Department of Defense
Fiscal Year (FY) 2021 Budget Estimates

February 2020

Navy

Justification Book Volume 1 of 5

Other Procurement, Navy

BA 01

The estimated cost of this report for the Department of the Navy (DON) is $73,919.

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
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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
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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
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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
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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
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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
	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

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(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
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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
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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
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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

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(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 01: Ships Support Equipment / BSA 1: Ship Propulsion Equipment	**P-1 Line Item Number / Title:** 0131 / Surface Power Equipment

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

Line Item MDAP/MAIS Code: N/A

Resource Summary	Prior Years	FY 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)*	57.424	19.196	14.490	11.738	0.000	11.738	30.306	33.118	12.167	9.948	14.045	202.432
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	57.424	19.196	14.490	11.738	0.000	11.738	30.306	33.118	12.167	9.948	14.045	202.432
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**57.424**	**19.196**	**14.490**	**11.738**	**0.000**	**11.738**	**30.306**	**33.118**	**12.167**	**9.948**	**14.045**	**202.432**
(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:

Surface Power Equipment budget line provides life-cycle support for the following Marine Gas Turbine systems:

The General Electric LM2500 Marine Gas Turbine provides main propulsion for the Navy's surface combatants including the CG 47 TICONDEROGA Class, DDG 51 ARLEIGH BURKE Class, and LCS-2 (Austal) Class. The LM2500 is composed of two major sub-assemblies: the gas generator and power turbine sections. It is coupled to the ship drive-train by a high speed coupling shaft. The LM2500+ Marine Gas Turbine and its associated Engineering Control Systems provide main propulsion power for the Navy's amphibious assault ships including the LHD-8 USS MAKIN ISLAND, LHA-6 USS AMERICA and LHA-7 USS TRIPOLI. The LM2500+ is composed of two major sub-assemblies: the gas generator and power turbine sections. It is coupled to the ship drive-train by a high speed coupling shaft. The control system for both engines provides for both local and remote engine operations.

The Rolls Royce (Allison) 501-K Series Gas Turbines are used to drive electrical generators in Ship Service Gas Turbine Generators (SSGTG). The 501-K17 is used on the CG-47 Class ships. The 501-K34 is an upgraded version used on the DDG-51 Class ships and is not interchangeable with the 501-K17. The MT5S is a higher-power derivative of the 501-K engine family (utilizing Rolls Royce's new "Marine Trent" or "MT" naming convention vice the older "501-K" naming convention) used for auxiliary electrical generation on DDG-1000 class ships; the MT5S is not interchangeable with the 501-K17 or 501-K34. The MT5S is used within the RR4500 auxiliary turbine generator (ATG) aboard DDG-1000 Class ships. The MT5S-HE+ is used within the AG9160RF SSGTG aboard DDG-51 Flight III ships. Based on the MT5S design, the MT5S-HE+ includes several material changes designed to improve fuel efficiency and increase AG9160RF electrical power output when compared to the RR4500. The Rolls Royce MT-30 is used on LCS-1 (Lockheed) Class for main propulsion and DDG 1000 for electrical generation. Rolls Royce 250-KS4 is used as a starter gas turbine for the 501-K34 on DDG 79 and follow. The Rolls Royce MT7 gas turbine is used for both lift and propulsion fan power on the next generation of LCAC landing craft.

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

The Surface Power Equipment budget line may also be used to procure spare waterborne shafting (propeller shafts and stern tube shafts) and controllable pitch propeller (CPP) system end items such as propeller blades, hubs and oil distribution (OD) boxes used on DDG 51 class ships.

The budget funds the following:

Exhibit P-40, Budget Line Item Justification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 01: Ships Support Equipment / BSA 1: Ship Propulsion Equipment	**P-1 Line Item Number / Title:** 0131 / Surface Power Equipment	
ID Code (A=Service Ready, B=Not Service Ready): A	**Program Elements for Code B Items:** N/A	**Other Related Program Elements:** N/A
Line Item MDAP/MAIS Code: N/A		

[P40A / PE009 GE Readiness Improvement Upgrade Kits]: PE009 - MODIFICATION KIT PROGRAM: This cost element procures modification kits listed below for the GE Gas Turbine Engine. These modifications increase reliability and fleet readiness through component upgrades which improves the Mean Time Between Failure (MTBF). The modification kits are procured based on historical usage rates, re-packaged into individual kits, and sent to either a depot to be installed during engine overhauls or to Regional Maintenance Centers for installation. Procurement quantities are not shown because these funds are used to procure a variety of modification kits, with specific kit quantities and prices varying from one year to the next. The kits included in the cost code are as follows:
--Accelerometers (Vibration Monitor)
-- Compressor Rear Frame Mid-flange Fastener installation
-- C-Sump Lubrication Supply Line
-- Power Turbine Upgraded Speed Sensor
-- Improved Drain Shutoff Valve
-- Turbine Mid-Frame Modification
-- 7B Piping Modification
-- 5-Element to 6-Element Pump Conversion
-- T5.4 Flexible Thermo Harness
-- Mid Flange Fastener

[P40A / PE010 Stock Rotating Spares]: PE010 - GAS GENERATOR: This cost element procures the LM2500 and LM2500+ single shank propulsion gas turbines to support surface combatant and amphibious assault class surface ships. The programs projected FY-19 in-service population of single shank propulsion gas turbine engines is estimated to be 382 due to new construction. Breakdown of ship class spare procurement is listed below. The procurement of these engines includes all required shipping/storage containers.

DDG LM2500 Single Shank
Based on experience with 35 years of usage demand data on the LM2500 Engine and IAW 10 USC Sec. 2308, DFAR subpart 207.70 and DoDI 3110.06, a total of 36 spares are required to support the fleet requirements.

LCS 2 LM2500 Single Shank.
Based on experience with 35 years of usage demand data on the LM2500 Engine and IAW 10 USC Sec. 2308, DFAR subpart 207.70 and DoDI 3110.06, a total of 3 spares are required to support the fleet requirements. Current onhand is 2 with the requirement for one (1) additional gas generator unit to be procured IAW projected class population in FY21.

LHD8/LHA6/LHA7 LM2500+ Single Shank Gas Generator Assembly (SST GGA) and Power Turbine Assembly (PTA)
Based on experience with 35 years of usage demand data on the LM2500 Engine and IAW 10 USC Sec. 2308, DFAR subpart 207.70 and DoDI 3110.06, a total of 2 spares are required to support the fleet requirements. Current onhand is 1, which leaves the requirement for one (1) additional gas generator to be procured IAW projected class population. The program procured one (1) Gas Generator Assembly in FY18 to meet the baseline requirement. This engine represents a significantly different configuration than the standard LM2500 Single Shank Engine procured in previous fiscal years. Moreover, the PTA on the LM2500+ is also of significantly different configuration than the PTA on the LM2500.

LM2500 Hot Section Kits
Are procured as required from the below list per quarterly failure analysis and maintained to replace High Pressure Turbine (HPT) components beyond repairable limits. Shortages of replacement blades increase engine repair turn-around time (RTAT) during engine refurbishment/repair as a result of material shortages.

Procurement quantities are a result of procuring various kits of various costs. The kits included in the cost code are as follows:
--HPT Shrouds
--HPT Seal Assembly
--HPT Blades
--HPT Nozzles

Exhibit P-40, Budget Line Item Justification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 01: Ships Support Equipment / BSA 1: Ship Propulsion Equipment	P-1 Line Item Number / Title: 0131 / Surface Power Equipment	
ID Code (A=Service Ready, B=Not Service Ready): A	Program Elements for Code B Items: N/A	Other Related Program Elements: N/A
Line Item MDAP/MAIS Code: N/A		

--Compressor Blades

[P40A / PE014 Special Support Equipage]: PE014 Special Support Equipage - This cost element procures Special Support Equipment for all marine gas turbines to support gas turbine changeouts and to allow for increased I-level (intermediate level) repair capability, thereby reducing the number of engine change outs required and stabilizing or reducing the cost to overhaul engines at the depot. No installation cost is associated with this cost element.

[P40A / PE015 LM2500 DIGITAL FUEL CONTROL]: PE015 - LM2500 DIGITAL FUEL CONTROL (DFC)- This cost element procures the Digital Fuel Control (DFC) shipsets, ancillary equipment and install material to support the CG/DDG modernization schedules. Procurement and installations are budgeted to correspond with CNO ship availabilities. One DFC kit is required to update each of the four LM2500 engines, which makes one DFC shipset. The DFC upgrade is a mandatory portion of DDG-51 modernizations; the modernized machinery control system (MCS)is incapable of interfacing with LM2500 engines not equipped with DFC. The DFC is the most significant change to the LM2500 engine since its inception into the USN that addresses obsolete components which accounted for approximately 40% of all engine failures. In summary, this modification is estimated to be 75% more reliable than the old system. This upgrade also replaces the Hydro-mechanical main fuel control (MFC) system, which was designed for aircraft, with a DFC system designed for a military marine environment. This modification increases engine reliability, decreases periodic maintenance, enhances operational functions, and provides an automatic stall detection and shutdown capability.

PE6IN - INSTALLATION FOR DIGITAL FUEL CONTROL (DFC)- This cost element funds the installation of Cost element PE015, LM2500 Digital Fuel Control (DFC) shipsets, as part of the CG/DDG HM&E modernization program. This includes pre-assembly at NSWCPD (Philadelphia), shipping to installation location, shipboard installation, training, post installation operational testing and associated travel cost.

[P40A - 2 / PE001 STOCK ROTATING SPARES]: PE001 - STOCK ROTATING SPARES
This cost element procures the MT-30 for DDG1000 Zumwalt Class and Littoral Combat Ship (LCS) Independence Variant, MT-5 series gas turbines for the DDG 1000 Zumwalt Class and DDG-51 Flight III program, the 250-KS4 SSGTG starter engines for the DDG 79 and follow, and the 501-K34 gas turbines DDG 51 class ships. The procurement of these engines includes all required shipping/storage containers and necessary hardware to allow for installation of the MT30 gas turbine into DDG1000 or LCS5AF hull types.

MT-30 Gas Turbines
Based on experience with similar turbines and IAW 10 USC Sec. 2308, DFAR subpart 207.70 and DoDI 3110.06, a total of 6 spares are required to support the fleet. Current MT-30 spares on-hand is two (2) with four (4) budgeted for procurement in FY18-FY21. Per OPNAV N96 direction, the current budget exhibit reflects the Surface Power Equipment program (BLI: 0131) procuring one (1) MT-30 spare in FY18, one (1) in FY22, and one (1) in FY23 while the LCS program will procure one (1) MT-30 spare in FY18. Earlier budget exhibits called for the Surface Power Equipment program to procure (1) MT-30 in FY18 and (1) in FY21, with the LCS program procuring one (1) in FY19 and one (1) in FY20. The projected FY-23 and beyond in-service population of MT-30 gas turbine engines is thirty-six (36) due to new construction.

MT-5 Gas Turbines
Based on experience with similar turbines and IAW 10 USC Sec. 2308, DFAR subpart 207.70 and DoDI 3110.06, a total of 4 MT-5 spares are required to support the fleet. Current MT-5 spares on-hand is zero (0) with two (2) budgeted in FY18-FY19. The projected FY-21 and beyond in-service population of MT-5S gas turbine engines is six (6) due to new construction of DDG1000 and thirty (30) of the higher efficiency MT5S-HE+ units for DDG-51 Flight III. Earlier budget exhibits called for procurement of (1) MT-5S in FY19 and (1) in FY20. The current budget calls for procurement of one (1) MT-5S in FY18, one (1) in FY19, and one (1) in FY23. The program will begin procuring the remaining three (3) MT5S-HE+ engines in FY25.

250-KS4 SSGTG Starter Engines
Based on experience with similar turbines and IAW 10 USC Sec. 2308, DFAR subpart 207.70 and DoDI 3110.06, a total of 12 spares are required to support the fleet requirements. Current spares on-hand is twelve (12) which achieves the baseline sparing requirement. The projected FY-19 in-service population of starter engines is 103 due to new construction, but would be 169 if Flight IIA and Flight III were included. Operation Tomodachi has resulted in the radiological contamination of twelve (12) 250-KS4 Marine Gas Turbines, which created an unplanned requirement to replace the twelve (12) affected engines beginning in FY13. Currently, the program has budgeted for eight (8) replacements from FY17 through FY23.

501-K34 Gas Turbines

Exhibit P-40, Budget Line Item Justification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 01: Ships Support Equipment / BSA 1: Ship Propulsion Equipment	**P-1 Line Item Number / Title:** 0131 / Surface Power Equipment	
ID Code (A=Service Ready, B=Not Service Ready): A	**Program Elements for Code B Items:** N/A	**Other Related Program Elements:** N/A
Line Item MDAP/MAIS Code: N/A		

Based on experience with similar turbines and IAW 10 USC Sec. 2308, DFAR subpart 207.70 and DoDI 3110.06, a total of 26 spares are required to support the fleet requirements. Current 501-K34 spares on-hand is 22, which leaves a requirement of 4 additional gas generator units to be procured. The current budget calls for procurement of one (1) 501-K34 per fiscal year between FY19-22. The projected FY24 in-service population of gas turbine engines is 222 due to new construction.

[P40A - 2 / PE007 MODIFICATION PROGRAM]: PE007 - MODIFICATION PROGRAM
This cost element procures modification kits listed below for the Rolls Royce Marine Gas Turbines (MGT). Analysis of Rolls Royce MGT engineering performance data, metrics, the SEA 21 Top Tech Issues and the component improvement program has identified necessary improvements to correct Rolls Royce MGT deficiencies. The modifications addresses the Fleet's top maintenance and reliability issues by reducing failure rates of system components, and improve Rolls Royce MGT readiness.
The modification kits are packaged and shipped to the ship for installation during schedule CNO availability by a team of NSWCPD (Philadelphia) and Alteration Installation Team (AIT) personnel. Procurement quantities are not shown because these funds are used to procure a variety of modification kits, with specific kit quantities and prices varying from one year to the next. The kits included in the cost code are as follows:

--FADC upgrade conversion
--MT30 variant conversion kits

[P40A - 3 / PE830 PRODUCTION ENGINEERING]: PE830 PRODUCTION ENGINEERING The review and approval of any production contract technical documentation, or the separate development of this documentation to include:
- Technical Manuals
- Signal Flow Diagrams
- PMS
- Level III Production Drawings
- Provisioning Technical Documentation (PTD)
- Program Support Data
- Allowance Parts Lists (APL's)
- Engineering in support of final design reviews.

This includes efforts associated with tracking and updating Navy Data Environment (NDE), Marine Gas Turbine Information System (MGTIS) and Weblog to reflect completed installations and ensure consistent documentation for engine configuration management.

Exhibit P-40, Budget Line Item Justification: PB 2021 Navy	**Date:** February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 01: Ships Support Equipment / BSA 1: Ship Propulsion Equipment	**P-1 Line Item Number / Title:** 0131 / Surface Power Equipment

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

Line Item MDAP/MAIS Code: N/A

Exhibits Schedule					Prior Years	FY 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	General Electric Gas Turbine	P-5a			- / 8.235	- / 0.792	- / -	- / 0.512	- / -	- / 0.512
P-40a	Rolls Royce Gas Turbine	P-5a			- / 29.094	- / 8.804	- / 3.629	- / 3.811	- / -	- / 3.811
P-40a	PE830 PRODUCTION ENGINEERING				- / 0.695	- / 0.349	- / 0.350	- / 0.350	- / -	- / 0.350
P-3a	1 / PE015 - LM2500 GAS TURBINE DIGITAL FUEL CONTROL (TBD)				- / 19.400	- / 9.251	- / 10.511	- / 7.065	- / 0.000	- / 7.065
P-40	**Total Gross/Weapon System Cost**				**- / 57.424**	**- / 19.196**	**- / 14.490**	**- / 11.738**	**- / 0.000**	**- / 11.738**

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	General Electric Gas Turbine	P-5a			- / -	- / -	- / -	- / -	- / -	- / -
P-40a	Rolls Royce Gas Turbine	P-5a			- / -	- / -	- / -	- / -	- / -	- / -
P-40a	PE830 PRODUCTION ENGINEERING				- / -	- / -	- / -	- / -	- / -	- / -
P-3a	1 / PE015 - LM2500 GAS TURBINE DIGITAL FUEL CONTROL (TBD)				- / 2.832	- / 5.137	- / 1.126	- / 1.193	- / 0.195	- / 56.710
P-40	**Total Gross/Weapon System Cost**				**- / 30.306**	**- / 33.118**	**- / 12.167**	**- / 9.948**	**- / 14.045**	**- / 202.432**

*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.

Exhibit P-40a, Budget Item Justification For Aggregated Items: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 1	**P-1 Line Item Number / Title:** 0131 / Surface Power Equipment	**Aggregated Items Title:** General Electric Gas Turbine

Item Number / Title [DODIC]	ID CD	MDAP/ MAIS Code	Prior Years			FY 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) PE009 GE Readiness Improvement Upgrade Kits																				
1.1) MODIFICATION KIT PROGRAM	A		-	-	0.490	-	-	0.626	-	-	-	-	-	0.340	-	-	-	-	-	0.340
Subtotal: 1) PE009 GE Readiness Improvement Upgrade Kits			**-**	**-**	***0.490***	**-**	**-**	***0.626***	**-**	**-**	**-**	**-**	**-**	***0.340***	**-**	**-**	**-**	**-**	**-**	***0.340***
2) PE010 Stock Rotating Spares																				
2.1) LHD/LHA6 LM2500+(†)	A		5,329K	1	5.329	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: 2) PE010 Stock Rotating Spares			**-**	**-**	***5.329***	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
3) PE014 Special Support Equipage (1)																				
3.1) Special Support Equipage	A		-	-	2.189	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: 3) PE014 Special Support Equipage			**-**	**-**	***2.189***	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
4) PE015 LM2500 DIGITAL FUEL CONTROL																				
4.1) ANCILLARY EQUIPMENT/ INSTALLATION MATERIALS	A		-	-	0.227	-	-	0.166	-	-	-	-	-	0.172	-	-	-	-	-	0.172
Subtotal: 4) PE015 LM2500 DIGITAL FUEL CONTROL			**-**	**-**	***0.227***	**-**	**-**	***0.166***	**-**	**-**	**-**	**-**	**-**	***0.172***	**-**	**-**	**-**	**-**	**-**	***0.172***
Total			**-**	**-**	**8.235**	**-**	**-**	**0.792**	**-**	**-**	**-**	**-**	**-**	**0.512**	**-**	**-**	**-**	**-**	**-**	**0.512**

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

(†) indicates the presence of a P-5a

Footnotes:

(1) This cost element procures Special Support Equipment for all marine gas turbines to support gas turbine changeouts and to allow for increased I-level (intermediate level) repair capability, thereby reducing the number of engine change outs required and stabilizing or reducing the cost to overhaul engines at the depot. No installation cost is associated with this cost element.

Exhibit P-5a, Procurement History and Planning: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 1	P-1 Line Item Number / Title: 0131 / Surface Power Equipment	Aggregated Items: General Electric Gas Turbine

Item Number / Title [DODIC]	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) PE010 Stock Rotating Spares												
2.1) LHD/LHA6 LM2500+		2018	General Electric Co. / Cincinnati, OH	SS / FFP	NAVSUP WSS, Mechanicsburg PA	Jun 2018	Feb 2021	1	5,329K	Y		Dec 2017

Exhibit P-40a, Budget Item Justification For Aggregated Items: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 1	**P-1 Line Item Number / Title:** 0131 / Surface Power Equipment	**Aggregated Items Title:** Rolls Royce Gas Turbine

Item Number / Title [DODIC]	ID CD	MDAP/ MAIS Code	Prior Years			FY 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) PE001 STOCK ROTATING SPARES																				
1.1) 501-K34 (2)(†)	A		-	-	-	2,950K	1	2.950	3,075K	1	3.075	3,229K	1	3.229	-	-	-	3,229K	1	3.229
1.2) 250-KS4(†)	A		483,500.00	2	0.967	528,000.00	1	0.528	554,000.00	1	0.554	582,000.00	1	0.582	-	-	-	582,000.00	1	0.582
1.3) MT-30 (3)(†)	A		19,001K	1	19.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.4) MT-5S(†)	A		4,128K	1	4.128	4,334K	1	4.334	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: 1) PE001 STOCK ROTATING SPARES			**-**	**-**	***24.096***	**-**	**-**	***7.812***	**-**	**-**	***3.629***	**-**	**-**	***3.811***	**-**	**-**	**-**	**-**	**-**	***3.811***
2) PE007 MODIFICATION PROGRAM																				
2.1) PROCURE MODIFICATION KITS (4)	A		-	-	3.710	-	-	0.735	-	-	-	-	-	-	-	-	-	-	-	-
2.2) INSTALLATION FOR MODIFICATION KITS	A		-	-	1.288	-	-	0.257	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: 2) PE007 MODIFICATION PROGRAM			**-**	**-**	***4.998***	**-**	**-**	***0.992***	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Total			**-**	**-**	**29.094**	**-**	**-**	**8.804**	**-**	**-**	**3.629**	**-**	**-**	**3.811**	**-**	**-**	**-**	**-**	**-**	**3.811**

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

(†) indicates the presence of a P-5a

Footnotes:

(2) The cost estimates for the 501-K34 engine procurements between FY19-FY23 are based on the Rough Order of Magnitude pricing provided by Rolls Royce Naval Marine. The program will update the actual costs during the FY the contract is awarded.

(3) PE001, MT-30 - Changes since last request. Shift one (1) spare MT-30 procurement from FY21 to FY22 to match assessed spare requirement based on LCS-1/DDG-1000 ship inventory. In FY23 consolidate one (1) spare MT-30 procurement for LCS-1 and DDG-1000 class ships into a single program offices (realigns QTY of one (1) from BLI 0944 to BLI 0131).

(4) PE007 MODIFICATION PROGRAM: The modification program is designed to procure and install hardware to affect improvements in reliability and maintainability aboard CG-47 and DDG-51 class Ship Service Gas Turbine Generator (SSGTG) units. Each hull has a total of three (3) SSGTG units installed. Each SSGTG is controlled by a Full Authority Digital Control (FADC). CG-47 class uses the 501-K17 and DDG-51 class uses the 501-K34. There are currently three variants of the 501-K34 SSGTG: AG9130, AG9140HF and AG9140RF. The AG9140RF also includes the Remote Independent Mechanical Starting System (RIMSS) consisting of the 250-KS4 engine. The quantity of modification kits procured corresponds to the number of SSGTG units to be upgraded. The type and scope of each modification required will vary from one ship to the next. The number and type of kits installed in any given Fiscal Year (FY) varies depending upon ship availability schedules during that FY. The planned procurement of modification kits for the FY2020 budget includes FADC conversion upgrade kits only, specifically SCD 22119 (HMI tech refresh) and SCD 22122 (Micronet upgrade). Both SCDs are part of 'FADC Obsolescence' but can be installed independently of each other.

Exhibit P-5a, Procurement History and Planning: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 1	P-1 Line Item Number / Title: 0131 / Surface Power Equipment	Aggregated Items: Rolls Royce Gas Turbine

Item Number / Title [DODIC]	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) PE001 STOCK ROTATING SPARES												
1.1) 501-K34 (2)		2019	ROLLS ROYCE / WALEPOLE, MA	SS / FFP	NAVSEA, Washington DC	Apr 2019	Oct 2020	1	2,950K	Y		Dec 2017
1.1) 501-K34 (2)		2020	ROLLS ROYCE / WALEPOLE, MA	C / TBD	NAVSEA, Washington DC	Apr 2020	Oct 2021	1	3,075K	Y		Dec 2018
1.2) 250-KS4		2018	ROLLS ROYCE / WALEPOLE, MA	SS / FFP	NAVSEA, Washington DC	Dec 2018	Jun 2020	1	493,000.00	Y		Dec 2017
1.2) 250-KS4		2019	ROLLS ROYCE / WALEPOLE, MA	SS / FFP	NAVSEA, Washington DC	Aug 2019	Feb 2021	1	528,000.00	Y		Dec 2018
1.2) 250-KS4		2020	ROLLS ROYCE / WALEPOLE, MA	C / TBD	NAVSEA, Washington DC	Aug 2020	Feb 2022	1	554,000.00	Y		Dec 2019
1.2) 250-KS4		2021	ROLLS ROYCE / WALEPOLE, MA	C / TBD	** NO PCO **	Oct 2020	Oct 2020	1	582,000.00	N		
1.3) MT-30 (3)		2018	ROLLS ROYCE / WALEPOLE, MA	SS / FFP	NAVSEA, Washington DC	Sep 2018	Dec 2020	1	19,001K	Y		Dec 2017
1.4) MT-5S		2018	ROLLS ROYCE / WALEPOLE, MA	SS / FFP	NAVSEA, Washington DC	Sep 2018	Mar 2020	1	4,128K	Y		Dec 2017
1.4) MT-5S		2019	ROLLS ROYCE / WALEPOLE, MA	SS / FFP	NAVSEA, Washington DC	May 2019	Mar 2021	1	4,334K	Y		Dec 2018

Exhibit P-40a, Budget Item Justification For Aggregated Items: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 1	**P-1 Line Item Number / Title:** 0131 / Surface Power Equipment	**Aggregated Items Title:** PE830 PRODUCTION ENGINEERING (5)

Item Number / Title [DODIC]	ID CD	MDAP/ MAIS Code	Prior Years			FY 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) Production Engineering																				
1.1) Production Engineering	A		-	-	0.695	-	-	0.349	-	-	0.350	-	-	0.350	-	-	-	-	-	0.350
Subtotal: 1) Production Engineering			**-**	**-**	***0.695***	**-**	**-**	***0.349***	**-**	**-**	***0.350***	**-**	**-**	***0.350***	**-**	**-**	**-**	**-**	**-**	***0.350***
Total			**-**	**-**	**0.695**	**-**	**-**	**0.349**	**-**	**-**	**0.350**	**-**	**-**	**0.350**	**-**	**-**	**-**	**-**	**-**	**0.350**

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

Footnotes:

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

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 1	**P-1 Line Item Number / Title:** 0131 / Surface Power Equipment	**Modification Number / Title:** 1 / PE015 - LM2500 GAS TURBINE DIGITAL FUEL CONTROL
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

Resource Summary	Prior Years	FY 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)*	19.400	9.251	10.511	7.065	0.000	7.065	2.832	5.137	1.126	1.193	0.195	56.710
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	19.400	9.251	10.511	7.065	0.000	7.065	2.832	5.137	1.126	1.193	0.195	56.710
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**19.400**	**9.251**	**10.511**	**7.065**	**0.000**	**7.065**	**2.832**	**5.137**	**1.126**	**1.193**	**0.195**	**56.710**
(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:

PE015 - LM2500 DIGITAL FUEL CONTROL (DFC) - This cost code procures the Digital Fuel Control (DFC) shipsets, ancillary equipment and install material to support the CG/DDG modernization schedules. Procurement and installations are budgeted to correspond with CNO ship availabilities. One DFC kit is required to update each of the four LM2500 engines, which makes one DFC shipset. The DFC upgrade is a mandatory portion of DDG-51 modernizations; the modernized machinery control system (MCS)is incapable of interfacing with LM2500 engines not equipped with DFC. The DFC is the most significant change to the LM2500 engine since its inception into the USN that addresses obsolete components which accounted for approximately 40% of all engine failures. In summary, this modification is estimated to be 75% more reliable than the old system. This upgrade also replaces the Hydro-mechanical main fuel control (MFC) system, which was designed for aircraft, with a DFC system designed for a military marine environment. This modification increases engine reliability, decreases periodic maintenance, enhances operational functions, and provides an automatic stall detection and shutdown capability.

PE6IN - INSTALLATION FOR DIGITAL FUEL CONTROL (DFC)- This cost element funds the installation of Cost element PE015, LM2500 Digital Fuel Control (DFC) shipsets, as part of the CG/DDG HM&E modernization program. This includes pre-assembly at NSWCPD (Philadelphia), shipping to installation location, shipboard installation, training, post installation operational testing and associated travel cost.

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 1	**P-1 Line Item Number / Title:** 0131 / Surface Power Equipment	**Modification Number / Title:** 1 / PE015 - LM2500 GAS TURBINE DIGITAL FUEL CONTROL
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	
Models of Systems Affected: [No Model Specified]	**Modification Type:** TBD	**Related RDT&E PEs:**

Financial Plan	Prior Years	FY 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: PE015 - LM2500 GAS TURBINE DIGITAL FUEL CONTROL												
B Kits												
Recurring												
1.1.1) PE015 DIGITAL FUEL CONTROL SHIPSET/ PE6IN INSTALLATION FOR DFC - NonOrganic [6]	10 / 18.354	5 / 8.747	5 / 9.995	3 / 6.537	- / -	3 / 6.537	1 / 2.295	2 / 4.587	- / 0.568	1 / 0.625	- / 0.195	27 / 51.903
Subtotal: Recurring	*- / 18.354*	*- / 8.747*	*- / 9.995*	*- / 6.537*	*- / -*	*- / 6.537*	*- / 2.295*	*- / 4.587*	*- / 0.568*	*- / 0.625*	*- / 0.195*	*- / 51.903*
Subtotal: PE015 - LM2500 GAS TURBINE DIGITAL FUEL CONTROL	*10 / 18.354*	*5 / 8.747*	*5 / 9.995*	*3 / 6.537*	*- / -*	*3 / 6.537*	*1 / 2.295*	*2 / 4.587*	*- / 0.568*	*1 / 0.625*	*- / 0.195*	*27 / 51.903*
Subtotal: Procurement, All Modification Items	*- / 18.354*	*- / 8.747*	*- / 9.995*	*- / 6.537*	*- / -*	*- / 6.537*	*- / 2.295*	*- / 4.587*	*- / 0.568*	*- / 0.625*	*- / 0.195*	*- / 51.903*
Installation												
Modification Item 1 of 1: PE015 - LM2500 GAS TURBINE DIGITAL FUEL CONTROL	- / 1.046	- / 0.504	- / 0.516	- / 0.528	- / 0.000	- / 0.528	- / 0.537	- / 0.550	- / 0.558	- / 0.568	- / 0.000	- / 4.807
Subtotal: Installation	*- / 1.046*	*- / 0.504*	*- / 0.516*	*- / 0.528*	*- / -*	*- / 0.528*	*- / 0.537*	*- / 0.550*	*- / 0.558*	*- / 0.568*	*- / 0.000*	*- / 4.807*
Total												
Total Cost (Procurement + Support + Installation)	**19.400**	**9.251**	**10.511**	**7.065**	**0.000**	**7.065**	**2.832**	**5.137**	**1.126**	**1.193**	**0.195**	**56.710**

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 1	**P-1 Line Item Number / Title:** 0131 / Surface Power Equipment	**Modification Number / Title:** 1 / PE015 - LM2500 GAS TURBINE DIGITAL FUEL CONTROL

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

Modification Item 1 of 1: PE015 - LM2500 GAS TURBINE DIGITAL FUEL CONTROL

Manufacturer Information

Manufacturer Name: General Electric | Manufacturer Location: Cincinnati, OH

Administrative Leadtime *(in Months)*: 2 | Production Leadtime *(in Months)*: 10

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

Installation Information

Method of Implementation: GOVERNMENT:: Installation Name: PE015 DIGITAL FUEL CONTROL SHIPSET/ PE6IN INSTALLATION FOR DFC

Installation Cost	Prior Years	FY 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 / 1.046	5 / 0.504	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	10 / 1.550
FY 2019	- / -	- / -	4 / 0.516	1 / 0.176	0 / 0.000	1 / 0.176	- / -	- / -	- / -	- / -	0 / 0.000	5 / 0.692
FY 2020	- / -	- / -	- / -	2 / 0.352	0 / 0.000	2 / 0.352	3 / 0.402	- / -	- / -	- / -	0 / 0.000	5 / 0.754
FY 2021	- / -	- / -	- / -	- / -	- / -	- / -	1 / 0.135	2 / 0.365	- / -	- / -	0 / 0.000	3 / 0.500
FY 2022	- / -	- / -	- / -	- / -	- / -	- / -	- / -	1 / 0.185	- / -	- / -	0 / 0.000	1 / 0.185
FY 2023	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	2 / 0.558	- / -	0 / 0.000	2 / 0.558
FY 2024	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2025	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	1 / 0.568	0 / 0.000	1 / 0.568
To Complete	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
Total	5 / 1.046	5 / 0.504	4 / 0.516	3 / 0.528	0 / 0.000	3 / 0.528	4 / 0.537	3 / 0.550	2 / 0.558	1 / 0.568	0 / 0.000	27 / 4.807

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	5	-	1	2	2	-	1	2	1	-	2	1	-	-	1	2	1	-	1	2	-	-	-	2	-	-	-	1	-	-	27
Out	5	-	1	2	2	-	1	2	1	-	2	1	-	-	1	2	1	-	1	2	-	-	-	2	-	-	-	1	-	-	27

Footnotes:

(6) DFC ship-set procurement and installation costs updated based on actual prior year contract award prices. DFC ship-set installation costs were adjusted from FY20 through FY24 to properly align to the most current DDG 51 Class modernization schedule and accurately reflect the correct distribution of planned procurement and installation dollars based on sponsor requirements. DFC Install schedule lags the

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 1	**P-1 Line Item Number / Title:** 0131 / Surface Power Equipment	**Modification Number / Title:** 1 / PE015 - LM2500 GAS TURBINE DIGITAL FUEL CONTROL
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

Procurement schedule by 12-24 months. The procurement schedule for DFC ship sets is dictated by the Department's master schedule for DDG modernizations. The number of DDG modernizations changes from one year to the next based upon ship and dry dock availability.

