ESRP Afloat) 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 Satellite Families (GOES-R). Integration of next generation polar and geostationary orbiting satellite families and new sensors of opportunity shall be incorporated in hardware design and software upgrades to existing Environmental Receiver Systems both afloat and ashore. Upgrades include GOES-R, Electro-Optical Infrared Weather System (EWS-G) and Weather System Follow-On Microwave (WSF-M) ingest of METOC data .

[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) which carry sensors that characterize the ocean bottom (bathymetry, imagery, etc.) and long duration (~months) buoyancy driven ocean Gliders that sense ocean volume parameters (conductivity, temperature, depth, optical clarity, currents, etc.). The AUVs are preprogrammed with mission profiles and once launched are completely 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 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

Exhibit P-40, Budget Line Item Justification: PB 2021 Navy		Date: February 2020
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		

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 Hazardous Weather Detection and Display Capability (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. HWDDC also supports efficient planning and execution of aircraft and small boat launch/recovery operations as well as severe weather dependent evolutions such as underway replenishments. The HWDDC technology is integrated with the AN/SPS-48E and AN/SPS-48G radars. HWDDC is currently installed on all Force Level ships with installation on LPD-17 San Antonio class ships beginning in FY21-FY22.

Exhibit P-40, Budget Line Item Justification: PB 2021 Navy	Date: February 2020
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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 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			- / 159.715	- / 21.437	- / 12.406	- / 15.192	- / -	- / 15.192
P-40	**Total Gross/Weapon System Cost**				**- / 159.715**	**- / 21.437**	**- / 12.407**	**- / 15.192**	**- / 0.000**	**- / 15.192**

*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 METOC Satellite Sensor Data Processor (ESRP) primary focus for the FY2021 request is for procurement of the Satellite Receiver and Antenna Pedestal upgrade kits in support of the Meteorological and Oceanographic Surface-based Atmospheric Sensing Capability (METOC SASC) family of systems.

The METOC SASC upgrade primary focus for the FY2021 request is for 19 Acquisition Control Unit (ACU) and Data Collection Package (DCP) hardware and software upgrades for the Automated Surface Observing System (ASOS) and 10 Supplemental Weather Radar (SWR) radome, grounding and waveguide upgrades.

FY2021 ASOS and SWR quantities are reduced due to National Weather Service (NWS) revising the strategy for the upgrades by combining the individual upgrades into single system upgrades making it a larger effort, therefore resulting in a lower quantity and higher unit cost. Unit costs represent the average unit cost of each planned Hardware/Software procurement or refresh, which varies, based on subsystem, site or platform.

The Littoral Battlespace Sensors-Unmanned Undersea Vehicles (LBS-UUV) primary focus for the FY2021 request for is the procurement of 18 ocean Gliders and 7 upgrades/backfits.

The Naval Integrated Tactical Environmental-Next Generation (NITES-Next) primary focus for the FY2021 request is for the procurement of 36 expeditionary one-man transportable METOC sensors to be deployed in support of Naval Special Warfare (NSW) and Navy Expeditionary Combat Command (NECC). In addition, these METOC sensors will be the support equipment for the Marine Corps METOC personnel in support of the Intelligence Battalions and Marine Expeditionary Units. FY2021 METOC sensors unit costs represent the average unit cost of each planned Hardware/Software procurement or refresh, which varies, based on subsystem, site or platform.

The Hazardous Weather Detection and Display Capability (HWDDC) primary focus for the FY2021 request is for the procurement of 7 HWDDC systems for installations on LPD-17 San Antonio Class LPD's.

Exhibit P-40a, Budget Item Justification For Aggregated Items: PB 2021 Navy		Date: February 2020
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 2019			FY 2020			FY 2021 Base			FY 2021 OCO			FY 2021 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) ESRP ASHORE GOES-R Antenna/ Pedestal(†)	A		789.000	1	0.789	724.000	1	0.724	738.000	1	0.738	-	-	-	-	-	-	-	-	-
1.2) ESRP ASHORE Receiver Processor	A		196.000	1	0.196	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.3) ESRP ASHORE Satellite Receiver Upgrade Kit	A		-	-	2.152	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.4) ESRP AFLOAT Satellite Receiver Upgrade Kit(†)	A		89.680	25	2.242	544.000	2	1.088	555.370	1	0.555	566.480	2	1.133	-	-	-	566.480	2	1.133
1.5) ESRP ASHORE Antenna Positioner Upgrade Kit	A		-	-	0.496	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.6) ESRP AFLOAT Antenna Pedestal Upgrade Kit(†)	A		255.267	30	7.658	957.780	1	0.958	976.936	1	0.977	996.000	1	0.996	-	-	-	996.000	1	0.996
Subtotal: 1) SP051 Satellite Receiver Upgrades (Space)			**-**	**-**	***13.533***	**-**	**-**	***2.770***	**-**	**-**	***2.270***	**-**	**-**	***2.129***	**-**	**-**	**-**	**-**	**-**	***2.129***
2) SP550 METOC SASC Upgrades																				
2.1) ASOS Upgrades (1)(†)	A		46.805	406	19.003	75.176	34	2.556	191.750	8	1.534	193.000	19	3.667	-	-	-	193.000	19	3.667
2.2) SWR Upgrades (2)(†)	A		55.170	106	5.848	119.333	12	1.432	141.429	14	1.980	158.000	10	1.580	-	-	-	158.000	10	1.580
Subtotal: 2) SP550 METOC SASC Upgrades			**-**	**-**	***24.851***	**-**	**-**	***3.988***	**-**	**-**	***3.514***	**-**	**-**	***5.247***	**-**	**-**	**-**	**-**	**-**	***5.247***
3) SP600 Littoral Battlespace Sensors - Unmanned Undersea Vehicles (LBS-UUV)																				
3.1) LBS-G (3)(†)	A		907.237	38	34.475	199.524	16	3.192	205.290	15	3.079	204.186	18	3.675	-	-	-	204.186	18	3.675
3.2) LBS-AUV(S)/ Razorback(†)	A		2,069.500	8	16.556	2,140.000	2	4.280	-	-	-	-	-	-	-	-	-	-	-	-
3.3) LBS-AUV(S)/ Razorback DDS Sub Spt Sys(†)	A		2,971.000	3	8.913	3,152.412	1	3.152	-	-	-	-	-	-	-	-	-	-	-	-
3.4) LBS-UUV Upgrades/Backfits (4)(†)	A		-	-	3.822	65.182	11	0.717	-	-	-	71.429	7	0.500	-	-	-	71.429	7	0.500
Subtotal: 3) SP600 Littoral Battlespace Sensors - Unmanned Undersea Vehicles (LBS-UUV)			**-**	**-**	***63.766***	**-**	**-**	***11.341***	**-**	**-**	***3.079***	**-**	**-**	***4.175***	**-**	**-**	**-**	**-**	**-**	***4.175***
4) SP660 Tactical METOC Applications																				
4.1) Naval Integrated Tactical	A		-	-	-	-	-	-	3.023	437	1.321	-	-	-	-	-	-	-	-	-

Exhibit P-40a, Budget Item Justification For Aggregated Items: PB 2021 Navy		Date: February 2020
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 2019			FY 2020			FY 2021 Base			FY 2021 OCO			FY 2021 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)
Environmental Next Gen (NITES-Next) Laptops (5)(†)																				
4.2) Naval Integrated Tactical Environmental Next Gen (NITES-Next) Sensors (6)(†)	A		-	-	-	-	-	-	-	-	-	24.778	36	0.892	-	-	-	24.778	36	0.892
Subtotal: 4) SP660 Tactical METOC Applications			**-**	**-**	***0.000***	**-**	**-**	**-**	**-**	**-**	***1.321***	**-**	**-**	***0.892***	**-**	**-**	**-**	**-**	**-**	***0.892***
5) SP220 Hazardous Weather Detection and Display Capability (HWDDC)																				
5.1) AN/UMR-1A (7)(†)	A		-	-	-	-	-	-	136.980	7	0.959	137.000	7	0.959	-	-	-	137.000	7	0.959
Subtotal: 5) SP220 Hazardous Weather Detection and Display Capability (HWDDC)			**-**	**-**	***0.000***	**-**	**-**	**-**	**-**	**-**	***0.959***	**-**	**-**	***0.959***	**-**	**-**	**-**	**-**	**-**	***0.959***
6) SP555 Production Support																				
6.1) Satellite Receiver Upgrades	A		-	-	0.712	-	-	0.139	-	-	0.147	-	-	0.100	-	-	-	-	-	0.100
6.2) LBS-UUV	A		-	-	3.466	-	-	0.550	-	-	0.206	-	-	0.174	-	-	-	-	-	0.174
Subtotal: 6) SP555 Production Support			**-**	**-**	***4.178***	**-**	**-**	***0.689***	**-**	**-**	***0.353***	**-**	**-**	***0.274***	**-**	**-**	**-**	**-**	**-**	***0.274***
7) SP776 Non-FMP																				
7.1) Satellite Receiver Upgrades	A		-	-	1.990	-	-	0.089	-	-	0.091	-	-	0.093	-	-	-	-	-	0.093
Subtotal: 7) SP776 Non-FMP			**-**	**-**	***1.990***	**-**	**-**	***0.089***	**-**	**-**	***0.091***	**-**	**-**	***0.093***	**-**	**-**	**-**	**-**	**-**	***0.093***
8) SP777 FMP																				
8.1) LBS-AUV(S)/ Razorback DSA	A		-	-	1.291	-	-	0.680	-	-	-	-	-	-	-	-	-	-	-	-
8.2) LBS-AUV(S)/ Razorback Install	A		-	-	-	-	-	0.930	-	-	-	-	-	-	-	-	-	-	-	-
8.3) Satellite Receiver Upgrades	A		-	-	3.382	-	-	0.950	-	-	0.728	-	-	1.006	-	-	-	-	-	1.006
8.4) HWDDC (8)	A		-	-	-	-	-	-	-	-	-	-	-	0.175	-	-	-	-	-	0.175
Subtotal: 8) SP777 FMP			**-**	**-**	***4.673***	**-**	**-**	***2.560***	**-**	**-**	***0.728***	**-**	**-**	***1.181***	**-**	**-**	**-**	**-**	**-**	***1.181***
9) DSA																				
9.1) HWDDC (9)	A		-	-	-	-	-	-	-	-	0.091	-	-	0.242	-	-	-	-	-	0.242
Subtotal: 9) DSA			**-**	**-**	***0.000***	**-**	**-**	**-**	**-**	**-**	***0.091***	**-**	**-**	***0.242***	**-**	**-**	**-**	**-**	**-**	***0.242***
10) Consolidated Prior Year Requirements (10)																				
10.1) Consolidated Prior Year Requirements	A		73.006	640	46.724	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Exhibit P-40a, Budget Item Justification For Aggregated Items: PB 2021 Navy		Date: February 2020
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 2019			FY 2020			FY 2021 Base			FY 2021 OCO			FY 2021 Total		
			Unit Cost ($ K)	Qty (Each)	Total Cost ($ M)	Unit Cost ($ K)	Qty (Each)	Total Cost ($ M)	Unit Cost ($ K)	Qty (Each)	Total Cost ($ M)	Unit Cost ($ K)	Qty (Each)	Total Cost ($ M)	Unit Cost ($ K)	Qty (Each)	Total Cost ($ M)	Unit Cost ($ K)	Qty (Each)	Total Cost ($ M)
Subtotal: 10) Consolidated Prior Year Requirements			-	-	***46.724***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total			-	-	**159.715**	-	-	**21.437**	-	-	**12.406**	-	-	**15.192**	-	-	-	-	-	**15.192**

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) Meteorology (METOC) Surface-based Atmospheric Sensing Capability (SASC) Automated Surface Observing System (ASOS)- FY20 and out year quantities represent site platforms relative to prior year quantities which were representative of individual component upgrades. Unit costs represent the average unit cost of each planned Hardware/Software (HW/SW) procurement or refresh which varies based on subsystem, site or platform. ASOS Upgrades - FY 2021 quantities represent Acquisition Control Units (ACU) and Data Collection Packages (DCP) (HW and SW) for 19 sites upgrades.

(2) METOC SASC Supplemental Weather Radar (SWR)- FY20 and out year quantities represent site platforms relative to prior year quantities which were representative of individual component upgrades. Unit costs represent the average unit cost of each planned HW/SW procurement or refresh which varies based on subsystem, site or platform. SWR Upgrades - FY 2021 quantities represent radome and waveguide upgrades at 10 sites.

(3) Littoral Battlespace Sensors - Gliders (LBS-G) FY21 quantities represent replacement units. Replacement units required to maintain inventory objective due to lost, stolen or damaged systems.

(4) FY2021 LBS-UUV Upgrades/Backfits quantities represent AUV and Glider system improvements. In order to maximize procurements for Gliders, in FY2020 Upgrades/Backfits were not procured.

(5) Naval Integrated Tactical Environmental Next Generation (NITES-Next) METOC laptops procurements are for the mobile variant of the NITES-Next system and will not require any install costs. METOC laptops will be procured in FY20 and FY24.

(6) NITES-Next METOC sensors procurements are for the mobile variant of the NITES-Next system and will not require any install costs.

(7) Hazardous Weather Detection and Display Capability (HWDDC). FY 2020 President's Budget request estimates included a rack however the LPD Class deck is providing existing shipboard rack space, hence the change in unit costs. Updated variant title from SPS-48G to AN/UMR-1A.

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

(9) HWDDC - Fluctuations in DSA costs are the result of new class SHIPALT drawing and engineering requirements.

(10) 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).

Exhibit P-5a, Procurement History and Planning: PB 2021 Navy		Date: February 2020
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]	OCO	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) ESRP ASHORE GOES-R Antenna/Pedestal		2019	Raytheon / Indianapolis	SS / CPFF	NAVWAR	Feb 2019	Jun 2019	1	724.000	Y		Sep 2018
1.1) ESRP ASHORE GOES-R Antenna/Pedestal		2020	Raytheon / Indianapolis	SS / CPFF	NAVWAR	Feb 2020	Jun 2020	1	738.000	Y		Sep 2019
1.4) ESRP AFLOAT Satellite Receiver Upgrade Kit		2019	Raytheon / Indianapolis.	SS / CPFF	NAVWAR	Feb 2019	Jun 2019	2	544.000	Y		Sep 2018
1.4) ESRP AFLOAT Satellite Receiver Upgrade Kit		2020	Raytheon / Indianapolis.	SS / CPFF	NAVWAR	Feb 2020	Jun 2020	1	555.370	Y		Sep 2019
1.4) ESRP AFLOAT Satellite Receiver Upgrade Kit		2021	Raytheon / Indianapolis.	SS / CPFF	NAVWAR	Feb 2021	Jun 2021	2	566.480	Y		Sep 2020
1.6) ESRP AFLOAT Antenna Pedestal Upgrade Kit		2019	Raytheon / Indianapolis	SS / CPFF	NAVWAR	Feb 2019	Jun 2019	1	957.780	Y		Sep 2018
1.6) ESRP AFLOAT Antenna Pedestal Upgrade Kit		2020	Raytheon / Indianapolis	SS / CPFF	NAVWAR	Feb 2020	Jun 2020	1	976.936	Y		Sep 2019
1.6) ESRP AFLOAT Antenna Pedestal Upgrade Kit		2021	Raytheon / Indianapolis	SS / CPFF	NAVWAR	Feb 2021	Jun 2021	1	996.000	Y		Sep 2020
2) SP550 METOC SASC Upgrades												
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	Jan 2020	May 2020	8	191.750	Y		
2.1) ASOS Upgrades (1)		2021	National Weather Service (NWS) / MD	MIPR	NWS	Jan 2021	May 2021	19	193.000	Y		
2.2) SWR Upgrades (2)		2019	Enterprise Electronics Corp. / AL	C / FP	NIWC LANT	Dec 2018	May 2019	12	119.333	Y		Feb 2018
2.2) SWR Upgrades (2)		2020	Enterprise Electronics Corp. / AL	C / FP	NIWC LANT	Feb 2020	Jul 2020	14	141.429	Y		Jul 2018
2.2) SWR Upgrades (2)		2021	Enterprise Electronics Corp. / AL	C / FP	NIWC LANT	Feb 2021	Jul 2021	10	158.000	Y		Nov 2019
3) SP600 Littoral Battlespace Sensors - Unmanned Undersea Vehicles (LBS-UUV)												
3.1) LBS-G (3)		2019	Teledyne Brown Eng / All	C / CPIF	NAVWAR	Mar 2019	Feb 2020	16	199.524	Y		Apr 2008
3.1) LBS-G (3)		2020	Teledyne Brown Eng / All	C / CPIF	NAVWAR	Mar 2020	Feb 2021	15	205.290	Y		Apr 2008
3.1) LBS-G (3)		2021 (11)	TBD / TBD	C / TBD	NAVWAR	Mar 2021	Feb 2022	18	204.186	Y		Jul 2020
3.2) LBS-AUV(S)/Razorback		2019	Hydroid, Inc. / MA.	C / FFP	NAVWAR	Dec 2018	Jan 2021	2	2,140.000	Y		
3.3) LBS-AUV(S)/Razorback DDS Sub Spt Sys		2019	NUWC NPT / NEWPORT, RI	C / FFP	NAVWAR	Jan 2019	Feb 2021	1	3,152.412	Y		Dec 2018
3.4) LBS-UUV Upgrades/Backfits (4)		2019	Hydroid Inc. / Pocaset, MA	C / FFP	NAVWAR	Jan 2019	Apr 2019	11	65.182	Y		Dec 2018
3.4) LBS-UUV Upgrades/Backfits (4)		2021	Hydroid Inc. / Pocaset, MA	C / FFP	NAVWAR	Jan 2021	Apr 2021	7	71.429	Y		Dec 2020

Exhibit P-5a, Procurement History and Planning: PB 2021 Navy		Date: February 2020
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]	OCO	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
4) SP660 Tactical METOC Applications												
4.1) Naval Integrated Tactical Environmental Next Gen (NITES-Next) Laptops [5]		2020 [12]	FLC / San Diego	C / CPFF	San Diego	Mar 2020	Jun 2020	437	3.023	Y		Jan 2020
4.2) Naval Integrated Tactical Environmental Next Gen (NITES-Next) Sensors [6]		2021 [13]	TBD / TBD	C / CPFF	TBD	Mar 2021	Jun 2021	36	24.778	N	Jan 2021	Jan 2021
5) SP220 Hazardous Weather Detection and Display Capability (HWDDC)												
5.1) AN/UMR-1A [7]		2020	BCI / NJ	C / CPFF	NIWC PAC	Apr 2020	Apr 2021	7	136.980	Y		Apr 2020
5.1) AN/UMR-1A [7]		2021	BCI / NJ	C / CPFF	NIWC PAC	Apr 2021	Apr 2022	7	137.000	Y		Apr 2020

Footnotes:

[11] Littoral Battlespace Sensors - Autonomous Undersea Vehicles (LBS-G) - Manufacturer and Location for FY21 is TBD; RFP for follow-on production contract is anticipated in Q4 of FY20 and contract award Q2 of FY21

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

[13] Naval Integrated Tactical NITES-Next METOC sensors will be Commercial off the Shelf (COTS) equipment items which will not require production and will be turnkey not requiring installation.

Exhibit P-40, Budget Line Item Justification: PB 2021 Navy	Date: February 2020
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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	To Complete	Total
Procurement Quantity *(Units in Each)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost *($ in Millions)*	99.080	0.656	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	-	99.736
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	99.080	0.656	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	-	99.736
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**99.080**	**0.656**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**-**	**99.736**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)												
Initial Spares *($ in Millions)*	-	0.055	-	-	-	-	-	-	-	-	-	0.055
Flyaway Unit Cost *($ in Dollars)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Dollars)*	-	-	-	-	-	-	-	-	-	-	-	-

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.

Exhibit P-40, Budget Line Item Justification: PB 2021 Navy	Date: February 2020
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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
Exhibit Type	Title*	Subexhibits	ID CD	MDAP/ MAIS Code	Quantity / Total Cost *(Each) I ($ M)*	Quantity / Total Cost *(Each) I ($ M)*	Quantity / Total Cost *(Each) I ($ M)*	Quantity / Total Cost *(Each) I ($ M)*	Quantity / Total Cost *(Each) I ($ M)*	Quantity / Total Cost *(Each) I ($ M)*
P-40a	DCRS/AMMPS				- / 99.080	- / 0.656	- / -	- / -	- / -	- / -
P-40	**Total Gross/Weapon System Cost**				**- / 99.080**	**- / 0.656**	**- / 0.000**	**- / 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.

Exhibit P-40a, Budget Item Justification For Aggregated Items: PB 2021 Navy		Date: February 2020
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 2019			FY 2020			FY 2021 Base			FY 2021 OCO			FY 2021 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		163,271.60	81	13.225	162,333.33	3	0.487	-	-	-	-	-	-	-	-	-	-	-	-
1.4) AMMPS Other Costs	A		-	-	32.144	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.5) DCRS Other Costs	A		-	-	39.854	-	-	0.169	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: 1) DCRS/DPL			**-**	**-**	***99.080***	**-**	**-**	***0.656***	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Total			**-**	**-**	**99.080**	**-**	**-**	**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 2021 Navy	Date: February 2020
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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	To Complete	Total
Procurement Quantity *(Units in Each)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost *($ in Millions)*	496.306	11.299	15.998	6.674	0.000	6.674	4.538	4.638	4.696	4.782	-	548.931
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	496.306	11.299	15.998	6.674	0.000	6.674	4.538	4.638	4.696	4.782	-	548.931
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**496.306**	**11.299**	**15.998**	**6.674**	**0.000**	**6.674**	**4.538**	**4.638**	**4.696**	**4.782**	**-**	**548.931**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)												
Initial Spares *($ in Millions)*	-	0.359	0.619	0.227	-	0.227	0.236	0.242	0.245	-	-	1.928
Flyaway Unit Cost *($ in Dollars)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Dollars)*	-	-	-	-	-	-	-	-	-	-	-	-

Description:

Airborne Mine Countermeasures (AMCM) Equipment is currently deployed on MH-53E and MH-60S helicopters to counter the threat of sea mines. 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, mine surveillance, marking and neutralization capabilities.

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. The 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 Airborne 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. Cybersecurity upgrades are required to ensure compliance with Department of Navy's Risk Management Framework process.

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.

Exhibit P-40, Budget Line Item Justification: PB 2021 Navy		Date: February 2020
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 Airborne Mine Neutralization System (AMNS): Funds support a mine neutralization system that provides a remotely controlled expendable neutralizer vehicle deployed from the MH-60S helicopter platform to reacquire, identify, and neutralize moored and 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. 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 AMCM 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.

The LCS MCM Mission Modules procurement line (OPN 1601) supports the systems that provide the deployable combat capability to the Littoral Combat Ship (LCS) Mission Package (MP).

Exhibit P-40, Budget Line Item Justification: PB 2021 Navy	Date: February 2020
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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 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				- / 86.387	- / 4.455	- / 4.212	- / 6.674	- / 0.000	- / 6.674
P-5	2 / AN/AQS-24 Sonar	P-5a, P-21			- / 90.005	- / 4.829	- / 10.970	- / 0.000	- / 0.000	- / 0.000
P-5	3 / MK-105				- / 20.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000
P-5	4 / AMNS				- / 76.101	- / 1.408	- / 0.408	- / 0.000	- / 0.000	- / 0.000
P-5	5 / ALMDS [ALMDS]				- / 108.719	- / 0.607	- / 0.408	- / 0.000	- / 0.000	- / 0.000
P-5	7 / OAMCM [OAMCM]				- / 115.094	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000
P-40	**Total Gross/Weapon System Cost**				**- / 496.306**	**- / 11.299**	**- / 15.998**	**- / 6.674**	**- / 0.000**	**- / 6.674**

*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 2021 funding supports modifications, product improvements and engineering change proposals of the AMNS, ALMDS, SeaFox and AN/AQS-24 systems. These modifications will be deployed around the world to meet the current mine warfare mission demand.

Exhibit P-5, Cost Analysis: PB 2021 Navy		Date: February 2020
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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
Procurement Quantity *(Units in Each)*	-	-	-	-	-	-
Gross/Weapon System Cost *($ in Millions)*	86.387	4.455	4.212	6.674	0.000	6.674
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	86.387	4.455	4.212	6.674	0.000	6.674
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**86.387**	**4.455**	**4.212**	**6.674**	**0.000**	**6.674**
(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 2019			FY 2020			FY 2021 Base			FY 2021 OCO			FY 2021 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 [1]	-	-	86.387	-	-	4.455	-	-	4.212	-	-	6.674	-	-	0.000	-	-	6.674
Subtotal: Recurring Cost	-	-	*86.387*	-	-	*4.455*	-	-	*4.212*	-	-	*6.674*	-	-	*0.000*	-	-	*6.674*
Subtotal: Hardware - S0020 MODIFICATIONS Cost	**-**	**-**	***86.387***	**-**	**-**	***4.455***	**-**	**-**	***4.212***	**-**	**-**	***6.674***	**-**	**-**	***0.000***	**-**	**-**	***6.674***
Gross/Weapon System Cost	**-**	**-**	**86.387**	**-**	**-**	**4.455**	**-**	**-**	**4.212**	**-**	**-**	**6.674**	**-**	**-**	**0.000**	**-**	**-**	**6.674**

Footnotes:

[1] Increased funding for modifications in FY21 supports the increasing use of the airborne systems, specifically AMNS and ALMDS, in Fleet exercises and increased ECP requirements as obsolescence issues rise as the AMNS, ALMDS, AN/AQS-24 and SeaFox systems age.