Exhibit P-40, Budget Line Item Justification: PB 2021 Navy	Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 01: Ships Support Equipment / BSA 2: Generators	**P-1 Line Item Number / Title:** 0200 / Surface Combatant HM&E

ID Code (A=Service Ready, B=Not Service Ready): A	**Program Elements for Code B Items:** N/A	**Other Related Program Elements:** N/A
Line Item MDAP/MAIS Code: N/A		

Resource Summary	Prior Years	FY 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)*	134.751	23.495	66.561	58.497	0.000	58.497	86.147	84.858	61.673	44.305	8.596	568.883
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	134.751	23.495	66.561	58.497	0.000	58.497	86.147	84.858	61.673	44.305	8.596	568.883
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**134.751**	**23.495**	**66.561**	**58.497**	**0.000**	**58.497**	**86.147**	**84.858**	**61.673**	**44.305**	**8.596**	**568.883**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)												
Initial Spares *($ in Millions)*	-	0.227	0.049	0.029	-	0.029	0.029	0.035	-	-	-	0.369
Flyaway Unit Cost *($ in Dollars)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Dollars)*	-	-	-	-	-	-	-	-	-	-	-	-

Description:

This program allows the Navy to better align and identify Hull, Mechanical & Electrical (HM&E) requirements and shipboard upgrades and equipment. This is in support of the in-service Surface Combatants to include Class Common Equipment (CCE) to support shorter Regular Overhauls and Selected Restricted Availabilities. These include Ship System Components that require long repair turn-around; CG/DDG - Machinery Control Systems (MCS) Commercial off the Shelf (COTS) Refresh; Ship Control Systems (SCS) and installation in support of the SCS. FY20 indicated an increase from FY19 to procure Twisted Rudders for DDG51 Class ships. FY21 indicates an increase from FY20 in support of Comprehensive Review recommendations to provide improved ship control and bridge information system upgrades for the DDG 51 Class.

[P40A / GB001 - CG/DDG COTS Tech Refresh]: Due to Diminishing Manufacturing Sources and Material Shortages (DMSMS), Commercial Off The Shelf (COTS) equipment must be periodically refreshed to ensure supportability to the Fleet. This cost code is used to fund solutions for HM&E systems that have parts with oncoming DMSMS impacts. DMSMS solutions, including after-market manufacturing (reverse engineering), bridge-buys, life-of-type buys, modernization through replacement, modification / redesign, and reclamation are implemented to ensure that in-service ships are operational and sustainable throughout the life of the system. DMSMS issues and planned resolutions are implemented outside of standard CNO availabilities (Window of Opportunity (WOO) or Continuous Maintenance Availability (CMAV)) and are impacted by pending fact-of-life influences, including shifting availabilities, modified vendor End of Sale dates, and unforeseen material shortages.

[P40A / GB002 - Class Common Equipment]: The Common Class Equipment (CCE) program is to provide Ready-For-Issue (RFI) systems and equipment in support of Surface Combatant ship industrial availabilities and to replace major system equipment which sustains battle damage or major failure. CCE Availability Assets (AAs) ensure warfighting capability, readiness, and on-time deployment by providing RFI long lead time material (LLTM) in case of possible catastrophic damage or major failure on Aegis ships. CCE AAs are procured and stored to support backfit upgrades and emergent maintenance within brief availability windows. The ready accessibility of these assets avoids delays in availability completion caused by lengthy equipment repair turn-around time or acquisition lead time. In addition to AAs, the CCE program also provides for Insurance Assets. These are the major long lead time HM&E equipment/systems, which would prevent a ship from being able to be quickly repaired in order to accomplish its mission due to major damage or battle damage. The CCE program provides for both CG and DDG assets.

[P40A / GB003 - Ship Control Systems]: Funds provide support for the procurement and installation of Ship Control Systems (SCS) upgrades on both cruisers and destroyers in support of the Fleet Modernization Program. Ship Control Systems provide lifecycle support for legacy and modernized engineering controls. SCS equipment and components are procured for various ship changes and engineering change proposals for in-service surface combatants and are installed outside of standard CNO availabilities. This effort includes maintaining Land Based Engineering Sites (LBES), CG / DDG system refresh, SCD design engineering, CG / DDG equipment procurement, and CG / DDG ISEA/ILS support. This cost code also provides for funding the necessary software licenses in support of the HM&E COTS systems/

Exhibit P-40, Budget Line Item Justification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 01: Ships Support Equipment / BSA 2: Generators	**P-1 Line Item Number / Title:** 0200 / Surface Combatant HM&E	
ID Code (A=Service Ready, B=Not Service Ready): A	**Program Elements for Code B Items:** N/A	**Other Related Program Elements:** N/A
Line Item MDAP/MAIS Code: N/A		

equipment for both CG and DDG class ships. Examples of systems requiring software licenses are: Machinery Control System (MCS) components, Voyage Management System, Integrated Bridge System, Integrated Bridge and Navigation System, and Digital Video Surveillance System.

[P40A / GB003 - Surface Ship Control System Upgrades for DDG 51 Class]: DDG-51 ship control and bridge information systems are identified by NAVSEA's DDG-51 Class Design Review Board (DRB) as directed in the Comprehensive Review (CR). Funding provides solutions to CR recommendations 7.3.6, 7.3.7, 7.310 and 7.3.11, including: (1) Adding a physical throttle to the Integrated Bridge and Navigation System (IBNS) Ship Control Console (SCC) to augment the current touchscreen (2) Adding a Voyage Data Recorder (VDR) capability (3) Adding two additional aft steering situational awareness cameras into the existing Digital Video Surveillance System (DVSS) (4) Implementing night vision requirements for lighting and glare reduction from bridge equipment (5) Incorporating associated updates to the Steering and Propulsion Control System (SPCS) Computer Program.

[P40A / GB004 - Maritime Energy Initiatives (Previously Procured in BLI 0110 and BLI 0120)]: Maritime Energy Initiatives provide surface combatants with technologies/tools that reduce energy usage. This will enhance operational capabilities, allowing for longer time on-station and fewer refuelings. These initiatives will also help meet the CNO's 2020 goal of reducing the surface fleet's fuel usage by 15%. The initiatives consist of: 1) Hull and Hydrodynamics - These initiatives focus on the dynamic forces where the ship contacts the water. They include, but are not limited to hull appendages that reduce drag, thus improving speed and fuel efficiency; 2) Power Generation and Transmission Systems - These initiatives focus on, but are not limited to improving the efficiency of ships' prime movers, generators, main reduction gears, propulsion motors/drives, and shaft-line components; 3) Combat and Ship Systems Support Services - These initiatives focus on, but are not limited to improving systems that use electricity when providing support services (e.g. cooling, heating, air, lube oil) to combat machinery, or life support systems; and 4) Decision Aids - These initiatives will inform the sailor of decisions they can make to save energy and improve operational efficiency by consolidating and manipulating ship data and providing it back as actionable information.

[P40A / GB004 - Shipboard Energy Dashboard FLT IIA Equipment]: The Shipboard Energy Dashboard FLT IIA technology is a shipboard tool providing real time situational awareness of the energy demand associated with equipment lineup and mission. Technology raises operator awareness of how certain engineering plant lineups and equipment affect fuel consumption rates. Energy savings will be realized through energy usage culture change.

[P40A / GB004 - Maritime Energy Initiatives (VSD for CPS)]: The Collective Protective System (CPS) is a full time air filtration system integrated into the ship's HVAC system. The amount of outside supply air delivered to CPS zones varies with filter loading over time and is almost always higher than needed, resulting in above average HVAC loads. Variable Speed Drive (VSD) will be installed as an airflow control component to optimize supply air flow, realizing energy savings from fan motor and reduced HVAC loads.

[P40A / GB004 - Maritime Energy Initiatives (TMCS)]: The Heating, Ventilation, and Air Conditioning (HVAC) system is the largest distributed system on a Surface Combatant and typically consumes between 25% and 40% of all energy used. Surveys on several DDG-class ships indicate that average space temperatures across the ship were being maintained well below the design temperature. Thermal Management Control System (TMCS) provides centralized control and monitoring of space temperatures at design set-points for each compartment throughout the ship. This technology enables improved operational efficiency of the HVAC system, thereby lowering AC loads and reducing electrical demand.

[P40A / GB005 - HM&E Condition System]: This solution proposed would implement HM&E principles, it would implement a Defense-in-Depth Functional Implementation Architecture (DFIA) and meet the requirements of the standards released by the Information Assurance Technical Authority Board (IA TAB) across all the HM&E systems deploying the ability to protect, detect, react, and restore in a contested environment. The HM&E Condition System will monitor the signals on the HM&E network, both between HM&E systems and also those coming from other functional domains.

[P40A / GB006 - Hybrid Electric Drive]: Congressional Plus Up for Hybrid Electric Drive (HED).

[P3A / GB003 - Twisted Rudder]: GB003 - DDG 51 Class has implemented the use of Twisted Rudders to reduce the impact of cavitation, which will reduce the need for inspection and maintenance of the rudders. Cavitation causes early wear and tear on rudders, increasing the inspection and maintenance requirements. It will also have a secondary affect by reducing the noise that is usually generated by the cavitation which will increase the performance of its ships primary mission.

Exhibit P-40, Budget Line Item Justification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 01: Ships Support Equipment / BSA 2: Generators	**P-1 Line Item Number / Title:** 0200 / Surface Combatant HM&E	
ID Code (A=Service Ready, B=Not Service Ready): A	**Program Elements for Code B Items:** N/A	**Other Related Program Elements:** N/A
Line Item MDAP/MAIS Code: N/A		

[P3A - 2 / GB004 - Maritime Energy Initiatives (SSL)]: Solid State Lighting (SSL) lamps consist of individual Light Emitting Diodes (LEDs), which serve as replacements for incandescent and fluorescent lighting fixtures. SSL replacements are engineered to meet military specifications. SSL replacements for incandescent and fluorescent fixtures reduce energy usage by approximately 85% and 50%, respectively. Additionally, this install will drastically reduce the electrical lighting load, maintenance actions, and the space needed for spare parts.

Exhibit P-40, Budget Line Item Justification: PB 2021 Navy	Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 01: Ships Support Equipment / BSA 2: Generators	**P-1 Line Item Number / Title:** 0200 / Surface Combatant HM&E

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

Line Item MDAP/MAIS Code: N/A

Exhibits Schedule					Prior Years	FY 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	Surface Combatant HM&E	P-5a			- / 116.821	- / 20.795	- / 62.965	- / 54.158	- / -	- / 54.158
P-3a	1 / GB003 - Twisted Rudder (TBD)				- / 0.000	- / 0.000	- / 3.596	- / 4.339	- / 0.000	- / 4.339
P-3a	2 / GB004 - Maritime Energy Initiatives (SSL) (TBD)				- / 17.930	- / 2.700	- / 0.000	- / 0.000	- / 0.000	- / 0.000
P-40	**Total Gross/Weapon System Cost**				**- / 134.751**	**- / 23.495**	**- / 66.561**	**- / 58.497**	**- / 0.000**	**- / 58.497**

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	Surface Combatant HM&E	P-5a			- / -	- / -	- / -	- / -	- / -	- / -
P-3a	1 / GB003 - Twisted Rudder (TBD)				- / 9.962	- / 4.995	- / 10.082	- / 10.780	- / 8.596	- / 52.350
P-3a	2 / GB004 - Maritime Energy Initiatives (SSL) (TBD)				- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 20.630
P-40	**Total Gross/Weapon System Cost**				**- / 86.147**	**- / 84.858**	**- / 61.673**	**- / 44.305**	**- / 8.596**	**- / 568.883**

*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.

Exhibit P-40a, Budget Item Justification For Aggregated Items: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 2	P-1 Line Item Number / Title: 0200 / Surface Combatant HM&E	Aggregated Items Title: Surface Combatant HM&E

Item Number / Title [DODIC]	ID CD	MDAP/ MAIS Code	Prior Years			FY 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) GB001 - CG/DDG COTS Tech Refresh																				
1.1) GB001 - CG/DDG COTS Tech Refresh	A		-	-	23.265	-	-	5.656	-	-	2.911	-	-	2.202	-	-	-	-	-	2.202
Subtotal: 1) GB001 - CG/DDG COTS Tech Refresh			**-**	**-**	***23.265***	**-**	**-**	***5.656***	**-**	**-**	***2.911***	**-**	**-**	***2.202***	**-**	**-**	**-**	**-**	**-**	***2.202***
2) GB002 - Class Common Equipment																				
2.1) GB002 - Class Common Equipment	A		-	-	9.695	-	-	2.426	-	-	2.161	-	-	1.380	-	-	-	-	-	1.380
Subtotal: 2) GB002 - Class Common Equipment			**-**	**-**	***9.695***	**-**	**-**	***2.426***	**-**	**-**	***2.161***	**-**	**-**	***1.380***	**-**	**-**	**-**	**-**	**-**	***1.380***
3) GB003 - Ship Control Systems (1)																				
3.1) GB003 - CG 47 Class (Installed under GB6IN 3.5) (2)(†)	A		1,903K	4	7.612	100,000.00	1	0.100	1,695K	1	1.695	-	-	-	-	-	-	-	-	-
3.2) GB003 - DDG 51 Class (Installed under GB6IN 3.6) (3)(†)	A		3,164K	4	12.655	5,975K	1	5.975	3,377K	1	3.377	5,204K	1	5.204	-	-	-	5,204K	1	5.204
3.3) GB003 - Ship Control Systems Software Licenses	A		-	-	3.149	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3.4) GB003 - Surface Ship Control System Upgrades for DDG 51 Class (4)	A		-	-	1.000	-	-	2.000	-	-	0.900	-	-	21.200	-	-	-	-	-	21.200
3.5) GB6IN - CG 47 Class Install (Procured under GB003 3.1)	A		-	-	3.441	1,551K	1	1.551	1,208K	1	1.208	-	-	-	-	-	-	-	-	-
3.6) GB6IN - DDG 51 Class Install (Procured under GB003 3.2)	A		-	-	2.887	987,000.00	1	0.987	1,024K	3	3.071	843,333.33	9	7.590	-	-	-	843,333.33	9	7.590
Subtotal: 3) GB003 - Ship Control Systems			**-**	**-**	***30.744***	**-**	**-**	***10.613***	**-**	**-**	***10.251***	**-**	**-**	***33.994***	**-**	**-**	**-**	**-**	**-**	***33.994***
4) GB004 - Maritime Energy Initiatives (Previously Procured in BLI 0110 and BLI 0120)																				
4.1) GB004 - Shipboard Energy Dashboard FLT IIA Equipment	A		-	-	1.330	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4.2) GB004 - Maritime Energy Initiatives (VSD for CPS)	A		-	-	14.671	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4.3) GB004 - Maritime Energy Initiatives (TMCS)	A		-	-	34.338	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Exhibit P-40a, Budget Item Justification For Aggregated Items: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 2	**P-1 Line Item Number / Title:** 0200 / Surface Combatant HM&E	**Aggregated Items Title:** Surface Combatant HM&E

Item Number / Title [DODIC]	ID CD	MDAP/ MAIS Code	Prior Years			FY 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)
4.4) GB004 - Maritime Energy Initiative Install (Procured prior to transfer)	A		-	-	2.778	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: 4) GB004 - Maritime Energy Initiatives (Previously Procured in BLI 0110 and BLI 0120)			**-**	**-**	***53.117***	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
5) GB005 - HM&E Condition System																				
5.1) GB005 - HM&E Condition System	A		-	-	-	-	-	2.100	-	-	12.642	-	-	16.582	-	-	-	-	-	16.582
Subtotal: 5) GB005 - HM&E Condition System			**-**	**-**	***0.000***	**-**	**-**	***2.100***	**-**	**-**	***12.642***	**-**	**-**	***16.582***	**-**	**-**	**-**	**-**	**-**	***16.582***
6) GB006 - Hybrid Electric Drive																				
6.1) GB006 - Hybrid Electric Drive (5)	A		-	-	-	-	-	-	-	-	35.000	-	-	-	-	-	-	-	-	-
Subtotal: 6) GB006 - Hybrid Electric Drive			**-**	**-**	***0.000***	**-**	**-**	**-**	**-**	**-**	***35.000***	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Total			**-**	**-**	**116.821**	**-**	**-**	**20.795**	**-**	**-**	**62.965**	**-**	**-**	**54.158**	**-**	**-**	**-**	**-**	**-**	**54.158**

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

(2) GB003 Scheduled Procurements for CG 47 Class (To be installed under GB6IN 5.1): FY18: 10 different Kits procured for 3 ships to be installed in FY19 under GB6IN. FY20: 4 Kits procured for 1 ships to be installed in FY22 under GB6IN.

(3) GB003 Scheduled Procurements for DDG 51 Class (To be installed under GB6IN 5.2): FY18: 7 different kits procured for 1 ship to be install in FY19 under GB6IN. FY19: 20 different kits procured for 3 ships to be install in FY20 under GB6IN. FY20 33 different kits procured for 9 ships to be installed under GB6IN. FY21 29 Different kits procured for 7 ships to be installed under FY22 GB6IN. FY22: 34 different kits for 9 ships to be installed in FY23 GB6IN. FY23: 20 different kits for 6 ships to be installed in FY24 GB6IN. FY24: 21 different kits for 5 ships to be installed in FY25 GB6IN.

(4) DDG-51 ship control and bridge information systems are identified by NAVSEA's DDG-51 Class Design Review Board (DRB) as directed in the Comprehensive Review (CR). Funding provides solutions to CR recommendations 7.3.6, 7.3.7, 7.310 and 7.3.11, including: (1) Adding a physical throttle to the Integrated Bridge and Navigation System (IBNS) Ship Control Console (SCC) to augment the current touchscreen (2) Adding a Voyage Data Recorder (VDR) capability (3) Adding two additional aft steering situational awareness cameras into the existing Digital Video Surveillance System (DVSS) (4) Implementing night vision requirements for lighting and glare reduction from bridge equipment (5) Incorporating associated updates to the Steering and Propulsion Control System (SPCS) Computer Program. $1M provided in FY18 for Comprehensive Review engineering efforts to be used in the development of future designs. FY19 and FY20 funding support VDR engineering efforts.

(5) FY20 Congressional plus up for Hybrid Electric Drive (HED).

Exhibit P-5a, Procurement History and Planning: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 2	P-1 Line Item Number / Title: 0200 / Surface Combatant HM&E	Aggregated Items: Surface Combatant HM&E

Item Number / Title [DODIC]	OCO	FY	Contractor and Location	Method/Type or Funding Vehicle	Location of PCO	Award Date	Date of First Delivery	Qty (Each)	Unit Cost ($)	Specs Avail Now?	Date Revision Available	RFP Issue Date
3) GB003 - Ship Control Systems												
3.1) GB003 - CG 47 Class (Installed under GB6IN 3.5) (2)		2019 (6)	Various / Various	Various	NAVSESS	Apr 2019	Apr 2020	1	100,000.00	Y		
3.1) GB003 - CG 47 Class (Installed under GB6IN 3.5) (2)		2020 (7)	Various / Various	Various	NAVSESS	Mar 2020	Mar 2020	1	1,695K	Y		
3.2) GB003 - DDG 51 Class (Installed under GB6IN 3.6) (3)		2018 (8)	Various / Various	Various	NAVSSES	Aug 2018	Aug 2019	1	319,000.00	Y		
3.2) GB003 - DDG 51 Class (Installed under GB6IN 3.6) (3)		2019 (9)	Various / Various	Various	NAVSESS	Dec 2018	Dec 2019	1	5,975K	Y		
3.2) GB003 - DDG 51 Class (Installed under GB6IN 3.6) (3)		2020 (10)	Various / Various	Various	NAVSESS	Mar 2020	Mar 2021	1	3,377K	Y		
3.2) GB003 - DDG 51 Class (Installed under GB6IN 3.6) (3)		2021 (11)	Various / Various	Various	NAVSESS	Mar 2021	Mar 2022	1	5,204K	Y		

Footnotes:

(6) The unit cost accounts for 3 different kits procured for 1 ship (CG 60) over multiple contracts. FY19 procurements are dependent upon the specific alterations required for each ship. Ship set costs and quantities vary based on the individual ship's configuration.

(7) The unit cost accounts for 5 different kits procured for 1 ship (CG 62) over multiple contracts. FY20 procurements are dependent upon the specific alterations required for each ship. Ship set costs and quantities vary based on the individual ship's configuration.

(8) The unit cost accounts for 9 different kits procured for 4 ships (DDG 51, DDG 53, DDG 59, and DDG 68) over multiple contracts. FY18 procurements are dependent upon the specific alterations required for each ship. Ship set costs and quantities vary based on the individual ship's configuration.

(9) The unit cost accounts for 20 different kits procured for 3 ships (DDG 57, 66 & 61) over multiple contracts. FY19 procurements are dependent upon the specific alterations required for each ship. Ship set costs and quantities vary based on the individual ship's configuration.

(10) The unit cost accounts for 33 different kits procured for 9 ships (DDG 58,54,63,65,59,115,55,53 61 & 67) over multiple contracts. FY20 procurements are dependent upon the specific alterations required for each ship. Ship set costs and quantities vary based on the individual ship's configuration.

(11) The unit cost accounts for 29 different kits procured for 7 ships (DDG 60,117,52,80,62,51 & 70) over multiple contracts. FY21 procurements are dependent upon the specific alterations required for each ship. Ship set costs and quantities vary based on the individual ship's configuration.

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 2	**P-1 Line Item Number / Title:** 0200 / Surface Combatant HM&E	**Modification Number / Title:** 1 / GB003 - Twisted Rudder
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

Resource Summary	Prior Years	FY 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	3.596	4.339	0.000	4.339	9.962	4.995	10.082	10.780	8.596	52.350
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	0.000	0.000	3.596	4.339	0.000	4.339	9.962	4.995	10.082	10.780	8.596	52.350
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**0.000**	**0.000**	**3.596**	**4.339**	**0.000**	**4.339**	**9.962**	**4.995**	**10.082**	**10.780**	**8.596**	**52.350**
(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:

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

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 2	**P-1 Line Item Number / Title:** 0200 / Surface Combatant HM&E	**Modification Number / Title:** 1 / GB003 - Twisted Rudder
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	
Models of Systems Affected: [No Model Specified]	**Modification Type:** TBD	**Related RDT&E PEs:**

Financial Plan	Prior Years	FY 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: GB003 - Twisted Rudder												
A Kits												
Recurring												
1.1.1) Twisted Rudder - NonOrganic (12)	- / -	- / -	1 / 2.285	2 / 4.157	- / -	2 / 4.157	3 / 6.366	1 / 2.167	3 / 6.636	4 / 9.008	- / -	14 / 30.619
Subtotal: Recurring	*- / 0.000*	*- / -*	*- / 2.285*	*- / 4.157*	*- / -*	*- / 4.157*	*- / 6.366*	*- / 2.167*	*- / 6.636*	*- / 9.008*	*- / 0.000*	*- / 30.619*
Subtotal: GB003 - Twisted Rudder	*- / -*	*- / -*	*1 / 2.285*	*2 / 4.157*	*- / -*	*2 / 4.157*	*3 / 6.366*	*1 / 2.167*	*3 / 6.636*	*4 / 9.008*	*- / -*	*14 / 30.619*
Subtotal: Procurement, All Modification Items	*- / 0.000*	*- / -*	*- / 2.285*	*- / 4.157*	*- / -*	*- / 4.157*	*- / 6.366*	*- / 2.167*	*- / 6.636*	*- / 9.008*	*- / 0.000*	*- / 30.619*
Support *(All Modification Items)*												
3.1) Engineering Services- Non Recurring	- / -	- / -	- / 1.311	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / 1.311
Subtotal: Support	*- / 0.000*	*- / -*	*- / 1.311*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / 0.000*	*- / 1.311*
Installation												
Modification Item 1 of 1: GB003 - Twisted Rudder	- / 0.000	- / 0.000	- / 0.000	- / 0.182	- / 0.000	- / 0.182	- / 3.596	- / 2.828	- / 3.446	- / 1.772	- / 8.596	- / 20.420
Subtotal: Installation	*- / 0.000*	*- / -*	*- / -*	*- / 0.182*	*- / -*	*- / 0.182*	*- / 3.596*	*- / 2.828*	*- / 3.446*	*- / 1.772*	*- / 8.596*	*- / 20.420*
Total												
Total Cost (Procurement + Support + Installation)	**0.000**	**0.000**	**3.596**	**4.339**	**0.000**	**4.339**	**9.962**	**4.995**	**10.082**	**10.780**	**8.596**	**52.350**

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 2	**P-1 Line Item Number / Title:** 0200 / Surface Combatant HM&E	**Modification Number / Title:** 1 / GB003 - Twisted Rudder

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

Modification Item 1 of 1: GB003 - Twisted Rudder

Manufacturer Information

Manufacturer Name: Bath Iron Works (BIW) | Manufacturer Location: Bath, ME

Administrative Leadtime *(in Months)*: 0 | Production Leadtime *(in Months)*: 26

Dates	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025
Contract Dates		Feb 2020	Jan 2021	Mar 2022	Feb 2023	Feb 2024	Mar 2025
Delivery Dates		May 2022	Apr 2023	Jun 2024	May 2025	May 2026	Jun 2027

Installation Information

Method of Implementation: [none specified]:: Installation Name: Twisted Rudder

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	- / -	- / -	- / -	0 / 0.091	0 / 0.000	0 / 0.091	1 / 3.270	- / -	- / -	- / -	0 / 0.000	1 / 3.361
FY 2021	- / -	- / -	- / -	0 / 0.091	0 / 0.000	0 / 0.091	0 / 0.186	2 / 2.495	- / -	- / -	0 / 0.000	2 / 2.772
FY 2022	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.140	0 / 0.285	3 / 3.203	- / -	0 / 0.000	3 / 3.628
FY 2023	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.048	0 / 0.097	1 / 1.278	0 / 0.000	1 / 1.423
FY 2024	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.146	0 / 0.296	3 / 3.492	3 / 3.934
FY 2025	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.198	4 / 5.104	4 / 5.302
To Complete	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
Total	- / -	- / -	- / -	0 / 0.182	0 / 0.000	0 / 0.182	1 / 3.596	2 / 2.828	3 / 3.446	1 / 1.772	7 / 8.596	14 / 20.420

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	-	-	2	-	1	-	-	-	1	7	14
Out	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	1	1	-	-	2	-	1	8	14

Footnotes:

(12) Installation costs across the FYDP vary depending on current port rates - avails not designated with a specific execution port (TBD) have a generic rate for budgeting and install costs will be updated once an execution port is assigned. Port rates are updated every year by Commander, Navy Regional Maintenance Center (CNRMC) based on the forecasted port loading model. Port loading rate forecasts are the rates recommended for all budgeted maintenance and organic modernization within a specific port. FY20: NRE will be provided for development and engineering of Twisted Rudders. Procure (1) ship set of Twisted Rudders that will be installed in 2022. FY21: Procure (2) ships sets of Twisted Rudders that will be installed FY23. FY22: Procure (3) ship Sets of Twisted Rudders that will be installed in FY24.

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 2	**P-1 Line Item Number / Title:** 0200 / Surface Combatant HM&E	**Modification Number / Title:** 2 / GB004 - Maritime Energy Initiatives (SSL)
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)*	17.930	2.700	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	20.630
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	17.930	2.700	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	20.630
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**17.930**	**2.700**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**20.630**
(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:

Solid State Lighting (SSL) lamps consist of individual Light Emitting Diodes (LEDs), which serve as replacements for incandescent and fluorescent lighting fixtures. SSL replacements are engineered to meet military specifications. SSL replacements for incandescent and fluorescent fixtures reduce energy usage by approximately 85% and 50%, respectively. Additionally, this install will drastically reduce the electrical lighting load, maintenance actions, and the space needed for spare parts.

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

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

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

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

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

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

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

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 2	**P-1 Line Item Number / Title:** 0200 / Surface Combatant HM&E	**Modification Number / Title:** 2 / GB004 - Maritime Energy Initiatives (SSL)
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	
Models of Systems Affected: [No Model Specified]	**Modification Type:** TBD	**Related RDT&E PEs:**

Financial Plan	Prior Years	FY 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: GB004 - Maritime Energy Initiatives (SSL)												
B Kits												
Recurring												
1.1.1) Solid State Lighting Equipment - NonOrganic	18 / 8.980	2 / 1.028	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	20 / 10.008
1.1.2) Hanger Bay Solid State Lighting Equipment (SSL) - NonOrganic	2 / 0.083	4 / 0.170	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	6 / 0.253
Subtotal: Recurring	*- / 9.063*	*- / 1.198*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / 0.000*	*- / 10.261*
Subtotal: GB004 - Maritime Energy Initiatives (SSL)	*20 / 9.063*	*6 / 1.198*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*26 / 10.261*
Subtotal: Procurement, All Modification Items	*- / 9.063*	*- / 1.198*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / 0.000*	*- / 10.261*
Support *(All Modification Items)*												
2.1) Solid State Lighting Engineering Services	- / 0.251	- / 0.095	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / 0.346
Subtotal: Support	*- / 0.251*	*- / 0.095*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / 0.000*	*- / 0.346*
Installation												
Modification Item 1 of 1: GB004 - Maritime Energy Initiatives (SSL)	- / 8.616	- / 1.407	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 10.023
Subtotal: Installation	*- / 8.616*	*- / 1.407*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / 0.000*	*- / 10.023*
Total												
Total Cost (Procurement + Support + Installation)	**17.930**	**2.700**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**20.630**

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 2	**P-1 Line Item Number / Title:** 0200 / Surface Combatant HM&E	**Modification Number / Title:** 2 / GB004 - Maritime Energy Initiatives (SSL)

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

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

Manufacturer Information

Manufacturer Name: Energy Focus Inc. | Manufacturer Location: Solon, OH

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

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

Installation Information

Method of Implementation: AIT:: Installation Name: Solid State Lighting Equipment

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	18 / 8.429	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	18 / 8.429
FY 2019	- / -	2 / 1.026	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	2 / 1.026
FY 2020	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2021	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2022	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2023	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2024	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2025	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
To Complete	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
Total	18 / 8.429	2 / 1.026	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	20 / 9.455

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	18	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	20
Out	18	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	20

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 2	**P-1 Line Item Number / Title:** 0200 / Surface Combatant HM&E	**Modification Number / Title:** 2 / GB004 - Maritime Energy Initiatives (SSL)

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

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

Installation Information

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

Installation Cost	Prior Years	FY 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 / 0.187	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	2 / 0.187
FY 2019	- / -	4 / 0.381	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	4 / 0.381
FY 2020	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2021	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2022	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2023	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2024	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2025	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
To Complete	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
Total	2 / 0.187	4 / 0.381	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	6 / 0.568

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	-	-	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6
Out	2	-	-	-	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6

Exhibit P-40, Budget Line Item Justification: PB 2021 Navy	Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 01: Ships Support Equipment / BSA 6: Navigation Equipment	**P-1 Line Item Number / Title:** 0670 / Other Navigation Equipment

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

Line Item MDAP/MAIS Code: N/A

Resource Summary	Prior Years	FY 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)*	457.772	70.270	72.744	74.084	0.000	74.084	75.176	76.864	65.852	67.156	Continuing	Continuing
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	457.772	70.270	72.744	74.084	0.000	74.084	75.176	76.864	65.852	67.156	Continuing	Continuing
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**457.772**	**70.270**	**72.744**	**74.084**	**0.000**	**74.084**	**75.176**	**76.864**	**65.852**	**67.156**	**Continuing**	**Continuing**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)												
Initial Spares *($ in Millions)*	-	-	0.270	0.662	-	0.662	2.741	0.366	0.537	1.361	Continuing	Continuing
Flyaway Unit Cost *($ in Dollars)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Dollars)*	-	-	-	-	-	-	-	-	-	-	-	-

Description:

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

[P40A / GW054: NAVIGATION TRAINING EQUIPMENT]: Funds are required for the procurement of training equipment for multiple Navigation classrooms in support of Navigation System Technician pipeline maintenance training and ECDIS-N Operator Training. This includes computer upgrades and software licenses. These upgrades are critical to maintaining Fleet proficiency on operation and maintenance of navigation systems. Field Changes include ECDIS-N Operator Course Classroom Tech Refresh and additional seats and licenses and upgrade/update Mariner Skills Simulator (MSS) to support Fleet Training Requirements (Radar/Data bases/Models).

[P40A / GW063: NAVIGATION CERTIFICATION]: These funds are required for conducting Navigation Certification (NAVCERT) on amphibious, surface, submarine, and carrier platforms as part of fielded upgrades and tech refresh.

[P40A / GW065: NAVIGATION SHORESITE EQUIPMENT]: These funds are required for the procurement and Non Recurring Engineering (NRE)/ Integrated Logistics Support (ILS)/Support of navigation system shoresite equipment. Shoresite equipment does not have any associated installation costs.

[P40A / GW066: SSBN NAVIGATION SENSOR OBSOLESCENCE]: These funds are required for Procurement and NRE/ILS/Support of replacement Navigation Sensors on SSBN Platforms.

[P40A / GW068: NAVIGATION CERTIFICATION SUITE]: These funds are required for the procurement of hardware and software to maintain and upgrade a land-based Navigation Certification Suite lab to verify navigation equipment field changes and tech refresh interoperability with existing systems prior to shipboard installation.

[P40A / GW830: PRODUCTION ENGINEERING]: These funds are required for the production engineering support of all navigation system hardware, software, and tech refresh procurements and system test and integration. This Cost Element includes indirect costs associated with the procurement and installation of individual field changes and upgrades. These costs would include field change and upgrade support, consolidated engineering support, Program Office support, and other costs. These costs will fluctuate with increases and decreases of overall budget, number and type of field changes and upgrades, and required support.