Exhibit P-5, Cost Analysis: PB 2021 Navy		Date: February 2020
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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
Procurement Quantity *(Units in Each)*	-	-	-	-	-	-
Gross/Weapon System Cost *($ in Millions)*	90.005	4.829	10.970	0.000	0.000	0.000
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	90.005	4.829	10.970	0.000	0.000	0.000
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**90.005**	**4.829**	**10.970**	**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 2019			FY 2020			FY 2021 Base			FY 2021 OCO			FY 2021 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(†)	2,385K	10	23.854	-	-	0.000	560,000.00	15	8.400	-	-	0.000	-	-	0.000	-	-	0.000
1.1.3) Training Equipment(†)	7,791K	1	7.791	664,500.00	2	1.329	428,333.00	6	2.570	-	-	0.000	-	-	0.000	-	-	0.000
1.1.4) ILS/Tech Pubs	-	-	0.960	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000
1.1.5) Q-24 Laser Line Scan Upgrade(†)	-	-	0.000	350,000.00	10	3.500	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000
Subtotal: Recurring Cost	-	-	*90.005*	-	-	*4.829*	-	-	*10.970*	-	-	*0.000*	-	-	*0.000*	-	-	*0.000*
Subtotal: Hardware - S0024 AN/AQS-24 Sonar Cost	**-**	**-**	***90.005***	**-**	**-**	***4.829***	**-**	**-**	***10.970***	**-**	**-**	***0.000***	**-**	**-**	***0.000***	**-**	**-**	***0.000***
Gross/Weapon System Cost	**-**	**-**	**90.005**	**-**	**-**	**4.829**	**-**	**-**	**10.970**	**-**	**-**	**0.000**	**-**	**-**	**0.000**	**-**	**-**	**0.000**

(†) indicates the presence of a P-5a

Exhibit P-5a, Procurement History and Planning: PB 2021 Navy		Date: February 2020
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	OCO	FY	Contractor and Location	Method/Type or Funding Vehicle	Location of PCO	Award Date	Date of First Delivery	Qty (Each)	Unit Cost ($)	Specs Avail Now?	Date Revision Available	RFP Issue Date
1.1.2) 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 / Panama City, FL	C / FFP	NAVSEA	Dec 2019	Jan 2021	15	560,000.00	Y		
1.1.3) Training Equipment		2019	TBD / NAWC TSD	SS / FFP	** NO PCO **	Sep 2019	Sep 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 / Panama City, FL	C / CPFF	** NO PCO **	Dec 2019	Feb 2021	10	350,000.00	Y		

(†) indicates the presence of a P-21

Exhibit P-21, Production Schedule: PB 2021 Navy		Date: February 2020
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 (Units in Each)							Fiscal Year 2018												Fiscal Year 2019												BALANCE
										Calendar Year 2018												Calendar Year 2019									
OCO	MFR #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2017	BAL DUE AS OF 1 OCT	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	2017	NAVY	8	0	8									A -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8
	1	2018	NAVY	2	0	2									A -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2
	2	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	

Exhibit P-21, Production Schedule: PB 2021 Navy		Date: February 2020
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 (Units in Each)							Fiscal Year 2020												Fiscal Year 2021												BALANCE
										Calendar Year 2020												Calendar Year 2021									
OCO	MFR #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2019	BAL DUE AS OF 1 OCT	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	2017	NAVY	8	0	8	-	-	2	2	2	2																			0
	1	2018	NAVY	2	0	2	-	-	1	-	-	-	1																		0
	2	2020	NAVY	15	0	15			A -	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	1		0
							OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	

Exhibit P-21, Production Schedule: PB 2021 Navy		**Date:** February 2020
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)							
					Initial				Reorder			
		MSR For 2021	1-8-5 For 2021	MAX For 2021	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	0	18	18
2	Northrop Grumman - Panama City, FL	2	5	18	0	0	13	13	0	0	13	13

"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).

Exhibit P-5, Cost Analysis: PB 2021 Navy		Date: February 2020
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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 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 2019			FY 2020			FY 2021 Base			FY 2021 OCO			FY 2021 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**

Exhibit P-5, Cost Analysis: PB 2021 Navy		Date: February 2020
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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
Procurement Quantity *(Units in Each)*	-	-	-	-	-	-
Gross/Weapon System Cost *($ in Millions)*	76.101	1.408	0.408	0.000	0.000	0.000
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	76.101	1.408	0.408	0.000	0.000	0.000
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**76.101**	**1.408**	**0.408**	**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 2019			FY 2020			FY 2021 Base			FY 2021 OCO			FY 2021 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 (2)	-	-	19.519	-	-	1.408	-	-	0.408	-	-	0.000	-	-	0.000	-	-	0.000
Subtotal: Recurring Cost	-	-	*76.101*	-	-	*1.408*	-	-	*0.408*	-	-	*0.000*	-	-	*0.000*	-	-	*0.000*
Subtotal: Hardware - S0065 - AMNS Cost	**-**	**-**	***76.101***	**-**	**-**	***1.408***	**-**	**-**	***0.408***	**-**	**-**	***0.000***	**-**	**-**	***0.000***	**-**	**-**	***0.000***
Gross/Weapon System Cost	**-**	**-**	**76.101**	**-**	**-**	**1.408**	**-**	**-**	**0.408**	**-**	**-**	**0.000**	**-**	**-**	**0.000**	**-**	**-**	**0.000**

Footnotes:

(2) AMNS ECP and upgrade funding in FY 2019 and FY 2020 will support upgrading procured units to a uniform configuration, test bed procurements, and the upgrades of necessary support equipment.

Exhibit P-5, Cost Analysis: PB 2021 Navy		Date: February 2020
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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
Procurement Quantity *(Units in Each)*	-	-	-	-	-	-
Gross/Weapon System Cost *($ in Millions)*	108.719	0.607	0.408	0.000	0.000	0.000
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	108.719	0.607	0.408	0.000	0.000	0.000
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**108.719**	**0.607**	**0.408**	**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 2019			FY 2020			FY 2021 Base			FY 2021 OCO			FY 2021 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	-	-	0.607	-	-	0.408	-	-	0.000	-	-	0.000	-	-	0.000
Subtotal: Recurring Cost	-	-	*108.719*	-	-	*0.607*	-	-	*0.408*	-	-	*0.000*	-	-	*0.000*	-	-	*0.000*
Subtotal: Hardware - S0075 - ALMDS Cost	**-**	**-**	***108.719***	**-**	**-**	***0.607***	**-**	**-**	***0.408***	**-**	**-**	***0.000***	**-**	**-**	***0.000***	**-**	**-**	***0.000***
Gross/Weapon System Cost	**-**	**-**	**108.719**	**-**	**-**	**0.607**	**-**	**-**	**0.408**	**-**	**-**	**0.000**	**-**	**-**	**0.000**	**-**	**-**	**0.000**

Exhibit P-5, Cost Analysis: PB 2021 Navy		Date: February 2020
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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
Procurement Quantity *(Units in Each)*	-	-	-	-	-	-
Gross/Weapon System Cost *($ in Millions)*	115.094	0.000	0.000	0.000	0.000	0.000
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	115.094	0.000	0.000	0.000	0.000	0.000
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**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 *($ 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 2019			FY 2020			FY 2021 Base			FY 2021 OCO			FY 2021 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 2021 Navy	Date: February 2020
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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	To Complete	Total
Procurement Quantity *(Units in Each)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost *($ in Millions)*	0.000	0.594	0.792	1.189	0.000	1.189	1.494	11.819	11.978	12.274	Continuing	Continuing
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	0.000	0.594	0.792	1.189	0.000	1.189	1.494	11.819	11.978	12.274	Continuing	Continuing
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**0.000**	**0.594**	**0.792**	**1.189**	**0.000**	**1.189**	**1.494**	**11.819**	**11.978**	**12.274**	**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:

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 Society of Automotive Engineers (SAE) 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.

CCS was designated as the Navy's unmanned software solution for Navy UxS by OPNAV N9 on 31 JAN 2019.

Exhibit P-40, Budget Line Item Justification: PB 2021 Navy	**Date:** February 2020
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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
Exhibit Type	Title*	Subexhibits	ID CD	MDAP/ MAIS Code	Quantity / Total Cost *(Each) I ($ M)*	Quantity / Total Cost *(Each) I ($ M)*	Quantity / Total Cost *(Each) I ($ M)*	Quantity / Total Cost *(Each) I ($ M)*	Quantity / Total Cost *(Each) I ($ M)*	Quantity / Total Cost *(Each) I ($ M)*
P-40a	Common Control System				- / 0.000	- / 0.594	- / 0.792	- / 1.189	- / -	- / 1.189
P-40	**Total Gross/Weapon System Cost**				**- / 0.000**	**- / 0.594**	**- / 0.792**	**- / 1.189**	**- / 0.000**	**- / 1.189**

*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 2021 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 continuing the production, procurement, and delivery of CCS software to MQ-25 Stingray started in FY 2020. Increase in FY21 supports production procurement and delivery of CCS software to additional UxS platforms, with associated Systems Engineering Technical Agent (SETA) and System Integration (SI) support.

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 licenses procured for supported UxS systems.

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).

Funding increase from FY 2022 to FY 2023 represents CCS installs/support for MQ-25 and MQ-8 operational site stand-up. In addition, license costs expand beyond vehicle management coverage to also include mission planning/mission management license support.

Exhibit P-40a, Budget Item Justification For Aggregated Items: PB 2021 Navy		Date: February 2020
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 2019			FY 2020			FY 2021 Base			FY 2021 OCO			FY 2021 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	-	-	0.203	-	-	-	-	-	0.203
1.2) Software/ Production Engineering Support (1)	A		-	-	-	-	-	0.351	-	-	0.547	-	-	0.889	-	-	-	-	-	0.889
1.3) Integrated Logistics Support	A		-	-	-	-	-	0.097	-	-	0.097	-	-	0.097	-	-	-	-	-	0.097
Subtotal: 1) Common Control System			**-**	**-**	***0.000***	**-**	**-**	***0.594***	**-**	**-**	***0.792***	**-**	**-**	***1.189***	**-**	**-**	**-**	**-**	**-**	***1.189***
Total			**-**	**-**	**0.000**	**-**	**-**	**0.594**	**-**	**-**	**0.792**	**-**	**-**	**1.189**	**-**	**-**	**-**	**-**	**-**	**1.189**

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 licenses procured for supported UxS systems.

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Exhibit P-40, Budget Line Item Justification: PB 2021 Navy	Date: February 2020
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

Resource Summary	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	To Complete	Total
Procurement Quantity *(Units in Each)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost *($ in Millions)*	190.894	37.874	62.889	58.873	0.000	58.873	72.071	91.704	92.946	89.708	Continuing	Continuing
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	190.894	37.874	62.889	58.873	0.000	58.873	72.071	91.704	92.946	89.708	Continuing	Continuing
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**190.894**	**37.874**	**62.889**	**58.873**	**0.000**	**58.873**	**72.071**	**91.704**	**92.946**	**89.708**	**Continuing**	**Continuing**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)												
Initial Spares *($ in Millions)*	-	-	0.039	-	-	-	0.306	0.366	0.440	-	-	1.151
Flyaway Unit Cost *($ in Dollars)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Dollars)*	-	-	-	-	-	-	-	-	-	-	-	-

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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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.

[P40A / S7070 FRC ASM upgrades]: Sustainment Vision 2020 will procure Advanced Skills Management (ASM) software updates from NUWC Keyport that will provide interfaces with the Defense Civilian Personnel Data System (DCPDS) and Time and Attendance system (TAA). Software procurement will include enhancements for Total Workforce Readiness Query's, additional ADHOC reports and procurement of an enterprise view or query of all ASM users at the Organizational, Intermediate and Depot level of maintenance. Procurement will also establish interfaces for Optimized Organizational Maintenance Activity (OOMA) for Organizational Level, Organizational Intermediate Maintenance Activity (OIMA) for Intermediate Level and NAVAIR Depot Maintenance System (NDMS) for Depot level.

We will procure workload from Andromeda System INC (ASI) that will facilitate Advanced Skills Management standardization and identification of interface issues.

[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 / Survival Communication Devices - SY063]: SURVIVAL COMMUNICATION DEVICES - SY063 (Baseline)
This is the next generation/continuation of SY060. Non-Combat Survival Radios (NCSRs), legacy Combat Survivor Evader Locator (CSEL), and Combat Survival Radios (CSRs) are large, heavy units that have not kept up with satellite rescue technology capability and are facing obsolescence and performance issues. Survival radio upgrade has been a top five Fleet Aircrew Systems priority for several years. Navy/ Marine Corps NCSR reached a critical level with NCSR obsolescence, so a COTS replacement is planned to be procured. The USAF led Joint Program Office is currently developing a next generation CSR that could be used by all the services to get economic order pricing and ensure interoperability. Past NCSRs and CSRs were unique and separate solutions. Navy is now working with USAF to consider a modular CSR product. The USAF Joint Program Office expects to qualify the new CSR for all services in FY22 and starting in FY23, funding will procure the replacement CSR.

[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 Aviation Life Support Equipment (ALSE) 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)
Program accelerated and will meet inventory objective in FY20; resource efficiencies have been distributed to Survival Communication Device - SY063, starting in FY21. The system quickly became a must-have for Navy/USMC driving a need to accelerate delivery. Application of OCO funds, Should Cost price reduction and capitalization on step-ladder unit cost efficiencies enabled the inventory objective to be achieved earlier and more cost-effectively, allowing resources programmed after FY20 to be applied to other Aircrew Systems priorities.

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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
Line Item MDAP/MAIS Code: N/A		

[P5 / FDC - SY505]: FLIGHT DECK CRANIAL AND HEARING PROTECTION (FDC) - SY505 (Baseline)
Hearing loss is a significant cost driver across DoD in veteran disability compensation. Noise levels in Naval Aviation environments present a risk to permanent hearing loss in aircrew and aviation maintainers, if not mitigated. Joint efforts are underway to incrementally field improved technology solutions as they become available to better mitigate operator impacts. Increment 1 Double Hearing Protection (DHP) solutions were developed for aviation maintainers and began fielding in 2011. Increment 2 Triple Hearing Protection (THP) solutions will further improve noise reduction for more challenging environments. THP variants are also incorporating flight deck communications capability. Increment 3 will address associated design trade improvements, including weight reduction and center of gravity adjustments to reduce neck stresses, improved night vision/cueing mounts, and potential incorporation of maturing technologies such as active digital noise reduction/cancellation.

[P5 / Aviation Maintainer Head & Hearing Protection - SY510]: AVIATION MAINTAINER HEAD & HEARING PROTECTION - SY510 (Baseline)
Protection of maintainers from hazardous head and noise conditions and materials associated with aviation, as well as to ensure maintainer safety and optimize their performance in austere environments to support quality of aircraft maintenance for warfighting. The program involves analysis, modification and qualification of COTS, helmet and low-profile hearing protection Personal Protective Equipment (PPE).

[P5 / EKB - SY450]: ELECTRONIC KNEE BOARD (EKB) - SY450 (Baseline)
This will be the last Aircrew Systems PDOC to carry this product title. The program was taken over by the Mission Planning Program Office, PMA-281, and funding was put into a separate BLI shortly after program inception. No funding has been reflected in this line for several document updates.

[P5 / EVA - SY217]: ENHANCED VISUAL ACUITY (EVA) - SY217 (Baseline)
EVA introduces digital night vision capability to Aircrew, a game-changing improvement over current analog night vision goggles. EVA provides an advanced night vision/Helmet Mounted Display capability to address validated capability gaps in low and no light illumination levels (night vision) and improved visual situational awareness in Degraded Visual Environment (DVE), which continues to drive substantial losses of aircraft and aircrew (37 aircraft, 106 lives lost since 2001). Although the program is currently scoped to address Night Vision Goggle technology shortfalls (low light, halo and blooming effects in urban environments and reduced contrast associated with scintillation), the digital architecture of the system provides the ability to field improved tactical advantages incrementally. EVA will have the ability to be upgraded to serve as the heads-up display platform for presentation of virtual imagery and symbology overlay from fused sensor data that will mitigate DVE.

[P5 / Physiological Monitoring - SY127]: PHYSIOLOGICAL MONITORING - SY127 (Baseline)
Directly addresses Naval Aviation's #1 Safety concern, PHYSIOLOGICAL EPISODES (PE), by measuring human performance and alerting Aircrew preventing injury, death, and/or damage to aircraft. Although the occurrence rate is declining, there has been no definitive single causal factor identified for the Physiological Episodes being experienced by pilots using On-Board Oxygen Generation Systems (OBOGS) components. Consequently, in addition to the OBOGS hardware improvements, The Physiological Episodes Action Team considers operator physiological monitoring to be a key component of the total protection solution set. This initiative is leveraging Defense Innovation Unit to assess mature technologies and products to field a system that monitors pilot physiological parameters. The system will constantly monitor biometrics and pilot performance to identify state of health or performance degradation that may result in loss of consciousness or ability to safely conduct the flight. This system will provide the operator with enough advance warning to accurately assess the situation and safely recover the aircraft. Multiple potential solutions are being evaluated to select a best of breed or blended solution. Since the aircrew population's physical tolerance to hypoxic conditions is so diverse, the solutions' data computation and warning algorithms will need to be iteratively adjusted over time using extensive operator usage feedback data.

[P5 / ASIP - SY126]: AIRCREW SYSTEMS IMPROVEMENT PROGRAM (ASIP) - SY126 (Baseline)
ASIP is modeled after the platform Operational Safety Improvement Program (OSIP) concept, with the objective of supporting the human (aircrew and aviation maintainers) as the weapon system platform. The Aircrew Systems portfolio exceeds 1000 products. The majority of these products are Aviation Life Support Systems/Equipment (ALSS/E) that directly affect aircrew and aviation maintainer personnel safety and survivability, both in combat and non-combat operations. Other systems enhance aircrew and maintainer performance as the human element of the total weapon platform by enabling effective warfighting at night and physical endurance over extended missions. As legacy products age and missions are modified to address evolving threats and tactics, Fleet operators identify several items each year that must be modified to ensure safety and survivability. ASIP funding enables the program office to proactively manage or rapidly react to discrepancies and deficiencies across the broad portfolio. ASIP provides the resources to correct such issues via lower scope Non-Recurring Engineering (NRE) efforts and Engineering Change Proposals (ECPs), and/or qualification and procurement of improved capability Commercial Off-the-Shelf (COTS), Non-Developmental Items (NDI) from industry or other service counterparts. Correction and enhancement efforts range from minor adjustments to survival kit items (such as brighter, lighter and longer-lasting illumination devices and passive signaling rescue devices) to major obsolescence follow-on solutions (such as survival radios). ASIP enables the program office to address smaller scope but critical Fleet issues that individually cannot compete with major POM issues, but which each individually can save lives. Aircrew Systems products are utilized in extreme climates, combat operations and rescue/

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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
Line Item MDAP/MAIS Code: N/A		

recovery scenarios in which each component must work the first time, every time. System solutions managed include but are not limited to fire retardant clothing, head and hearing protection, communication, extreme climate exposure protection, ballistic protection, laser eye protection, hydration systems, waste removal systems, night vision systems, head-mounted displays, chemical biological exposure protection, oxygen provision, g-force protection, physiological condition monitoring systems, ejection seats and parachutes, aircrew seats and harnesses/restraints, survival flotation, survival kit items and survival signaling devices. Each year the program office applies funding based upon assessment of Fleet prioritization of identified issues combined with the level of improvement that a potential solution can provide and the degree of maturity of that solution (readiness to be fielded). This model enables the program office to shift resources as necessary to be more agile in addressing issues such as physiological episodes, flotation inflation failures and new spectrum laser threats. This budget exhibit will present the latest planned activities for the upcoming execution year, and then document adjustments experienced during execution based upon higher priority pop-up issues, adjustments to procurement orders to capture efficiencies with step-ladder pricing, and changes resulting when a modification or qualification effort determines that a product correction/improvement is unsuccessful. The major efforts presented above in this ASIP line will still be described and detailed individually.

[P5 / ASIP - CSEL SW - SY131]: ASIP Combat Survival Evador Locator (CSEL) SW - SY131
Legacy CSEL CSR units must be supported until the USAF next generation solution is fielded. CSELs require support equipment to program encryption, regional operating frequencies, operational codes and regional waypoints for enemy force evasion and rescue. This funding will complete fielding of units with required software upgrades necessary to keep them supportable and should sustain operations through the remaining life cycle of the legacy product.

[P5 / ASIP - Bladder Relief - SY132]: ASIP - BLADDER RELIEF - SY132
Procurement of replacement bladder relief products for aircrew operating in fixed seat positions during extended missions. This is a major issue for female aircrew. Inability to relieve the bladder can cause significant distraction and loss of mission effectiveness, as well as physical internal damage or infection. Forced bladder relief without an extraction system can cause similar issues and presents a platform corrosion problem. Current bladder relief products are inadequate to support liquid waste relief in Naval Aircraft, especially for ejection seat aircraft. Modern technology applications and solution enhancements will be safer for aircrew use and reduce maintenance for overall improved aircrew operational performance.

[P5 / ASIP - EEOS Carts - SY133]: ASIP - ENHANCED EMERGENCY OXYGEN SYSTEM (EEOS) CARTS - SY133
Current EEOS tank cylinders in ejection seat pans have only enough capacity to provide a short period of emergency oxygen provision, which may not be enough to afford the operator enough time to exit a threat area and descend to pressure altitude where the ambient cabin air is safe (normally ~ 10,000 feet). Availability of pure oxygen can quickly mitigate physiological episode symptoms. As with SCUBA diving tanks, the time that the operator exhausts the emergency oxygen depends upon consumption rate, which may be elevated due to anxiety associated with the extremis threat and oxygen system problem scenario. The objective of this system enhancement is to afford twice to potentially three times the tank capacity (through stronger materials for increased systems pressure and increased size) to afford the operator more time to recover. The legacy EEOS Cart has been upgraded to manage the higher bottle loading pressure. This line procures and fields those upgraded units.

[P5 / ASIP - LPU - SY134]: ASIP - LIFE PRESERVER UNIT (LPU) - SY134
Legacy Life Preserver Units (LPUs) are bulky and heavy, restricting operator mobility and contributing to fatigue over extended missions. The weight and bulk also contribute to long-term chronic back/spine injuries and can present additional risk of snag hazards during emergency egress. Superior new materials present the opportunity to improve flotation, enhance flotation orientation designs and reduce bulk and weight.

[P5 / ASIP - JCAST - SY135]: ASIP - JOINT CREW AVIATION SYSTEM TESTER (JCAST) - SY135
JCAST units are used to validate integrity of aircrew helmet and oxygen mask fit to reduce the risk of physiological episode or hypoxia. JCAST provides preflight assessment of oxygen flow through the man-mounted system, which ensures survivability of aircrew in flight.

[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.

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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
Line Item MDAP/MAIS Code: N/A		

[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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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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
Exhibit Type	Title*	Subexhibits	ID CD	MDAP/ MAIS Code	Quantity / Total Cost *(Each) I ($ M)*	Quantity / Total Cost *(Each) I ($ M)*	Quantity / Total Cost *(Each) I ($ M)*	Quantity / Total Cost *(Each) I ($ M)*	Quantity / Total Cost *(Each) I ($ M)*	Quantity / Total Cost *(Each) I ($ M)*
P-40a	Other Aviation Support Equipment	P-5a			- / 22.821	- / 7.688	- / 17.785	- / 7.886	- / -	- / 7.886
P-5	1 / Aviation Life Support	P-5a, P-21			- / 115.183	- / 14.570	- / 33.362	- / 33.904	- / 0.000	- / 33.904
P-5	2 / Portable Electronic Maintenance Aids	P-5a, P-21			- / 37.961	- / 11.885	- / 7.962	- / 13.319	- / 0.000	- / 13.319
P-3a	1 / ALIS SHIP INSTALLATION (Add Capability)				- / 14.929	- / 3.731	- / 3.780	- / 3.764	- / 0.000	- / 3.764
P-40	**Total Gross/Weapon System Cost**				**- / 190.894**	**- / 37.874**	**- / 62.889**	**- / 58.873**	**- / 0.000**	**- / 58.873**

Exhibits Schedule					FY 2022	FY 2023	FY 2024	FY 2025	To Complete	Total
Exhibit Type	Title*	Subexhibits	ID CD	MDAP/ MAIS Code	Quantity / Total Cost *(Each) I ($ M)*	Quantity / Total Cost *(Each) I ($ M)*	Quantity / Total Cost *(Each) I ($ M)*	Quantity / Total Cost *(Each) I ($ M)*	Quantity / Total Cost *(Each) I ($ M)*	Quantity / Total Cost *(Each) I ($ 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)				- / 3.878	- / 3.955	- / 4.020	- / 4.096	Continuing	Continuing
P-40	**Total Gross/Weapon System Cost**				**- / 72.071**	**- / 91.704**	**- / 92.946**	**- / 89.708**	**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 2021 Budget Request includes funding for the following (+$58.873M):

P-40a (S7042), $2.199M
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), $0.244M
Other Aviation Support Equipment - the procurement of hardware and associated support costs for CBM+ (S7048).

P-40a (S7041), $2.522M
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), $1.720M

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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
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), $1.201M
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, $33.904M(Baseline)
Aviation Life Support - the procurement of hardware and associated support costs for Laser Eye Protection (LEP), 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, Life Preserver Units (LPU), and Joint Combined Aircrew Systems Tester under the Aircrew Systems Improvement Program (ASIP).

P-5/2, $13.319M
Portable Electronic Maintenance Aids (PEMA) - the procurement of hardware and associated support costs for 2,784 PEMA units in FY 2021.

P-3a/1 $3.764M
Autonomic Logistics Info Systems (ALIS) - supports Design Support Activities (DSA) to include material purchases for the installation of two (2) ALIS in FY 2021.