Exhibit P-40, Budget Line Item Justification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 01: Ships Support Equipment / BSA 6: Navigation Equipment	**P-1 Line Item Number / Title:** 0670 / Other Navigation Equipment	
ID Code (A=Service Ready, B=Not Service Ready): A	**Program Elements for Code B Items:** N/A	**Other Related Program Elements:** N/A
Line Item MDAP/MAIS Code: N/A		

[P3A / GW036: AN/WSN-7B]: These funds are required for the procurement and installation of the AN/WSN-7B Ring Laser Gyrocompass (RLG) for SSN, MCM, and LSD platforms. System peripherals include Sync Amps, BIT Cables, and installation kits. MCM ships require quantity (2) AN/WSN-7B per ship. Also, provides funding for part obsolescence solutions to maintain manufacturing capability.

[P3A - 2 / GW051: ECDIS-N MODERNIZATION]: These funds are for the procurement and installation of ECDIS-N hardware and software Tech Refresh on amphibious, surface and carrier platforms.

[P3A - 3 / GW053: AN/WSN-12]: These funds are for the procurement and installation of AN/WSN-12 Inertial Navigation Systems on surface and submarine platforms.

[P3A - 4 / GW055: SPEED LOGS]: These funds are for the procurement and installation of Speed Log upgrades and Tech Refresh on amphibious, surface, submarine, and carrier platforms.

[P3A - 5 / GW056: NAVY ECDIS]: These funds are required for the software build, procurement, and installation of Navy ECDIS hardware and software to replace legacy ECDIS-N capability on amphibious and surface platforms.

[P3A - 6 / GW058: NAVSSI CAPSTONE]: These funds are required for the procurement, installation, and NRE/ILS/Support of NAVSSI Capstone upgrades on LHD platforms to support Ship Self Defense System (SSDS) upgrades.

[P3A - 8 / GW061: MK 27 REPLACEMENT]: These funds are required for the procurement and installation of AN/WSN-11 replacement for legacy MK27 Backup Heading Reference systems on amphibious, surface, and submarine platforms.

[P3A - 9 / GW062: AN/WSN-7 MODERNIZATION]: These funds are required for the procurement and installation of field changes, upgrades, and Tech Refresh of AN/WSN-7 Inertial Navigation System on amphibious, surface, submarine, and carrier platforms.

[P3A - 10 / GW067: DIGITAL DEPTH DETECTOR]: These funds are required for the procurement and installation of Digital Depth Detector to replace legacy depth detectors on submarine platforms.

[P3A - 11 / GW069: BOUNDARY DEFENSE CABINET]: These funds are required for the procurement and installation of Boundary Defense Cabinets on surface platforms for cyber protection.

[P3A - 12 / GW070: MILITARY GLOBAL POSITIONING SYSTEM (GPS) USER EQUIPMENT (MGUE)]: These funds are required for the procurement and installation of Military GPS User Equipment on submarine platforms.

Exhibit P-40, Budget Line Item Justification: PB 2021 Navy	Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 01: Ships Support Equipment / BSA 6: Navigation Equipment	**P-1 Line Item Number / Title:** 0670 / Other Navigation Equipment

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

Line Item MDAP/MAIS Code: N/A

Exhibits Schedule					Prior Years	FY 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	Other Navigation Equipment				- / 282.411	- / 16.352	- / 22.741	- / 24.382	- / -	- / 24.382
P-3a	1 / GW036: AN/WSN-7B (AN/WSN-7B)				- / 69.106	- / 0.860	- / 0.655	- / 0.250	- / 0.000	- / 0.250
P-3a	2 / GW051: ECDIS-N MODERNIZATION (ECDIS-N MODERNIZATION)				- / 25.392	- / 14.502	- / 0.000	- / 0.000	- / 0.000	- / 0.000
P-3a	3 / GW053: AN/WSN-12 (AN/WSN-12)				- / 0.000	- / 0.000	- / 0.000	- / 11.780	- / 0.000	- / 11.780
P-3a	4 / GW055: SPEED LOGS (SPEED LOGS)				- / 23.906	- / 11.617	- / 8.433	- / 3.015	- / 0.000	- / 3.015
P-3a	5 / GW056: NAVY ECDIS (NAVY ECDIS)				- / 19.365	- / 11.196	- / 19.316	- / 13.294	- / 0.000	- / 13.294
P-3a	6 / GW058: NAVSSI CAPSTONE (NAVSSI CAPSTONE)				- / 5.942	- / 1.702	- / 1.387	- / 0.000	- / 0.000	- / 0.000
P-3a	7 / GW060: NEXT GENERATION FATHOMETER (NEXT GENERATION FATHOMETER)				- / 9.336	- / 1.864	- / 1.348	- / 0.000	- / 0.000	- / 0.000
P-3a	8 / GW061: MK 27 REPLACEMENT (MK 27 REPLACEMENT)				- / 6.018	- / 1.480	- / 0.870	- / 0.510	- / 0.000	- / 0.510
P-3a	9 / GW062: AN/WSN-7 MODERNIZATION (AN/WSN-7 MODERNIZATION)				- / 14.508	- / 9.784	- / 8.593	- / 7.471	- / 0.000	- / 7.471
P-3a	10 / GW067: DIGITAL DEPTH DETECTOR (DIGITAL DEPTH DETECTOR)				- / 1.788	- / 0.913	- / 0.775	- / 0.813	- / 0.000	- / 0.813
P-3a	11 / GW069: BOUNDARY DEFENSE CABINET (BOUNDARY DEFENSE CABINET)				- / 0.000	- / 0.000	- / 8.626	- / 12.569	- / 0.000	- / 12.569
P-3a	12 / GW070: MILITARY GLOBAL POSITIONING SYSTEM (GPS) USER EQUIPMENT (MGUE) (MILITARY GPS USER EQUIPMENT)				- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000
P-40	**Total Gross/Weapon System Cost**				**- / 457.772**	**- / 70.270**	**- / 72.744**	**- / 74.084**	**- / 0.000**	**- / 74.084**

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-40a	Other Navigation Equipment				- / -	- / -	- / -	- / -	- / -	- / -
P-3a	1 / GW036: AN/WSN-7B (AN/WSN-7B)				- / 0.100	- / 0.100	- / 0.102	- / 0.102	- / 0.000	- / 71.275
P-3a	2 / GW051: ECDIS-N MODERNIZATION (ECDIS-N MODERNIZATION)				- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 39.894
P-3a	3 / GW053: AN/WSN-12 (AN/WSN-12)				- / 17.906	- / 21.474	- / 22.728	- / 25.332	Continuing	Continuing
P-3a	4 / GW055: SPEED LOGS (SPEED LOGS)				- / 0.963	- / 0.378	- / 0.000	- / 0.000	- / 0.000	- / 48.312
P-3a	5 / GW056: NAVY ECDIS (NAVY ECDIS)				- / 26.260	- / 27.007	- / 23.955	- / 24.726	Continuing	Continuing
P-3a	6 / GW058: NAVSSI CAPSTONE (NAVSSI CAPSTONE)				- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 9.031
P-3a	7 / GW060: NEXT GENERATION FATHOMETER (NEXT GENERATION FATHOMETER)				- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 12.548
P-3a	8 / GW061: MK 27 REPLACEMENT (MK 27 REPLACEMENT)				- / 0.100	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 8.978
P-3a	9 / GW062: AN/WSN-7 MODERNIZATION (AN/WSN-7 MODERNIZATION)				- / 7.182	- / 5.103	- / 4.585	- / 4.678	Continuing	Continuing

Exhibit P-40, Budget Line Item Justification: PB 2021 Navy	Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 01: Ships Support Equipment / BSA 6: Navigation Equipment	**P-1 Line Item Number / Title:** 0670 / Other Navigation Equipment

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

Line Item MDAP/MAIS Code: N/A

Exhibits Schedule					FY 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	10 / GW067: DIGITAL DEPTH DETECTOR (DIGITAL DEPTH DETECTOR)				- / 0.238	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 4.527
P-3a	11 / GW069: BOUNDARY DEFENSE CABINET (BOUNDARY DEFENSE CABINET)				- / 6.410	- / 6.538	- / 0.000	- / 0.000	- / 0.000	- / 34.143
P-3a	12 / GW070: MILITARY GLOBAL POSITIONING SYSTEM (GPS) USER EQUIPMENT (MGUE) (MILITARY GPS USER EQUIPMENT)				- / 0.000	- / 2.000	- / 2.040	- / 2.080	- / 0.000	- / 6.120
P-40	**Total Gross/Weapon System Cost**				**- / 75.176**	**- / 76.864**	**- / 65.852**	**- / 67.156**	**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.

Exhibit P-40a, Budget Item Justification For Aggregated Items: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 6	**P-1 Line Item Number / Title:** 0670 / Other Navigation Equipment	**Aggregated Items Title:** Other Navigation Equipment

Item Number / Title [DODIC]	ID CD	MDAP/ MAIS Code	Prior Years			FY 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) GW013: CONVENTIONAL NAVIGATION FIELD CHANGE KITS																				
1.1) SURFACE CONVENTIONAL NAVIGATION FC KITS	A		-	-	7.824	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.2) SUBMARINE CONVENTIONAL NAVIGATION FC KITS	A		-	-	20.351	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: 1) GW013: CONVENTIONAL NAVIGATION FIELD CHANGE KITS			**-**	**-**	***28.175***	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
2) GW029: INERTIAL NAVIGATION SYSTEMS FIELD CHANGE KITS																				
2.1) SURFACE INERTIAL NAV SYS ECP/FC KITS	A		-	-	21.003	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2.2) SUBMARINE INERTIAL NAV SYS ECP/FC KITS	A		-	-	38.668	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2.3) CARRIER INERTIAL NAV SYS ECP/FC KITS	A		-	-	17.020	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: 2) GW029: INERTIAL NAVIGATION SYSTEMS FIELD CHANGE KITS			**-**	**-**	***76.691***	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
3) GW038: AN/BPS ECDIS-N/VMS FC KITS:																				
3.1) SUBMARINE AN/ BPS ECDIS-N/VMS FC KITS:	A		-	-	44.392	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: 3) GW038: AN/BPS ECDIS-N/VMS FC KITS:			**-**	**-**	***44.392***	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
4) GW051: SCALABLE ECDIS-N ENGINEERING CHANGE PROPOSAL (ECP)/FIELD CHANGE KITS:																				
4.1) SURFACE SCALABLE ECDIS-N ECP/ FIELD CHANGE KITS	A		-	-	47.562	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4.2) CARRIER SCALABLE ECDIS-N ECP/FIELD CHANGE KITS:	A		-	-	5.831	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: 4) GW051: SCALABLE ECDIS-N ENGINEERING CHANGE PROPOSAL (ECP)/FIELD CHANGE KITS:			**-**	**-**	***53.393***	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
5) GW054: NAVIGATION TRAINING EQUIPMENT																				
5.1) SURFACE NAVIGATION	A		-	-	4.219	-	-	0.975	-	-	0.636	-	-	0.649	-	-	-	-	-	0.649

Exhibit P-40a, Budget Item Justification For Aggregated Items: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 6	P-1 Line Item Number / Title: 0670 / Other Navigation Equipment	Aggregated Items Title: Other Navigation Equipment

Item Number / Title [DODIC]	ID CD	MDAP/ MAIS Code	Prior Years			FY 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)
TRAINING EQUIPMENT																				
Subtotal: 5) GW054: NAVIGATION TRAINING EQUIPMENT			**-**	**-**	***4.219***	**-**	**-**	***0.975***	**-**	**-**	***0.636***	**-**	**-**	***0.649***	**-**	**-**	**-**	**-**	**-**	***0.649***
6) GW059: EMERGENCY NAVIGATION LAPTOP																				
6.1) AMPHIB EMERGENCY NAVIGATION LAPTOP	A		13,450.98	51	0.686	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6.2) SURFACE EMERGENCY NAVIGATION LAPTOP	A		13,460.32	189	2.544	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6.3) CARRIER EMERGENCY NAVIGATION LAPTOP	A		13,500.00	10	0.135	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: 6) GW059: EMERGENCY NAVIGATION LAPTOP			**-**	**-**	***3.365***	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
7) GW056 ECDIS-N MODERNIZATION																				
7.1) SURFACE ECDIS-N MODERNIZATION	A		-	-	4.741	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: 7) GW056 ECDIS-N MODERNIZATION			**-**	**-**	***4.741***	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
8) GW063: NAVIGATION CERTIFICATION																				
8.1) AMPHIB NAVIGATION CERTIFICATION	A		-	-	4.047	-	-	0.765	-	-	0.630	-	-	0.675	-	-	-	-	-	0.675
8.2) SURFACE NAVIGATION CERTIFICATION	A		-	-	14.495	-	-	2.070	-	-	2.025	-	-	1.485	-	-	-	-	-	1.485
8.3) SUBMARINE NAVIGATION CERTIFICATION	A		-	-	2.430	-	-	0.675	-	-	0.720	-	-	0.765	-	-	-	-	-	0.765
8.4) CARRIER NAVIGATION CERTIFICATION	A		-	-	0.630	-	-	0.225	-	-	0.315	-	-	0.045	-	-	-	-	-	0.045
Subtotal: 8) GW063: NAVIGATION CERTIFICATION			**-**	**-**	***21.602***	**-**	**-**	***3.735***	**-**	**-**	***3.690***	**-**	**-**	***2.970***	**-**	**-**	**-**	**-**	**-**	***2.970***
9) GW064: OWN SHIP SPEED (OSS) AND COURSE REPEATERS																				
9.1) SURFACE OSS AND COURSE REPEATERS	A		-	-	0.335	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Exhibit P-40a, Budget Item Justification For Aggregated Items: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 6	P-1 Line Item Number / Title: 0670 / Other Navigation Equipment	Aggregated Items Title: Other Navigation Equipment

Item Number / Title [DODIC]	ID CD	MDAP/ MAIS Code	Prior Years			FY 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: 9) GW064: OWN SHIP SPEED (OSS) AND COURSE REPEATERS			**-**	**-**	***0.335***	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
10) GW065: NAVIGATION SHORESITE EQUIPMENT																				
10.1) NAVIGATION SHORESITE EQUIPMENT	A		689,000.00	4	2.756	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: 10) GW065: NAVIGATION SHORESITE EQUIPMENT			**-**	**-**	***2.756***	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
11) GW066: SSBN NAVIGATION SENSOR OBSOLESCENCE																				
11.1) SSBN NAVIGATION SENSOR OBSOLESCENCE	A		-	-	4.317	-	-	3.428	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: 11) GW066: SSBN NAVIGATION SENSOR OBSOLESCENCE			**-**	**-**	***4.317***	**-**	**-**	***3.428***	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
12) GW068: NAVIGATION CERTIFICATION SUITE																				
12.1) SURFACE NAVIGATION CERTIFICATION SUITE (1)	A		-	-	-	-	-	-	-	-	6.167	-	-	7.620	-	-	-	-	-	7.620
12.2) SUBMARINE NAVIGATION CERTIFICATION SUITE (2)	A		-	-	-	-	-	-	-	-	2.084	-	-	3.077	-	-	-	-	-	3.077
12.3) CARRIER NAVIGATION CERTIFICATION SUITE (3)	A		-	-	2.034	-	-	-	-	-	-	-	-	1.559	-	-	-	-	-	1.559
Subtotal: 12) GW068: NAVIGATION CERTIFICATION SUITE			**-**	**-**	***2.034***	**-**	**-**	**-**	**-**	**-**	***8.251***	**-**	**-**	***12.256***	**-**	**-**	**-**	**-**	**-**	***12.256***
13) GW830: PRODUCTION ENGINEERING																				
13.1) AMPHIB PRODUCTION ENGINEERING	A		-	-	1.967	-	-	1.568	-	-	2.503	-	-	2.100	-	-	-	-	-	2.100
13.2) SURFACE PRODUCTION ENGINEERING	A		-	-	19.719	-	-	4.978	-	-	5.553	-	-	4.490	-	-	-	-	-	4.490
13.3) SUBMARINE PRODUCTION ENGINEERING	A		-	-	10.136	-	-	1.280	-	-	1.850	-	-	1.806	-	-	-	-	-	1.806
13.4) CARRIER PRODUCTION ENGINEERING	A		-	-	4.569	-	-	0.388	-	-	0.258	-	-	0.111	-	-	-	-	-	0.111

Exhibit P-40a, Budget Item Justification For Aggregated Items: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 6	**P-1 Line Item Number / Title:** 0670 / Other Navigation Equipment	**Aggregated Items Title:** Other Navigation Equipment

Item Number / Title [DODIC]	ID CD	MDAP/ MAIS Code	Prior Years			FY 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: 13) GW830: PRODUCTION ENGINEERING			-	-	***36.391***	-	-	***8.214***	-	-	***10.164***	-	-	***8.507***	-	-	-	-	-	***8.507***
Total			-	-	**282.411**	-	-	**16.352**	-	-	**22.741**	-	-	**24.382**	-	-	-	-	-	**24.382**

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

Footnotes:

(1) Increase due to new lab equipment requirements.

(2) Increase due to new lab equipment requirements.

(3) Increase due to new lab equipment requirements.

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 6	**P-1 Line Item Number / Title:** 0670 / Other Navigation Equipment	**Modification Number / Title:** 1 / GW036: AN/WSN-7B
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

Resource Summary	Prior Years	FY 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)*	69.106	0.860	0.655	0.250	0.000	0.250	0.100	0.100	0.102	0.102	0.000	71.275
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	69.106	0.860	0.655	0.250	0.000	0.250	0.100	0.100	0.102	0.102	0.000	71.275
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**69.106**	**0.860**	**0.655**	**0.250**	**0.000**	**0.250**	**0.100**	**0.100**	**0.102**	**0.102**	**0.000**	**71.275**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)												
Initial Spares *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Dollars)*	-	-	-	-	-	-	-	-	-	-	-	-

Description:

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

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

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 6	**P-1 Line Item Number / Title:** 0670 / Other Navigation Equipment	**Modification Number / Title:** 1 / GW036: AN/WSN-7B
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	
Models of Systems Affected: GW036: RING LASER GYRO NAVIGATION RING LASER GYROCOMPASS (AN/WSN-7B)	**Modification Type:** AN/WSN-7B	**Related RDT&E PEs:**

Financial Plan	Prior Years	FY 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: AMPHIB AN/WSN-7B												
B Kits												
Recurring												
1.1.1) AMPHIB AN/WSN-7B PROCUREMENT - NonOrganic (4)	91 / 38.092	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	91 / 38.092
Subtotal: Recurring	*- / 38.092*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / 0.000*	*- / 38.092*
Subtotal: AMPHIB AN/WSN-7B	*91 / 38.092*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*91 / 38.092*
Modification Item 2 of 2: SUBMARINE AN/WSN-7B												
B Kits												
Recurring												
2.1.1) SUBMARINE AN/WSN-7B FIELD CHANGE 1 - Organic	1 / 0.050	1 / 0.050	5 / 0.250	5 / 0.250	- / -	5 / 0.250	2 / 0.100	2 / 0.100	2 / 0.102	2 / 0.102	- / -	20 / 1.004
Subtotal: Recurring	*- / 0.050*	*- / 0.050*	*- / 0.250*	*- / 0.250*	*- / -*	*- / 0.250*	*- / 0.100*	*- / 0.100*	*- / 0.102*	*- / 0.102*	*- / 0.000*	*- / 1.004*
Subtotal: SUBMARINE AN/WSN-7B	*1 / 0.050*	*1 / 0.050*	*5 / 0.250*	*5 / 0.250*	*- / -*	*5 / 0.250*	*2 / 0.100*	*2 / 0.100*	*2 / 0.102*	*2 / 0.102*	*- / -*	*20 / 1.004*
Subtotal: Procurement, All Modification Items	*- / 38.142*	*- / 0.050*	*- / 0.250*	*- / 0.250*	*- / -*	*- / 0.250*	*- / 0.100*	*- / 0.100*	*- / 0.102*	*- / 0.102*	*- / 0.000*	*- / 39.096*
Installation												
Modification Item 1 of 2: AMPHIB AN/WSN-7B	- / 30.964	- / 0.810	- / 0.405	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 32.179
Subtotal: Installation	*- / 30.964*	*- / 0.810*	*- / 0.405*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / 0.000*	*- / 32.179*
Total												
Total Cost (Procurement + Support + Installation)	**69.106**	**0.860**	**0.655**	**0.250**	**0.000**	**0.250**	**0.100**	**0.100**	**0.102**	**0.102**	**0.000**	**71.275**

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 6	**P-1 Line Item Number / Title:** 0670 / Other Navigation Equipment	**Modification Number / Title:** 1 / GW036: AN/WSN-7B
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

Modification Item 1 of 2: AMPHIB AN/WSN-7B

Manufacturer Information

Manufacturer Name: NORTHROP GRUMMAN SYSTEMS CORP. (Amphib WSN-7B)	Manufacturer Location: CHARLOTTESVILLE, VA
Administrative Leadtime *(in Months)*: 0	Production Leadtime *(in Months)*: 0

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

Installation Information

Method of Implementation: AIT:: Installation Name: AMPHIB AN/WSN-7B PROCUREMENT

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	88 / 30.964	2 / 0.810	1 / 0.405	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	91 / 32.179
FY 2019	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2020	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2021	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2022	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2023	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2024	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2025	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
To Complete	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
Total	88 / 30.964	2 / 0.810	1 / 0.405	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	91 / 32.179

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	88	-	-	-	2	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	91
Out	88	-	-	-	2	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	91

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 6	**P-1 Line Item Number / Title:** 0670 / Other Navigation Equipment	**Modification Number / Title:** 1 / GW036: AN/WSN-7B
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	
Modification Item 2 of 2: SUBMARINE AN/WSN-7B		

Footnotes:

(4) AMPHIB AN/WSN-7 PROCUREMENT: Systems procured in prior years as Economic Ordering Quantities based on previous fielding plans. Fielding plan aligns with SSDS modernization on LSD platforms and results in later installation of systems that were procured in prior years.

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 6	**P-1 Line Item Number / Title:** 0670 / Other Navigation Equipment	**Modification Number / Title:** 2 / GW051: ECDIS-N MODERNIZATION
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

Resource Summary	Prior Years	FY 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)*	25.392	14.502	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	39.894
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	25.392	14.502	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	39.894
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**25.392**	**14.502**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**39.894**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)												
Initial Spares *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Dollars)*	-	-	-	-	-	-	-	-	-	-	-	-

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

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 6	**P-1 Line Item Number / Title:** 0670 / Other Navigation Equipment	**Modification Number / Title:** 2 / GW051: ECDIS-N MODERNIZATION
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	
Models of Systems Affected: GW051: ECDIS-N MODERNIZATION	**Modification Type:** ECDIS-N MODERNIZATION	**Related RDT&E PEs:**

Financial Plan	Prior Years	FY 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 3: AMPHIB ECDIS-N FIELD CHANGES												
B Kits												
Recurring												
1.1.1) AMPHIB SCALABLE ECDIS-N HARDWARE/ SOFTWARE - NonOrganic	12 / 3.715	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	12 / 3.715
1.1.2) AMPHIB SCALABLE ECDIS-N SOFTWARE - NonOrganic	7 / 0.000	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	7 / 0.000
Subtotal: Recurring	*- / 3.715*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / 0.000*	*- / 3.715*
Subtotal: AMPHIB ECDIS-N FIELD CHANGES	*19 / 3.715*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*19 / 3.715*
Modification Item 2 of 3: SURFACE ECDIS-N FIELD CHANGES												
B Kits												
Recurring												
2.1.1) SURFACE INTEGRATED BRIDGE SYSTEM (IBS) HARDWARE/SOFTWARE - NonOrganic	5 / 5.222	3 / 3.184	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	8 / 8.406
2.1.2) SURFACE SCALABLE ECDIS-N HARDWARE/ SOFTWARE - NonOrganic	12 / 3.698	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	12 / 3.698
2.1.3) SURFACE SCALABLE ECDIS-N SOFTWARE - NonOrganic	31 / 0.000	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	31 / 0.000
2.1.4) MCM ECDIS-N HARDWARE/SOFTWARE - NonOrganic	- / -	12 / 5.831	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	12 / 5.831
2.1.5) MCM ECDIS-N HARDWARE/SOFTWARE INSTALLATION - NonOrganic	- / -	12 / 2.578	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	12 / 2.578
2.1.6) PC ECDIS-N HARDWARE/SOFTWARE INSTALLATION - NonOrganic	- / -	12 / 0.680	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	12 / 0.680
Subtotal: Recurring	*- / 8.920*	*- / 12.273*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / 0.000*	*- / 21.193*
Subtotal: SURFACE ECDIS-N FIELD CHANGES	*48 / 8.920*	*39 / 12.273*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*87 / 21.193*
Modification Item 3 of 3: CARRIER ECDIS-N FIELD CHANGES												
B Kits												
Recurring												
3.1.1) CARRIER SCALABLE ECDIS-N HARDWARE/ SOFTWARE - NonOrganic	6 / 1.836	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	6 / 1.836

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 6	**P-1 Line Item Number / Title:** 0670 / Other Navigation Equipment	**Modification Number / Title:** 2 / GW051: ECDIS-N MODERNIZATION
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	
Models of Systems Affected: GW051: ECDIS-N MODERNIZATION	**Modification Type:** ECDIS-N MODERNIZATION	**Related RDT&E PEs:**

Financial Plan	Prior Years	FY 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)*
3.1.2) CARRIER SCALABLE ECDIS-N SOFTWARE - NonOrganic	8 / 0.000	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	8 / 0.000
Subtotal: Recurring	- / 1.836	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / 0.000	- / 1.836
Subtotal: CARRIER ECDIS-N FIELD CHANGES	14 / 1.836	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	14 / 1.836
Subtotal: Procurement, All Modification Items	- / 14.471	- / 12.273	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / 0.000	- / 26.744
Installation												
Modification Item 1 of 3: AMPHIB ECDIS-N FIELD CHANGES	- / 2.696	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 2.696
Modification Item 2 of 3: SURFACE ECDIS-N FIELD CHANGES	- / 6.665	- / 2.229	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 8.894
Modification Item 3 of 3: CARRIER ECDIS-N FIELD CHANGES	- / 1.560	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 1.560
Subtotal: Installation	- / 10.921	- / 2.229	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / 0.000	- / 13.150
Total												
Total Cost (Procurement + Support + Installation)	**25.392**	**14.502**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**39.894**

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 6	**P-1 Line Item Number / Title:** 0670 / Other Navigation Equipment	**Modification Number / Title:** 2 / GW051: ECDIS-N MODERNIZATION
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

Modification Item 1 of 3: AMPHIB ECDIS-N FIELD CHANGES

Manufacturer Information

Manufacturer Name: NORTHROP GRUMMAN SYSTEMS CORP. (Amphib Scalable SW)	Manufacturer Location: CHARLOTTESVILLE, VA
Administrative Leadtime *(in Months)*: 0	Production Leadtime *(in Months)*: 0

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

Manufacturer Name: NORTHROP GRUMMAN SYSTEMS CORP. (Amphib Scalable HW/SW)	Manufacturer Location: CHARLOTTESVILLE, VA
Administrative Leadtime *(in Months)*: 3	Production Leadtime *(in Months)*: 6

Dates	FY 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: AMPHIB SCALABLE ECDIS-N HARDWARE/SOFTWARE

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	12 / 2.477	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	12 / 2.477
FY 2019	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2020	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2021	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2022	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2023	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2024	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2025	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
To Complete	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
Total	12 / 2.477	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	12 / 2.477

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	12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12
Out	12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 6	**P-1 Line Item Number / Title:** 0670 / Other Navigation Equipment	**Modification Number / Title:** 2 / GW051: ECDIS-N MODERNIZATION
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

Modification Item 1 of 3: AMPHIB ECDIS-N FIELD CHANGES

Installation Information

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

Installation Cost	Prior Years	FY 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	7 / 0.219	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	7 / 0.219
FY 2019	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2020	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2021	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2022	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2023	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2024	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2025	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
To Complete	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
Total	7 / 0.219	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	7 / 0.219

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	7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7
Out	7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 6	**P-1 Line Item Number / Title:** 0670 / Other Navigation Equipment	**Modification Number / Title:** 2 / GW051: ECDIS-N MODERNIZATION
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

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

Manufacturer Information

Manufacturer Name: NORTHROP GRUMMAN SYSTEMS CORP. (Surf Scalable HW/SW)				Manufacturer Location: CHARLOTTESVILLE, VA			
Administrative Leadtime *(in Months)*: 3				Production Leadtime *(in Months)*: 6			
Dates	**FY 2019**	**FY 2020**	**FY 2021**	**FY 2022**	**FY 2023**	**FY 2024**	**FY 2025**
Contract Dates							
Delivery Dates							
Manufacturer Name: NORTHROP GRUMMAN SYSTEMS CORP. (IBS HW/SW)				Manufacturer Location: CHARLOTTESVILLE, VA			
Administrative Leadtime *(in Months)*: 3				Production Leadtime *(in Months)*: 6			
Dates	**FY 2019**	**FY 2020**	**FY 2021**	**FY 2022**	**FY 2023**	**FY 2024**	**FY 2025**
Contract Dates	Dec 2018						
Delivery Dates	Jun 2019						
Manufacturer Name: NORTHROP GRUMMAN SYSTEMS CORP. (Surf Scalable SW)				Manufacturer Location: CHARLOTTESVILLE, VA			
Administrative Leadtime *(in Months)*: 0				Production Leadtime *(in Months)*: 0			
Dates	**FY 2019**	**FY 2020**	**FY 2021**	**FY 2022**	**FY 2023**	**FY 2024**	**FY 2025**
Contract Dates							
Delivery Dates							
Manufacturer Name: TBD				Manufacturer Location: TBD			
Administrative Leadtime *(in Months)*: 0				Production Leadtime *(in Months)*: 0			
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: SURFACE INTEGRATED BRIDGE SYSTEM (IBS) HARDWARE/SOFTWARE

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 / 3.713	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	5 / 3.713
FY 2019	- / -	3 / 2.229	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	3 / 2.229
FY 2020	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2021	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2022	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 6	**P-1 Line Item Number / Title:** 0670 / Other Navigation Equipment	**Modification Number / Title:** 2 / GW051: ECDIS-N MODERNIZATION
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

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

Installation Information

Method of Implementation: AIT:: Installation Name: SURFACE INTEGRATED BRIDGE SYSTEM (IBS) HARDWARE/SOFTWARE

Installation 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)*
FY 2023	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2024	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2025	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
To Complete	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
Total	5 / 3.713	3 / 2.229	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	8 / 5.942

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	5	-	-	-	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8
Out	5	-	-	-	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8

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

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	9 / 1.775	3 / 0.000	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	12 / 1.775
FY 2019	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2020	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2021	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2022	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2023	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2024	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2025	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
To Complete	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
Total	9 / 1.775	3 / 0.000	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	12 / 1.775

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 6	**P-1 Line Item Number / Title:** 0670 / Other Navigation Equipment	**Modification Number / Title:** 2 / GW051: ECDIS-N MODERNIZATION
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

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

Installation Information

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

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	9	-	-	-	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12
Out	9	-	-	-	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12

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

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	31 / 1.177	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	31 / 1.177
FY 2019	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2020	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2021	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2022	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2023	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2024	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2025	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
To Complete	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
Total	31 / 1.177	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	31 / 1.177

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	31	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	31
Out	31	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	31

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 6	**P-1 Line Item Number / Title:** 0670 / Other Navigation Equipment	**Modification Number / Title:** 2 / GW051: ECDIS-N MODERNIZATION
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

Modification Item 3 of 3: CARRIER ECDIS-N FIELD CHANGES

Manufacturer Information

Manufacturer Name: NORTHROP GRUMMAN SYSTEMS CORP. (Carrier Scalable SW)	Manufacturer Location: CHARLOTTESVILLE, VA
Administrative Leadtime *(in Months)*: 0	Production Leadtime *(in Months)*: 0

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

Manufacturer Name: NORTHROP GRUMMAN SYSTEMS CORP. (Carrier Scalable HW/SW)	Manufacturer Location: CHARLOTTESVILLE, VA
Administrative Leadtime *(in Months)*: 3	Production Leadtime *(in Months)*: 6

Dates	FY 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: CARRIER SCALABLE ECDIS-N HARDWARE/SOFTWARE

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 / 1.314	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	6 / 1.314
FY 2019	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2020	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2021	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2022	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2023	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2024	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2025	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
To Complete	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
Total	6 / 1.314	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	6 / 1.314

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
Out	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 6	**P-1 Line Item Number / Title:** 0670 / Other Navigation Equipment	**Modification Number / Title:** 2 / GW051: ECDIS-N MODERNIZATION
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

Modification Item 3 of 3: CARRIER ECDIS-N FIELD CHANGES

Installation Information

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

Installation Cost	Prior Years	FY 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 / 0.246	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	8 / 0.246
FY 2019	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2020	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2021	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2022	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2023	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2024	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2025	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
To Complete	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
Total	8 / 0.246	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	8 / 0.246

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 / 01 / 6	**P-1 Line Item Number / Title:** 0670 / Other Navigation Equipment	**Modification Number / Title:** 3 / GW053: AN/WSN-12
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

Resource Summary	Prior Years	FY 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	0.000	11.780	0.000	11.780	17.906	21.474	22.728	25.332	Continuing	Continuing
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	0.000	0.000	0.000	11.780	0.000	11.780	17.906	21.474	22.728	25.332	Continuing	Continuing
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**0.000**	**0.000**	**0.000**	**11.780**	**0.000**	**11.780**	**17.906**	**21.474**	**22.728**	**25.332**	**Continuing**	**Continuing**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)												
Initial Spares *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Dollars)*	-	-	-	-	-	-	-	-	-	-	-	-

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

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 6	**P-1 Line Item Number / Title:** 0670 / Other Navigation Equipment	**Modification Number / Title:** 3 / GW053: AN/WSN-12
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	
Models of Systems Affected: GW053: AN/WSN-12	**Modification Type:** AN/WSN-12	**Related RDT&E PEs:** 0204228N

Financial Plan	Prior Years	FY 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: GW053: AN/WSN-12												
B Kits												
Recurring												
1.1.1) SURFACE AN/WSN-12 PROCUREMENT - NonOrganic (5)	- / -	- / -	- / -	4 / 11.780	- / -	4 / 11.780	5 / 14.348	4 / 12.256	4 / 12.501	5 / 14.801	Continuing	Continuing
1.1.2) SUBMARINE AN/WSN-12 PROCUREMENT - NonOrganic (6)	- / -	- / -	- / -	- / -	- / -	- / -	1 / 3.558	2 / 6.010	2 / 6.130	2 / 6.230	Continuing	Continuing
Subtotal: Recurring	*- / 0.000*	*- / -*	*- / -*	*- / 11.780*	*- / -*	*- / 11.780*	*- / 17.906*	*- / 18.266*	*- / 18.631*	*- / 21.031*	*Continuing*	*Continuing*
Subtotal: GW053: AN/WSN-12	*- / -*	*- / -*	*- / -*	*4 / 11.780*	*- / -*	*4 / 11.780*	*6 / 17.906*	*6 / 18.266*	*6 / 18.631*	*7 / 21.031*	*Continuing*	*Continuing*
Subtotal: Procurement, All Modification Items	*- / 0.000*	*- / -*	*- / -*	*- / 11.780*	*- / -*	*- / 11.780*	*- / 17.906*	*- / 18.266*	*- / 18.631*	*- / 21.031*	*Continuing*	*Continuing*
Installation												
Modification Item 1 of 1: GW053: AN/WSN-12	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 3.208	- / 4.097	- / 4.301	Continuing	Continuing
Subtotal: Installation	*- / 0.000*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / 3.208*	*- / 4.097*	*- / 4.301*	*Continuing*	*Continuing*
Total												
Total Cost (Procurement + Support + Installation)	**0.000**	**0.000**	**0.000**	**11.780**	**0.000**	**11.780**	**17.906**	**21.474**	**22.728**	**25.332**	**Continuing**	**Continuing**

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 6	**P-1 Line Item Number / Title:** 0670 / Other Navigation Equipment	**Modification Number / Title:** 3 / GW053: AN/WSN-12
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

Modification Item 1 of 1: GW053: AN/WSN-12

Manufacturer Information

Manufacturer Name: TBD (Sub WSN-12)	Manufacturer Location: TBD
Administrative Leadtime *(in Months)*: 3	Production Leadtime *(in Months)*: 17

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

Manufacturer Name: TBD (Surf WSN-12)	Manufacturer Location: TBD
Administrative Leadtime *(in Months)*: 3	Production Leadtime *(in Months)*: 17

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

Installation Information

Method of Implementation: AIT:: Installation Name: SURFACE AN/WSN-12 PROCUREMENT

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	- / -	- / -	- / -	- / -	- / -	- / -	- / -	4 / 3.208	- / -	- / -	0 / 0.000	4 / 3.208
FY 2022	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	5 / 3.272	- / -	0 / 0.000	5 / 3.272
FY 2023	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	4 / 2.618	0 / 0.000	4 / 2.618
FY 2024	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	Continuing	Continuing
FY 2025	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	Continuing	Continuing
To Complete	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	Continuing	Continuing
Total	- / -	- / -	- / -	- / -	- / -	- / -	- / -	4 / 3.208	5 / 3.272	4 / 2.618	Continuing	Continuing

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	-	-	-	5	-	-	-	4	Cont.	Cont.
Out	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4	-	-	-	5	-	-	-	4	Cont.	Cont.

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 6	**P-1 Line Item Number / Title:** 0670 / Other Navigation Equipment	**Modification Number / Title:** 3 / GW053: AN/WSN-12
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

Modification Item 1 of 1: GW053: AN/WSN-12

Installation Information

Method of Implementation: AIT:: Installation Name: SUBMARINE AN/WSN-12 PROCUREMENT

Installation Cost	Prior Years	FY 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	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	1 / 0.825	- / -	0 / 0.000	1 / 0.825
FY 2023	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	2 / 1.683	0 / 0.000	2 / 1.683
FY 2024	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	Continuing	Continuing
FY 2025	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	Continuing	Continuing
To Complete	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	Continuing	Continuing
Total	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	1 / 0.825	2 / 1.683	Continuing	Continuing

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	-	-	-	2	Cont.	Cont.
Out	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	2	Cont.	Cont.

Footnotes:

(5) SURFACE AN/WSN-12 PROCUREMENT: Production leadtime of 17 months does not include integration testing to be conducted by the ISEA prior to delivery to ship for installation. Overall leadtime from contract award to delivery to ship for installation is no less than 20 months.

(6) SUBMARINE AN/WSN-12 PROCUREMENT: Production leadtime of 17 months does not include integration testing to be conducted by the ISEA prior to delivery to ship for installation. Overall leadtime from contract award to delivery to ship for installation is no less than 20 months.

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 6	**P-1 Line Item Number / Title:** 0670 / Other Navigation Equipment	**Modification Number / Title:** 4 / GW055: SPEED LOGS
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

Resource Summary	Prior Years	FY 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)*	23.906	11.617	8.433	3.015	0.000	3.015	0.963	0.378	0.000	0.000	0.000	48.312
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	23.906	11.617	8.433	3.015	0.000	3.015	0.963	0.378	0.000	0.000	0.000	48.312
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**23.906**	**11.617**	**8.433**	**3.015**	**0.000**	**3.015**	**0.963**	**0.378**	**0.000**	**0.000**	**0.000**	**48.312**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)												
Initial Spares *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Dollars)*	-	-	-	-	-	-	-	-	-	-	-	-

Description:
These funds are for the procurement and installation of Speed Log upgrades and Tech Refresh on amphibious, surface, submarine, and carrier platforms.

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 6	**P-1 Line Item Number / Title:** 0670 / Other Navigation Equipment	**Modification Number / Title:** 4 / GW055: SPEED LOGS
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	
Models of Systems Affected: GW055: SPEED LOGS	**Modification Type:** SPEED LOGS	**Related RDT&E PEs:**

Financial Plan	Prior Years	FY 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 4: AMPHIB SPEED LOG												
B Kits												
Recurring												
1.1.1) AMPHIB AN/WSN-9 PROCUREMENT - NonOrganic	18 / 5.327	5 / 0.970	2 / 0.388	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	25 / 6.685
1.1.2) AMPHIB SWITCHBOARD - Organic	7 / 0.350	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	7 / 0.350
Subtotal: Recurring	*- / 5.677*	*- / 0.970*	*- / 0.388*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / 0.000*	*- / 7.035*
Subtotal: AMPHIB SPEED LOG	*25 / 5.677*	*5 / 0.970*	*2 / 0.388*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*32 / 7.035*
Modification Item 2 of 4: SURFACE SPEED LOG												
B Kits												
Recurring												
2.1.1) SURFACE AN/WSN-9 PROCUREMENT - NonOrganic	37 / 6.721	17 / 3.298	4 / 0.776	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	58 / 10.795
Subtotal: Recurring	*- / 6.721*	*- / 3.298*	*- / 0.776*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / 0.000*	*- / 10.795*
Subtotal: SURFACE SPEED LOG	*37 / 6.721*	*17 / 3.298*	*4 / 0.776*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*58 / 10.795*
Modification Item 3 of 4: SUBMARINE SPEED LOG												
B Kits												
Recurring												
3.1.1) SUBMARINE AN/WSN-9 PROCUREMENT (SSBN) - NonOrganic	8 / 0.600	2 / 0.200	3 / 0.300	1 / 0.100	- / -	1 / 0.100	- / -	- / -	- / -	- / -	- / -	14 / 1.200
3.1.2) SUBMARINE AN/WSN-9 PROCUREMENT (SSN) - NonOrganic	7 / 0.768	8 / 1.240	4 / 0.620	2 / 0.310	- / -	2 / 0.310	1 / 0.155	- / -	- / -	- / -	- / -	22 / 3.093
Subtotal: Recurring	*- / 1.368*	*- / 1.440*	*- / 0.920*	*- / 0.410*	*- / -*	*- / 0.410*	*- / 0.155*	*- / -*	*- / -*	*- / -*	*- / 0.000*	*- / 4.293*
Subtotal: SUBMARINE SPEED LOG	*15 / 1.368*	*10 / 1.440*	*7 / 0.920*	*3 / 0.410*	*- / -*	*3 / 0.410*	*1 / 0.155*	*- / -*	*- / -*	*- / -*	*- / -*	*36 / 4.293*
Modification Item 4 of 4: CARRIER SPEED LOG												
B Kits												
Recurring												
4.1.1) CARRIER AN/WSN-9 PROCUREMENT - NonOrganic	1 / 0.000	1 / 0.194	- / -	- / -	- / -	- / -	1 / 0.194	- / -	- / -	- / -	- / -	3 / 0.388
4.1.2) CARRIER AN/WSN-8 TECH REFRESH - NonOrganic	4 / 0.776	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	4 / 0.776
Subtotal: Recurring	*- / 0.776*	*- / 0.194*	*- / -*	*- / -*	*- / -*	*- / -*	*- / 0.194*	*- / -*	*- / -*	*- / -*	*- / 0.000*	*- / 1.164*
Subtotal: CARRIER SPEED LOG	*5 / 0.776*	*1 / 0.194*	*- / -*	*- / -*	*- / -*	*- / -*	*1 / 0.194*	*- / -*	*- / -*	*- / -*	*- / -*	*7 / 1.164*

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 6	**P-1 Line Item Number / Title:** 0670 / Other Navigation Equipment	**Modification Number / Title:** 4 / GW055: SPEED LOGS
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	
Models of Systems Affected: GW055: SPEED LOGS	**Modification Type:** SPEED LOGS	**Related RDT&E PEs:**

Financial Plan	Prior Years	FY 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)*
Subtotal: Procurement, All Modification Items	- / 14.542	- / 5.902	- / 2.084	- / 0.410	- / -	- / 0.410	- / 0.349	- / -	- / -	- / -	- / 0.000	- / 23.287
Installation												
Modification Item 1 of 4: AMPHIB SPEED LOG	- / 2.273	- / 1.140	- / 0.950	- / 0.380	- / 0.000	- / 0.380	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 4.743
Modification Item 2 of 4: SURFACE SPEED LOG	- / 4.618	- / 2.850	- / 3.230	- / 0.760	- / 0.000	- / 0.760	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 11.458
Modification Item 3 of 4: SUBMARINE SPEED LOG	- / 1.763	- / 1.465	- / 1.979	- / 1.465	- / 0.000	- / 1.465	- / 0.614	- / 0.188	- / 0.000	- / 0.000	- / 0.000	- / 7.474
Modification Item 4 of 4: CARRIER SPEED LOG	- / 0.710	- / 0.260	- / 0.190	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.190	- / 0.000	- / 0.000	- / 0.000	- / 1.350
Subtotal: Installation	- / 9.364	- / 5.715	- / 6.349	- / 2.605	- / -	- / 2.605	- / 0.614	- / 0.378	- / -	- / -	- / 0.000	- / 25.025
Total												
Total Cost (Procurement + Support + Installation)	**23.906**	**11.617**	**8.433**	**3.015**	**0.000**	**3.015**	**0.963**	**0.378**	**0.000**	**0.000**	**0.000**	**48.312**

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 6	**P-1 Line Item Number / Title:** 0670 / Other Navigation Equipment	**Modification Number / Title:** 4 / GW055: SPEED LOGS
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

Modification Item 1 of 4: AMPHIB SPEED LOG

Manufacturer Information

Manufacturer Name: WR Systems. (Amphib WSN-9)	Manufacturer Location: Norfolk, VA
Administrative Leadtime *(in Months)*: 3	Production Leadtime *(in Months)*: 8

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

Installation Information

Method of Implementation: AIT:: Installation Name: AMPHIB AN/WSN-9 PROCUREMENT

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	12 / 2.273	6 / 1.140	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	18 / 3.413
FY 2019	- / -	- / -	5 / 0.950	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	5 / 0.950
FY 2020	- / -	- / -	- / -	2 / 0.380	0 / 0.000	2 / 0.380	- / -	- / -	- / -	- / -	0 / 0.000	2 / 0.380
FY 2021	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2022	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2023	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2024	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2025	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
To Complete	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
Total	12 / 2.273	6 / 1.140	5 / 0.950	2 / 0.380	0 / 0.000	2 / 0.380	- / -	- / -	- / -	- / -	0 / 0.000	25 / 4.743

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	12	6	-	-	-	5	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	25
Out	12	6	-	-	-	5	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	25

Method of Implementation (Organic): AMPHIB SWITCHBOARD	**Installation Quantity:** 7

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 6	**P-1 Line Item Number / Title:** 0670 / Other Navigation Equipment	**Modification Number / Title:** 4 / GW055: SPEED LOGS
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

Modification Item 2 of 4: SURFACE SPEED LOG

Manufacturer Information

Manufacturer Name: WR Systems (Surf WSN-9)	Manufacturer Location: Norfolk, VA
Administrative Leadtime *(in Months)*: 3	Production Leadtime *(in Months)*: 8

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

Installation Information

Method of Implementation: AIT:: Installation Name: SURFACE AN/WSN-9 PROCUREMENT

Installation Cost	Prior Years	FY 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	22 / 4.618	15 / 2.850	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	37 / 7.468
FY 2019	- / -	- / -	17 / 3.230	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	17 / 3.230
FY 2020	- / -	- / -	- / -	4 / 0.760	0 / 0.000	4 / 0.760	- / -	- / -	- / -	- / -	0 / 0.000	4 / 0.760
FY 2021	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2022	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2023	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2024	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2025	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
To Complete	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
Total	22 / 4.618	15 / 2.850	17 / 3.230	4 / 0.760	0 / 0.000	4 / 0.760	- / -	- / -	- / -	- / -	0 / 0.000	58 / 11.458

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	22	15	-	-	-	17	-	-	-	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	58
Out	22	15	-	-	-	17	-	-	-	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	58

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 6	**P-1 Line Item Number / Title:** 0670 / Other Navigation Equipment	**Modification Number / Title:** 4 / GW055: SPEED LOGS
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

Modification Item 3 of 4: SUBMARINE SPEED LOG

Manufacturer Information

Manufacturer Name: WR Systems (Sub WSN-9 SSN)	Manufacturer Location: Norfolk, VA
Administrative Leadtime *(in Months)*: 3	Production Leadtime *(in Months)*: 8

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

Manufacturer Name: WR Systems (Sub WSN-9 SSBN)	Manufacturer Location: Norfolk, VA
Administrative Leadtime *(in Months)*: 3	Production Leadtime *(in Months)*: 8

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

Installation Information

Method of Implementation: AIT:: Installation Name: SUBMARINE AN/WSN-9 PROCUREMENT (SSBN)

Installation Cost	Prior Years	FY 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 / 1.188	3 / 0.713	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	8 / 1.901
FY 2019	- / -	- / -	2 / 0.475	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	2 / 0.475
FY 2020	- / -	- / -	- / -	3 / 0.713	0 / 0.000	3 / 0.713	- / -	- / -	- / -	- / -	0 / 0.000	3 / 0.713
FY 2021	- / -	- / -	- / -	- / -	- / -	- / -	1 / 0.238	- / -	- / -	- / -	0 / 0.000	1 / 0.238
FY 2022	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2023	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2024	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2025	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
To Complete	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
Total	5 / 1.188	3 / 0.713	2 / 0.475	3 / 0.713	0 / 0.000	3 / 0.713	1 / 0.238	- / -	- / -	- / -	0 / 0.000	14 / 3.327

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	5	3	-	-	-	2	-	-	-	3	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	14
Out	5	3	-	-	-	2	-	-	-	3	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	14

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 6	**P-1 Line Item Number / Title:** 0670 / Other Navigation Equipment	**Modification Number / Title:** 4 / GW055: SPEED LOGS
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

Modification Item 3 of 4: SUBMARINE SPEED LOG

Installation Information

Method of Implementation: AIT:: Installation Name: SUBMARINE AN/WSN-9 PROCUREMENT (SSN)

Installation Cost	Prior Years	FY 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 / 0.575	4 / 0.752	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	7 / 1.327
FY 2019	- / -	- / -	8 / 1.504	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	8 / 1.504
FY 2020	- / -	- / -	- / -	4 / 0.752	0 / 0.000	4 / 0.752	- / -	- / -	- / -	- / -	0 / 0.000	4 / 0.752
FY 2021	- / -	- / -	- / -	- / -	- / -	- / -	2 / 0.376	- / -	- / -	- / -	0 / 0.000	2 / 0.376
FY 2022	- / -	- / -	- / -	- / -	- / -	- / -	- / -	1 / 0.188	- / -	- / -	0 / 0.000	1 / 0.188
FY 2023	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2024	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2025	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
To Complete	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
Total	3 / 0.575	4 / 0.752	8 / 1.504	4 / 0.752	0 / 0.000	4 / 0.752	2 / 0.376	1 / 0.188	- / -	- / -	0 / 0.000	22 / 4.147

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	3	4	-	-	-	8	-	-	-	4	-	-	-	2	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	22
Out	3	4	-	-	-	8	-	-	-	4	-	-	-	2	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	22

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 6	**P-1 Line Item Number / Title:** 0670 / Other Navigation Equipment	**Modification Number / Title:** 4 / GW055: SPEED LOGS
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

Modification Item 4 of 4: CARRIER SPEED LOG

Manufacturer Information

Manufacturer Name: WR Systems (Carrier WSN-8 Tech Ref) | Manufacturer Location: Norfolk, VA

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

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

Manufacturer Name: WR Systems (Carrier WSN-9) | Manufacturer Location: Norfolk, VA

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

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

Installation Information

Method of Implementation: AIT:: Installation Name: CARRIER AN/WSN-9 PROCUREMENT

Installation Cost	Prior Years	FY 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	1 / 0.190	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	1 / 0.190
FY 2019	- / -	- / -	1 / 0.190	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	1 / 0.190
FY 2020	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2021	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2022	- / -	- / -	- / -	- / -	- / -	- / -	- / -	1 / 0.190	- / -	- / -	0 / 0.000	1 / 0.190
FY 2023	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2024	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2025	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
To Complete	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
Total	1 / 0.190	- / -	1 / 0.190	- / -	- / -	- / -	- / -	1 / 0.190	- / -	- / -	0 / 0.000	3 / 0.570

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

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 6	**P-1 Line Item Number / Title:** 0670 / Other Navigation Equipment	**Modification Number / Title:** 4 / GW055: SPEED LOGS
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

Modification Item 4 of 4: CARRIER SPEED LOG

Installation Information

Method of Implementation: AIT:: Installation Name: CARRIER AN/WSN-8 TECH REFRESH

Installation Cost	Prior Years	FY 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 / 0.520	2 / 0.260	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	4 / 0.780
FY 2019	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2020	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2021	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2022	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2023	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2024	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2025	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
To Complete	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
Total	2 / 0.520	2 / 0.260	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	4 / 0.780

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	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4
Out	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 6	**P-1 Line Item Number / Title:** 0670 / Other Navigation Equipment	**Modification Number / Title:** 5 / GW056: NAVY ECDIS
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

Resource Summary	Prior Years	FY 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)*	19.365	11.196	19.316	13.294	0.000	13.294	26.260	27.007	23.955	24.726	Continuing	Continuing
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	19.365	11.196	19.316	13.294	0.000	13.294	26.260	27.007	23.955	24.726	Continuing	Continuing
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**19.365**	**11.196**	**19.316**	**13.294**	**0.000**	**13.294**	**26.260**	**27.007**	**23.955**	**24.726**	**Continuing**	**Continuing**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)												
Initial Spares *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Dollars)*	-	-	-	-	-	-	-	-	-	-	-	-

Description:

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

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 6	**P-1 Line Item Number / Title:** 0670 / Other Navigation Equipment	**Modification Number / Title:** 5 / GW056: NAVY ECDIS
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	
Models of Systems Affected: GW056: NAVY ECDIS	**Modification Type:** NAVY ECDIS	**Related RDT&E PEs:**

Financial Plan	Prior Years	FY 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: NAVY ECDIS NON-RECURRING												
B Kits												
Non-Recurring												
1.1.1) NAVY ECDIS ACQUISITION DOCUMENTATION - Organic	- / 5.880	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / 5.880
Subtotal: Non-Recurring	*- / 5.880*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / 0.000*	*- / 5.880*
Subtotal: NAVY ECDIS NON-RECURRING	*- / 5.880*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / 5.880*
Modification Item 2 of 2: NAVY ECDIS PROCUREMENT												
B Kits												
Recurring												
2.1.1) NAVY ECDIS SOFTWARE PRODUCTION - Organic (7)	- / 13.485	- / 8.136	- / 0.566	- / 8.542	- / -	- / 8.542	- / 0.420	- / 8.887	- / 5.139	- / 1.292	Continuing	Continuing
2.1.2) AMPHIB NAVY ECDIS HARDWARE - NonOrganic (8)	- / -	- / -	4 / 4.236	- / -	- / -	- / -	8 / 8.664	4 / 4.419	2 / 1.680	4 / 3.452	Continuing	Continuing
2.1.3) SURFACE NAVY ECDIS HARDWARE - NonOrganic (9)	- / -	2 / 2.040	8 / 8.331	3 / 3.186	- / -	3 / 3.186	8 / 8.664	7 / 7.732	10 / 8.400	11 / 8.900	Continuing	Continuing
Subtotal: Recurring	*- / 13.485*	*- / 10.176*	*- / 13.133*	*- / 11.728*	*- / -*	*- / 11.728*	*- / 17.748*	*- / 21.038*	*- / 15.219*	*- / 13.644*	*Continuing*	*Continuing*
Subtotal: NAVY ECDIS PROCUREMENT	*- / 13.485*	*2 / 10.176*	*12 / 13.133*	*3 / 11.728*	*- / -*	*3 / 11.728*	*16 / 17.748*	*11 / 21.038*	*12 / 15.219*	*15 / 13.644*	*Continuing*	*Continuing*
Subtotal: Procurement, All Modification Items	*- / 19.365*	*- / 10.176*	*- / 13.133*	*- / 11.728*	*- / -*	*- / 11.728*	*- / 17.748*	*- / 21.038*	*- / 15.219*	*- / 13.644*	*Continuing*	*Continuing*
Installation												
Modification Item 2 of 2: NAVY ECDIS PROCUREMENT	- / 0.000	- / 1.020	- / 6.183	- / 1.566	- / 0.000	- / 1.566	- / 8.512	- / 5.969	- / 8.736	- / 11.082	Continuing	Continuing
Subtotal: Installation	*- / 0.000*	*- / 1.020*	*- / 6.183*	*- / 1.566*	*- / -*	*- / 1.566*	*- / 8.512*	*- / 5.969*	*- / 8.736*	*- / 11.082*	*Continuing*	*Continuing*
Total												
Total Cost (Procurement + Support + Installation)	**19.365**	**11.196**	**19.316**	**13.294**	**0.000**	**13.294**	**26.260**	**27.007**	**23.955**	**24.726**	**Continuing**	**Continuing**

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 6	**P-1 Line Item Number / Title:** 0670 / Other Navigation Equipment	**Modification Number / Title:** 5 / GW056: NAVY ECDIS
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	
Modification Item 1 of 2: NAVY ECDIS NON-RECURRING		

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 6	**P-1 Line Item Number / Title:** 0670 / Other Navigation Equipment	**Modification Number / Title:** 5 / GW056: NAVY ECDIS
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

Modification Item 2 of 2: NAVY ECDIS PROCUREMENT

Manufacturer Information

Manufacturer Name: TBD (Surf Navy ECDIS HW)	Manufacturer Location: TBD
Administrative Leadtime *(in Months)*: 6	Production Leadtime *(in Months)*: 7

Dates	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025
Contract Dates	Feb 2020	Feb 2020	Dec 2020	Dec 2021	Dec 2022	Dec 2023	Dec 2024
Delivery Dates	Sep 2020	Sep 2020	Jul 2021	Jul 2022	Jul 2023	Jul 2024	Jul 2025

Manufacturer Name: TBD (AMPHIB NAVY ECDIS HW)	Manufacturer Location: TBD
Administrative Leadtime *(in Months)*: 6	Production Leadtime *(in Months)*: 7

Dates	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025
Contract Dates		Feb 2020		Dec 2021	Dec 2022	Dec 2023	Dec 2024
Delivery Dates		Sep 2020		Jul 2022	Jul 2023	Jul 2024	Jul 2025

Installation Information

Method of Implementation: AIT:: Installation Name: AMPHIB NAVY ECDIS HARDWARE

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	- / -	- / -	4 / 2.086	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	4 / 2.086
FY 2021	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2022	- / -	- / -	- / -	- / -	- / -	- / -	8 / 4.256	- / -	- / -	- / -	0 / 0.000	8 / 4.256
FY 2023	- / -	- / -	- / -	- / -	- / -	- / -	- / -	4 / 2.171	- / -	- / -	0 / 0.000	4 / 2.171
FY 2024	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	2 / 1.456	- / -	0 / 0.000	2 / 1.456
FY 2025	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	4 / 2.922	0 / 0.000	4 / 2.922
To Complete	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	Continuing	Continuing
Total	- / -	- / -	4 / 2.086	- / -	- / -	- / -	8 / 4.256	4 / 2.171	2 / 1.456	4 / 2.922	Continuing	Continuing

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	-	-	-	-	-	-	-	8	-	-	-	4	-	-	-	2	-	-	-	4	Cont.	Cont.
Out	-	-	-	-	-	-	-	-	4	-	-	-	-	-	-	-	8	-	-	-	4	-	-	-	2	-	-	-	4	Cont.	Cont.

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 6	**P-1 Line Item Number / Title:** 0670 / Other Navigation Equipment	**Modification Number / Title:** 5 / GW056: NAVY ECDIS
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

Modification Item 2 of 2: NAVY ECDIS PROCUREMENT

Installation Information

Method of Implementation: AIT:: Installation Name: SURFACE NAVY ECDIS HARDWARE

Installation Cost	Prior Years	FY 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	- / -	2 / 1.020	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	2 / 1.020
FY 2020	- / -	- / -	8 / 4.097	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	8 / 4.097
FY 2021	- / -	- / -	- / -	3 / 1.566	0 / 0.000	3 / 1.566	- / -	- / -	- / -	- / -	0 / 0.000	3 / 1.566
FY 2022	- / -	- / -	- / -	- / -	- / -	- / -	8 / 4.256	- / -	- / -	- / -	0 / 0.000	8 / 4.256
FY 2023	- / -	- / -	- / -	- / -	- / -	- / -	- / -	7 / 3.798	- / -	- / -	0 / 0.000	7 / 3.798
FY 2024	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	10 / 7.280	- / -	0 / 0.000	10 / 7.280
FY 2025	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	11 / 8.160	0 / 0.000	11 / 8.160
To Complete	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	Continuing	Continuing
Total	- / -	2 / 1.020	8 / 4.097	3 / 1.566	0 / 0.000	3 / 1.566	8 / 4.256	7 / 3.798	10 / 7.280	11 / 8.160	Continuing	Continuing

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	-	-	-	-	-	-	-	-	10	-	-	-	3	-	-	-	8	-	-	-	7	-	-	-	10	-	-	-	11	Cont.	Cont.
Out	-	-	-	-	-	-	-	-	10	-	-	-	3	-	-	-	8	-	-	-	7	-	-	-	10	-	-	-	11	Cont.	Cont.

Method of Implementation (Organic): NAVY ECDIS SOFTWARE PRODUCTION - Not Installed	Installation Quantity: 0

Footnotes:

(7) NAVY ECDIS SOFTWARE PRODUCTION: Funding is for initial Navy ECDIS software production build and follow-on Navy ECDIS software builds on a two-year cycle.

(8) AMPHIB NAVY ECDIS HARDWARE: Funds provide for the procurement and installation of hardware upgrades to replace legacy ECDIS-N capability on amphibious platforms.

(9) SURFACE NAVY ECDIS HARDWARE: Funds provide for the procurement and installation of hardware upgrades to replace legacy ECDIS-N capability on surface platforms.

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 6	**P-1 Line Item Number / Title:** 0670 / Other Navigation Equipment	**Modification Number / Title:** 6 / GW058: NAVSSI CAPSTONE
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

Resource Summary	Prior Years	FY 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)*	5.942	1.702	1.387	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	9.031
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	5.942	1.702	1.387	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	9.031
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**5.942**	**1.702**	**1.387**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**9.031**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)												
Initial Spares *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Dollars)*	-	-	-	-	-	-	-	-	-	-	-	-

Description:

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

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 6	**P-1 Line Item Number / Title:** 0670 / Other Navigation Equipment	**Modification Number / Title:** 6 / GW058: NAVSSI CAPSTONE
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	
Models of Systems Affected: GW058: NAVSSI CAPSTONE	**Modification Type:** NAVSSI CAPSTONE	**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: GW058: NAVSSI CAPSTONE												
B Kits												
Recurring												
1.1.1) AMPHIB NAVSSI CAPSTONE - NonOrganic	2 / 2.847	1 / 1.475	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	3 / 4.322
Subtotal: Recurring	*- / 2.847*	*- / 1.475*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / 0.000*	*- / 4.322*
Subtotal: GW058: NAVSSI CAPSTONE	*2 / 2.847*	*1 / 1.475*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*3 / 4.322*
Subtotal: Procurement, All Modification Items	*- / 2.847*	*- / 1.475*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / 0.000*	*- / 4.322*
Installation												
Modification Item 1 of 1: GW058: NAVSSI CAPSTONE	- / 3.095	- / 0.227	- / 1.387	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 4.709
Subtotal: Installation	*- / 3.095*	*- / 0.227*	*- / 1.387*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / 0.000*	*- / 4.709*
Total												
Total Cost (Procurement + Support + Installation)	**5.942**	**1.702**	**1.387**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**9.031**

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 6	**P-1 Line Item Number / Title:** 0670 / Other Navigation Equipment	**Modification Number / Title:** 6 / GW058: NAVSSI CAPSTONE
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

Modification Item 1 of 1: GW058: NAVSSI CAPSTONE

Manufacturer Information

Manufacturer Name: Multiple Vendors (Amphib NAVSSI Capstone)	Manufacturer Location: Various
Administrative Leadtime *(in Months)*: 3	Production Leadtime *(in Months)*: 8

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

Installation Information

Method of Implementation: AIT:: Installation Name: AMPHIB NAVSSI CAPSTONE

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 / 3.095	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	2 / 3.095
FY 2019	- / -	0 / 0.227	1 / 1.387	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	1 / 1.614
FY 2020	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2021	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2022	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2023	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2024	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2025	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
To Complete	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
Total	2 / 3.095	0 / 0.227	1 / 1.387	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	3 / 4.709

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	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3
Out	2	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 6	**P-1 Line Item Number / Title:** 0670 / Other Navigation Equipment	**Modification Number / Title:** 7 / GW060: NEXT GENERATION FATHOMETER
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)*	9.336	1.864	1.348	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	12.548
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	9.336	1.864	1.348	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	12.548
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**9.336**	**1.864**	**1.348**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**12.548**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)												
Initial Spares *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Dollars)*	-	-	-	-	-	-	-	-	-	-	-	-

Description:

These funds are for the procurement and fielding of the next generation AN/UQN-10 Sonar Sounding Fathometer as a Commercial-Off-The-Shelf (COTS) retrofit/replacement of legacy AN/UQN-4/4A systems on Amphibious, Surface and Carrier platforms. Continuation of the FY 2021 next generation AN/UQN-10 Sonar Sounding Fathometer retrofit program is managed via OPN Budget Line Item (BLI) 5429 under the Surface ASW Support Equipment VC010 Cost Code.

NOTE: The total AN/UQN-10 Sonar Sounding Set Fathometer retrofit requirement is 116 ships. With respect to system procurements, 98 systems will be procured via the OPN BLI 0670 Other Navigation Equipment Cost Code GW060 program through FY 2020, leaving a balance of 18 systems that are procured via the OPN BLI 5429 Surface ASW Support Equipment Cost Code VC010 program. With respect to system installations, 34 systems will be installed via the OPN BLI 0670 Other Navigation Equipment Cost Code GW060 program through FY 2020, leaving a balance of 82 systems (64 as assets bought under the OPN BLI 0670 Other Navigation Equipment Cost Code GW060 program, and 18 as assets bought under the OPN BLI 5429 Surface ASW Support Equipment Cost Code VC010 program) that are installed via the OPN BLI 5429 Cost Code VC010 program.