Exhibit P-40a, Budget Item Justification For Aggregated Items: PB 2021 Navy		Date: February 2020
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Item Number / Title [DODIC]	ID CD	MDAP/ MAIS Code	Prior Years			FY 2019			FY 2020			FY 2021 Base			FY 2021 OCO			FY 2021 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)(†)	A		5,835K	1	5.835	1,658K	1	1.658	1,700K	1	1.700	1,720K	1	1.720	-	-	-	1,720K	1	1.720
Subtotal: 1) Naval Aviation Logistics Data Analysis Decision Knowledge Programming for Logistics Analys			-	-	***5.835***	-	-	***1.658***	-	-	***1.700***	-	-	***1.720***	-	-	-	-	-	***1.720***
2) Naval Aviation Logistics Command Management Information System/Naval Air Systems Command F																				
2.1) S7041 - NFSA HW/SW (3)(†)	A		7,283K	1	7.283	2,434K	1	2.434	2,468K	1	2.468	2,522K	1	2.522	-	-	-	2,522K	1	2.522
Subtotal: 2) Naval Aviation Logistics Command Management Information System/Naval Air Systems Command F			-	-	***7.283***	-	-	***2.434***	-	-	***2.468***	-	-	***2.522***	-	-	-	-	-	***2.522***
3) Joint Technical Data Integration (JTDI)																				
3.1) S7042 - JTDI HW/SW(†)	A		2,491K	1	2.491	2,161K	1	2.161	2,172K	1	2.172	2,199K	1	2.199	-	-	-	2,199K	1	2.199
Subtotal: 3) Joint Technical Data Integration (JTDI)			-	-	***2.491***	-	-	***2.161***	-	-	***2.172***	-	-	***2.199***	-	-	-	-	-	***2.199***
4) Marine Aviation Logistics Enterprise Information Technology (MAL-EIT)/Expeditionary Pack U																				
4.1) S7046 - EPUK HW/SW(†)	B		1,366K	1	1.366	199,000.00	1	0.199	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: 4) Marine Aviation Logistics Enterprise Information Technology (MAL-EIT)/Expeditionary Pack U			-	-	***1.366***	-	-	***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(†)	A		478,000.00	1	0.478	173,450.00	1	0.173	242,664.00	1	0.243	244,000.00	1	0.244	-	-	-	244,000.00	1	0.244
Subtotal: 6) Condition Based Maintenance Plus (CBM+)			-	-	***0.478***	-	-	***0.173***	-	-	***0.243***	-	-	***0.244***	-	-	-	-	-	***0.244***
7) Production Engineering Support																				
7.1) S7833 - Marine Aviation Logistics Enterprise Information Technology	A		-	-	0.094	-	-	0.020	-	-	-	-	-	-	-	-	-	-	-	-

Exhibit P-40a, Budget Item Justification For Aggregated Items: PB 2021 Navy		Date: February 2020
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 2019			FY 2020			FY 2021 Base			FY 2021 OCO			FY 2021 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	A		-	-	1.800	-	-	0.391	-	-	0.521	-	-	0.518	-	-	-	-	-	0.518
7.3) S7833 - Naval Air Systems Command Fleet System Arrays	A		-	-	1.905	-	-	0.430	-	-	0.445	-	-	0.446	-	-	-	-	-	0.446
7.4) S7833 - Joint Technical Data Integration	A		-	-	1.097	-	-	0.179	-	-	0.193	-	-	0.193	-	-	-	-	-	0.193
7.5) S7833 - Automated Data Capture System	A		-	-	0.124	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7.6) S7833 - Condition Based Maintenance Plus	A		-	-	0.141	-	-	0.043	-	-	0.043	-	-	0.044	-	-	-	-	-	0.044
Subtotal: 7) Production Engineering Support			**-**	**-**	***5.161***	**-**	**-**	***1.063***	**-**	**-**	***1.202***	**-**	**-**	***1.201***	**-**	**-**	**-**	**-**	**-**	***1.201***
8) FRC ASM upgrades																				
8.1) S7070 FRC ASM upgrades (4)(†)	A		-	-	-	-	-	-	10,000K	1	10.000	-	-	-	-	-	-	-	-	-
Subtotal: 8) FRC ASM upgrades			**-**	**-**	***0.000***	**-**	**-**	**-**	**-**	**-**	***10.000***	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Total			**-**	**-**	**22.821**	**-**	**-**	**7.688**	**-**	**-**	**17.785**	**-**	**-**	**7.886**	**-**	**-**	**-**	**-**	**-**	**7.886**

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.

(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) Fleet Readiness Center Advanced Skills Management Upgrades (FRC ASM) (S7070): The unit cost reflects the total of all suites being procured in each fiscal year.

Exhibit P-5a, Procurement History and Planning: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 03 / 3	P-1 Line Item Number / Title: 4268 / Aviation Support Equipment	Aggregated Items: Other Aviation Support Equipment (1)

Item Number / Title [DODIC]	OCO	FY	Contractor and Location	Method/Type or Funding Vehicle	Location of PCO	Award Date	Date of First Delivery	Qty (Each)	Unit Cost ($)	Specs Avail Now?	Date Revision Available	RFP Issue Date
1) Naval Aviation Logistics Data Analysis Decision Knowledge Programming for Logistics Analys												
1.1) S7039 - Aviation Data Warehouse Environment (2)		2019	Teradata Government Systems / Germantown MD	C / CPFF	NAVAIR	Dec 2018	Dec 2019	1	1,658K	Y		Nov 2018
1.1) S7039 - Aviation Data Warehouse Environment (2)		2020	Teradata Government Systems / Germantown MD	C / CPFF	NAVAIR	Mar 2020	Mar 2021	1	1,700K	Y		Nov 2019
1.1) S7039 - Aviation Data Warehouse Environment (2)		2021	Teradata Government Systems / Germantown MD	C / CPFF	NAVAIR	Mar 2021	Mar 2022	1	1,720K	Y		Nov 2020
2) Naval Aviation Logistics Command Management Information System/Naval Air Systems Command F												
2.1) S7041 - NFSA HW/SW (3)		2019	VARIOUS / VARIOUS	C / FFP	NAVAIR	May 2019	Sep 2019	1	2,434K	Y		Jan 2019
2.1) S7041 - NFSA HW/SW (3)		2020	VARIOUS / VARIOUS	C / FFP	NAVAIR	May 2020	Sep 2020	1	2,468K	Y		Jan 2020
2.1) S7041 - NFSA HW/SW (3)		2021	VARIOUS / VARIOUS	C / FFP	NAVAIR	May 2021	Sep 2021	1	2,522K	Y		Jan 2021
3) Joint Technical Data Integration (JTDI)												
3.1) S7042 - JTDI HW/SW		2019	Wyle / Huntsville, AL	C / CPFF	DTIC	Jul 2019	Oct 2019	1	2,161K	Y		May 2019
3.1) S7042 - JTDI HW/SW		2020	Wyle / Huntsville, AL	C / CPFF	DTIC	Jul 2020	Oct 2020	1	2,172K	Y		May 2020
3.1) S7042 - JTDI HW/SW		2021	Wyle / Huntsville, AL	C / CPFF	DTIC	Jul 2021	Oct 2021	1	2,199K	Y		May 2021
4) Marine Aviation Logistics Enterprise Information Technology (MAL-EIT)/Expeditionary Pack U												
4.1) S7046 - EPUK HW/SW		2019	VARIOUS / VARIOUS	C / FFP	NAVAIR	May 2019	Aug 2019	1	199,000.00	Y		Apr 2019
6) Condition Based Maintenance Plus (CBM+)												
6.1) S7048 - CBM+ HW/SW		2019	VARIOIUS / VARIOUS	Various	NAVAIR	Feb 2019	Apr 2019	1	173,450.00	Y		Nov 2018
6.1) S7048 - CBM+ HW/SW		2020	VARIOIUS / VARIOUS	Various	NAVAIR	Feb 2020	Apr 2020	1	242,664.00	Y		Nov 2019
6.1) S7048 - CBM+ HW/SW		2021	VARIOIUS / VARIOUS	Various	NAVAIR	Feb 2021	Apr 2021	1	244,000.00	Y		Nov 2020
8) FRC ASM upgrades												
8.1) S7070 FRC ASM upgrades (4)		2020	VARIOUS / Various	C / TBD	Multiple	Mar 2020	Mar 2020	1	10,000K	Y		

Exhibit P-5, Cost Analysis: PB 2021 Navy		Date: February 2020
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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
Procurement Quantity *(Units in Each)*	-	-	-	-	-	-
Gross/Weapon System Cost *($ in Millions)*	115.183	14.570	33.362	33.904	0.000	33.904
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	115.183	14.570	33.362	33.904	0.000	33.904
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**115.183**	**14.570**	**33.362**	**33.904**	**0.000**	**33.904**
(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 2019			FY 2020			FY 2021 Base			FY 2021 OCO			FY 2021 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
1.1.2) Survival Communication Devices - SY063(†)	-	-	0.000	-	-	0.000	-	-	0.000	3,400.00	3,441	11.699	-	-	0.000	3,400.00	3,441	11.699
Subtotal: Recurring Cost	-	-	*0.404*	-	-	*0.000*	-	-	*0.000*	-	-	*11.699*	-	-	*0.000*	-	-	*11.699*
Subtotal: Hardware - Survival Electronics Cost	**-**	**-**	***0.404***	**-**	**-**	***0.000***	**-**	**-**	***0.000***	**-**	**-**	***11.699***	**-**	**-**	***0.000***	**-**	**-**	***11.699***
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																		
3.1.1) LEP- SY080(†) (5)	-	-	0.000	-	-	0.000	-	-	0.000	4,968.75	160	0.795	-	-	0.000	4,968.75	160	0.795
3.1.2) JHMCS Night Vision - SY215(†) (6)	156,441.70	446	69.773	198,260.87	46	9.120	250,538.46	52	13.028	-	-	0.000	-	-	0.000	-	-	0.000

Exhibit P-5, Cost Analysis: PB 2021 Navy		Date: February 2020
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 2019			FY 2020			FY 2021 Base			FY 2021 OCO			FY 2021 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)
3.1.3) JHMCS Night Vision Pec Spt Equip - SY215(†)	31,155.56	90	2.804	-	-	0.000	36,200.00	30	1.086	43,300.00	10	0.433	-	-	0.000	43,300.00	10	0.433
3.1.4) FDC - SY505(†) (7)	-	-	0.000	-	-	0.000	6,727.59	1,231	8.282	6,090.00	1,200	7.308	-	-	0.000	6,090.00	1,200	7.308
3.1.5) Aviation Maintainer Head & Hearing Protection - SY510(†) (8)	-	-	0.000	-	-	0.000	-	-	0.000	1,500.00	2,400	3.600	-	-	0.000	1,500.00	2,400	3.600
3.1.6) EKB - SY450	1,127.48	2,675	3.016	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000
Subtotal: Recurring Cost	-	-	*75.593*	-	-	*9.120*	-	-	*22.396*	-	-	*12.136*	-	-	*0.000*	-	-	*12.136*
Subtotal: Hardware - Helmets, Hearing and Display Cost	**-**	**-**	***75.593***	**-**	**-**	***9.120***	**-**	**-**	***22.396***	**-**	**-**	***12.136***	**-**	**-**	***0.000***	**-**	**-**	***12.136***
Hardware - Life Support Systems Cost																		
Recurring Cost																		
4.1.2) ASIP - SY126(†) (9)	-	-	0.000	-	-	0.000	-	-	0.000	4,996.56	582	2.908	-	-	0.000	4,996.56	582	2.908
4.1.3) ASIP - CSEL SW - SY131(†)	3,434.78	46	0.158	5,793.81	97	0.562	5,498.15	271	1.490	-	-	0.000	-	-	0.000	-	-	0.000
4.1.4) ASIP - Bladder Relief - SY132(†) (10)	-	-	0.000	-	-	0.000	-	-	0.000	449.01	2,628	1.180	-	-	0.000	449.01	2,628	1.180
4.1.5) ASIP - EEOS Carts - SY133(†)	8,500.00	32	0.272	58,888.89	9	0.530	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000
4.1.6) ASIP - LPU - SY134(†)	-	-	0.000	-	-	0.000	921.94	2,575	2.374	923.08	65	0.060	-	-	0.000	923.08	65	0.060
4.1.7) ASIP - JCAST - SY135(†)	69,125.00	8	0.553	-	-	0.000	81,520.00	25	2.038	81,500.00	6	0.489	-	-	0.000	81,500.00	6	0.489
Subtotal: Recurring Cost	-	-	*0.983*	-	-	*1.092*	-	-	*5.902*	-	-	*4.637*	-	-	*0.000*	-	-	*4.637*
Subtotal: Hardware - Life Support Systems Cost	**-**	**-**	***0.983***	**-**	**-**	***1.092***	**-**	**-**	***5.902***	**-**	**-**	***4.637***	**-**	**-**	***0.000***	**-**	**-**	***4.637***
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 (11)	-	-	35.495	-	-	3.887	-	-	4.654	-	-	4.906	-	-	0.000	-	-	4.906
5.3) Life Support Systems - SY830 (12)	-	-	1.400	-	-	0.471	-	-	0.410	-	-	0.526	-	-	0.000	-	-	0.526

Exhibit P-5, Cost Analysis: PB 2021 Navy		Date: February 2020
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 2019			FY 2020			FY 2021 Base			FY 2021 OCO			FY 2021 Total		
	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)
Subtotal: Support - Production Support Cost	-	-	*37.153*	-	-	*4.358*	-	-	*5.064*	-	-	*5.432*	-	-	*0.000*	-	-	*5.432*
Gross/Weapon System Cost	-	-	115.183	-	-	14.570	-	-	33.362	-	-	33.904	-	-	0.000	-	-	33.904

(†) indicates the presence of a P-5a

Footnotes:

(5) SY080 approved for procurement beginning in FY21 due to approved operational requirement to support aircrew safety.

(6) SY215 JHMCS: Quantity and unit prices in FY 2019 and 2020 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 of 798 required, 254 were procured under BLI 0204161N in prior years and the remaining 544 procured with current BLI.

(7) SY505 FDC: Quantity and total cost increased in FY 2023 - FY 2024 due to additional funds received for medical complications with aviation personnel incurring temporary and permanent hearing loss. FY21-FY25 SY505 was realigned by $3.6M/year for specific BISOG call out for Cranials (Maintainers) - SY510.

(8) SY510: Specific BISOG call out for Cranials (Maintainers).

(9) SY126 ASIP: In FY21, ASIP will procure 582 AMXD Bladder Relief kits. OPNAV approved for FY21 to invest more resources to address Fleet Aircrew and Aviation Maintainer safety and survivability issues. FY22 through FY25 quantities and average unit cost vary each year due to a mix of ASIP items. Quantity of 1 is a place holder until requirements are established from ENARG and System Safety Working Group. ASIP helps ensure that deficiencies that threaten Aircrew safety and performance, such as Physiological Episodes and chronic back and neck injury mitigation are addressed in a timely manner.

(10) ASIP - Bladder Relief SY132 approved for procurement beginning in FY21 due to approved operational requirement to support aircrew safety.

(11) SY830 Helmets, Hearing and Displays production support total cost increased in FY 2021-FY 2025 due to additional funds received for correlating Flight Deck Cranial (FDC) procurements in result of aviation personnel incurring temporary and permanent hearing loss.

(12) SY830 - Life Support Systems: This line is the labor that supports ASIP products.

Exhibit P-5a, Procurement History and Planning: PB 2021 Navy		Date: February 2020
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	OCO	FY	Contractor and Location	Method/Type or Funding Vehicle	Location of PCO	Award Date	Date of First Delivery	Qty (Each)	Unit Cost ($)	Specs Avail Now?	Date Revision Available	RFP Issue Date
1.1.2) Survival Communication Devices - SY063(†)		2021	Elbit / Talladega, Alabama	SS / IDIQ	NAVAIR	Nov 2020	Apr 2021	3,441	3,400.00	Y		Nov 2019
3.1.1) LEP- SY080		2021	Gentex / Simpson, Pennsylvania	C / FFP	NAVAIR	Nov 2020	Mar 2021	160	4,968.75	Y		Dec 2018
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	46	198,260.87	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	52	250,538.46	Y		Oct 2018
3.1.3) JHMCS Night Vision Pec Spt Equip - SY215		2020	Rockwell Collins - ESA Vision Systems / Dallas Ft. Worth, Texas	SS / FFP	NAVAIR	Oct 2019	Feb 2020	30	36,200.00	Y		
3.1.3) JHMCS Night Vision Pec Spt Equip - SY215		2021	Rockwell Collins - ESA Vision Systems / Dallas Ft. Worth, Texas	SS / FFP	NAVAIR	Oct 2020	Feb 2021	10	43,300.00	Y		
3.1.4) FDC - SY505(†)		2020	Creare / Hanover, NH	SS / CPFF	Lakehurst, NJ	May 2020	Jul 2020	1,231	6,727.59	Y		
3.1.4) FDC - SY505(†)		2021	Creare / Hanover, NH	SS / CPFF	Lakehurst, NJ	May 2021	Jul 2021	1,200	6,090.00	Y		
3.1.5) Aviation Maintainer Head & Hearing Protection - SY510		2021	TBD / TBD	C / FFP	** NO PCO **	Nov 2020	Feb 2021	2,400	1,500.00	Y		
4.1.2) ASIP - SY126(†)		2021	VARIOUS / VARIOUS	C / FFP	VARIOUS	Feb 2021	Apr 2021	582	4,996.56	Y		
4.1.3) ASIP - CSEL SW - SY131		2019	Panasonic of North America / Secaucus, NJ	Various	VARIOUS	Jul 2019	Jul 2019	97	5,793.81	Y		
4.1.3) ASIP - CSEL SW - SY131		2020	Panasonic of North America / Secaucus, NJ	Various	VARIOUS	Mar 2020	Mar 2020	271	5,498.15	Y		
4.1.4) ASIP - Bladder Relief - SY132		2021	TBD / TBD	C / FFP	VARIOUS	Feb 2021	Feb 2021	2,628	449.01	Y		
4.1.5) ASIP - EEOS Carts - SY133		2019	The Ace Company / Boise, ID	SS / FFP	** NO PCO **	Jan 2019	Jan 2019	9	58,888.89	Y		
4.1.6) ASIP - LPU - SY134		2020	TBD / TBD	SS / FFP	VARIOUS	Feb 2020	Feb 2020	2,575	921.94	Y		
4.1.6) ASIP - LPU - SY134		2021	TBD / TBD	SS / FFP	VARIOUS	Feb 2021	Feb 2021	65	923.08	Y		
4.1.7) ASIP - JCAST - SY135		2020	TBD / TBD	C / FFP	VARIOUS	Apr 2020	Apr 2020	25	81,520.00	Y		
4.1.7) ASIP - JCAST - SY135		2021	TBD / TBD	C / FFP	VARIOUS	Apr 2021	Apr 2021	6	81,500.00	Y		

(†) indicates the presence of a P-21

Exhibit P-21, Production Schedule: PB 2021 Navy | **Date:** February 2020

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
										Calendar Year 2018												Calendar Year 2019									
OCO	MFR #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2017	BAL DUE AS OF 1 OCT	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) Survival Communication Devices - SY063																															
	1	2021	NAVY	3,441	0	3,441																									3,441
3.1.2) JHMCS Night Vision - SY215 (6)																															
Prior Years Deliveries: 217																															
	2	2018	NAVY	72	0	72											A -	-	-	-	-	-	-	-	-	-	-	-	6	6	60
✓	2	2018	NAVY	157	0	157											A -	-	-	-	-	-	-	-	-	-	-	-	14	14	129
	2	2019	NAVY	46	0	46																		A -	-	-	-	-	-	-	46
	2	2020	NAVY	52	0	52																									52
3.1.4) FDC - SY505 (7)																															
	3	2020	NAVY	1,231	0	1,231																									1,231
	3	2021	NAVY	1,200	0	1,200																									1,200
4.1.2) ASIP - SY126 (9)																															
	4	2021	NAVY	582	0	582																									582
							OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	

Exhibit P-21, Production Schedule: PB 2021 Navy | **Date:** February 2020

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 2020												Fiscal Year 2021												BALANCE
							Calendar Year 2020												Calendar Year 2021												
OCO	MFR #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2019	BAL DUE AS OF 1 OCT	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) Survival Communication Devices - SY063																															
	1	2021	NAVY	3,441	0	3,441														A -	-	-	-	-	251	290	290	290	290	290	1,740
3.1.2) JHMCS Night Vision - SY215 (6)																															
Prior Years Deliveries: 217																															
	2	2018	NAVY	72	12	60	6	6	6	6	6	6	6	6	6	6															0
✓	2	2018	NAVY	157	28	129	13	13	13	13	13	13	13	13	13	12															0
	2	2019	NAVY	46	0	46	-	-	-	-	-	4	4	4	4	4	4	4	4	4	4	3	3								0
	2	2020	NAVY	52	0	52						A -	-	-	-	-	-	-	-	-	-	-	-	4	4	4	5	5	5	5	20
3.1.4) FDC - SY505 (7)																															
	3	2020	NAVY	1,231	0	1,231								A -	-	105	105	105	105	100	100	100	103	103	103	101	101				0
	3	2021	NAVY	1,200	0	1,200																				A -	-	100	100	100	900
4.1.2) ASIP - SY126 (9)																															
	4	2021	NAVY	582	0	582																	A -	-	48	49	48	49	48	49	291
							OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	

Exhibit P-21, Production Schedule: PB 2021 Navy		Date: February 2020
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
							Calendar Year 2022												Calendar Year 2023												
OCO	MFR #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2021	BAL DUE AS OF 1 OCT	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) Survival Communication Devices - SY063																															
	1	2021	NAVY	3,441	1,701	1,740	290	290	290	290	290	290																			0
3.1.2) JHMCS Night Vision - SY215 (6)																															
Prior Years Deliveries: 217																															
	2	2018	NAVY	72	72	0																									0
✓	2	2018	NAVY	157	157	0																									0
	2	2019	NAVY	46	46	0																									0
	2	2020	NAVY	52	32	20	4	4	4	4	4																				0
3.1.4) FDC - SY505 (7)																															
	3	2020	NAVY	1,231	1,231	0																									0
	3	2021	NAVY	1,200	300	900	100	100	100	100	100	100	100	100	100																0
4.1.2) ASIP - SY126 (9)																															
	4	2021	NAVY	582	291	291	48	49	48	49	48	49																			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	

Exhibit P-21, Production Schedule: PB 2021 Navy		Date: February 2020
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)							
					Initial				Reorder			
		MSR For 2021	1-8-5 For 2021	MAX For 2021	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	Elbit - Talladega, Alabama	3,000	3,900	4,800	0	1	5	6	0	1	5	6
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	8	2	10	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).

Exhibit P-5, Cost Analysis: PB 2021 Navy		Date: February 2020
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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
Procurement Quantity *(Units in Each)*	-	-	-	-	-	-
Gross/Weapon System Cost *($ in Millions)*	37.961	11.885	7.962	13.319	0.000	13.319
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	37.961	11.885	7.962	13.319	0.000	13.319
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**37.961**	**11.885**	**7.962**	**13.319**	**0.000**	**13.319**
(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 2019			FY 2020			FY 2021 Base			FY 2021 OCO			FY 2021 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)(†) (13)	3,559.70	8,317	29.606	3,572.16	2,529	9.034	3,644.11	1,387	5.054	3,716.48	2,784	10.347	-	-	0.000	3,716.48	2,784	10.347
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	-	-	*31.420*	-	-	*9.034*	-	-	*5.054*	-	-	*10.347*	-	-	*0.000*	-	-	*10.347*
Subtotal: Hardware - Hardware PEMA Cost	**-**	**-**	***31.420***	**-**	**-**	***9.034***	**-**	**-**	***5.054***	**-**	**-**	***10.347***	**-**	**-**	***0.000***	**-**	**-**	***10.347***
Support - Production Cost																		
2.1) S6820 Portable Electronic Maintenance Aids (PEMAs) Support	-	-	6.406	-	-	2.851	-	-	2.908	-	-	2.972	-	-	0.000	-	-	2.972
2.2) S6830 CH/MH-53 PEMAs Support	-	-	0.135	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000
Subtotal: Support - Production Cost	**-**	**-**	***6.541***	**-**	**-**	***2.851***	**-**	**-**	***2.908***	**-**	**-**	***2.972***	**-**	**-**	***0.000***	**-**	**-**	***2.972***
Gross/Weapon System Cost	**-**	**-**	**37.961**	**-**	**-**	**11.885**	**-**	**-**	**7.962**	**-**	**-**	**13.319**	**-**	**-**	**0.000**	**-**	**-**	**13.319**

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.

Exhibit P-5, Cost Analysis: PB 2021 Navy		Date: February 2020
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:**	

(†) indicates the presence of a P-5a

Footnotes:

(13) Increase in quantity due to the PEMA program scope increase, to include the Fleet Readiness Centers: Aircraft Intermediate Maintenance Departments (AIMD), Marine Aviation Logistics Squadrons (MALS), and Depots.

Exhibit P-5a, Procurement History and Planning: PB 2021 Navy		Date: February 2020
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	OCO	FY	Contractor and Location	Method/Type or Funding Vehicle	Location of PCO	Award Date	Date of First Delivery	Qty (Each)	Unit Cost ($)	Specs Avail Now?	Date Revision Available	RFP Issue Date
1.1.1) 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	1,387	3,644.11	Y		Dec 2019
1.1.1) S6001 Portable Electronic Maintenance Aids (PEMAs)(†)		2021	Panasonic of North America / Secaucus, NJ	C / IDIQ	NAWCAD LKE	Dec 2020	Feb 2021	2,784	3,716.48	Y		Dec 2020

(†) indicates the presence of a P-21

Exhibit P-21, Production Schedule: PB 2021 Navy		Date: February 2020
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 (Units in Each)							Fiscal Year 2019												Fiscal Year 2020												BALANCE
										Calendar Year 2019												Calendar Year 2020									
OCO	MFR #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2018	BAL DUE AS OF 1 OCT	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) (13)																															
Prior Years Deliveries: 8317																															
	1	2019	NAVY	2,529	0	2,529			A -	-	210	210	210	211	211	211	211	211	211	211	211	211									0
	1	2020	NAVY	1,387	0	1,387															A -	-	116	116	116	116	116	116	116	116	459
	1	2021	NAVY	2,784	0	2,784																									2,784
							OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	

Exhibit P-21, Production Schedule: PB 2021 Navy		Date: February 2020
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 (Units in Each)							Fiscal Year 2021												Fiscal Year 2022												BALANCE
							Calendar Year 2021												Calendar Year 2022												
OCO	MFR #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2020	BAL DUE AS OF 1 OCT	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) (13)																															
Prior Years Deliveries: 8317																															
	1	2019	NAVY	2,529	2,529	0																									0
	1	2020	NAVY	1,387	928	459	116	116	114	113																					0
	1	2021	NAVY	2,784	0	2,784			A -	-	232	232	232	232	232	232	232	232	232	232	232	232									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	

Exhibit P-21, Production Schedule: PB 2021 Navy		Date: February 2020
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)							
					Initial				Reorder			
		MSR For 2021	1-8-5 For 2021	MAX For 2021	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).