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 6	**P-1 Line Item Number / Title:** 0670 / Other Navigation Equipment	**Modification Number / Title:** 7 / GW060: NEXT GENERATION FATHOMETER
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	
Models of Systems Affected: GW060: NEXT GENERATION FATHOMETER	**Modification Type:** NEXT GENERATION FATHOMETER	**Related RDT&E PEs:**

Financial Plan	Prior Years	FY 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: GW060: NEXT GENERATION FATHOMETER												
B Kits												
Recurring												
1.1.1) AMPHIB NEXT GENERATION FATHOMETER - NonOrganic (10)	24 / 2.334	6 / 0.562	4 / 0.382	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	34 / 3.278
1.1.2) SURFACE NEXT GENERATION FATHOMETER - NonOrganic	41 / 4.019	8 / 0.749	3 / 0.287	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	52 / 5.055
1.1.3) CARRIER NEXT GENERATION FATHOMETER - NonOrganic	4 / 0.389	3 / 0.287	5 / 0.487	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	12 / 1.163
Subtotal: Recurring	*- / 6.742*	*- / 1.598*	*- / 1.156*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / 0.000*	*- / 9.496*
Subtotal: GW060: NEXT GENERATION FATHOMETER	*69 / 6.742*	*17 / 1.598*	*12 / 1.156*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*98 / 9.496*
Subtotal: Procurement, All Modification Items	*- / 6.742*	*- / 1.598*	*- / 1.156*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / 0.000*	*- / 9.496*
Installation												
Modification Item 1 of 1: GW060: NEXT GENERATION FATHOMETER	- / 2.594	- / 0.266	- / 0.192	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 3.052
Subtotal: Installation	*- / 2.594*	*- / 0.266*	*- / 0.192*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / 0.000*	*- / 3.052*
Total												
Total Cost (Procurement + Support + Installation)	**9.336**	**1.864**	**1.348**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**12.548**

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 6	**P-1 Line Item Number / Title:** 0670 / Other Navigation Equipment	**Modification Number / Title:** 7 / GW060: NEXT GENERATION FATHOMETER

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

Modification Item 1 of 1: GW060: NEXT GENERATION FATHOMETER

Manufacturer Information

Manufacturer Name: Knudsen (Amphib NGF) — Manufacturer Location: Ogdensburg, NY

Administrative Leadtime *(in Months)*: 3 — Production Leadtime *(in Months)*: 3

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

Manufacturer Name: Knudsen (Surf NGF) — Manufacturer Location: Ogdensburg, NY

Administrative Leadtime *(in Months)*: 3 — Production Leadtime *(in Months)*: 3

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

Manufacturer Name: Knudsen (Carrier NGF) — Manufacturer Location: Ogdensburg, NY

Administrative Leadtime *(in Months)*: 3 — Production Leadtime *(in Months)*: 3

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

Installation Information

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

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 / 0.857	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	8 / 0.857
FY 2019	- / -	1 / 0.094	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	1 / 0.094
FY 2020	- / -	- / -	1 / 0.064	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	1 / 0.064
FY 2021	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2022	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2023	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2024	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2025	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
To Complete	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
Total	8 / 0.857	1 / 0.094	1 / 0.064	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	10 / 1.015

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 6	**P-1 Line Item Number / Title:** 0670 / Other Navigation Equipment	**Modification Number / Title:** 7 / GW060: NEXT GENERATION FATHOMETER

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

Modification Item 1 of 1: GW060: NEXT GENERATION FATHOMETER

Installation Information

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

Installation Schedule

		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	-	-	1	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	10
Out	8	-	-	1	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	10

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

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	16 / 1.490	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	16 / 1.490
FY 2019	- / -	2 / 0.125	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	2 / 0.125
FY 2020	- / -	- / -	1 / 0.048	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	1 / 0.048
FY 2021	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2022	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2023	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2024	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2025	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
To Complete	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
Total	16 / 1.490	2 / 0.125	1 / 0.048	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	19 / 1.663

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	16	-	-	2	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	19
Out	16	-	-	2	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	19

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 6	**P-1 Line Item Number / Title:** 0670 / Other Navigation Equipment	**Modification Number / Title:** 7 / GW060: NEXT GENERATION FATHOMETER

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

Modification Item 1 of 1: GW060: NEXT GENERATION FATHOMETER

Installation Information

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

Installation Cost	Prior Years	FY 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 / 0.247	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	3 / 0.247
FY 2019	- / -	1 / 0.047	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	1 / 0.047
FY 2020	- / -	- / -	1 / 0.080	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	1 / 0.080
FY 2021	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2022	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2023	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2024	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2025	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
To Complete	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
Total	3 / 0.247	1 / 0.047	1 / 0.080	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	5 / 0.374

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	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5
Out	3	-	-	-	1	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5

Footnotes:

(10) NOTE: The total AN/UQN-10 Sonar Sounding Set Fathometer retrofit requirement is 116 ships. With respect to system procurements, 98 systems will be procured via the OPN BLI 0670 Other Navigation Equipment Cost Code GW060 program through FY 2020, leaving a balance of 18 systems that are procured via the OPN BLI 5429 Surface ASW Support Equipment Cost Code VC010 program. With respect to system installations, 34 systems will be installed via the OPN BLI 0670 Other Navigation Equipment Cost Code GW060 program through FY 2020, leaving a balance of 82 systems (64 as assets bought under the OPN BLI 0670 Other Navigation Equipment Cost Code GW060 program, and 18 as assets bought under the OPN BLI 5429 Surface ASW Support Equipment Cost Code VC010 program) that are installed via the OPN BLI 5429 Cost Code VC010 program.

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 6	**P-1 Line Item Number / Title:** 0670 / Other Navigation Equipment	**Modification Number / Title:** 8 / GW061: MK 27 REPLACEMENT
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)*	6.018	1.480	0.870	0.510	0.000	0.510	0.100	0.000	0.000	0.000	0.000	8.978
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	6.018	1.480	0.870	0.510	0.000	0.510	0.100	0.000	0.000	0.000	0.000	8.978
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**6.018**	**1.480**	**0.870**	**0.510**	**0.000**	**0.510**	**0.100**	**0.000**	**0.000**	**0.000**	**0.000**	**8.978**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)												
Initial Spares *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Dollars)*	-	-	-	-	-	-	-	-	-	-	-	-

Description:

These funds are required for the procurement and installation of AN/WSN-11 replacement for legacy MK27 Backup Heading Reference systems on amphibious, surface, and submarine platforms.

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 6	**P-1 Line Item Number / Title:** 0670 / Other Navigation Equipment	**Modification Number / Title:** 8 / GW061: MK 27 REPLACEMENT
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	
Models of Systems Affected: GW061: MK 27 REPLACEMENT	**Modification Type:** MK 27 REPLACEMENT	**Related RDT&E PEs:** 0204228N

Financial Plan	Prior Years	FY 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: GW061: MK 27 REPLACEMENT												
B Kits												
Recurring												
1.1.1) AMPHIB AN/WSN-11 PROCUREMENT - NonOrganic	12 / 1.494	- / -	1 / 0.125	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	13 / 1.619
1.1.2) SURFACE AN/WSN-11 PROCUREMENT - NonOrganic	15 / 1.775	2 / 0.250	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	17 / 2.025
1.1.3) SUBMARINE AN/WSN-11 PROCUREMENT - NonOrganic	8 / 0.750	2 / 0.250	3 / 0.375	1 / 0.125	- / -	1 / 0.125	- / -	- / -	- / -	- / -	- / -	14 / 1.500
Subtotal: Recurring	*- / 4.019*	*- / 0.500*	*- / 0.500*	*- / 0.125*	*- / -*	*- / 0.125*	*- / -*	*- / -*	*- / -*	*- / -*	*- / 0.000*	*- / 5.144*
Subtotal: GW061: MK 27 REPLACEMENT	*35 / 4.019*	*4 / 0.500*	*4 / 0.500*	*1 / 0.125*	*- / -*	*1 / 0.125*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*44 / 5.144*
Subtotal: Procurement, All Modification Items	*- / 4.019*	*- / 0.500*	*- / 0.500*	*- / 0.125*	*- / -*	*- / 0.125*	*- / -*	*- / -*	*- / -*	*- / -*	*- / 0.000*	*- / 5.144*
Installation												
Modification Item 1 of 1: GW061: MK 27 REPLACEMENT	- / 1.999	- / 0.980	- / 0.370	- / 0.385	- / 0.000	- / 0.385	- / 0.100	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 3.834
Subtotal: Installation	*- / 1.999*	*- / 0.980*	*- / 0.370*	*- / 0.385*	*- / -*	*- / 0.385*	*- / 0.100*	*- / -*	*- / -*	*- / -*	*- / 0.000*	*- / 3.834*
Total												
Total Cost (Procurement + Support + Installation)	**6.018**	**1.480**	**0.870**	**0.510**	**0.000**	**0.510**	**0.100**	**0.000**	**0.000**	**0.000**	**0.000**	**8.978**

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 6	**P-1 Line Item Number / Title:** 0670 / Other Navigation Equipment	**Modification Number / Title:** 8 / GW061: MK 27 REPLACEMENT
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

Modification Item 1 of 1: GW061: MK 27 REPLACEMENT

Manufacturer Information

Manufacturer Name: WR Systems (Amphib WSN-11) — Manufacturer Location: Norfolk, VA

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

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

Manufacturer Name: WR Systems (Sub WSN-11) — Manufacturer Location: Norfolk, VA

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

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

Manufacturer Name: WR Systems (Surf WSN-11) — Manufacturer Location: Norfolk, VA

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

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

Installation Information

Method of Implementation: AIT:: Installation Name: AMPHIB AN/WSN-11 PROCUREMENT

Installation Cost	Prior Years	FY 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	9 / 0.715	3 / 0.255	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	12 / 0.970
FY 2019	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2020	- / -	- / -	- / -	1 / 0.085	0 / 0.000	1 / 0.085	- / -	- / -	- / -	- / -	0 / 0.000	1 / 0.085
FY 2021	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2022	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2023	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2024	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2025	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
To Complete	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
Total	9 / 0.715	3 / 0.255	- / -	1 / 0.085	0 / 0.000	1 / 0.085	- / -	- / -	- / -	- / -	0 / 0.000	13 / 1.055

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 6	**P-1 Line Item Number / Title:** 0670 / Other Navigation Equipment	**Modification Number / Title:** 8 / GW061: MK 27 REPLACEMENT
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

Modification Item 1 of 1: GW061: MK 27 REPLACEMENT

Installation Information

Method of Implementation: AIT:: Installation Name: AMPHIB AN/WSN-11 PROCUREMENT

Installation Schedule

		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	9	3	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	13
Out	9	3	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	13

Method of Implementation: AIT:: Installation Name: SURFACE AN/WSN-11 PROCUREMENT

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	10 / 0.784	5 / 0.425	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	15 / 1.209
FY 2019	- / -	- / -	2 / 0.170	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	2 / 0.170
FY 2020	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2021	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2022	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2023	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2024	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2025	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
To Complete	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
Total	10 / 0.784	5 / 0.425	2 / 0.170	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	17 / 1.379

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	10	5	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	17
Out	10	5	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	17

Method of Implementation: AIT:: Installation Name: SUBMARINE AN/WSN-11 PROCUREMENT

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 / 0.500	3 / 0.300	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	8 / 0.800

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 6	**P-1 Line Item Number / Title:** 0670 / Other Navigation Equipment	**Modification Number / Title:** 8 / GW061: MK 27 REPLACEMENT
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

Modification Item 1 of 1: GW061: MK 27 REPLACEMENT

Installation Information

Method of Implementation: AIT:: Installation Name: SUBMARINE AN/WSN-11 PROCUREMENT

Installation Cost	Prior Years	FY 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)*
FY 2019	- / -	- / -	2 / 0.200	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	2 / 0.200
FY 2020	- / -	- / -	- / -	3 / 0.300	0 / 0.000	3 / 0.300	- / -	- / -	- / -	- / -	0 / 0.000	3 / 0.300
FY 2021	- / -	- / -	- / -	- / -	- / -	- / -	1 / 0.100	- / -	- / -	- / -	0 / 0.000	1 / 0.100
FY 2022	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2023	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2024	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2025	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
To Complete	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
Total	5 / 0.500	3 / 0.300	2 / 0.200	3 / 0.300	0 / 0.000	3 / 0.300	1 / 0.100	- / -	- / -	- / -	0 / 0.000	14 / 1.400

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	5	3	-	-	-	2	-	-	-	3	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	14
Out	5	3	-	-	-	2	-	-	-	3	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	14

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 6	**P-1 Line Item Number / Title:** 0670 / Other Navigation Equipment	**Modification Number / Title:** 9 / GW062: AN/WSN-7 MODERNIZATION
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)*	14.508	9.784	8.593	7.471	0.000	7.471	7.182	5.103	4.585	4.678	Continuing	Continuing
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	14.508	9.784	8.593	7.471	0.000	7.471	7.182	5.103	4.585	4.678	Continuing	Continuing
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**14.508**	**9.784**	**8.593**	**7.471**	**0.000**	**7.471**	**7.182**	**5.103**	**4.585**	**4.678**	**Continuing**	**Continuing**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)												
Initial Spares *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Dollars)*	-	-	-	-	-	-	-	-	-	-	-	-

Description:

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

Field Change 21: Technical Insertion (TI-14). Upgrades include Selective Availability Anti-Spoofing Module (SAASM) GPS Receivers, improved health monitoring, Bathymetric fixes, enhanced networked sensor interfaces, TI-14 IA compliance, and Submarine Warfare Federated Tactical System (SWFTS) Display Standards and Conventions compliance.
Field Change 22: Upgrades include AN/WSN-7 NAV processor firmware Rev-AG and I/O processor firmware Rev-AC.
Field Change 23: Technical Insertion (TI-16). Improvements include transition from Common Object Request Broker Architecture (CORBA) to Advanced Message Queuing Protocol (AMQP).
Field Change 24: Technical Insertion (TI-18): Bathymetric Fix Update
Field Change 26: Technical Insertion (TI-20): Information Assurance (IA) Updates
Field Change 28: Technical Insertion (TI-22): GPS Enhancements
Submarine Shipalt 4507: Mounting baseplate modification.
Submarine ECI 14-006 VA: Enhanced Control Display Unit (ECDU) Shock Mount Mod VME Pin Replacement
Submarine ECI (TI-10/12/14): ECDU GVRC, RTP, and WINP firmware upgrades
Submarine ECI (TI-16/APB-17): ECDU Time Monitoring
Submarine ECI (TI-18/APB-19): Bathymetric Fix Update
Submarine ECI (TI-20/APB-21): Information Assurance (IA) Updates
Submarine TRID TBD (TI-22): GPS Enhancements

ECI installation costs may be combined with procurement costs.

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 6	**P-1 Line Item Number / Title:** 0670 / Other Navigation Equipment	**Modification Number / Title:** 9 / GW062: AN/WSN-7 MODERNIZATION
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	
Models of Systems Affected: GW062: AN/WSN-7 MODERNIZATION	**Modification Type:** AN/WSN-7 MODERNIZATION	**Related RDT&E PEs:**

Financial Plan	Prior Years	FY 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 4: AMPHIB FIELD CHANGES												
B Kits												
Recurring												
1.1.1) AMPHIB AN/WSN-7 FIELD CHANGE 22 - NonOrganic	4 / 0.048	2 / 0.024	8 / 0.096	3 / 0.036	- / -	3 / 0.036	- / -	- / -	- / -	- / -	- / -	17 / 0.204
1.1.2) AMPHIB AN/WSN-7 CONTROL DISPLAY UNIT (CDU) TECH REFRESH - NonOrganic	4 / 0.560	7 / 0.980	4 / 0.560	1 / 0.140	- / -	1 / 0.140	4 / 0.560	3 / 0.428	3 / 0.437	3 / 0.446	Continuing	Continuing
Subtotal: Recurring	*- / 0.608*	*- / 1.004*	*- / 0.656*	*- / 0.176*	*- / -*	*- / 0.176*	*- / 0.560*	*- / 0.428*	*- / 0.437*	*- / 0.446*	*Continuing*	*Continuing*
Subtotal: AMPHIB FIELD CHANGES	*8 / 0.608*	*9 / 1.004*	*12 / 0.656*	*4 / 0.176*	*- / -*	*4 / 0.176*	*4 / 0.560*	*3 / 0.428*	*3 / 0.437*	*3 / 0.446*	*Continuing*	*Continuing*
Modification Item 2 of 4: SURFACE FIELD CHANGES												
B Kits												
Recurring												
2.1.1) SURFACE AN/WSN-7 FIELD CHANGE 22 - NonOrganic	28 / 0.336	13 / 0.156	8 / 0.096	9 / 0.108	- / -	9 / 0.108	6 / 0.072	- / -	- / -	- / -	- / -	64 / 0.768
2.1.2) SURFACE AN/WSN-7 CDU TECH REFRESH EQT - Organic	- / 0.475	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / 0.475
2.1.3) SURFACE AN/WSN-7 CDU TECH FRESH - NonOrganic	31 / 4.363	13 / 1.820	15 / 2.100	14 / 1.960	- / -	14 / 1.960	9 / 1.350	9 / 1.377	9 / 1.405	9 / 1.442	Continuing	Continuing
Subtotal: Recurring	*- / 5.174*	*- / 1.976*	*- / 2.196*	*- / 2.068*	*- / -*	*- / 2.068*	*- / 1.422*	*- / 1.377*	*- / 1.405*	*- / 1.442*	*Continuing*	*Continuing*
Subtotal: SURFACE FIELD CHANGES	*59 / 5.174*	*26 / 1.976*	*23 / 2.196*	*23 / 2.068*	*- / -*	*23 / 2.068*	*15 / 1.422*	*9 / 1.377*	*9 / 1.405*	*9 / 1.442*	*Continuing*	*Continuing*
Modification Item 3 of 4: SUBMARINE FIELD CHANGES												
B Kits												
Recurring												
3.1.1) SUBMARINE SHIPALT 4507 - Organic	1 / 0.000	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	1 / 0.000
3.1.2) SUBMARINE ECI 14-006-VA - Organic	3 / 0.015	1 / 0.005	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	4 / 0.020
3.1.3) SUBMARINE ECI (TI-10/12/14) - Organic	40 / 1.000	4 / 0.100	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	44 / 1.100
3.1.4) SUBMARINE AN/WSN-7 FIELD CHANGE 21 - NonOrganic	6 / 0.360	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	6 / 0.360
3.1.5) SUBMARINE AN/WSN-7 FIELD CHANGE 22 - NonOrganic	6 / 0.360	- / -	- / -	1 / 0.060	- / -	1 / 0.060	- / -	- / -	- / -	- / -	- / -	7 / 0.420

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 6	**P-1 Line Item Number / Title:** 0670 / Other Navigation Equipment	**Modification Number / Title:** 9 / GW062: AN/WSN-7 MODERNIZATION
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	
Models of Systems Affected: GW062: AN/WSN-7 MODERNIZATION	**Modification Type:** AN/WSN-7 MODERNIZATION	**Related RDT&E PEs:**

Financial Plan	Prior Years	FY 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)*
3.1.6) SUBMARINE AN/WSN-7 FIELD CHANGE 23 - NonOrganic	7 / 0.688	5 / 0.860	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	12 / 1.548
3.1.7) SUBMARINE AN/WSN-7 FIELD CHANGE 24 - NonOrganic	3 / 0.537	12 / 2.148	6 / 1.074	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	21 / 3.759
3.1.8) SUBMARINE AN/WSN-7 FIELD CHANGE 26 - NonOrganic	- / -	2 / 0.372	2 / 0.372	12 / 2.232	- / -	12 / 2.232	5 / 0.930	- / -	- / -	- / -	- / -	21 / 3.906
3.1.9) SUBMARINE AN/WSN-7 FIELD CHANGE 28 - NonOrganic	- / -	- / -	- / -	- / -	- / -	- / -	6 / 1.140	- / -	- / -	- / -	- / -	6 / 1.140
3.1.10) SUBMARINE AN/WSN-7 ECI (TI-16/APB-17) - Organic	2 / 0.070	6 / 0.210	2 / 0.070	2 / 0.070	- / -	2 / 0.070	- / -	- / -	- / -	- / -	- / -	12 / 0.420
3.1.11) SUBMARINE AN/WSN-7 ECI (TI-18/APB-19) - Organic	- / -	- / -	2 / 0.070	8 / 0.280	- / -	8 / 0.280	6 / 0.210	1 / 0.035	1 / 0.036	1 / 0.037	- / -	19 / 0.668
3.1.12) SUBMARINE AN/WSN-7 ECI (TI-20/APB-21) - Organic	- / -	- / -	- / -	- / -	- / -	- / -	4 / 0.160	2 / 0.080	2 / 0.082	2 / 0.084	- / -	10 / 0.406
3.1.13) SUBMARINE AN/WSN-7 TRID TBD (TI-22) - NonOrganic	- / -	- / -	- / -	- / -	- / -	- / -	3 / 0.600	7 / 1.400	7 / 1.428	7 / 1.456	Continuing	Continuing
Subtotal: Recurring	*- / 3.030*	*- / 3.695*	*- / 1.586*	*- / 2.642*	*- / -*	*- / 2.642*	*- / 3.040*	*- / 1.515*	*- / 1.546*	*- / 1.577*	*Continuing*	*Continuing*
Subtotal: SUBMARINE FIELD CHANGES	*68 / 3.030*	*30 / 3.695*	*12 / 1.586*	*23 / 2.642*	*- / -*	*23 / 2.642*	*24 / 3.040*	*10 / 1.515*	*10 / 1.546*	*10 / 1.577*	*Continuing*	*Continuing*
Modification Item 4 of 4: CARRIER FIELD CHANGES												
B Kits												
Recurring												
4.1.1) CARRIER AN/WSN-7 FIELD CHANGE 22 - NonOrganic	3 / 0.036	2 / 0.024	5 / 0.060	1 / 0.012	- / -	1 / 0.012	- / -	- / -	- / -	- / -	- / -	11 / 0.132
4.1.2) CARRIER AN/WSN-7 CDU TECH REFRESH - NonOrganic	7 / 0.420	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	7 / 0.420
Subtotal: Recurring	*- / 0.456*	*- / 0.024*	*- / 0.060*	*- / 0.012*	*- / -*	*- / 0.012*	*- / -*	*- / -*	*- / -*	*- / -*	*- / 0.000*	*- / 0.552*
Subtotal: CARRIER FIELD CHANGES	*10 / 0.456*	*2 / 0.024*	*5 / 0.060*	*1 / 0.012*	*- / -*	*1 / 0.012*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*18 / 0.552*
Subtotal: Procurement, All Modification Items	*- / 9.268*	*- / 6.699*	*- / 4.498*	*- / 4.898*	*- / -*	*- / 4.898*	*- / 5.022*	*- / 3.320*	*- / 3.388*	*- / 3.465*	*Continuing*	*Continuing*
Installation												
Modification Item 1 of 4: AMPHIB FIELD CHANGES	- / 0.300	- / 0.350	- / 0.950	- / 0.425	- / 0.000	- / 0.425	- / 0.050	- / 0.204	- / 0.157	- / 0.160	Continuing	Continuing
Modification Item 2 of 4: SURFACE FIELD CHANGES	- / 3.750	- / 1.875	- / 1.250	- / 1.425	- / 0.000	- / 1.425	- / 1.150	- / 0.459	- / 0.468	- / 0.470	Continuing	Continuing
Modification Item 3 of 4: SUBMARINE FIELD CHANGES	- / 0.765	- / 0.560	- / 1.520	- / 0.648	- / 0.000	- / 0.648	- / 0.960	- / 1.120	- / 0.572	- / 0.583	Continuing	Continuing
Modification Item 4 of 4: CARRIER FIELD CHANGES	- / 0.425	- / 0.300	- / 0.375	- / 0.075	- / 0.000	- / 0.075	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 1.175

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 6	**P-1 Line Item Number / Title:** 0670 / Other Navigation Equipment	**Modification Number / Title:** 9 / GW062: AN/WSN-7 MODERNIZATION
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	
Models of Systems Affected: GW062: AN/WSN-7 MODERNIZATION	**Modification Type:** AN/WSN-7 MODERNIZATION	**Related RDT&E PEs:**

Financial Plan	Prior Years	FY 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)*
Subtotal: Installation	*- / 5.240*	*- / 3.085*	*- / 4.095*	*- / 2.573*	*- / -*	*- / 2.573*	*- / 2.160*	*- / 1.783*	*- / 1.197*	*- / 1.213*	*Continuing*	*Continuing*
Total												
Total Cost (Procurement + Support + Installation)	**14.508**	**9.784**	**8.593**	**7.471**	**0.000**	**7.471**	**7.182**	**5.103**	**4.585**	**4.678**	**Continuing**	**Continuing**

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 6	**P-1 Line Item Number / Title:** 0670 / Other Navigation Equipment	**Modification Number / Title:** 9 / GW062: AN/WSN-7 MODERNIZATION

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

Modification Item 1 of 4: AMPHIB FIELD CHANGES

Manufacturer Information

Manufacturer Name: WR Systems (Amphib WSN-7 CDU Tech Ref) — Manufacturer Location: Norfolk, VA

Administrative Leadtime *(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 2019	Mar 2020	Mar 2021	Mar 2022	Mar 2023	Mar 2024	Mar 2025
Delivery Dates	Sep 2019	Sep 2020	Sep 2021	Sep 2022	Sep 2023	Sep 2024	Sep 2025

Manufacturer Name: NORTHROP GRUMMAN SYSTEMS CORP. (Amphib WSN-7 FC22) — Manufacturer Location: CHARLOTTESVILLE, VA

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				
Delivery Dates	Jun 2019	Jun 2020	Jun 2021				

Installation Information

Method of Implementation: AIT:: Installation Name: AMPHIB AN/WSN-7 FIELD CHANGE 22

Installation Cost	Prior Years	FY 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 / 0.300	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	4 / 0.300
FY 2019	- / -	2 / 0.150	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	2 / 0.150
FY 2020	- / -	- / -	8 / 0.600	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	8 / 0.600
FY 2021	- / -	- / -	- / -	3 / 0.225	0 / 0.000	3 / 0.225	- / -	- / -	- / -	- / -	0 / 0.000	3 / 0.225
FY 2022	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2023	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2024	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2025	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
To Complete	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
Total	4 / 0.300	2 / 0.150	8 / 0.600	3 / 0.225	0 / 0.000	3 / 0.225	- / -	- / -	- / -	- / -	0 / 0.000	17 / 1.275

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 6	**P-1 Line Item Number / Title:** 0670 / Other Navigation Equipment	**Modification Number / Title:** 9 / GW062: AN/WSN-7 MODERNIZATION

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

Modification Item 1 of 4: AMPHIB FIELD CHANGES

Installation Information

Method of Implementation: AIT:: Installation Name: AMPHIB AN/WSN-7 FIELD CHANGE 22

Installation Schedule

		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	4	-	-	-	2	-	-	-	8	-	-	-	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	17
Out	4	-	-	-	2	-	-	-	8	-	-	-	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	17

Method of Implementation: AIT:: Installation Name: AMPHIB AN/WSN-7 CONTROL DISPLAY UNIT (CDU) TECH REFRESH

Installation Cost	Prior Years	FY 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 / 0.200	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	4 / 0.200
FY 2019	- / -	- / -	7 / 0.350	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	7 / 0.350
FY 2020	- / -	- / -	- / -	4 / 0.200	0 / 0.000	4 / 0.200	- / -	- / -	- / -	- / -	0 / 0.000	4 / 0.200
FY 2021	- / -	- / -	- / -	- / -	- / -	- / -	1 / 0.050	- / -	- / -	- / -	0 / 0.000	1 / 0.050
FY 2022	- / -	- / -	- / -	- / -	- / -	- / -	- / -	4 / 0.204	- / -	- / -	0 / 0.000	4 / 0.204
FY 2023	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	3 / 0.157	- / -	0 / 0.000	3 / 0.157
FY 2024	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	3 / 0.160	0 / 0.000	3 / 0.160
FY 2025	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	3 / 0.160	3 / 0.160
To Complete	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	Continuing	Continuing
Total	- / -	4 / 0.200	7 / 0.350	4 / 0.200	0 / 0.000	4 / 0.200	1 / 0.050	4 / 0.204	3 / 0.157	3 / 0.160	Continuing	Continuing

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	-	4	-	-	-	7	-	-	-	4	-	-	-	1	-	-	-	4	-	-	-	3	-	-	-	3	-	-	-	Cont.	Cont.
Out	-	4	-	-	-	7	-	-	-	4	-	-	-	1	-	-	-	4	-	-	-	3	-	-	-	3	-	-	-	Cont.	Cont.

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 6	**P-1 Line Item Number / Title:** 0670 / Other Navigation Equipment	**Modification Number / Title:** 9 / GW062: AN/WSN-7 MODERNIZATION

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

Modification Item 2 of 4: SURFACE FIELD CHANGES

Manufacturer Information

Manufacturer Name: WR Systems (Surf WSN-7 CDU Tech Ref) | Manufacturer Location: Norfolk, VA

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

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

Manufacturer Name: NORTHROP GRUMMAN SYSTEMS CORP. (Surf WSN-7 FC22) | Manufacturer Location: CHARLOTTESVILLE, VA

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

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

Installation Information

Method of Implementation: AIT:: Installation Name: SURFACE AN/WSN-7 FIELD CHANGE 22

Installation Cost	Prior Years	FY 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	28 / 2.100	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	28 / 2.100
FY 2019	- / -	13 / 0.975	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	13 / 0.975
FY 2020	- / -	- / -	8 / 0.600	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	8 / 0.600
FY 2021	- / -	- / -	- / -	9 / 0.675	0 / 0.000	9 / 0.675	- / -	- / -	- / -	- / -	0 / 0.000	9 / 0.675
FY 2022	- / -	- / -	- / -	- / -	- / -	- / -	6 / 0.450	- / -	- / -	- / -	0 / 0.000	6 / 0.450
FY 2023	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2024	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2025	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
To Complete	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
Total	28 / 2.100	13 / 0.975	8 / 0.600	9 / 0.675	0 / 0.000	9 / 0.675	6 / 0.450	- / -	- / -	- / -	0 / 0.000	64 / 4.800

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 6	**P-1 Line Item Number / Title:** 0670 / Other Navigation Equipment	**Modification Number / Title:** 9 / GW062: AN/WSN-7 MODERNIZATION
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

Modification Item 2 of 4: SURFACE FIELD CHANGES

Installation Information

Method of Implementation: AIT:: Installation Name: SURFACE AN/WSN-7 FIELD CHANGE 22

Installation Schedule

		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	28	-	-	-	13	-	-	-	8	-	-	-	9	-	-	-	6	-	-	-	-	-	-	-	-	-	-	-	-	-	64
Out	28	-	-	-	13	-	-	-	8	-	-	-	9	-	-	-	6	-	-	-	-	-	-	-	-	-	-	-	-	-	64

Method of Implementation: AIT:: Installation Name: SURFACE AN/WSN-7 CDU TECH FRESH

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	13 / 1.650	18 / 0.900	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	31 / 2.550
FY 2019	- / -	- / -	13 / 0.650	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	13 / 0.650
FY 2020	- / -	- / -	- / -	15 / 0.750	0 / 0.000	15 / 0.750	- / -	- / -	- / -	- / -	0 / 0.000	15 / 0.750
FY 2021	- / -	- / -	- / -	- / -	- / -	- / -	14 / 0.700	- / -	- / -	- / -	0 / 0.000	14 / 0.700
FY 2022	- / -	- / -	- / -	- / -	- / -	- / -	- / -	9 / 0.459	- / -	- / -	0 / 0.000	9 / 0.459
FY 2023	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	9 / 0.468	- / -	0 / 0.000	9 / 0.468
FY 2024	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	9 / 0.470	0 / 0.000	9 / 0.470
FY 2025	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	9 / 0.470	9 / 0.470
To Complete	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	Continuing	Continuing
Total	13 / 1.650	18 / 0.900	13 / 0.650	15 / 0.750	0 / 0.000	15 / 0.750	14 / 0.700	9 / 0.459	9 / 0.468	9 / 0.470	Continuing	Continuing

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	13	18	-	-	-	13	-	-	-	15	-	-	-	14	-	-	-	9	-	-	-	9	-	-	-	9	-	-	-	Cont.	Cont.
Out	13	18	-	-	-	13	-	-	-	15	-	-	-	14	-	-	-	9	-	-	-	9	-	-	-	9	-	-	-	Cont.	Cont.

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 6	**P-1 Line Item Number / Title:** 0670 / Other Navigation Equipment	**Modification Number / Title:** 9 / GW062: AN/WSN-7 MODERNIZATION
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	
Modification Item 3 of 4: SUBMARINE FIELD CHANGES		

Manufacturer Information

Manufacturer Name: TBD (Sub WSN-7 TRID TBD)				Manufacturer Location: TBD			
Administrative Leadtime *(in Months)*: 0				Production Leadtime *(in Months)*: 0			
Dates	**FY 2019**	**FY 2020**	**FY 2021**	**FY 2022**	**FY 2023**	**FY 2024**	**FY 2025**
Contract Dates				Dec 2021	Dec 2022	Dec 2023	Dec 2024
Delivery Dates				Dec 2022	Dec 2023	Dec 2024	Dec 2025
Manufacturer Name: NORTHROP GRUMMAN SYSTEMS CORP. (Sub WSN-7 FC21)				Manufacturer Location: CHARLOTTESVILLE, VA			
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							
Delivery Dates							
Manufacturer Name: NORTHROP GRUMMAN SYSTEMS CORP. (Sub WSN-7 FC22)				Manufacturer Location: CHARLOTTESVILLE, VA			
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 2020				
Delivery Dates			Jun 2021				
Manufacturer Name: NORTHROP GRUMMAN SYSTEMS CORP. (Sub WSN-7 FC28)				Manufacturer Location: CHARLOTTESVILLE, VA			
Administrative Leadtime *(in Months)*: 3				Production Leadtime *(in Months)*: 9			
Dates	**FY 2019**	**FY 2020**	**FY 2021**	**FY 2022**	**FY 2023**	**FY 2024**	**FY 2025**
Contract Dates				Dec 2021			
Delivery Dates				Sep 2022			
Manufacturer Name: NORTHROP GRUMMAN SYSTEMS CORP. (Sub WSN-7 FC24)				Manufacturer Location: CHARLOTTESVILLE, VA			
Administrative Leadtime *(in Months)*: 3				Production Leadtime *(in Months)*: 9			
Dates	**FY 2019**	**FY 2020**	**FY 2021**	**FY 2022**	**FY 2023**	**FY 2024**	**FY 2025**
Contract Dates	Dec 2018	Dec 2019					
Delivery Dates	Sep 2019	Sep 2020					
Manufacturer Name: NORTHROP GRUMMAN SYSTEMS CORP. (Sub WSN-7 FC26)				Manufacturer Location: CHARLOTTESVILLE, VA			
Administrative Leadtime *(in Months)*: 3				Production Leadtime *(in Months)*: 9			
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			

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 6	**P-1 Line Item Number / Title:** 0670 / Other Navigation Equipment	**Modification Number / Title:** 9 / GW062: AN/WSN-7 MODERNIZATION

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

Modification Item 3 of 4: SUBMARINE FIELD CHANGES

Manufacturer Information

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

Manufacturer Name: NORTHROP GRUMMAN SYSTEMS CORP. (Sub WSN-7 FC23) | Manufacturer Location: CHARLOTTESVILLE, VA

Administrative Leadtime *(in Months)*: 3 | Production Leadtime *(in Months)*: 9

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

Installation Information

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

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 / 0.480	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	6 / 0.480
FY 2019	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2020	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2021	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2022	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2023	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2024	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2025	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
To Complete	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
Total	6 / 0.480	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	6 / 0.480

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
Out	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 6	**P-1 Line Item Number / Title:** 0670 / Other Navigation Equipment	**Modification Number / Title:** 9 / GW062: AN/WSN-7 MODERNIZATION
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

Modification Item 3 of 4: SUBMARINE FIELD CHANGES

Installation Information

Method of Implementation: AIT:: Installation Name: SUBMARINE AN/WSN-7 FIELD CHANGE 22

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 / 0.045	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	6 / 0.045
FY 2019	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2020	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2021	- / -	- / -	- / -	1 / 0.008	0 / 0.000	1 / 0.008	- / -	- / -	- / -	- / -	0 / 0.000	1 / 0.008
FY 2022	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2023	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2024	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2025	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
To Complete	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
Total	6 / 0.045	- / -	- / -	1 / 0.008	0 / 0.000	1 / 0.008	- / -	- / -	- / -	- / -	0 / 0.000	7 / 0.053

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	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7
Out	6	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7

Method of Implementation: AIT:: Installation Name: SUBMARINE AN/WSN-7 FIELD CHANGE 23

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 / 0.240	4 / 0.320	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	7 / 0.560
FY 2019	- / -	- / -	5 / 0.400	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	5 / 0.400
FY 2020	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2021	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2022	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2023	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2024	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2025	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 6	**P-1 Line Item Number / Title:** 0670 / Other Navigation Equipment	**Modification Number / Title:** 9 / GW062: AN/WSN-7 MODERNIZATION
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

Modification Item 3 of 4: SUBMARINE FIELD CHANGES

Installation Information

Method of Implementation: AIT:: Installation Name: SUBMARINE AN/WSN-7 FIELD CHANGE 23

Installation Cost	Prior Years	FY 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)*
To Complete	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
Total	3 / 0.240	4 / 0.320	5 / 0.400	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	12 / 0.960

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	4	-	-	-	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12
Out	3	4	-	-	-	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12

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

Installation Cost	Prior Years	FY 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 / 0.240	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	3 / 0.240
FY 2019	- / -	- / -	12 / 0.960	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	12 / 0.960
FY 2020	- / -	- / -	- / -	6 / 0.480	0 / 0.000	6 / 0.480	- / -	- / -	- / -	- / -	0 / 0.000	6 / 0.480
FY 2021	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2022	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2023	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2024	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2025	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
To Complete	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
Total	- / -	3 / 0.240	12 / 0.960	6 / 0.480	0 / 0.000	6 / 0.480	- / -	- / -	- / -	- / -	0 / 0.000	21 / 1.680

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 6	**P-1 Line Item Number / Title:** 0670 / Other Navigation Equipment	**Modification Number / Title:** 9 / GW062: AN/WSN-7 MODERNIZATION
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

Modification Item 3 of 4: SUBMARINE FIELD CHANGES

Installation Information

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

Installation 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	-	3	-	-	-	12	-	-	-	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	21
Out	-	3	-	-	-	12	-	-	-	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	21

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

Installation Cost	Prior Years	FY 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	- / -	- / -	2 / 0.160	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	2 / 0.160
FY 2020	- / -	- / -	- / -	2 / 0.160	0 / 0.000	2 / 0.160	- / -	- / -	- / -	- / -	0 / 0.000	2 / 0.160
FY 2021	- / -	- / -	- / -	- / -	- / -	- / -	12 / 0.960	- / -	- / -	- / -	0 / 0.000	12 / 0.960
FY 2022	- / -	- / -	- / -	- / -	- / -	- / -	- / -	5 / 0.400	- / -	- / -	0 / 0.000	5 / 0.400
FY 2023	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2024	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2025	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
To Complete	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
Total	- / -	- / -	2 / 0.160	2 / 0.160	0 / 0.000	2 / 0.160	12 / 0.960	5 / 0.400	- / -	- / -	0 / 0.000	21 / 1.680

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	-	-	-	-	-	2	-	-	-	2	-	-	-	12	-	-	-	5	-	-	-	-	-	-	-	-	-	-	-	-	21
Out	-	-	-	-	-	2	-	-	-	2	-	-	-	12	-	-	-	5	-	-	-	-	-	-	-	-	-	-	-	-	21

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 6	**P-1 Line Item Number / Title:** 0670 / Other Navigation Equipment	**Modification Number / Title:** 9 / GW062: AN/WSN-7 MODERNIZATION

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

Modification Item 3 of 4: SUBMARINE FIELD CHANGES

Installation Information

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

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	- / -	- / -	- / -	- / -	- / -	- / -	- / -	6 / 0.480	- / -	- / -	0 / 0.000	6 / 0.480
FY 2023	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2024	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2025	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
To Complete	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
Total	- / -	- / -	- / -	- / -	- / -	- / -	- / -	6 / 0.480	- / -	- / -	0 / 0.000	6 / 0.480

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
Out	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6	-	-	-	-	-	-	-	-	-	-	-	-	6

Method of Implementation: AIT:: Installation Name: SUBMARINE AN/WSN-7 TRID TBD (TI-22)

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	- / -	- / -	- / -	- / -	- / -	- / -	- / -	3 / 0.240	- / -	- / -	0 / 0.000	3 / 0.240
FY 2023	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	7 / 0.572	- / -	0 / 0.000	7 / 0.572
FY 2024	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	7 / 0.583	0 / 0.000	7 / 0.583
FY 2025	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	Continuing	Continuing

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 6	**P-1 Line Item Number / Title:** 0670 / Other Navigation Equipment	**Modification Number / Title:** 9 / GW062: AN/WSN-7 MODERNIZATION

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

Modification Item 3 of 4: SUBMARINE FIELD CHANGES

Installation Information

Method of Implementation: AIT:: Installation Name: SUBMARINE AN/WSN-7 TRID TBD (TI-22)

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)*
To Complete	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	Continuing	Continuing
Total	- / -	- / -	- / -	- / -	- / -	- / -	- / -	3 / 0.240	7 / 0.572	7 / 0.583	Continuing	Continuing

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	-	-	-	7	-	-	-	7	-	-	-	Cont.	Cont.
Out	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	-	-	-	7	-	-	-	7	-	-	-	Cont.	Cont.

Method of Implementation (Organic): SUBMARINE SHIPALT 4507 — **Installation Quantity:** 1

Method of Implementation (Organic): SUBMARINE ECI 14-006-VA — **Installation Quantity:** 4

Method of Implementation (Organic): SUBMARINE ECI (TI-10/12/14) — **Installation Quantity:** 44

Method of Implementation (Organic): SUBMARINE AN/WSN-7 ECI (TI-16/APB-17) — **Installation Quantity:** 12

Method of Implementation (Organic): SUBMARINE AN/WSN-7 ECI (TI-18/APB-19) — **Installation Quantity:** 19

Method of Implementation (Organic): SUBMARINE AN/WSN-7 ECI (TI-20/APB-21) — **Installation Quantity:** 10

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 6	**P-1 Line Item Number / Title:** 0670 / Other Navigation Equipment	**Modification Number / Title:** 9 / GW062: AN/WSN-7 MODERNIZATION

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

Modification Item 4 of 4: CARRIER FIELD CHANGES

Manufacturer Information

Manufacturer Name: NORTHROP GRUMMAN SYSTEMS CORP. (Carrier WSN-7 CDU Tech Ref) — Manufacturer Location: CHARLOTTESVILLE, VA

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

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

Manufacturer Name: NORTHROP GRUMMAN SYSTEMS CORP. (Carrier WSN-7 FC22) — Manufacturer Location: CHARLOTTESVILLE, VA

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

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

Installation Information

Method of Implementation: AIT:: Installation Name: CARRIER AN/WSN-7 FIELD CHANGE 22

Installation Cost	Prior Years	FY 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 / 0.225	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	3 / 0.225
FY 2019	- / -	2 / 0.150	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	2 / 0.150
FY 2020	- / -	- / -	5 / 0.375	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	5 / 0.375
FY 2021	- / -	- / -	- / -	1 / 0.075	0 / 0.000	1 / 0.075	- / -	- / -	- / -	- / -	0 / 0.000	1 / 0.075
FY 2022	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2023	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2024	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2025	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
To Complete	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
Total	3 / 0.225	2 / 0.150	5 / 0.375	1 / 0.075	0 / 0.000	1 / 0.075	- / -	- / -	- / -	- / -	0 / 0.000	11 / 0.825

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 6	**P-1 Line Item Number / Title:** 0670 / Other Navigation Equipment	**Modification Number / Title:** 9 / GW062: AN/WSN-7 MODERNIZATION

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

Modification Item 4 of 4: CARRIER FIELD CHANGES

Installation Information

Method of Implementation: AIT:: Installation Name: CARRIER AN/WSN-7 FIELD CHANGE 22

Installation Schedule

		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	3	-	-	-	2	-	-	-	5	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	11
Out	3	-	-	-	2	-	-	-	5	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	11

Method of Implementation: AIT:: Installation Name: CARRIER AN/WSN-7 CDU TECH REFRESH

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 / 0.200	3 / 0.150	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	7 / 0.350
FY 2019	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2020	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2021	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2022	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2023	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2024	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2025	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
To Complete	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
Total	4 / 0.200	3 / 0.150	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	7 / 0.350

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	4	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7
Out	4	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 6	**P-1 Line Item Number / Title:** 0670 / Other Navigation Equipment	**Modification Number / Title:** 10 / GW067: DIGITAL DEPTH DETECTOR
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)*	1.788	0.913	0.775	0.813	0.000	0.813	0.238	0.000	0.000	0.000	0.000	4.527
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	1.788	0.913	0.775	0.813	0.000	0.813	0.238	0.000	0.000	0.000	0.000	4.527
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**1.788**	**0.913**	**0.775**	**0.813**	**0.000**	**0.813**	**0.238**	**0.000**	**0.000**	**0.000**	**0.000**	**4.527**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)												
Initial Spares *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Dollars)*	-	-	-	-	-	-	-	-	-	-	-	-

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

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 6	**P-1 Line Item Number / Title:** 0670 / Other Navigation Equipment	**Modification Number / Title:** 10 / GW067: DIGITAL DEPTH DETECTOR
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	
Models of Systems Affected: GW067: DIGITAL DEPTH DETECTOR	**Modification Type:** DIGITAL DEPTH DETECTOR	**Related RDT&E PEs:**

Financial Plan	Prior Years	FY 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: GW067: DIGITAL DEPTH DETECTOR												
B Kits												
Recurring												
1.1.1) SUBMARINE DIGITAL DEPTH DETECTOR PROCUREMENT - NonOrganic (11)	8 / 0.600	2 / 0.200	3 / 0.300	1 / 0.100	- / -	1 / 0.100	- / -	- / -	- / -	- / -	- / -	14 / 1.200
Subtotal: Recurring	*- / 0.600*	*- / 0.200*	*- / 0.300*	*- / 0.100*	*- / -*	*- / 0.100*	*- / -*	*- / -*	*- / -*	*- / -*	*- / 0.000*	*- / 1.200*
Subtotal: GW067: DIGITAL DEPTH DETECTOR	*8 / 0.600*	*2 / 0.200*	*3 / 0.300*	*1 / 0.100*	*- / -*	*1 / 0.100*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*14 / 1.200*
Subtotal: Procurement, All Modification Items	*- / 0.600*	*- / 0.200*	*- / 0.300*	*- / 0.100*	*- / -*	*- / 0.100*	*- / -*	*- / -*	*- / -*	*- / -*	*- / 0.000*	*- / 1.200*
Installation												
Modification Item 1 of 1: GW067: DIGITAL DEPTH DETECTOR	- / 1.188	- / 0.713	- / 0.475	- / 0.713	- / 0.000	- / 0.713	- / 0.238	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 3.327
Subtotal: Installation	*- / 1.188*	*- / 0.713*	*- / 0.475*	*- / 0.713*	*- / -*	*- / 0.713*	*- / 0.238*	*- / -*	*- / -*	*- / -*	*- / 0.000*	*- / 3.327*
Total												
Total Cost (Procurement + Support + Installation)	**1.788**	**0.913**	**0.775**	**0.813**	**0.000**	**0.813**	**0.238**	**0.000**	**0.000**	**0.000**	**0.000**	**4.527**

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 6	**P-1 Line Item Number / Title:** 0670 / Other Navigation Equipment	**Modification Number / Title:** 10 / GW067: DIGITAL DEPTH DETECTOR

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

Modification Item 1 of 1: GW067: DIGITAL DEPTH DETECTOR

Manufacturer Information

Manufacturer Name: WR Systems (Sub DDD) | Manufacturer Location: Norfolk, VA

Administrative Leadtime *(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 2019	Mar 2020	Mar 2021				
Delivery Dates	Sep 2019	Sep 2020	Sep 2021				

Installation Information

Method of Implementation: AIT:: Installation Name: SUBMARINE DIGITAL DEPTH DETECTOR PROCUREMENT

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 / 1.188	3 / 0.713	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	8 / 1.901
FY 2019	- / -	- / -	2 / 0.475	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	2 / 0.475
FY 2020	- / -	- / -	- / -	3 / 0.713	0 / 0.000	3 / 0.713	- / -	- / -	- / -	- / -	0 / 0.000	3 / 0.713
FY 2021	- / -	- / -	- / -	- / -	- / -	- / -	1 / 0.238	- / -	- / -	- / -	0 / 0.000	1 / 0.238
FY 2022	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2023	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2024	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2025	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
To Complete	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
Total	5 / 1.188	3 / 0.713	2 / 0.475	3 / 0.713	0 / 0.000	3 / 0.713	1 / 0.238	- / -	- / -	- / -	0 / 0.000	14 / 3.327

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	3	-	-	-	2	-	-	-	3	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	14
Out	5	3	-	-	-	2	-	-	-	3	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	14

Footnotes:

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

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 6	**P-1 Line Item Number / Title:** 0670 / Other Navigation Equipment	**Modification Number / Title:** 11 / GW069: BOUNDARY DEFENSE CABINET
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)*	0.000	0.000	8.626	12.569	0.000	12.569	6.410	6.538	0.000	0.000	0.000	34.143
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	0.000	0.000	8.626	12.569	0.000	12.569	6.410	6.538	0.000	0.000	0.000	34.143
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**0.000**	**0.000**	**8.626**	**12.569**	**0.000**	**12.569**	**6.410**	**6.538**	**0.000**	**0.000**	**0.000**	**34.143**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)												
Initial Spares *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Dollars)*	-	-	-	-	-	-	-	-	-	-	-	-

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

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 6	**P-1 Line Item Number / Title:** 0670 / Other Navigation Equipment	**Modification Number / Title:** 11 / GW069: BOUNDARY DEFENSE CABINET
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	
Models of Systems Affected: GW069: BOUNDARY DEFENSE CABINET	**Modification Type:** BOUNDARY DEFENSE CABINET	**Related RDT&E PEs:** 0204228N

Financial Plan	Prior Years	FY 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: GW069: BOUNDARY DEFENSE CABINET												
B Kits												
Recurring												
1.1.1) SURFACE BOUNDARY DEFENSE CABINET - NonOrganic	- / -	- / -	7 / 4.177	10 / 6.087	- / -	10 / 6.087	5 / 3.104	5 / 3.166	- / -	- / -	- / -	27 / 16.534
Subtotal: Recurring	*- / 0.000*	*- / -*	*- / 4.177*	*- / 6.087*	*- / -*	*- / 6.087*	*- / 3.104*	*- / 3.166*	*- / -*	*- / -*	*- / 0.000*	*- / 16.534*
Subtotal: GW069: BOUNDARY DEFENSE CABINET	*- / -*	*- / -*	*7 / 4.177*	*10 / 6.087*	*- / -*	*10 / 6.087*	*5 / 3.104*	*5 / 3.166*	*- / -*	*- / -*	*- / -*	*27 / 16.534*
Subtotal: Procurement, All Modification Items	*- / 0.000*	*- / -*	*- / 4.177*	*- / 6.087*	*- / -*	*- / 6.087*	*- / 3.104*	*- / 3.166*	*- / -*	*- / -*	*- / 0.000*	*- / 16.534*
Installation												
Modification Item 1 of 1: GW069: BOUNDARY DEFENSE CABINET	- / 0.000	- / 0.000	- / 4.449	- / 6.482	- / 0.000	- / 6.482	- / 3.306	- / 3.372	- / 0.000	- / 0.000	- / 0.000	- / 17.609
Subtotal: Installation	*- / 0.000*	*- / -*	*- / 4.449*	*- / 6.482*	*- / -*	*- / 6.482*	*- / 3.306*	*- / 3.372*	*- / -*	*- / -*	*- / 0.000*	*- / 17.609*
Total												
Total Cost (Procurement + Support + Installation)	**0.000**	**0.000**	**8.626**	**12.569**	**0.000**	**12.569**	**6.410**	**6.538**	**0.000**	**0.000**	**0.000**	**34.143**

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 6	**P-1 Line Item Number / Title:** 0670 / Other Navigation Equipment	**Modification Number / Title:** 11 / GW069: BOUNDARY DEFENSE CABINET

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

Modification Item 1 of 1: GW069: BOUNDARY DEFENSE CABINET

Manufacturer Information

Manufacturer Name: TBD (Boundary Defense Cabinet) | Manufacturer Location: TBD

Administrative Leadtime *(in Months)*: 3 | Production Leadtime *(in Months)*: 7

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

Installation Information

Method of Implementation: AIT:: Installation Name: SURFACE BOUNDARY DEFENSE CABINET

Installation Cost	Prior Years	FY 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	- / -	- / -	7 / 4.449	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	7 / 4.449
FY 2021	- / -	- / -	- / -	10 / 6.482	0 / 0.000	10 / 6.482	- / -	- / -	- / -	- / -	0 / 0.000	10 / 6.482
FY 2022	- / -	- / -	- / -	- / -	- / -	- / -	5 / 3.306	- / -	- / -	- / -	0 / 0.000	5 / 3.306
FY 2023	- / -	- / -	- / -	- / -	- / -	- / -	- / -	5 / 3.372	- / -	- / -	0 / 0.000	5 / 3.372
FY 2024	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2025	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
To Complete	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
Total	- / -	- / -	7 / 4.449	10 / 6.482	0 / 0.000	10 / 6.482	5 / 3.306	5 / 3.372	- / -	- / -	0 / 0.000	27 / 17.609

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	-	-	-	-	-	-	-	-	7	-	-	-	10	-	-	-	5	-	-	-	5	-	-	-	-	-	-	-	-	-	27
Out	-	-	-	-	-	-	-	-	7	-	-	-	10	-	-	-	5	-	-	-	5	-	-	-	-	-	-	-	-	-	27

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 6	**P-1 Line Item Number / Title:** 0670 / Other Navigation Equipment	**Modification Number / Title:** 12 / GW070: MILITARY GLOBAL POSITIONING SYSTEM (GPS) USER EQUIPMENT (MGUE)
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

Resource Summary	Prior Years	FY 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	0.000	0.000	0.000	0.000	0.000	2.000	2.040	2.080	0.000	6.120
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	0.000	0.000	0.000	0.000	0.000	0.000	0.000	2.000	2.040	2.080	0.000	6.120
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**2.000**	**2.040**	**2.080**	**0.000**	**6.120**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)												
Initial Spares *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Dollars)*	-	-	-	-	-	-	-	-	-	-	-	-

Description:
These funds are required for the procurement and installation of Military GPS User Equipment on submarine platforms.

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 6	**P-1 Line Item Number / Title:** 0670 / Other Navigation Equipment	**Modification Number / Title:** 12 / GW070: MILITARY GLOBAL POSITIONING SYSTEM (GPS) USER EQUIPMENT (MGUE)
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	
Models of Systems Affected: GW070: MILITARY GPS USER EQUIPMENT	**Modification Type:** MILITARY GPS USER EQUIPMENT	**Related RDT&E PEs:** 0204228N

Financial Plan	Prior Years	FY 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: GW070: MILITARY GLOBAL POSITIONING SYSTEM (GPS) USER EQUIPMENT (MGUE)												
B Kits												
Recurring												
1.1.1) SUBMARINE MGUE - Organic	- / -	- / -	- / -	- / -	- / -	- / -	- / -	6 / 2.000	6 / 2.040	6 / 2.080	- / -	18 / 6.120
Subtotal: Recurring	*- / 0.000*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / 2.000*	*- / 2.040*	*- / 2.080*	*- / 0.000*	*- / 6.120*
Subtotal: GW070: MILITARY GLOBAL POSITIONING SYSTEM (GPS) USER EQUIPMENT (MGUE)	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*6 / 2.000*	*6 / 2.040*	*6 / 2.080*	*- / -*	*18 / 6.120*
Subtotal: Procurement, All Modification Items	*- / 0.000*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / 2.000*	*- / 2.040*	*- / 2.080*	*- / 0.000*	*- / 6.120*
Installation												
Subtotal: Installation	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*
Total												
Total Cost (Procurement + Support + Installation)	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**2.000**	**2.040**	**2.080**	**0.000**	**6.120**

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 6	**P-1 Line Item Number / Title:** 0670 / Other Navigation Equipment	**Modification Number / Title:** 12 / GW070: MILITARY GLOBAL POSITIONING SYSTEM (GPS) USER EQUIPMENT (MGUE)
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

Modification Item 1 of 1: GW070: MILITARY GLOBAL POSITIONING SYSTEM (GPS) USER EQUIPMENT (MGUE)

Manufacturer Information

Manufacturer Name: TBD (Sub MGUE)	Manufacturer Location: TBD
Administrative Leadtime *(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					Jan 2023	Jan 2024	Jan 2025
Delivery Dates					Jul 2023	Jul 2024	Jul 2025

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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 01: Ships Support Equipment / BSA 9: Other Shipboard Equipment	**P-1 Line Item Number / Title:** 0840 / Sub Periscope, Imaging and Supt Equip Prog

ID Code (A=Service Ready, B=Not Service Ready): A	**Program Elements for Code B Items:** N/A	**Other Related Program Elements:** N/A
Line Item MDAP/MAIS Code: N/A		

Resource Summary	Prior Years	FY 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)*	303.967	179.293	160.803	204.806	0.000	204.806	269.548	308.122	290.661	302.296	Continuing	Continuing
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	303.967	179.293	160.803	204.806	0.000	204.806	269.548	308.122	290.661	302.296	Continuing	Continuing
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**303.967**	**179.293**	**160.803**	**204.806**	**0.000**	**204.806**	**269.548**	**308.122**	**290.661**	**302.296**	**Continuing**	**Continuing**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)												
Initial Spares *($ in Millions)*	-	7.138	22.091	24.409	-	24.409	22.025	29.005	7.374	2.868	Continuing	Continuing
Flyaway Unit Cost *($ in Dollars)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Dollars)*	-	-	-	-	-	-	-	-	-	-	-	-

Description:

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

FY21 includes significant increase in the number of VIRGINIA Class TI-20 procurements and continues EW's shift onto the Submarine Warfare Federated Tactical System (SWFTS) model. The Electronic Warfare Tactical TEMPALT (EWTT) is renamed Electronic Warfare Tactical Upgrade (EWTU) to reflect continuing system support for Communications Acquisition and Direction Finding (CADF) capability. In addition, submarine RADAR efforts increase obligation to address obsolescence issues faced by the BPS RADAR system to ensure reliable safety of ship navigation and PATRIOT RADAR system to maintain tactical awareness in littoral operations. Procurement for Multifunction Modular Mast (MMM) Payload increases from FY20 to support submarine Fleet requirement for improved Unmanned Aerial System (UAS) capability. Submarine Launched Device (SLD) is cut in FY21 to fund other higher priority requirements.

The Submarine Periscopes and Imaging Equipment Program procures the Type 18 and Type 8 periscope upgrades; the Photonics Mast and its variants, including the Low Profile Photonics Mast (LPPM), Type 20, and Type 24 Mast; the Integrated Submarine Imaging System (ISIS); imaging upgrades for all submarine classes; and Photonics and LPPM land-based spares. By OPNAV Ltr Ser. N77/3U629209, 12 June 2003, OPNAV N87 established the ISIS to rapidly field these systems and integrate existing periscope imagery systems into a single system for installation on board submarines. An ISIS Capability Development Document (CDD) was approved 22 Dec 2011, with an update to the CDD approved on 15 Mar 2018. The CDD is used to fully integrate the ISIS program of record into the submarine force's rapid technology insertion process and to incorporate Fleet-endorsed requirements such as LPPM. ISIS supports high intensity operations in the littorals, providing the submarine force with the tactical imaging systems necessary to safely and effectively employ its surveillance and weapons capabilities. The IR imaging capability improves imaging at night and in low visibility conditions. Technology Insertion initiatives include the common control and displays hardware and software on all platforms regardless of imaging sensors, an integrated imaging system that provides for operator alerts, imaging enhancement tools and contact analysis tools, incorporation of LPPM, Type 20 Mast, Type 24 Mast, future sensors, and a fully SWFTS integrated system. Funding improves submarine imaging capability in the areas of: ship safety, Intelligence, Surveillance and Reconnaissance (ISR), tactical control (contact management in the littorals) to provide high quality imaging 24 hours a day, 7 days a week in all weather conditions to support submarine operations worldwide.

PL010 - Imaging ISIS Technical Insertion
Continues procurement of Technical Insertion kits, Design Services Allocation (DSA) installation support, and spares to upgrade ISIS systems on LOS ANGELES, SEAWOLF, VIRGINIA and OHIO Class SSGN/ SSBN platforms to allow for Capability Insertion and obsolescence avoidance. Starting with TI-16, funding includes the one time change for improved copper-fiber optic diploops and hull penetrators (Mast Compatibility) required to support advanced Imaging and Early Warning capabilities included in LPPM, Type 20, and Type 24 Masts.

Exhibit P-40, Budget Line Item Justification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 01: Ships Support Equipment / BSA 9: Other Shipboard Equipment	**P-1 Line Item Number / Title:** 0840 / Sub Periscope, Imaging and Supt Equip Prog	
ID Code (A=Service Ready, B=Not Service Ready): A	**Program Elements for Code B Items:** N/A	**Other Related Program Elements:** N/A
Line Item MDAP/MAIS Code: N/A		

PL011 - Imaging Upgrades: Type 8/Type 18
Continues procurement of Periscopes and Imaging Equipment reliability, capability, and maintainability upgrades, e.g., Eyepiece Box, periscope mechanical hoisting mechanism upgrades, inboard electronic processing hardware and associated Integrated Logistics Support (ILS), Robust Surveillance Program, Certification of regional repair centers for Imaging System maintenance and technical data. Variable quantities and types are bought in each fiscal year based on Fleet-endorsed requirements.

PL012 - Periscope Special Support Equipment
Procures replacements in support of Special Support Equipment (SSE) for each maintenance level to ensure imaging systems are maintained in a state of operational readiness. Equipment includes Q-Band Test Equipment, Mast Dynamic Collimator, Eyebox/Mast Test Set, and Antenna/Outer Head Simulator required due to obsolescence of existing imaging systems SSE.

PL015 - Periscope Interim Contractor Support
Funding is for Interim Contract Support provided by the periscope manufacturer. The majority of the funding is for Type 18 service life extension, depot repair and upgrades for all configurations of Photonics Masts including LPPM and Type 20 masts. It also funds all levels of repairs for all types of tactical submarine imaging systems.

PL016 - Periscope Training
Funding is for imaging systems training requirements to include curriculum development, training materials, and initial factory training pilot course conduct, Navy Training Plans, and instructor advisory services.

PL025 - Low Profile Mast
Funding is for the procurement, support and technical insertion of VIRGINIA Class low profile imaging masts (including LPPM, Type 20, and Type 24) production modules and land based spare masts and associated components. The spares will be used for replacement Imaging Masts on VIRGINIA Class submarines. Quantity of spares will increase with VIRGINIA submarine procurements.

PL830 - Periscope Production Engineering
Production Engineering funds provide the following functions: value engineering; review and evaluation of production design data and documentation; production configuration control; maintenance engineering efforts designed and incorporated into the production manufacturing process, and other related engineering functions that are integral to all of the Imaging Systems and ancillary components.

PL927 - Fleet Modernization Program Installs
Funding is for the installation of Fleet Modernization Program Equipment.

PL4M7 - Non-Fleet Modernization Program Installs
Funding is for the installation of non-Fleet Modernization Program Equipment.

The Submarine Support Equipment Program (SSEP) procures submarine Electronic Warfare (EW) systems: AN/BLQ-10, Submarine Launched Device (SLD), Multifunction Modular Masts (MMM), MMM Payloads, Communications Acquisition and Direction-Finding (CADF) systems, Electronic Warfare Tactical Upgrade (EWTU), Field Change Kits, PATRIOT and BPS 15/16/17 RADARs. The SSEP also supports all ILS, production engineering, Cyber, sustainment, and installation requirements for EW systems. The Submarine EW Capability Development Document (CDD) 907-97-16 was approved on 27 September 2016 and provides all requirements for Submarine EW systems. FY20 introduced two new cost codes to SSEP funding. ML009 was created to support funding required to procure and maintain the Fleet directed EWTU. ML012 provides funding for the AN/BLQ-10B, which is the advanced submarine system that achieves EW superiority through hardware and software updates to pace the threat and brings EW fully onto the SWFTS model. The Technical Insertion/Advanced Processing Build (TI/APB) SWFTS model modernizes and sustains approximately 8-12 SSNs/SSGNs per year through executing bi-annual software APBs and bi-annual hardware TIs. SWFTS related annual funding varies based on the number of modernizations funded. Both the EWTU and the AN/BLQ-10B are required to meet the Submarine EW CDD and are new systems not previously procured under existing cost codes. Procurement of the EWTU fills the gap in CADF capability in VA BLK IV to meet the EW CDD requirements. A gap was created when the CADF production line closed at the end of VA BLK III production and the subsequent cancellation of TI-16/18 NGA contracts, which would have replaced ICADF.

ML003 - SSEP Special Support Equipment

Exhibit P-40, Budget Line Item Justification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 01: Ships Support Equipment / BSA 9: Other Shipboard Equipment	**P-1 Line Item Number / Title:** 0840 / Sub Periscope, Imaging and Supt Equip Prog	
ID Code (A=Service Ready, B=Not Service Ready): A	**Program Elements for Code B Items:** N/A	**Other Related Program Elements:** N/A
Line Item MDAP/MAIS Code: N/A		

SSEP special support equipment allows the procurement of special purpose test equipment utilized by the Type Commander Groom Teams. Exact quantities vary from year to year based on Fleet requirements.

ML007 - CADF
Procures the Communications Acquisition and Direction Finding (CADF) systems for installation on LOS ANGELES, SEAWOLF and VIRGINIA Class submarines.

ML008 - MMM
Procures the Multi-Function Modular Mast (MMM) Antenna and subsystems for installation on LOS ANGELES, SEAWOLF, and VIRGINIA Class submarines. The MMM provides the sensor to conduct direction finding in the communications radio frequency bands as well as a volume for payload integration.

ML009 - EWTU (previously named EWTT)
Procures and refurbishes the Electronic Warfare Tactical Upgrade (EWTU) filling the gap in CADF capability on VA Class BLK IV submarines necessary to meet EW CDD requirements. A gap was created when the CADF production line closed at the end of VA BLK III production and the subsequent cancellation of TI-16/18 NGA contracts, which would have replaced ICADF.

ML010 - EW Technical Insertion
Procures Technical Insertions (TI) up through and including TI-18 for installation on LOS ANGELES, SSGN, SEAWOLF, and VIRGINIA Class submarines that provide updates to the AN/BLQ-10A configuration baseline. The final TI-18 installations will end in FY21. Beginning with TI-20, all AN/BLQ-10 costs are captured in ML012 due to the significant changes associated with the AN/BLQ-10B upgrade.

ML012 (P-40a) - SWFTS Supportability and Integration
Tech Refresh provides for software and hardware updates to accommodate shifts in technology to the execution procurement years "current state-of-the-practice" hardware. Updates are necessary for signal and display processing hardware as software is introduced or as commercial support for the hardware is phased out. When EW systems are being upgraded to subsequent phases, signal processing and display hardware will be upgraded to accommodate common technology consistent with the APB being implemented in the year of introduction. In future years, requirements include additional equipment to prevent COTS hardware from becoming unsupportable/obsolete. Funding will be used to support non-recurring first article test efforts associated with changing COTS environment, as well as, procuring test equipment and simulators. Supports Government Furnished Information (GFI) management and coordination, monitoring of contractor cost, performance and schedule, cost analysis and estimation, contract specification development and monitoring of contract deliverables. Addresses the Cyber requirements associated with procuring, engineering and sustaining EW systems. Also supports EW system training requirements to include curriculum development, training materials, and initial factory training pilot course conduct, Navy Training Plans, instructor advisory services, and hardware/software upgrades for EW trainers.

ML012 (P-3a) - AN/BLQ-10B Technical Insertion
Procures the AN/BLQ-10B EW system for installation on LOS ANGELES, SEAWOLF, and VIRGINIA Class submarines beginning with TI-20. AN/BLQ-10B achieves EW superiority through hardware and software updates to pace the threat and brings EW fully onto the SWFTS model. Tech insertion procures the hardware necessary to upgrade and back-fit EW systems. This system will be fully aligned with SWFTS with the exception of SSBN Class and provides capabilities required by the EW Capability Development Document (CDD).