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	To Complete	Total
Procurement Quantity *(Units in Each)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost *($ in Millions)*	14.929	3.731	3.780	3.764	0.000	3.764	3.878	3.955	4.020	4.096	Continuing	Continuing
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	14.929	3.731	3.780	3.764	0.000	3.764	3.878	3.955	4.020	4.096	Continuing	Continuing
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**14.929**	**3.731**	**3.780**	**3.764**	**0.000**	**3.764**	**3.878**	**3.955**	**4.020**	**4.096**	**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:

[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.

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	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 (14)	8 / 0.320	2 / 0.080	2 / 0.080	2 / 0.080	- / -	2 / 0.080	2 / 0.080	2 / 0.080	2 / 0.080	2 / 0.080	Continuing	Continuing
Subtotal: Recurring	*- / 0.320*	*- / 0.080*	*- / 0.080*	*- / 0.080*	*- / -*	*- / 0.080*	*- / 0.080*	*- / 0.080*	*- / 0.080*	*- / 0.080*	*Continuing*	*Continuing*
Subtotal: ALIS SHIP INSTALLATION	*8 / 0.320*	*2 / 0.080*	*2 / 0.080*	*2 / 0.080*	*- / -*	*2 / 0.080*	*2 / 0.080*	*2 / 0.080*	*2 / 0.080*	*2 / 0.080*	*Continuing*	*Continuing*
Subtotal: Procurement, All Modification Items	*- / 0.320*	*- / 0.080*	*- / 0.080*	*- / 0.080*	*- / -*	*- / 0.080*	*- / 0.080*	*- / 0.080*	*- / 0.080*	*- / 0.080*	*Continuing*	*Continuing*
Support *(All Modification Items)*												
2.1) ALIS - Program Support (15)	- / 3.192	- / 0.813	- / 0.511	- / 0.726	- / 0.000	- / 0.726	- / 0.797	- / 0.834	- / 0.841	- / 0.834	Continuing	Continuing
2.2) ALIS - Production Engineering Support (16)	- / 3.492	- / 0.664	- / 0.415	- / 0.660	- / 0.000	- / 0.660	- / 0.699	- / 0.720	- / 0.800	- / 0.792	Continuing	Continuing
Subtotal: Support	*- / 6.684*	*- / 1.477*	*- / 0.926*	*- / 1.386*	*- / -*	*- / 1.386*	*- / 1.496*	*- / 1.554*	*- / 1.641*	*- / 1.626*	*Continuing*	*Continuing*
Installation												
Modification Item 1 of 1: ALIS SHIP INSTALLATION	- / 7.925	- / 2.174	- / 2.774	- / 2.298	- / 0.000	- / 2.298	- / 2.302	- / 2.321	- / 2.299	- / 2.390	- / 0.000	- / 24.483
Subtotal: Installation	*- / 7.925*	*- / 2.174*	*- / 2.774*	*- / 2.298*	*- / -*	*- / 2.298*	*- / 2.302*	*- / 2.321*	*- / 2.299*	*- / 2.390*	*- / 0.000*	*- / 24.483*
Total												
Total Cost (Procurement + Support + Installation)	**14.929**	**3.731**	**3.780**	**3.764**	**0.000**	**3.764**	**3.878**	**3.955**	**4.020**	**4.096**	**Continuing**	**Continuing**

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
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 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025
Contract Dates	Dec 2018	Dec 2019	Dec 2020	Dec 2021	Dec 2022	Dec 2023	Dec 2024
Delivery Dates	Apr 2019	Apr 2020	Apr 2021	Apr 2022	Apr 2023	Apr 2024	Apr 2025

Installation Information

Method of Implementation: [none specified]:: Installation Name: Installation Material

Installation Cost	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	To Complete	Total
	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*
Prior Years	8 / 7.925	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	8 / 7.925
FY 2019	- / -	2 / 2.174	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	2 / 2.174
FY 2020	- / -	- / -	2 / 2.774	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	2 / 2.774
FY 2021	- / -	- / -	- / -	2 / 2.298	0 / 0.000	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
FY 2025	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	2 / 2.390	0 / 0.000	2 / 2.390
To Complete	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
Total	8 / 7.925	2 / 2.174	2 / 2.774	2 / 2.298	0 / 0.000	2 / 2.298	2 / 2.302	2 / 2.321	2 / 2.299	2 / 2.390	0 / 0.000	22 / 24.483

Installation Schedule

		FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025					
	PYS	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	TC	Tot
In	8	-	-	2	-	-	-	2	-	-	-	2	-	-	-	2	-	-	-	2	-	-	-	2	-	-	-	2	-	-	22
Out	8	-	-	-	2	-	-	-	2	-	-	-	2	-	-	-	2	-	-	-	2	-	-	-	2	-	-	-	2	-	22

Footnotes:

(14) FY 2021 Installation Material requested funding supports Design Support Activities (DSA) to include material purchases for the installation of two(2) ALIS in FY 2021.

(15) FY 2021 Program Support requested funding supports Design Support Activities (DSA) to include Alteration Installation Team support for the installation of two (2) ALIS in FY 2021.

(16) FY 2021 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 2021.

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Exhibit P-40, Budget Line Item Justification: PB 2021 Navy	Date: February 2020
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

Resource Summary	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	To Complete	Total
Procurement Quantity *(Units in Each)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost *($ in Millions)*	0.000	18.019	17.568	60.937	0.000	60.937	67.108	73.040	83.390	85.482	Continuing	Continuing
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	0.000	18.019	17.568	60.937	0.000	60.937	67.108	73.040	83.390	85.482	Continuing	Continuing
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**0.000**	**18.019**	**17.568**	**60.937**	**0.000**	**60.937**	**67.108**	**73.040**	**83.390**	**85.482**	**Continuing**	**Continuing**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)												
Initial Spares *($ in Millions)*	-	-	-	-	-	-	-	1.102	1.214	2.028	Continuing	Continuing
Flyaway Unit Cost *($ in Dollars)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Dollars)*	-	-	-	-	-	-	-	-	-	-	-	-

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 builds the following hardware: the MQ-25 control station, the Video Management System (VidMS), ARC-210 the Radio Communication System (RCS), and the Mobile User Objective System (MUOS) capable communication system. The control station has 2 variants, 1 for the CVN and another for shore, designated the MD-5A and MD-5B, respectively. An MD-5 consists of 6 Common Display System (CDS) workstations, 2 Common Processing System (CPS) racks, 1 Network Processing Group (NPG) rack, which includes the Network Attached Storage (NAS) hardware to provide redundancy for the CPS, 1 Integrated Communication System (ICS) and software. The MD-5A and MD-5B use the same hardware with the exception of the ICS, which has CVN and shore variants, software, and networking and data transmission systems. The MD-5B requires dedicated Common Data Link (CDL) terminals and an Ashore Routing Communication System (ARCS) which integrates with NAVWAR's Automated Digital Network System (ADNS). The VidMS provides MQ-25 air vehicle operators with situational awareness of the unmanned carrier environment. The ARC-210 RCS provides narrow band Line of Sight (LOS) command and control (C2) for the MQ-25 while the MUOS communication system provides narrow band Beyond Line of Sight (BLOS) C2 using the MUOS satellites. The shore variants of the ARC-210 and MUOS communication systems leverage the CVN variant. UMCS government personnel perform 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-25 air vehicle, 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 performs CVN infrastructure modifications and installs the hardware described above in support of MQ-25 operations aboard NIMITZ and FORD Class carriers, as well as the 3 fixed operational shore sites. The CONUS operational shore sites each have 2 MD-5B control stations while the OCONUS location has 1 MD-5B control station. All installation and integration activities aboard NIMITZ and FORD class carriers are planned and executed using the NAVSEA Ship Change Document (SCD) process. These installation and integration activities are conducted serially across multiple CVN Availability periods (at least two depending upon the length of the planned shipyard maintenance period) where each availability period is preceded by three years of labor and material procurement in accordance with the NAVSEA process that identify strict delivery schedules for documentation, drawings, and hardware. The CVN availability schedule is updated at least twice per year and drives UMCS planning, modifications, and installations. Typically, CVN Installations are executed in four phases. Phase 1 begins with the SCD planning and technical data preparation three years prior to availability. Phase 2 begins with a hull specific Ship Check, development of detailed Ship Installation Drawings (SIDs), and procurement of hardware two years prior to the next CVN availability period. Phase 3 starts one-year prior to the availability and includes approval of the final design, the SIDs, and cybersecurity/logistics documentation. Finally, Phase 4 is installation during the availability period. Due to the size and complexity of the UMCS modifications at least two six-month schedule maintenance periods are required. 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.

Exhibit P-40, Budget Line Item Justification: PB 2021 Navy		Date: February 2020
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		

The MD-5 control station production effort includes production planning (methodology), non-recurring engineering (NRE) for the 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.

Exhibit P-40, Budget Line Item Justification: PB 2021 Navy	Date: February 2020
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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 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, P-21			- / 0.000	- / 18.019	- / 17.568	- / 60.937	- / 0.000	- / 60.937
P-40	**Total Gross/Weapon System Cost**				**- / 0.000**	**- / 18.019**	**- / 17.568**	**- / 60.937**	**- / 0.000**	**- / 60.937**

*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 FY 2020 enacted includes congressional rescission of $11.3 million to FY 2019 funding. However, this rescission is not reflected on the P-40.

In FY 2021 UMCS will fund:
-Procurement of hardware for an OCONUS CVN installation(FY19 NDAA requirement)
* 1 MD-5A control station consisting of 6 CDS, 2 CPS, 1 NPG, 1 NAS, and 1 Ship ICS
* 1 ARC-210 Radio Communication System (RCS)
* 1 MUOS capable communication system
* Ancillaries
-Hardware components for one operational shore site
* 1 MD-5A control station consisting of 6 CDS, 2 CPS, 1 NPG, 1 NAS, and 1 Shore ICS
* 1 ARC-210 RCSs
* 1 MUOS capable communication system
* 4 Common Data Link (CDL) systems; this component is unique to shore site
* 1 Ashore Routing Communication System (ARCS); this component is unique to shore site
* Ancillaries
-Complete Ship Installation Drawings (SIDs) and begin installing Ship Change Documents (SCDs) for the first operational MQ-25 CVN
-Procure installation material and 1 Video Management System (VidMS) for the CVN installation
-Ship Check and initiation of SIDs for another CVN installation
-Installation planning and continued preparation of design documentation for the operational shore sites; C4I integration personnel support this effort (operational network connectivity)
-Continued preparation of guidance documentation consisting of installation instructions and top-level drawings) for the FORD Class
-Modification and integration with externally managed Command, Control, Communication, Computers, and Intelligence (C4I) systems to support MQ-25 operations
* Support to facility and control station system design focusing on integration with the operational communications and networks infrastructure at the 3 shore site locations
* Integration with shore site services (e-mail, chat, browsing, etc.) to support MQ-25
* Design and network integration with Commercial Satellite Communications (SATCOM) system architecture to support MQ-25
-Product Support and Assembly (i.e. Lead Systems Integration (LSI) activities) to assemble, integrate, checkout, and deliver UMCS hardware (MD-5, ARC-210, MUOS, etc.)
-Production Engineering Support that includes Systems Engineering and Program Management (SEPM) to include LSI functions and production planning
-Integrated Logistics Support (ILS) to fund organic logistics planning, creation of technical data packages, and create maintenance training documentation required for operational ship and shore systems

Exhibit P-5, Cost Analysis: PB 2021 Navy		Date: February 2020
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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
Procurement Quantity *(Units in Each)*	-	-	-	-	-	-
Gross/Weapon System Cost *($ in Millions)*	0.000	18.019	17.568	60.937	0.000	60.937
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	0.000	18.019	17.568	60.937	0.000	60.937
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**0.000**	**18.019**	**17.568**	**60.937**	**0.000**	**60.937**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)						
Initial Spares *($ in Millions)*	-	0.000	-	-	-	-
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 2019			FY 2020			FY 2021 Base			FY 2021 OCO			FY 2021 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																		
1.1.1) Common Display System (CDS)(†) (1)	-	-	-	-	-	-	-	-	-	144,303.50	12	1.732	-	-	-	144,303.50	12	1.732
1.1.2) Common Processing System (CPS)(†) (2)	-	-	-	-	-	-	-	-	-	561,729.95	4	2.247	-	-	-	561,729.95	4	2.247
1.1.3) Network Processing Group (NPG)(†) (3)	-	-	-	-	-	-	-	-	-	592,828.59	2	1.186	-	-	-	592,828.59	2	1.186
1.1.4) Network Attached Storage (NAS)(†) (4)	-	-	-	-	-	-	-	-	-	254,368.28	2	0.509	-	-	-	254,368.28	2	0.509
1.1.5) Integrated Communication System (ICS) Ship(†) (5)	-	-	-	-	-	-	-	-	-	1,272K	1	1.272	-	-	-	1,272K	1	1.272
1.1.6) Integrated Communication System (ICS) Shore(†) (6)	-	-	-	-	-	-	-	-	-	856,916.25	1	0.857	-	-	-	856,916.25	1	0.857