ML014 - Legacy Submarine Surveillance Measures
Continues legacy Submarine Electronic Surveillance Measures (SubESM) procurement including AN/BRD-7 and AN/WLR-8 Reliability and Maintainability (R&M) obsolescence and operational Field Change Kits and other materials for Obsolescence Mitigation, e.g., Digital Display Unit (DDU) obsolescence upgrade, Solid State Memory, Heat Dissipation improvement, related H,M&E sail components, Analog relay replacement, antenna cabling replacement, related Hull, Mechanical & Electrical (H,M&E) sail components and associated Integrated Logistics Support (ILS), and technical data.

ML017 - AN/BLQ-10 Field Change Kits
Procures AN/BLQ-10 subsystem Product Improvement Field Change Kits including: emergent Engineering Changes, SWFTS associated Integrated Logistics Support (ILS) and technical data. Provides AN/BLQ-10 intermediate level repairs, changes and maintenance activities and associated materials that improve the overall Reliability, Maintainability and Availability of fielded EW systems. Procures sustainment efforts for AN/BLQ-10 active, deploying fleet assets. Provides funding for Submarine Launched Devices (SLD) to reduce risk of counter-detection for operating submarines. Provides funding for procurement of MMM Payload to support submarine Fleet required improved Unmanned Aerial System (UAS) communications and advanced EW capabilities.

Exhibit P-40, Budget Line Item Justification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 01: Ships Support Equipment / BSA 9: Other Shipboard Equipment	**P-1 Line Item Number / Title:** 0840 / Sub Periscope, Imaging and Supt Equip Prog	
ID Code (A=Service Ready, B=Not Service Ready): A	**Program Elements for Code B Items:** N/A	**Other Related Program Elements:** N/A
Line Item MDAP/MAIS Code: N/A		

ML018 - VIRGINIA Class EW Modernization
Funds procure EW Modernization upgrades to the VIRGINIA Class AN/BLQ-10 EW system including Photonics ES Product Improvement (PEPI-3), PATRIOT Phase B RADAR.

ML020 - AN/BLQ-10
Funds procure AN/BLQ-10 Non-Recurring Engineering (NRE) and modernization kits for EW Modernization upgrades on all SSN/SSGN platforms. The AN/BLQ-10 efforts augment the current AN/BLQ-10 system for the rapid fielding of required capabilities to address changing and emerging threats in the Radio Frequency (RF) spectrum. This serves as a building block to future AN/BLQ-10 upgrades. In addition, each procurement aligns with hardware builds supporting platform level SWFTS. Beginning with TI-20, all AN/BLQ-10 costs are captured in ML012 due to the significant changes associated with the AN/BLQ-10B upgrade.

ML021 - Submarine RADAR
Submarine RADAR funds provide AN/BPS-15/16/17 Reliability, Maintainability and Availability (RMA), Field Change Kits and material procurements for obsolescence mitigation. Provides in-service and systems engineering, logistics, material, configuration management, quality assurance, installation and test certification support only for the Submarine Surface Navigation (AN/BPS-15/16/17) RADAR. Provides for interface with the conjoined Voyage Management System (VMS) and Electronic Chart & Display Information System - Navy (ECDIS-N). Funding addresses sustainability of PATRIOT Phase B RADAR including repair/refurbishment, in-service engineering, and modernization.

ML830 - EW Production Engineering
Production Engineering funds provide the following functions: value engineering; review and evaluation of production design data and documentation; production configuration control; maintenance engineering efforts designed and incorporated into the production manufacturing process, and other related engineering functions that are integral to all production EW Systems and upgrades.

ML927 - Fleet Modernization Program Installs
Provides for the Installation of Equipment including Fleet Modernization Program Installations for shipboard systems.

ML4M7 - Non-Fleet Modernization Program Installs
Provides for the Installation of non-Fleet Modernization Program Equipment.

Exhibit P-40, Budget Line Item Justification: PB 2021 Navy	Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 01: Ships Support Equipment / BSA 9: Other Shipboard Equipment	**P-1 Line Item Number / Title:** 0840 / Sub Periscope, Imaging and Supt Equip Prog

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

Line Item MDAP/MAIS Code: N/A

Exhibits Schedule					Prior Years	FY 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	SUBMARINE PERISCOPES & IMAGING EQUIPMENT				- / 31.401	- / 15.269	- / 16.502	- / 16.431	- / -	- / 16.431
P-40a	SUBMARINE SUPPORT EQUIPMENT PROGRAM				- / 10.570	- / 13.793	- / 41.757	- / 45.489	- / -	- / 45.489
P-3a	1 / PL010 - IMAGING ISIS TECHNICAL INSERTION (SWFTS) (ORDALT)				- / 100.186	- / 38.744	- / 22.398	- / 46.067	- / 0.000	- / 46.067
P-3a	2 / PL011 IMAGING UPGRADES: TYPE 8/TYPE 18 (ORDALT)				- / 0.745	- / 0.384	- / 0.391	- / 0.399	- / 0.000	- / 0.399
P-3a	3 / PL025 LOW PROFILE IMAGING MAST (SHIPALT)				- / 5.994	- / 18.047	- / 9.175	- / 9.359	- / 0.000	- / 9.359
P-3a	4 / ML007 CADF (SHIPALT)				- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000
P-3a	5 / ML008 MMM ANTENNA (SHIPALT)				- / 1.159	- / 8.852	- / 0.000	- / 2.506	- / 0.000	- / 2.506
P-3a	6 / ML009- EWTU (formerly named EWTT) (OPALT)				- / 0.000	- / 0.000	- / 10.534	- / 11.500	- / 0.000	- / 11.500
P-3a	7 / ML010 TECHNICAL INSERTION (SWFTS) (SHIPALT)				- / 47.273	- / 29.798	- / 17.942	- / 3.290	- / 0.000	- / 3.290
P-3a	8 / ML012 - AN/BLQ-10B TECHNICAL INSERTION (SWFTS) (SHIPALT)				- / 0.000	- / 0.000	- / 6.042	- / 51.356	- / 0.000	- / 51.356
P-3a	9 / ML017 AN/BLQ-10 FIELD CHANGE KITS (ORDALT)				- / 24.067	- / 23.092	- / 14.933	- / 16.687	- / 0.000	- / 16.687
P-3a	10 / ML018 VA CLASS ES MODERNIZATION PATRIOT (SHIPALT)				- / 5.681	- / 0.360	- / 0.367	- / 0.000	- / 0.000	- / 0.000
P-3a	11 / ML020 AN/BLQ-10 (SWFTS) (SHIPALT)				- / 76.891	- / 30.954	- / 20.762	- / 1.722	- / 0.000	- / 1.722
P-40	**Total Gross/Weapon System Cost**				**- / 303.967**	**- / 179.293**	**- / 160.803**	**- / 204.806**	**- / 0.000**	**- / 204.806**

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	SUBMARINE PERISCOPES & IMAGING EQUIPMENT				- / -	- / -	- / -	- / -	- / -	- / -
P-40a	SUBMARINE SUPPORT EQUIPMENT PROGRAM				- / -	- / -	- / -	- / -	- / -	- / -
P-3a	1 / PL010 - IMAGING ISIS TECHNICAL INSERTION (SWFTS) (ORDALT)				- / 40.851	- / 29.554	- / 44.082	- / 52.693	Continuing	Continuing
P-3a	2 / PL011 IMAGING UPGRADES: TYPE 8/TYPE 18 (ORDALT)				- / 0.407	- / 0.416	- / 0.425	- / 0.434	Continuing	Continuing
P-3a	3 / PL025 LOW PROFILE IMAGING MAST (SHIPALT)				- / 38.382	- / 67.172	- / 43.576	- / 54.789	Continuing	Continuing
P-3a	4 / ML007 CADF (SHIPALT)				- / 14.352	- / 25.900	- / 27.450	- / 25.458	Continuing	Continuing
P-3a	5 / ML008 MMM ANTENNA (SHIPALT)				- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 12.517
P-3a	6 / ML009- EWTU (formerly named EWTT) (OPALT)				- / 11.730	- / 11.966	- / 0.804	- / 0.000	- / 0.000	- / 46.534
P-3a	7 / ML010 TECHNICAL INSERTION (SWFTS) (SHIPALT)				- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 98.303
P-3a	8 / ML012 - AN/BLQ-10B TECHNICAL INSERTION (SWFTS) (SHIPALT)				- / 79.604	- / 85.470	- / 87.180	- / 82.259	- / 20.398	- / 412.309
P-3a	9 / ML017 AN/BLQ-10 FIELD CHANGE KITS (ORDALT)				- / 18.765	- / 22.487	- / 23.197	- / 23.660	Continuing	Continuing
P-3a	10 / ML018 VA CLASS ES MODERNIZATION PATRIOT (SHIPALT)				- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 6.408
P-3a	11 / ML020 AN/BLQ-10 (SWFTS) (SHIPALT)				- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 130.329

Exhibit P-40, Budget Line Item Justification: PB 2021 Navy	Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 01: Ships Support Equipment / BSA 9: Other Shipboard Equipment	**P-1 Line Item Number / Title:** 0840 / Sub Periscope, Imaging and Supt Equip Prog

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

Line Item MDAP/MAIS Code: N/A

Exhibits Schedule					FY 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-40	Total Gross/Weapon System Cost				- / 269.548	- / 308.122	- / 290.661	- / 302.296	Continuing	Continuing

*Title represents 1) the Number / Title for Items; 2) the Number / Title [DODIC] for Ammunition; and/or 3) the Number / Title (Modification Type) for Modifications. Title represents the P-40a Title when only the P-40a Summary/Total is shown.

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

Justification:
IMAGING - FY 2021 procures TI-20 on (8) VA Class and TI-18 on (1) SSBN Class submarine. Budget installs SWFTS modernizations on (1) VA Class, (5) Los Angeles Class, (2) SSGN Class, and (3) SSBN Class submarines.

EW/RADAR - FY 2021 continues EW's shift onto the SWFTS model. The Electronic Warfare Tactical TEMPALT (EWTT) is renamed Electronic Warfare Tactical Upgrade (EWTU) to reflect continuing system support for Communications Acquisition and Direction Finding (CADF) capability. Submarine RADAR efforts increase obligation to address obsolescence issues faced by the BPS RADAR system to ensure reliable safety of ship navigation and PATRIOT RADAR system to maintain tactical awareness in littoral operations. Increase procurement of Multifunction Modular Mast (MMM) Payload to support submarine Fleet required improved Unmanned Aerial System (UAS) capability. FY 2021 also procures TI-20 on (8) VA Class submarines, including EWTU on (2) VA Class submarines.

FY 2020 shifted EW to the SWFTS model based on PMS401 and PMS425 with Industry as the Prime Integrator following the offramp of the Next Generation Architecture program. This introduced ML012 as a new cost code to provide greater visibility into planned procurement costs in alignment with SWFTS and differentiated the cost of the digital upgrades planned for TI-20 and beyond. The cost of TI-20 was updated to reflect the difference between the previous plan of government led procurement and integration to industry as a prime design and integration agent. Accordingly, NRE costs were broken out from shipset costs in alignment with the other SWFTS subsystems (SSN Acoustic Equipment, SSN Combat Control Systems, and Imaging Systems) who use this model. Additionally, ML009 was established to procure the Electronic Warfare Tactical Upgrade (EWTU) (formerly named EWTT), which fills the gap in Communications Acquisition and Direction Finding (CADF) capability in VA BLK IV necessary to meet Capability Development Document (CDD) requirements.

Compared to the FY 2020 President's Budget request, the FY 2021 President's Budget request includes a cut to Submarine Launched Device (SLD) and decrease to MMM Payload procurements to fund other higher priority Navy requirements.

Exhibit P-40a, Budget Item Justification For Aggregated Items: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0840 / Sub Periscope, Imaging and Supt Equip Prog	**Aggregated Items Title:** SUBMARINE PERISCOPES & IMAGING EQUIPMENT

Item Number / Title [DODIC]	ID CD	MDAP/ MAIS Code	Prior Years			FY 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) PL012 PERISCOPE SPECIAL SUPPORT EQIPMENT																				
1.1) SPECIAL SUPPORT EQUIPMENT	A		-	-	1.102	-	-	0.568	-	-	0.579	-	-	0.591	-	-	-	-	-	0.591
Subtotal: 1) PL012 PERISCOPE SPECIAL SUPPORT EQIPMENT			**-**	**-**	***1.102***	**-**	**-**	***0.568***	**-**	**-**	***0.579***	**-**	**-**	***0.591***	**-**	**-**	**-**	**-**	**-**	***0.591***
2) PL015 PERISCOPE INTERIM CONTRACTOR SUPPORT																				
2.1) INTERIM CONTRACTOR SUPPORT	A		-	-	22.571	-	-	10.722	-	-	11.864	-	-	11.700	-	-	-	-	-	11.700
Subtotal: 2) PL015 PERISCOPE INTERIM CONTRACTOR SUPPORT			**-**	**-**	***22.571***	**-**	**-**	***10.722***	**-**	**-**	***11.864***	**-**	**-**	***11.700***	**-**	**-**	**-**	**-**	**-**	***11.700***
3) PL016 PERISCOPE TRAINING																				
3.1) TRAINING	A		-	-	0.367	-	-	0.189	-	-	0.193	-	-	0.197	-	-	-	-	-	0.197
Subtotal: 3) PL016 PERISCOPE TRAINING			**-**	**-**	***0.367***	**-**	**-**	***0.189***	**-**	**-**	***0.193***	**-**	**-**	***0.197***	**-**	**-**	**-**	**-**	**-**	***0.197***
4) PL830 PERISCOPE PRODUCTION ENGINEERING																				
4.1) PRODUCTION ENGINEERING	A		-	-	7.361	-	-	3.790	-	-	3.866	-	-	3.943	-	-	-	-	-	3.943
Subtotal: 4) PL830 PERISCOPE PRODUCTION ENGINEERING			**-**	**-**	***7.361***	**-**	**-**	***3.790***	**-**	**-**	***3.866***	**-**	**-**	***3.943***	**-**	**-**	**-**	**-**	**-**	***3.943***
Total			**-**	**-**	**31.401**	**-**	**-**	**15.269**	**-**	**-**	**16.502**	**-**	**-**	**16.431**	**-**	**-**	**-**	**-**	**-**	**16.431**

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

Exhibit P-40a, Budget Item Justification For Aggregated Items: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0840 / Sub Periscope, Imaging and Supt Equip Prog	**Aggregated Items Title:** SUBMARINE SUPPORT EQUIPMENT PROGRAM

Item Number / Title [DODIC]	ID CD	MDAP/ MAIS Code	Prior Years			FY 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) ML003 SSEP SPECIAL SUPPORT EQUIPMENT																				
1.1) SPECIAL SUPPORT EQUIPMENT	A		-	-	0.664	-	-	0.342	-	-	0.349	-	-	0.356	-	-	-	-	-	0.356
Subtotal: 1) ML003 SSEP SPECIAL SUPPORT EQUIPMENT			**-**	**-**	***0.664***	**-**	**-**	***0.342***	**-**	**-**	***0.349***	**-**	**-**	***0.356***	**-**	**-**	**-**	**-**	**-**	***0.356***
2) ML012 SWFTS SUPPORTABILITY AND INTEGRATION (1)																				
2.1) COTS TECH REFRESH (2)	A		-	-	-	-	-	-	-	-	23.479	-	-	23.438	-	-	-	-	-	23.438
2.2) CYBER AND TRAINING SUPPORT (3)	A		-	-	-	-	-	-	-	-	8.737	-	-	8.912	-	-	-	-	-	8.912
Subtotal: 2) ML012 SWFTS SUPPORTABILITY AND INTEGRATION			**-**	**-**	***0.000***	**-**	**-**	**-**	**-**	**-**	***32.216***	**-**	**-**	***32.350***	**-**	**-**	**-**	**-**	**-**	***32.350***
3) ML014 LEGACY SUBMARINE ELECTRONIC SURVEILLANCE MEASURES (SubESM)																				
3.1) LEGACY SubESM	A		-	-	0.880	-	-	0.360	-	-	0.340	-	-	0.333	-	-	-	-	-	0.333
Subtotal: 3) ML014 LEGACY SUBMARINE ELECTRONIC SURVEILLANCE MEASURES (SubESM)			**-**	**-**	***0.880***	**-**	**-**	***0.360***	**-**	**-**	***0.340***	**-**	**-**	***0.333***	**-**	**-**	**-**	**-**	**-**	***0.333***
4) ML021 SUBMARINE RADARs																				
4.1) SUBMARINE RADARs (4)	A		-	-	2.276	-	-	9.616	-	-	5.307	-	-	8.834	-	-	-	-	-	8.834
Subtotal: 4) ML021 SUBMARINE RADARs			**-**	**-**	***2.276***	**-**	**-**	***9.616***	**-**	**-**	***5.307***	**-**	**-**	***8.834***	**-**	**-**	**-**	**-**	**-**	***8.834***
5) ML830 PRODUCTION ENGINEERING																				
5.1) PRODUCTION ENGINEERING	A		-	-	6.750	-	-	3.475	-	-	3.545	-	-	3.616	-	-	-	-	-	3.616
Subtotal: 5) ML830 PRODUCTION ENGINEERING			**-**	**-**	***6.750***	**-**	**-**	***3.475***	**-**	**-**	***3.545***	**-**	**-**	***3.616***	**-**	**-**	**-**	**-**	**-**	***3.616***
Total			**-**	**-**	**10.570**	**-**	**-**	**13.793**	**-**	**-**	**41.757**	**-**	**-**	**45.489**	**-**	**-**	**-**	**-**	**-**	**45.489**

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

Footnotes:

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

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

Exhibit P-40a, Budget Item Justification For Aggregated Items: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0840 / Sub Periscope, Imaging and Supt Equip Prog	**Aggregated Items Title:** SUBMARINE SUPPORT EQUIPMENT PROGRAM

support non-recurring first article test efforts associated with changing COTS environment, as well as, procuring test equipment and simulators. Supports Government Furnished Information (GFI) management and coordination, monitoring of contractor cost, performance and schedule, cost analysis and estimation, contract specification development and monitoring of contract deliverables.

(3) Cyber and Training Support funding supports the Cyber requirements associated with procuring, engineering and sustaining EW systems. Also supports EW system training requirements to include curriculum development, training materials, and initial factory training pilot course conduct, Navy Training Plans, instructor advisory services, and hardware/software upgrades for EW trainers.

(4) FY21 increase driven by additional funding to procure hardware upgrades to standardizing all BPS-16 RADARs to single AN/BPS-16(V)5 RADAR System configuration to improve supportability and maintainability. This increase supports transition to Navy ECDIS, which will require redelivery of BPS RADAR management systems. This increase also addresses obsolescence and wholeness requirements faced by the BPS RADAR system to ensure reliable safety of ship navigation and PATRIOT RADAR system to maintain tactical awareness in littoral operations.

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0840 / Sub Periscope, Imaging and Supt Equip Prog	**Modification Number / Title:** 1 / PL010 - IMAGING ISIS TECHNICAL INSERTION (SWFTS)
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

Resource Summary	Prior Years	FY 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)*	100.186	38.744	22.398	46.067	0.000	46.067	40.851	29.554	44.082	52.693	Continuing	Continuing
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	100.186	38.744	22.398	46.067	0.000	46.067	40.851	29.554	44.082	52.693	Continuing	Continuing
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**100.186**	**38.744**	**22.398**	**46.067**	**0.000**	**46.067**	**40.851**	**29.554**	**44.082**	**52.693**	**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:

Provides for the modernization of Imaging systems and Technical Insertion kits to upgrade Integrated Submarine Imaging System (ISIS) on LOS ANGELES, SEAWOLF, VIRGINIA and OHIO Class SSGN platforms in support of Intelligence, Surveillance and Reconnaissance (ISR) requirements. Unit costs for ISIS kits procurement and installation costs vary based on platform as certain platforms have a limited set of outboard masts which reduces the complexity of the ISIS kits while other boats utilize technically advanced masts which require more sophisticated ISIS hardware and software kits to support them. VIRGINIA Tech Insertion unit costs reflect copper/fiber diploops and hull penetrators (Mast Compatibility) needed to field Low Profile Photonics Mast (LPPM), Type 20, and Type 24 Masts on these modernization hulls. VIRGINIA Initial ISIS Backfits also contain copper/fiber updates for those hulls. This line item aligns the periscope, imaging, and support equipment with the Submarine Warfare Federated Tactical System (SWFTS) interface with the Combat Control and Acoustic upgrades in budget line items 5420 and 2150.

Non-recurring engineering (NRE) is reduced due to transfer of NRE that has been funded in prior years under OPN BLI 0840 to RDTE Proj 0253. The portion that is transferred is more appropriate for RDTE investment and reflects the maturity profile of the NRE effort. This NRE funds the development of the Technical Insertion (TI) kit (software and hardware) baseline for each class of submarine.

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0840 / Sub Periscope, Imaging and Supt Equip Prog	**Modification Number / Title:** 1 / PL010 - IMAGING ISIS TECHNICAL INSERTION (SWFTS)
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	
Models of Systems Affected: ISIS TI	**Modification Type:** ORDALT	**Related RDT&E PEs:** 0604777N

Financial Plan	Prior Years	FY 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: PL010 - IMAGING ISIS TECHNICAL INSERTION (SWFTS)												
B Kits												
Recurring												
1.1.1) 688/21 TECHNICAL INSERTION (SWFTS) - NonOrganic	21 / 8.280	6 / 6.348	5 / 5.395	- / -	- / -	- / -	6 / 6.738	10 / 11.450	3 / 3.504	- / -	Continuing	Continuing
1.1.2) VA TECHNICAL INSERTION with MAST COMPATIBILITY (SWFTS) - NonOrganic (5)	10 / 49.237	- / -	- / -	3 / 17.349	- / -	3 / 17.349	2 / 11.798	- / -	1 / 6.137	1 / 6.260	Continuing	Continuing
1.1.3) VA TECHNICAL INSERTION without MAST COMPATIBILITY (SWFTS) - NonOrganic (6)	- / -	- / -	1 / 3.449	5 / 17.590	- / -	5 / 17.590	2 / 7.176	- / -	6 / 22.398	8 / 30.464	Continuing	Continuing
1.1.4) SSGN TECHNICAL INSERTION (SWFTS) - NonOrganic	- / -	2 / 2.776	2 / 2.832	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	4 / 5.608
1.1.5) SSBN BACKFIT (SWFTS) - NonOrganic	8 / 1.171	2 / 0.402	3 / 0.615	1 / 0.209	- / -	1 / 0.209	4 / 0.852	4 / 0.868	2 / 0.442	3 / 0.675	Continuing	Continuing
1.1.6) ISIS CCM - Organic (7)	- / -	- / -	- / -	- / -	- / -	- / -	- / -	1 / 3.660	- / -	- / -	- / -	1 / 3.660
Subtotal: Recurring	*- / 58.688*	*- / 9.526*	*- / 12.291*	*- / 35.148*	*- / -*	*- / 35.148*	*- / 26.564*	*- / 15.978*	*- / 32.481*	*- / 37.399*	*Continuing*	*Continuing*
Subtotal: PL010 - IMAGING ISIS TECHNICAL INSERTION (SWFTS)	*39 / 58.688*	*10 / 9.526*	*11 / 12.291*	*9 / 35.148*	*- / -*	*9 / 35.148*	*14 / 26.564*	*15 / 15.978*	*12 / 32.481*	*12 / 37.399*	*Continuing*	*Continuing*
Subtotal: Procurement, All Modification Items	*- / 58.688*	*- / 9.526*	*- / 12.291*	*- / 35.148*	*- / -*	*- / 35.148*	*- / 26.564*	*- / 15.978*	*- / 32.481*	*- / 37.399*	*Continuing*	*Continuing*
Support *(All Modification Items)*												
2.1) ISIS TECHNICAL INSERTION NRE (8)	- / 34.102	- / 22.197	- / 6.923	- / 7.061	- / -	- / 7.061	- / 7.202	- / 7.346	- / 7.493	- / 7.643	Continuing	Continuing
Subtotal: Support	*- / 34.102*	*- / 22.197*	*- / 6.923*	*- / 7.061*	*- / -*	*- / 7.061*	*- / 7.202*	*- / 7.346*	*- / 7.493*	*- / 7.643*	*Continuing*	*Continuing*
Installation												
Modification Item 1 of 1: PL010 - IMAGING ISIS TECHNICAL INSERTION (SWFTS)	- / 7.396	- / 7.021	- / 3.184	- / 3.858	- / 0.000	- / 3.858	- / 7.085	- / 6.230	- / 4.108	- / 7.651	- / 8.635	- / 55.168
Subtotal: Installation	*- / 7.396*	*- / 7.021*	*- / 3.184*	*- / 3.858*	*- / -*	*- / 3.858*	*- / 7.085*	*- / 6.230*	*- / 4.108*	*- / 7.651*	*- / 8.635*	*- / 55.168*
Total												
Total Cost (Procurement + Support + Installation)	**100.186**	**38.744**	**22.398**	**46.067**	**0.000**	**46.067**	**40.851**	**29.554**	**44.082**	**52.693**	**Continuing**	**Continuing**

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0840 / Sub Periscope, Imaging and Supt Equip Prog	**Modification Number / Title:** 1 / PL010 - IMAGING ISIS TECHNICAL INSERTION (SWFTS)

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

Modification Item 1 of 1: PL010 - IMAGING ISIS TECHNICAL INSERTION (SWFTS)

Manufacturer Information

Manufacturer Name: Lockheed Martin Corporation | Manufacturer Location: Manassas, VA

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	Mar 2020	Mar 2021	Mar 2022	Mar 2023	Mar 2024	Mar 2025
Delivery Dates	Mar 2020	Mar 2021	Mar 2022	Mar 2023	Mar 2024	Mar 2025	Mar 2026

Installation Information

Method of Implementation: AIT:: Installation Name: 688/21 TECHNICAL INSERTION (SWFTS)

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	14 / 2.486	7 / 2.254	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	21 / 4.740
FY 2019	- / -	- / -	6 / 1.968	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	6 / 1.968
FY 2020	- / -	- / -	- / -	5 / 1.675	0 / 0.000	5 / 1.675	- / -	- / -	- / -	- / -	0 / 0.000	5 / 1.675
FY 2021	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2022	- / -	- / -	- / -	- / -	- / -	- / -	- / -	6 / 2.094	- / -	- / -	0 / 0.000	6 / 2.094
FY 2023	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	10 / 3.560	- / -	0 / 0.000	10 / 3.560
FY 2024	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	3 / 1.089	0 / 0.000	3 / 1.089
FY 2025	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
To Complete	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
Total	14 / 2.486	7 / 2.254	6 / 1.968	5 / 1.675	0 / 0.000	5 / 1.675	- / -	6 / 2.094	10 / 3.560	3 / 1.089	0 / 0.000	51 / 15.126

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	14	-	3	2	2	-	2	2	2	-	2	2	1	-	-	-	-	-	2	2	2	-	4	3	3	-	1	1	1	-	51
Out	14	-	3	2	2	-	2	2	2	-	2	2	1	-	-	-	-	-	2	2	2	-	4	3	3	-	1	1	1	-	51

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0840 / Sub Periscope, Imaging and Supt Equip Prog	**Modification Number / Title:** 1 / PL010 - IMAGING ISIS TECHNICAL INSERTION (SWFTS)

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

Modification Item 1 of 1: PL010 - IMAGING ISIS TECHNICAL INSERTION (SWFTS)

Installation Information

Method of Implementation: AIT:: Installation Name: VA TECHNICAL INSERTION with MAST COMPATIBILITY (SWFTS)

Installation Cost	Prior Years	FY 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 / 4.313	5 / 4.398	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	10 / 8.711
FY 2019	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2020	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2021	- / -	- / -	- / -	- / -	- / -	- / -	3 / 2.799	- / -	- / -	- / -	0 / 0.000	3 / 2.799
FY 2022	- / -	- / -	- / -	- / -	- / -	- / -	- / -	2 / 1.904	- / -	- / -	0 / 0.000	2 / 1.904
FY 2023	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2024	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	1 / 0.990	0 / 0.000	1 / 0.990
FY 2025	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	1 / 1.010	1 / 1.010
To Complete	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
Total	5 / 4.313	5 / 4.398	- / -	- / -	- / -	- / -	3 / 2.799	2 / 1.904	- / -	1 / 0.990	1 / 1.010	17 / 15.414

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	5	-	2	2	1	-	-	-	-	-	-	-	-	-	1	1	1	-	1	1	-	-	-	-	-	-	1	-	-	1	17
Out	5	-	2	2	1	-	-	-	-	-	-	-	-	-	1	1	1	-	1	1	-	-	-	-	-	-	1	-	-	1	17

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

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 / 0.815	0 / 0.000	1 / 0.815	- / -	- / -	- / -	- / -	0 / 0.000	1 / 0.815
FY 2021	- / -	- / -	- / -	- / -	- / -	- / -	5 / 4.155	- / -	- / -	- / -	0 / 0.000	5 / 4.155
FY 2022	- / -	- / -	- / -	- / -	- / -	- / -	- / -	2 / 1.696	- / -	- / -	0 / 0.000	2 / 1.696
FY 2023	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2024	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	6 / 5.292	0 / 0.000	6 / 5.292
FY 2025	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	8 / 7.197	8 / 7.197

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0840 / Sub Periscope, Imaging and Supt Equip Prog	**Modification Number / Title:** 1 / PL010 - IMAGING ISIS TECHNICAL INSERTION (SWFTS)

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

Modification Item 1 of 1: PL010 - IMAGING ISIS TECHNICAL INSERTION (SWFTS)

Installation Information

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

Installation Cost	Prior Years	FY 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)*
To Complete	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
Total	- / -	- / -	- / -	1 / 0.815	0 / 0.000	1 / 0.815	5 / 4.155	2 / 1.696	- / -	6 / 5.292	8 / 7.197	22 / 19.155

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	-	-	-	2	2	1	-	1	1	-	-	-	-	-	-	2	2	2	8	22
Out	-	-	-	-	-	-	-	-	-	-	1	-	-	-	2	2	1	-	1	1	-	-	-	-	-	-	2	2	2	8	22

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

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	- / -	- / -	2 / 0.966	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	2 / 0.966
FY 2020	- / -	- / -	- / -	2 / 0.984	0 / 0.000	2 / 0.984	- / -	- / -	- / -	- / -	0 / 0.000	2 / 0.984
FY 2021	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2022	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2023	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2024	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2025	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
To Complete	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
Total	- / -	- / -	2 / 0.966	2 / 0.984	0 / 0.000	2 / 0.984	- / -	- / -	- / -	- / -	0 / 0.000	4 / 1.950

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0840 / Sub Periscope, Imaging and Supt Equip Prog	**Modification Number / Title:** 1 / PL010 - IMAGING ISIS TECHNICAL INSERTION (SWFTS)

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

Modification Item 1 of 1: PL010 - IMAGING ISIS TECHNICAL INSERTION (SWFTS)

Installation Information

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

Installation Schedule

		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	-	-	-	-	-	-	1	1	-	-	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4
Out	-	-	-	-	-	-	1	1	-	-	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4

Method of Implementation: AIT:: Installation Name: SSBN BACKFIT (SWFTS)

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 / 0.597	3 / 0.369	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	8 / 0.966
FY 2019	- / -	- / -	2 / 0.250	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	2 / 0.250
FY 2020	- / -	- / -	- / -	3 / 0.384	0 / 0.000	3 / 0.384	- / -	- / -	- / -	- / -	0 / 0.000	3 / 0.384
FY 2021	- / -	- / -	- / -	- / -	- / -	- / -	1 / 0.131	- / -	- / -	- / -	0 / 0.000	1 / 0.131
FY 2022	- / -	- / -	- / -	- / -	- / -	- / -	- / -	4 / 0.536	- / -	- / -	0 / 0.000	4 / 0.536
FY 2023	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	4 / 0.548	- / -	0 / 0.000	4 / 0.548
FY 2024	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	2 / 0.280	0 / 0.000	2 / 0.280
FY 2025	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	3 / 0.428	3 / 0.428
To Complete	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
Total	5 / 0.597	3 / 0.369	2 / 0.250	3 / 0.384	0 / 0.000	3 / 0.384	1 / 0.131	4 / 0.536	4 / 0.548	2 / 0.280	3 / 0.428	27 / 3.523

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	5	-	1	1	1	-	1	1	-	-	1	1	1	-	1	-	-	-	2	1	1	-	2	1	1	-	1	1	-	3	27
Out	5	-	1	1	1	-	1	1	-	-	1	1	1	-	1	-	-	-	2	1	1	-	2	1	1	-	1	1	-	3	27

Method of Implementation (Organic): ISIS CCM - Not Installed **Installation Quantity:** 1

Footnotes:

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0840 / Sub Periscope, Imaging and Supt Equip Prog	**Modification Number / Title:** 1 / PL010 - IMAGING ISIS TECHNICAL INSERTION (SWFTS)
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

(5) FY21 reflects higher unit cost for TI-20 due to additional hardware to integrate with the Type 20 Mast. Mast Compatibility documented in 1.1.2 includes funding for the procurement of the Common Electrical Hull Penetrator and Common Dip Loop which is required for TI-16 and beyond installations. The Common Electrical Hull Penetrator and Common Dip Loop provides the required interface for current photonics masts, including the LPPM and supports all future mast types. FY19 Below Threshold Reprogramming (BTR) funded the installs for the two additional VIRGINIA Class SWFTS shipsets procured in FY18 by congressional direction.

(6) VA Technical Insertion without Mast Compatibility, documented in 1.1.3 procures hardware required for TI installations on platforms which have already received the Common Electrical Hull Penetrator and Common Dip Loop (see 1.1.2 footnote 4) during a prior modernization or during new construction.