Exhibit P-5, Cost Analysis: PB 2021 Navy		Date: February 2020
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 2019			FY 2020			FY 2021 Base			FY 2021 OCO			FY 2021 Total		
	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)
1.1.7) Video Management System (VidMS)(†)	-	-	-	-	-	-	809,000.00	1	0.809	-	-	-	-	-	-	-	-	-
1.1.8) ARC-210 Radio Communication System (RCS)(†) (7)	-	-	-	-	-	-	-	-	-	3,073K	3	9.219	-	-	-	3,073K	3	9.219
1.1.9) MUOS Capable Communication System(†) (8)	-	-	-	-	-	-	-	-	-	3,019K	3	9.057	-	-	-	3,019K	3	9.057
1.1.10) Shore Common Data Link (CDL)(†) (9)	-	-	-	-	-	-	-	-	-	1,933K	4	7.731	-	-	-	1,933K	4	7.731
1.1.11) Ashore Routing Communication System (ARCS)(†) (10)	-	-	-	-	-	-	-	-	-	377,503.75	1	0.378	-	-	-	377,503.75	1	0.378
1.1.12) Ancillaries(†) (11)	-	-	-	-	-	-	-	-	-	107,858.21	2	0.216	-	-	-	107,858.21	2	0.216
Subtotal: Recurring Cost	-	-	-	-	-	-	-	-	*0.809*	-	-	*34.404*	-	-	-	-	-	*34.404*
Non Recurring Cost																		
1.2.1) Ship Change Document (SCD) (12)	-	-	-	-	-	2.300	-	-	4.843	-	-	9.223	-	-	-	-	-	9.223
1.2.3) C4I Integration (13)	-	-	-	-	-	-	-	-	3.920	-	-	4.910	-	-	-	-	-	4.910
1.2.5) Product Support and Assembly (14)	-	-	-	-	-	-	-	-	0.734	-	-	5.675	-	-	-	-	-	5.675
1.2.6) Shore Integration (15)	-	-	-	-	-	1.519	-	-	1.198	-	-	0.790	-	-	-	-	-	0.790
Subtotal: Non Recurring Cost	-	-	-	-	-	*3.819*	-	-	*10.695*	-	-	*20.598*	-	-	-	-	-	*20.598*
Subtotal: Hardware - Hardware Cost	**-**	**-**	**-**	**-**	**-**	***3.819***	**-**	**-**	***11.504***	**-**	**-**	***55.002***	**-**	**-**	**-**	**-**	**-**	***55.002***
Software - Software Cost																		
Recurring Cost																		
2.1.1) Stingray Operating Software Suite (SOSS) (16)	-	-	-	-	-	6.136	-	-	-	-	-	-	-	-	-	-	-	-

Exhibit P-5, Cost Analysis: PB 2021 Navy		Date: February 2020
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 2019			FY 2020			FY 2021 Base			FY 2021 OCO			FY 2021 Total		
	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)
Subtotal: Recurring Cost	-	-	-	-	-	*6.136*	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: Software - Software Cost	**-**	**-**	**-**	**-**	**-**	***6.136***	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Support - Support Cost																		
3.2) Production Engineering Support (PES) (17)	-	-	-	-	-	5.411	-	-	2.323	-	-	2.246	-	-	-	-	-	2.246
3.3) Integrated Logistics Support (ILS) (18)	-	-	-	-	-	2.653	-	-	3.741	-	-	3.689	-	-	-	-	-	3.689
Subtotal: Support - Support Cost	**-**	**-**	**-**	**-**	**-**	***8.064***	**-**	**-**	***6.064***	**-**	**-**	***5.935***	**-**	**-**	**-**	**-**	**-**	***5.935***
Gross/Weapon System Cost	**-**	**-**	**0.000**	**-**	**-**	**18.019**	**-**	**-**	**17.568**	**-**	**-**	**60.937**	**-**	**-**	**0.000**	**-**	**-**	**60.937**

(†) indicates the presence of a P-5a

Footnotes:

(1) Cost Element 1.1.1 funds the procurement of Common Display Systems (CDS) supporting operational Unmanned Carrier Aviation (UCA) Mission Control System (UMCS) installations.

(2) Cost Element 1.1.2 funds the procurement of Common Processing System (CPS) supporting Unmanned Carrier Aviation Mission Control Station (UMCS) installations.

(3) Cost Element 1.1.3 funds the procurement of Network Processing Group (NPG) supporting operational MD-5 control station installations.

(4) Cost Element 1.1.4 funds the procurement of Network Attached Storage (NAS), a production modification to the Network Processing Group (NPG) to support required system redundancy across The Unmanned Carrier Aviation Mission Control System (UMCS).

(5) Cost Element 1.1.5 funds the procurement of Integrated Communication System (ICS) supporting operational MD-5A control station installations.

(6) Cost element 1.1.6 funds the procurement of Integrated Communication Systems (ICS) supporting operational MD-5B shore control stations.

(7) Cost Element 1.1.8 funds procurement of the ARC-210 Radio Communication System (RCS), which provides narrow band Line of Sight (LOS) command and control (C2) for the MQ-25.

(8) Cost Element 1.1.9 funds procurement of the MUOS Capable Communication System, which provides narrow band Beyond Line of Sight (BLOS) command and control (C2) using the MUOS satellites.

(9) Cost Element 1.1.10 funds procurement of the Common Data Link (CDL) terminals required for the operational shore site.

(10) Cost Element 1.1.11 funds procurement of the Ashore Routing Communication system networking equipment required for the operational shore site.

(11) Cost Element 1.1.12 funds procurement of the ancillary Unmanned Carrier Aviation Mission Control Station (UMCS) support systems required for carrier and operational shore sites.

(12) 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. FY21 total cost increase compared to FY20 due to additional support needed for Hull Mechanical and Electrical (HM&E) and Interface Cabling and Support Equipment (IC&SE) tasking.

Exhibit P-5, Cost Analysis: PB 2021 Navy		Date: February 2020
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:	

(13) 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), Navy Tactical Common Data Link (NTCDL), Common Datalink System Tech Refresh (CDLS-TR), Wideband Military SATCOM, Commercial SATCOM, Mobile User Objective System (MUOS), Link 16, and others. FY21 total cost increase compared to FY20 due to a switch to a Navy Commercial SATCOM POR after security issues were identified by the Navy with the MQ-25 contractors commercial SATCOM selection. This selection requires additional costs for non-recurring engineering, sustainment and subscription costs to non PoR satellite service

(14) Cost Element 1.2.5 Product Support funding will include production planning (methodology), Non-Recurring Engineering (NRE) for the MD-5 control station, and quality plan and procedures. NRE includes the assembly and delivery of the MD-5 control station. FY21 costs increased due to the significant increase in hardware procurements. In FY20, only 1 Video Management System (VidMS) was procured which requires minimal product support; while in FY21, 2 complete MD-5 control stations are being procured.

(15) 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.

(16) Cost Element 2.1.1 funds integration, licensing, and correction of deficiencies in the Stingray Operating Software Suite (SOSS), the UMCS software component.

(17) 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. Includes CVN (NIMITZ and FORD) and Operational Shore Facility GOV and KTR support with production engineering management and preparation of technical documentation.

(18) Cost Element 3.2 funds the organic logistics planning and execution across the UMCS product line for operational shore and carrier system support.

Exhibit P-5a, Procurement History and Planning: PB 2021 Navy		**Date:** February 2020
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

Cost Elements	OCO	FY	Contractor and Location	Method/Type or Funding Vehicle	Location of PCO	Award Date	Date of First Delivery	Qty *(Each)*	Unit Cost *($)*	Specs Avail Now?	Date Revision Available	RFP Issue Date
1.1.1) Common Display System (CDS)		2021	Lockheed Martin Corporation - RMS / Manassas, VA	C / FP	Washington Navy Yard, DC	Dec 2020	Dec 2021	12	144,303.50	Y		Sep 2019
1.1.2) Common Processing System (CPS)		2021	DRS Laurel Technologies / Johnstown, PA	C / FP	Washington Navy Yard, DC	Dec 2020	Dec 2021	4	561,729.95	N		Sep 2019
1.1.3) Network Processing Group (NPG)		2021	J.F/Taylor Inc / Lexington Park, MD	SS / BA	Pax River, MD	Dec 2020	Dec 2021	2	592,828.59	Y		Sep 2019
1.1.4) Network Attached Storage (NAS)		2021	DELL/EMC / Hopkinton, MA	SS / BA	Pax River, MD	Dec 2020	Dec 2021	2	254,368.28	Y		Sep 2019
1.1.5) Integrated Communication System (ICS) Ship		2021	Frequentis USA / Columbia, MD	C / FFP	Lakehurst, NJ	Oct 2020	Oct 2021	1	1,272K	N		Jun 2018
1.1.6) Integrated Communication System (ICS) Shore		2021	Compunetix / Monroeville, PA	Reqn	Pax River, MD	Oct 2020	Oct 2021	1	856,916.25	N		Jun 2018
1.1.7) Video Management System (VidMS)		2020	General Dynamics Information Technology / Falls Church, VA	C / CPAF	Pax River, MD	Jan 2020	Jan 2021	1	809,000.00	Y		Sep 2018
1.1.8) ARC-210 Radio Communication System (RCS)(†)		2021	BAE Systems / Rockville, MD	C / CPFF	Pax River, MD	Oct 2020	Oct 2021	3	3,073K	N		Sep 2018
1.1.9) MUOS Capable Communication System(†)		2021	TBD / TBD	C / TBD	TBD	Oct 2020	Oct 2021	3	3,019K	N		Sep 2018
1.1.10) Shore Common Data Link (CDL)(†)		2021	CUBIC / CALIFORNIA	C / CPAF	Pax River, MD	Dec 2020	Dec 2021	4	1,933K	N		Sep 2019
1.1.11) Ashore Routing Communication System (ARCS)		2021	TBD / TBD	Reqn	Pax River, MD	Dec 2020	Dec 2021	1	377,503.75	N		Sep 2019
1.1.12) Ancillaries		2021	General Dynamics / Falls Church, VA	C / CPAF	Pax River, MD	Dec 2020	Dec 2021	2	107,858.21	N		Sep 2019

(†) indicates the presence of a P-21

Exhibit P-21, Production Schedule: PB 2021 Navy		**Date:** February 2020
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

Cost Elements (Units in Each)							Fiscal Year 2020												Fiscal Year 2021												BALANCE
										Calendar Year 2020												Calendar Year 2021									
OCO	MFR #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2019	BAL DUE AS OF 1 OCT	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	
1.1.8) ARC-210 Radio Communication System (RCS) (7)																															
	1	2021	NAVY	3	0	3													A -	-	-	-	-	-	-	-	-	-	-	-	3
1.1.9) MUOS Capable Communication System (8)																															
	2	2021	NAVY	3	0	3													A -	-	-	-	-	-	-	-	-	-	-	-	3
1.1.10) Shore Common Data Link (CDL) (9)																															
	3	2021	NAVY	4	0	4															A -	-	-	-	-	-	-	-	-	-	4
							OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	

Exhibit P-21, Production Schedule: PB 2021 Navy		**Date:** February 2020
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

Cost Elements (Units in Each)							Fiscal Year 2022												Fiscal Year 2023												BALANCE
							Calendar Year 2022												Calendar Year 2023												
OCO	MFR #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2021	BAL DUE AS OF 1 OCT	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	
1.1.8) ARC-210 Radio Communication System (RCS) (7)																															
	1	2021	NAVY	3	0	3	1	-	1	-	-	-	-	-	-	-	-	1													0
1.1.9) MUOS Capable Communication System (8)																															
	2	2021	NAVY	3	0	3	1	-	-	-	1	-	-	-	-	-	-	1													0
1.1.10) Shore Common Data Link (CDL) (9)																															
	3	2021	NAVY	4	0	4	-	-	1	-	-	1	-	-	1	-	-	1													0
							OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	

Exhibit P-21, Production Schedule: PB 2021 Navy		Date: February 2020
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

MFR Ref #	Manufacturer Name - Location	Production Rates (Each / Year)			Procurement Leadtime (Months)							
					Initial				Reorder			
		MSR For 2021	1-8-5 For 2021	MAX For 2021	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	BAE Systems - Rockville, MD			TBD	0	0	12	12	0	0	12	12
2	TBD - TBD			TBD	0	0	12	12	0	0	12	12
3	CUBIC - CALIFORNIA	2	4	8	6	3	12	15	1	0	12	12

"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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