(7) Configuration Control Model (CCM) is a unique laboratory version of the ISIS kit that is used by support staff. It allows technical experts to replicate issues identified in fielded systems, test resolutions to issues identified by fleet representatives, and conduct required testing for cyber security certification.

(8) TI/APB NRE funding levels are adjusted annually in response to the change in the complexity of each new capability being incorporated into the inboard imaging software.

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0840 / Sub Periscope, Imaging and Supt Equip Prog	**Modification Number / Title:** 2 / PL011 IMAGING UPGRADES: TYPE 8/TYPE 18
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

Resource Summary	Prior Years	FY 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)*	0.745	0.384	0.391	0.399	0.000	0.399	0.407	0.416	0.425	0.434	Continuing	Continuing
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	0.745	0.384	0.391	0.399	0.000	0.399	0.407	0.416	0.425	0.434	Continuing	Continuing
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**0.745**	**0.384**	**0.391**	**0.399**	**0.000**	**0.399**	**0.407**	**0.416**	**0.425**	**0.434**	**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:
Provides obsolescence related upgrades for Submarine Periscopes. One (1) set is procured in each fiscal year that includes variable quantities and types based on Fleet-endorsed requirements.

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0840 / Sub Periscope, Imaging and Supt Equip Prog	**Modification Number / Title:** 2 / PL011 IMAGING UPGRADES: TYPE 8/TYPE 18
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	
Models of Systems Affected: TYPE 8/TYPE 18	**Modification Type:** ORDALT	**Related RDT&E PEs:** 0604777N

Financial Plan	Prior Years	FY 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: PL011 IMAGING UPGRADES: TYPE 8/TYPE 18												
B Kits												
Recurring												
1.1.1) TYPE 8/TYPE 18 - NonOrganic	69 / 0.507	1 / 0.261	1 / 0.266	1 / 0.271	- / -	1 / 0.271	1 / 0.276	1 / 0.282	1 / 0.288	1 / 0.294	Continuing	Continuing
Subtotal: Recurring	*- / 0.507*	*- / 0.261*	*- / 0.266*	*- / 0.271*	*- / -*	*- / 0.271*	*- / 0.276*	*- / 0.282*	*- / 0.288*	*- / 0.294*	*Continuing*	*Continuing*
Subtotal: PL011 IMAGING UPGRADES: TYPE 8/TYPE 18	*69 / 0.507*	*1 / 0.261*	*1 / 0.266*	*1 / 0.271*	*- / -*	*1 / 0.271*	*1 / 0.276*	*1 / 0.282*	*1 / 0.288*	*1 / 0.294*	*Continuing*	*Continuing*
Subtotal: Procurement, All Modification Items	*- / 0.507*	*- / 0.261*	*- / 0.266*	*- / 0.271*	*- / -*	*- / 0.271*	*- / 0.276*	*- / 0.282*	*- / 0.288*	*- / 0.294*	*Continuing*	*Continuing*
Installation												
Modification Item 1 of 1: PL011 IMAGING UPGRADES: TYPE 8/TYPE 18	- / 0.238	- / 0.123	- / 0.125	- / 0.128	- / 0.000	- / 0.128	- / 0.131	- / 0.134	- / 0.137	- / 0.140	- / 0.143	- / 1.299
Subtotal: Installation	*- / 0.238*	*- / 0.123*	*- / 0.125*	*- / 0.128*	*- / -*	*- / 0.128*	*- / 0.131*	*- / 0.134*	*- / 0.137*	*- / 0.140*	*- / 0.143*	*- / 1.299*
Total												
Total Cost (Procurement + Support + Installation)	**0.745**	**0.384**	**0.391**	**0.399**	**0.000**	**0.399**	**0.407**	**0.416**	**0.425**	**0.434**	**Continuing**	**Continuing**

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0840 / Sub Periscope, Imaging and Supt Equip Prog	**Modification Number / Title:** 2 / PL011 IMAGING UPGRADES: TYPE 8/TYPE 18

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

Modification Item 1 of 1: PL011 IMAGING UPGRADES: TYPE 8/TYPE 18

Manufacturer Information

Manufacturer Name: Multiple Vendors | Manufacturer Location: Various

Administrative Leadtime *(in Months)*: 6 | Production Leadtime *(in Months)*: 14

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

Installation Information

Method of Implementation: AIT:: Installation Name: TYPE 8/TYPE 18

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	68 / 0.238	1 / 0.123	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	69 / 0.361
FY 2019	- / -	- / -	1 / 0.125	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	1 / 0.125
FY 2020	- / -	- / -	- / -	1 / 0.128	0 / 0.000	1 / 0.128	- / -	- / -	- / -	- / -	0 / 0.000	1 / 0.128
FY 2021	- / -	- / -	- / -	- / -	- / -	- / -	1 / 0.131	- / -	- / -	- / -	0 / 0.000	1 / 0.131
FY 2022	- / -	- / -	- / -	- / -	- / -	- / -	- / -	1 / 0.134	- / -	- / -	0 / 0.000	1 / 0.134
FY 2023	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	1 / 0.137	- / -	0 / 0.000	1 / 0.137
FY 2024	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	1 / 0.140	0 / 0.000	1 / 0.140
FY 2025	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	1 / 0.143	1 / 0.143
To Complete	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
Total	68 / 0.238	1 / 0.123	1 / 0.125	1 / 0.128	0 / 0.000	1 / 0.128	1 / 0.131	1 / 0.134	1 / 0.137	1 / 0.140	1 / 0.143	76 / 1.299

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	68	-	-	1	-	-	-	1	-	-	-	1	-	-	-	1	-	-	-	1	-	-	-	1	-	-	-	1	-	1	76
Out	68	-	-	1	-	-	-	1	-	-	-	1	-	-	-	1	-	-	-	1	-	-	-	1	-	-	-	1	-	1	76

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0840 / Sub Periscope, Imaging and Supt Equip Prog	**Modification Number / Title:** 3 / PL025 LOW PROFILE IMAGING MAST
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

Resource Summary	Prior Years	FY 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)*	5.994	18.047	9.175	9.359	0.000	9.359	38.382	67.172	43.576	54.789	Continuing	Continuing
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	5.994	18.047	9.175	9.359	0.000	9.359	38.382	67.172	43.576	54.789	Continuing	Continuing
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**5.994**	**18.047**	**9.175**	**9.359**	**0.000**	**9.359**	**38.382**	**67.172**	**43.576**	**54.789**	**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:

VA Class advanced low profile imaging masts including Low Profile Photonics Mast (LPPM), Type 20, and Type 24 masts. Procures initial modernization assets as well as spare masts later in FYDP to maintain overall spares ratio for photonics masts as quantity of VA Class submarines increase. Maintaining sufficient quantities of installed and spare low profile imaging masts is essential to meet PACFLT requirements for all deploying VA class submarines in the Pacific to be equipped with low profile imaging masts. Similarly, there is a strong push from SUBLANT that all deploying units have a low profile mast which will significantly increase the number of required units. With development commencing in FY18 and procurement beginning in FY20, the Type 20 Mast will provide increased capability, reduced maintenance costs, and increased development flexibility for new mast sensors.

The higher unit cost for Type 20 Mast compared to LPPM provides increased capability, reduced maintenance costs, and increased development flexibility for new mast sensors.

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0840 / Sub Periscope, Imaging and Supt Equip Prog	**Modification Number / Title:** 3 / PL025 LOW PROFILE IMAGING MAST
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	
Models of Systems Affected: Photonics Mast	**Modification Type:** SHIPALT	**Related RDT&E PEs:** 0604777N

Financial Plan	Prior Years	FY 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: PL025 LOW PROFILE IMAGING MAST												
B Kits												
Recurring												
1.1.1) LPPM - NonOrganic	3 / 0.000	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	3 / 0.000
1.1.2) LPPM SPARE - Organic (9)	1 / 5.879	3 / 17.988	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	4 / 23.867
1.1.3) TYPE 20 MAST - NonOrganic (10)	- / -	- / -	1 / 9.175	1 / 9.359	- / -	1 / 9.359	4 / 38.184	5 / 48.685	- / -	- / -	- / -	11 / 105.403
1.1.4) TYPE 20 CCM - Organic (11)	- / -	- / -	- / -	- / -	- / -	- / -	- / -	1 / 9.736	- / -	- / -	- / -	1 / 9.736
1.1.5) MAST CAPABILITY ENHANCEMENT - NonOrganic	- / -	- / -	- / -	- / -	- / -	- / -	- / -	6 / 2.670	6 / 2.724	6 / 2.778	Continuing	Continuing
1.1.6) TYPE 24 MAST - NonOrganic	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	4 / 39.728	5 / 50.655	- / -	9 / 90.383
Subtotal: Recurring	*- / 5.879*	*- / 17.988*	*- / 9.175*	*- / 9.359*	*- / -*	*- / 9.359*	*- / 38.184*	*- / 61.091*	*- / 42.452*	*- / 53.433*	*Continuing*	*Continuing*
Subtotal: PL025 LOW PROFILE IMAGING MAST	*4 / 5.879*	*3 / 17.988*	*1 / 9.175*	*1 / 9.359*	*- / -*	*1 / 9.359*	*4 / 38.184*	*12 / 61.091*	*10 / 42.452*	*11 / 53.433*	*Continuing*	*Continuing*
Subtotal: Procurement, All Modification Items	*- / 5.879*	*- / 17.988*	*- / 9.175*	*- / 9.359*	*- / -*	*- / 9.359*	*- / 38.184*	*- / 61.091*	*- / 42.452*	*- / 53.433*	*Continuing*	*Continuing*
Support *(All Modification Items)*												
2.1) TYPE 20 I-Level Support	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / 5.879	- / -	- / -	- / -	- / 5.879
Subtotal: Support	*- / 0.000*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / 5.879*	*- / -*	*- / -*	*- / 0.000*	*- / 5.879*
Installation												
Modification Item 1 of 1: PL025 LOW PROFILE IMAGING MAST	- / 0.115	- / 0.059	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.198	- / 0.202	- / 1.124	- / 1.356	- / 2.261	- / 5.315
Subtotal: Installation	*- / 0.115*	*- / 0.059*	*- / -*	*- / -*	*- / -*	*- / -*	*- / 0.198*	*- / 0.202*	*- / 1.124*	*- / 1.356*	*- / 2.261*	*- / 5.315*
Total												
Total Cost (Procurement + Support + Installation)	**5.994**	**18.047**	**9.175**	**9.359**	**0.000**	**9.359**	**38.382**	**67.172**	**43.576**	**54.789**	**Continuing**	**Continuing**

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0840 / Sub Periscope, Imaging and Supt Equip Prog	**Modification Number / Title:** 3 / PL025 LOW PROFILE IMAGING MAST

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

Modification Item 1 of 1: PL025 LOW PROFILE IMAGING MAST

Manufacturer Information

Manufacturer Name: L3 KEO (LPPM) — Manufacturer Location: Northhampton, MA

Administrative Leadtime *(in Months)*: 6 — Production Leadtime *(in Months)*: 24

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

Manufacturer Name: TBD (TYPE 20 Competitive Procurement) — Manufacturer Location: TBD (Competitive Procurement)

Administrative Leadtime *(in Months)*: 6 — Production Leadtime *(in Months)*: 24

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

Manufacturer Name: TBD (TYPE 24 Competitive Procurement) — Manufacturer Location: TBD (Competitive Procurement)

Administrative Leadtime *(in Months)*: 6 — Production Leadtime *(in Months)*: 24

Dates	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025
Contract Dates						Mar 2024	Mar 2025
Delivery Dates						Mar 2026	Mar 2027

Manufacturer Name: TBD (MAST CAPABILITY ENHANCEMENT Competitive Procurement) — Manufacturer Location: TBD (Competitive Procurement)

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 2023	Mar 2024	Mar 2025
Delivery Dates					Mar 2024	Mar 2025	Mar 2026

Installation Information

Method of Implementation: AIT:: Installation Name: LPPM

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 / 0.115	1 / 0.059	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	3 / 0.174
FY 2019	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2020	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2021	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0840 / Sub Periscope, Imaging and Supt Equip Prog	**Modification Number / Title:** 3 / PL025 LOW PROFILE IMAGING MAST

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

Modification Item 1 of 1: PL025 LOW PROFILE IMAGING MAST

Installation Information

Method of Implementation: AIT:: Installation Name: LPPM

Installation 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)*
FY 2022	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2023	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2024	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2025	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
To Complete	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
Total	2 / 0.115	1 / 0.059	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	3 / 0.174

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	2	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3
Out	2	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3

Method of Implementation: AIT:: Installation Name: TYPE 20 MAST

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 / 0.198	- / -	- / -	- / -	0 / 0.000	1 / 0.198
FY 2021	- / -	- / -	- / -	- / -	- / -	- / -	- / -	1 / 0.202	- / -	- / -	0 / 0.000	1 / 0.202
FY 2022	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	4 / 0.824	- / -	0 / 0.000	4 / 0.824
FY 2023	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	5 / 1.050	0 / 0.000	5 / 1.050
FY 2024	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2025	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
To Complete	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
Total	- / -	- / -	- / -	- / -	- / -	- / -	1 / 0.198	1 / 0.202	4 / 0.824	5 / 1.050	0 / 0.000	11 / 2.274

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0840 / Sub Periscope, Imaging and Supt Equip Prog	**Modification Number / Title:** 3 / PL025 LOW PROFILE IMAGING MAST

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

Modification Item 1 of 1: PL025 LOW PROFILE IMAGING MAST

Installation Information

Method of Implementation: AIT:: Installation Name: TYPE 20 MAST

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	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	1	-	-	-	2	1	1	-	2	2	1	-	11
Out	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	1	-	-	-	2	1	1	-	2	2	1	-	11

Method of Implementation: [none specified]:: Installation Name: MAST CAPABILITY ENHANCEMENT

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	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	6 / 0.300	- / -	0 / 0.000	6 / 0.300
FY 2024	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	6 / 0.306	0 / 0.000	6 / 0.306
FY 2025	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	6 / 0.312	6 / 0.312
To Complete	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
Total	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	6 / 0.300	6 / 0.306	6 / 0.312	18 / 0.918

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	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	-	2	2	2	6	18
Out	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	-	2	2	2	6	18

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0840 / Sub Periscope, Imaging and Supt Equip Prog	**Modification Number / Title:** 3 / PL025 LOW PROFILE IMAGING MAST

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

Modification Item 1 of 1: PL025 LOW PROFILE IMAGING MAST

Installation Information

Method of Implementation: AIT:: Installation Name: TYPE 24 MAST

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	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	4 / 0.857	4 / 0.857
FY 2025	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	5 / 1.092	5 / 1.092
To Complete	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
Total	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	9 / 1.949	9 / 1.949

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	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	9	9
Out	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	9	9

Method of Implementation (Organic): LPPM SPARE **Installation Quantity:** 4

Method of Implementation (Organic): TYPE 20 CCM - Not Installed **Installation Quantity:** 1

Footnotes:

(9) Installations are funded by TYCOMs as necessary to meet operational requirements and are mission specific.

(10) The higher unit cost for Type 20 Mast compared to LPPM provides increased capability, reduced maintenance costs, and increased development flexibility for new mast sensors.

(11) Configuration Control Model (CCM) is a unique laboratory version of the Type 20 used by subject matter experts to support the integration of the Type 20 Mast with the ISIS hardware and software.

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0840 / Sub Periscope, Imaging and Supt Equip Prog	**Modification Number / Title:** 4 / ML007 CADF
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

Resource Summary	Prior Years	FY 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	0.000	0.000	0.000	0.000	14.352	25.900	27.450	25.458	Continuing	Continuing
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	0.000	0.000	0.000	0.000	0.000	0.000	14.352	25.900	27.450	25.458	Continuing	Continuing
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**14.352**	**25.900**	**27.450**	**25.458**	**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:

Provides advanced low-band Direction Finding (DF) capability compatible with the AN/BLQ-10 EW system. The ICADF system is experiencing increasing failures and obsolescence issues shown in Operation Availability and Reliability, Maintainability, Availability analyses. Beginning in FY22 with TI-22, the ICADF system will be replaced by a new CADF solution integrated with the AN/BLQ-10B system. Note, ML009 delivers CADF capability to VA Class BLK IV required in advance of Program of Record TI-22.

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0840 / Sub Periscope, Imaging and Supt Equip Prog	**Modification Number / Title:** 4 / ML007 CADF
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	
Models of Systems Affected: CADF	**Modification Type:** SHIPALT	**Related RDT&E PEs:** 0604503N

Financial Plan	Prior Years	FY 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: ML007 CADF												
B Kits												
Recurring												
1.1.1) CADF - NonOrganic	- / -	- / -	- / -	- / -	- / -	- / -	6 / 14.352	10 / 24.400	10 / 24.900	9 / 22.858	Continuing	Continuing
Subtotal: Recurring	*- / 0.000*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / 14.352*	*- / 24.400*	*- / 24.900*	*- / 22.858*	*Continuing*	*Continuing*
Subtotal: ML007 CADF	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*6 / 14.352*	*10 / 24.400*	*10 / 24.900*	*9 / 22.858*	*Continuing*	*Continuing*
Subtotal: Procurement, All Modification Items	*- / 0.000*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / 14.352*	*- / 24.400*	*- / 24.900*	*- / 22.858*	*Continuing*	*Continuing*
Installation												
Modification Item 1 of 1: ML007 CADF	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 1.500	- / 2.550	- / 2.600	- / 2.386	- / 9.036
Subtotal: Installation	*- / 0.000*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / 1.500*	*- / 2.550*	*- / 2.600*	*- / 2.386*	*- / 9.036*
Total												
Total Cost (Procurement + Support + Installation)	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**14.352**	**25.900**	**27.450**	**25.458**	**Continuing**	**Continuing**

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0840 / Sub Periscope, Imaging and Supt Equip Prog	**Modification Number / Title:** 4 / ML007 CADF
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

Modification Item 1 of 1: ML007 CADF

Manufacturer Information

Manufacturer Name: TBD (Competitive Procurement)	Manufacturer Location: TBD (Competitive Procurement)
Administrative Leadtime *(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 2022	Mar 2023	Mar 2024	Mar 2025
Delivery Dates				Mar 2023	Mar 2024	Mar 2025	Mar 2026

Installation Information

Method of Implementation: AIT:: Installation Name: CADF

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	- / -	- / -	- / -	- / -	- / -	- / -	- / -	6 / 1.500	- / -	- / -	0 / 0.000	6 / 1.500
FY 2023	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	10 / 2.550	- / -	0 / 0.000	10 / 2.550
FY 2024	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	10 / 2.600	0 / 0.000	10 / 2.600
FY 2025	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	9 / 2.386	9 / 2.386
To Complete	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
Total	- / -	- / -	- / -	- / -	- / -	- / -	- / -	6 / 1.500	10 / 2.550	10 / 2.600	9 / 2.386	35 / 9.036

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	2	-	4	3	3	-	4	3	3	9	35
Out	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	-	4	3	3	-	4	3	3	9	35

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0840 / Sub Periscope, Imaging and Supt Equip Prog	**Modification Number / Title:** 5 / ML008 MMM ANTENNA
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

Resource Summary	Prior Years	FY 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)*	1.159	8.852	0.000	2.506	0.000	2.506	0.000	0.000	0.000	0.000	0.000	12.517
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	1.159	8.852	0.000	2.506	0.000	2.506	0.000	0.000	0.000	0.000	0.000	12.517
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**1.159**	**8.852**	**0.000**	**2.506**	**0.000**	**2.506**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**12.517**
(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)*	-	-	-	-	-	-	-	-	-	-	-	-

Description:

Replaces obsolete AN/BRD-7 antenna equipment and Improved ESM Mast (IEM) with modern, open-architecture system compliant with Maritime Cryptologic Architecture.

The Multi-function Modular Mast (MMM) is the standard Communications Direction Finding mast on 688i and VA BLK III and following. It improves the submarine's capability to conduct the CADF mission, as well as, provides a configurable volume for payloads that can enhance submarine capabilities in areas of Unmanned Aerial Systems, Low Probability of Detection Communications, and advanced EW technology.

Exhibit P-3a, Individual Modification: PB 2021 Navy		**Date:** February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0840 / Sub Periscope, Imaging and Supt Equip Prog	**Modification Number / Title:** 5 / ML008 MMM ANTENNA
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	
Models of Systems Affected: MULTI FUNCTION MODULAR MAST	**Modification Type:** SHIPALT	**Related RDT&E PEs:** 0604503N

Financial Plan	Prior Years	FY 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: ML008 MMM ANTENNA												
B Kits												
Recurring												
1.1.1) Multi Functional Modular Mast - NonOrganic	18 / 0.000	2 / 8.852	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	20 / 8.852
Subtotal: Recurring	*- / 0.000*	*- / 8.852*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / 0.000*	*- / 8.852*
Subtotal: ML008 MMM ANTENNA	*18 / 0.000*	*2 / 8.852*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*20 / 8.852*
Subtotal: Procurement, All Modification Items	*- / 0.000*	*- / 8.852*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / 0.000*	*- / 8.852*
Installation												
Modification Item 1 of 1: ML008 MMM ANTENNA	- / 1.159	- / 0.000	- / 0.000	- / 2.506	- / 0.000	- / 2.506	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 3.665
Subtotal: Installation	*- / 1.159*	*- / -*	*- / -*	*- / 2.506*	*- / -*	*- / 2.506*	*- / -*	*- / -*	*- / -*	*- / -*	*- / 0.000*	*- / 3.665*
Total												
Total Cost (Procurement + Support + Installation)	**1.159**	**8.852**	**0.000**	**2.506**	**0.000**	**2.506**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**12.517**

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0840 / Sub Periscope, Imaging and Supt Equip Prog	**Modification Number / Title:** 5 / ML008 MMM ANTENNA

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

Modification Item 1 of 1: ML008 MMM ANTENNA

Manufacturer Information

Manufacturer Name: LOCKHEED MARTIN | Manufacturer Location: SYRACUSE, NY

Administrative Leadtime *(in Months)*: 6 | Production Leadtime *(in Months)*: 20

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

Installation Information

Method of Implementation: AIT:: Installation Name: Multi Functional Modular Mast

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	18 / 1.159	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	18 / 1.159
FY 2019	- / -	- / -	- / -	2 / 2.506	0 / 0.000	2 / 2.506	- / -	- / -	- / -	- / -	0 / 0.000	2 / 2.506
FY 2020	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2021	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2022	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2023	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2024	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2025	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
To Complete	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
Total	18 / 1.159	- / -	- / -	2 / 2.506	0 / 0.000	2 / 2.506	- / -	- / -	- / -	- / -	0 / 0.000	20 / 3.665

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	18	-	-	-	-	-	-	-	-	-	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	20
Out	18	-	-	-	-	-	-	-	-	-	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	20

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0840 / Sub Periscope, Imaging and Supt Equip Prog	**Modification Number / Title:** 6 / ML009- EWTU (formerly named EWTT)
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)*	0.000	0.000	10.534	11.500	0.000	11.500	11.730	11.966	0.804	0.000	0.000	46.534
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	0.000	0.000	10.534	11.500	0.000	11.500	11.730	11.966	0.804	0.000	0.000	46.534
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**0.000**	**0.000**	**10.534**	**11.500**	**0.000**	**11.500**	**11.730**	**11.966**	**0.804**	**0.000**	**0.000**	**46.534**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)												
Initial Spares *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Dollars)*	-	-	-	-	-	-	-	-	-	-	-	-

Description:

Procures and refurbishes the Electronic Warfare Tactical Upgrade (EWTU) filling the gap in Communications Acquisition and Direction Finding (CADF) capability on VA Class BLK IV submarines necessary to meet EW Capability Development Document (CDD) requirements. A gap was created when the CADF production line closed at the end of VA BLK III production and the subsequent cancellation of TI-16/18 NGA contracts, which would have replaced ICADF. This system is required to meet the EW CDD 907-97-16 dtd 27 September 2016. The EWTU is a Fleet directed system designed to accelerate newer technology integration and capabilities into VA Class submarines prior to AN/BLQ-10B upgrades. These systems are targeted for installation on BLK IV VA Class boats which will not be upgraded to AN/BLQ-10B until mid to late 2020's. Installation of the EWTU mitigates the BLK IV VA Class' exposure to rapidly changing threats by providing the ability to detect threat signals and other signals of interest.

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0840 / Sub Periscope, Imaging and Supt Equip Prog	**Modification Number / Title:** 6 / ML009- EWTU (formerly named EWTT)
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	
Models of Systems Affected: EWTU	**Modification Type:** OPALT	**Related RDT&E PEs:** 0604503N

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: ML009- EWTU (formerly named EWTT)												
A Kits												
Recurring												
1.1.1) EWTU - NonOrganic	- / -	- / -	2 / 10.534	2 / 10.744	- / -	2 / 10.744	2 / 10.958	2 / 11.178	- / -	- / -	- / -	8 / 43.414
Subtotal: Recurring	*- / 0.000*	*- / -*	*- / 10.534*	*- / 10.744*	*- / -*	*- / 10.744*	*- / 10.958*	*- / 11.178*	*- / -*	*- / -*	*- / 0.000*	*- / 43.414*
Subtotal: ML009- EWTU (formerly named EWTT)	*- / -*	*- / -*	*2 / 10.534*	*2 / 10.744*	*- / -*	*2 / 10.744*	*2 / 10.958*	*2 / 11.178*	*- / -*	*- / -*	*- / -*	*8 / 43.414*
Subtotal: Procurement, All Modification Items	*- / 0.000*	*- / -*	*- / 10.534*	*- / 10.744*	*- / -*	*- / 10.744*	*- / 10.958*	*- / 11.178*	*- / -*	*- / -*	*- / 0.000*	*- / 43.414*
Installation												
Modification Item 1 of 1: ML009- EWTU (formerly named EWTT)	- / 0.000	- / 0.000	- / 0.000	- / 0.756	- / 0.000	- / 0.756	- / 0.772	- / 0.788	- / 0.804	- / 0.000	- / 0.000	- / 3.120
Subtotal: Installation	*- / 0.000*	*- / -*	*- / -*	*- / 0.756*	*- / -*	*- / 0.756*	*- / 0.772*	*- / 0.788*	*- / 0.804*	*- / -*	*- / 0.000*	*- / 3.120*
Total												
Total Cost (Procurement + Support + Installation)	**0.000**	**0.000**	**10.534**	**11.500**	**0.000**	**11.500**	**11.730**	**11.966**	**0.804**	**0.000**	**0.000**	**46.534**

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0840 / Sub Periscope, Imaging and Supt Equip Prog	**Modification Number / Title:** 6 / ML009- EWTU (formerly named EWTT)

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

Modification Item 1 of 1: ML009- EWTU (formerly named EWTT)

Manufacturer Information

Manufacturer Name: Progeny Systems | Manufacturer Location: Manassas , VA

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 2020	Mar 2021	Mar 2022	Mar 2023		
Delivery Dates		Mar 2021	Mar 2022	Mar 2023	Mar 2024		

Installation Information

Method of Implementation: OPALT:: Installation Name: EWTU

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	- / -	- / -	- / -	2 / 0.756	0 / 0.000	2 / 0.756	- / -	- / -	- / -	- / -	0 / 0.000	2 / 0.756
FY 2021	- / -	- / -	- / -	- / -	- / -	- / -	2 / 0.772	- / -	- / -	- / -	0 / 0.000	2 / 0.772
FY 2022	- / -	- / -	- / -	- / -	- / -	- / -	- / -	2 / 0.788	- / -	- / -	0 / 0.000	2 / 0.788
FY 2023	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	2 / 0.804	- / -	0 / 0.000	2 / 0.804
FY 2024	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2025	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
To Complete	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
Total	- / -	- / -	- / -	2 / 0.756	0 / 0.000	2 / 0.756	2 / 0.772	2 / 0.788	2 / 0.804	- / -	0 / 0.000	8 / 3.120

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	1	-	-	1	1	-	-	1	1	-	-	-	-	-	-	8
Out	-	-	-	-	-	-	-	-	-	-	1	1	-	-	1	1	-	-	1	1	-	-	1	1	-	-	-	-	-	-	8

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0840 / Sub Periscope, Imaging and Supt Equip Prog	**Modification Number / Title:** 7 / ML010 TECHNICAL INSERTION (SWFTS)
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

Resource Summary	Prior Years	FY 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)*	47.273	29.798	17.942	3.290	0.000	3.290	0.000	0.000	0.000	0.000	0.000	98.303
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	47.273	29.798	17.942	3.290	0.000	3.290	0.000	0.000	0.000	0.000	0.000	98.303
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**47.273**	**29.798**	**17.942**	**3.290**	**0.000**	**3.290**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**98.303**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)												
Initial Spares *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Dollars)*	-	-	-	-	-	-	-	-	-	-	-	-

Description:

Procures Technical Insertions (TI) up through and including TI-18 for installation on LOS ANGELES, SSGN, SEAWOLF, and VIRGINIA Class submarines that provide updates to the AN/BLQ-10A configuration baseline. The final TI-18 installations will end in FY21. Beginning with TI-20, all AN/BLQ-10 costs are captured in ML012 due to the significant changes associated with the AN/BLQ-10B upgrade.

TI Processor upgrade provides additional computing capability over previous TI baselines and replaces out of production systems for installation on LOS ANGELES, SSGN, SEAWOLF, and VIRGINIA Class submarines. Provides updates to the AN/BLQ-10A configuration baseline which incorporates current Commercial off the Shelf (COTS) processing technology and software to account for obsolescence avoidance, and Reliability, Maintainability and Availability (RMA) and associated Integrated Logistics Support (ILS) and technical data. Hardware builds include supporting platform level Submarine Warfare Federated Tactical Systems (SWFTS) interfaces. Capability and Technical Insertion for AN/BLQ-10A provide spiral improvements to the baseline system which are designed to counter against new and evolving threat emitters. This effort is the transition of the EW AN/BLQ-10 TI modernization process to eventually synchronize with SWFTS TI/APB process and model.

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0840 / Sub Periscope, Imaging and Supt Equip Prog	**Modification Number / Title:** 7 / ML010 TECHNICAL INSERTION (SWFTS)
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	
Models of Systems Affected: TECHNICAL INSERTION	**Modification Type:** SHIPALT	**Related RDT&E PEs:** 0604503N

Financial Plan	Prior Years	FY 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: ML010 TECHNICAL INSERTION (SWFTS)												
B Kits												
Recurring												
1.1.1) TI-16/18 VA/688/21 Class - NonOrganic (12)	47 / 35.830	6 / 11.034	5 / 9.380	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	58 / 56.244
1.1.2) TI-18 SSGN Class - NonOrganic	- / -	2 / 4.780	2 / 4.874	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	4 / 9.654
Subtotal: Recurring	*- / 35.830*	*- / 15.814*	*- / 14.254*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / 0.000*	*- / 65.898*
Subtotal: ML010 TECHNICAL INSERTION (SWFTS)	*47 / 35.830*	*8 / 15.814*	*7 / 14.254*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*62 / 65.898*
Subtotal: Procurement, All Modification Items	*- / 35.830*	*- / 15.814*	*- / 14.254*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / 0.000*	*- / 65.898*
Support *(All Modification Items)*												
2.1) TI/APB NRE	- / 4.854	- / 8.566	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / 13.420
Subtotal: Support	*- / 4.854*	*- / 8.566*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / 0.000*	*- / 13.420*
Installation												
Modification Item 1 of 1: ML010 TECHNICAL INSERTION (SWFTS)	- / 6.589	- / 5.418	- / 3.688	- / 3.290	- / 0.000	- / 3.290	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 18.985
Subtotal: Installation	*- / 6.589*	*- / 5.418*	*- / 3.688*	*- / 3.290*	*- / -*	*- / 3.290*	*- / -*	*- / -*	*- / -*	*- / -*	*- / 0.000*	*- / 18.985*
Total												
Total Cost (Procurement + Support + Installation)	**47.273**	**29.798**	**17.942**	**3.290**	**0.000**	**3.290**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**98.303**

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0840 / Sub Periscope, Imaging and Supt Equip Prog	**Modification Number / Title:** 7 / ML010 TECHNICAL INSERTION (SWFTS)

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

Modification Item 1 of 1: ML010 TECHNICAL INSERTION (SWFTS)

Manufacturer Information

Manufacturer Name: Lockheed Martin | Manufacturer Location: Syracuse, NY

Administrative Leadtime *(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	Mar 2020					
Delivery Dates	Mar 2020	Mar 2021					

Installation Information

Method of Implementation: AIT:: Installation Name: TI-16/18 VA/688/21 Class

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	35 / 6.589	12 / 5.418	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	47 / 12.007
FY 2019	- / -	- / -	6 / 2.766	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	6 / 2.766
FY 2020	- / -	- / -	- / -	5 / 2.350	0 / 0.000	5 / 2.350	- / -	- / -	- / -	- / -	0 / 0.000	5 / 2.350
FY 2021	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2022	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2023	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2024	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2025	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
To Complete	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
Total	35 / 6.589	12 / 5.418	6 / 2.766	5 / 2.350	0 / 0.000	5 / 2.350	- / -	- / -	- / -	- / -	0 / 0.000	58 / 17.123

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	-	4	4	4	-	2	2	2	-	2	2	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	58
Out	35	-	4	4	4	-	2	2	2	-	2	2	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	58

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0840 / Sub Periscope, Imaging and Supt Equip Prog	**Modification Number / Title:** 7 / ML010 TECHNICAL INSERTION (SWFTS)

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

Modification Item 1 of 1: ML010 TECHNICAL INSERTION (SWFTS)

Installation Information

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

Installation Cost	Prior Years	FY 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	- / -	- / -	2 / 0.922	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	2 / 0.922
FY 2020	- / -	- / -	- / -	2 / 0.940	0 / 0.000	2 / 0.940	- / -	- / -	- / -	- / -	0 / 0.000	2 / 0.940
FY 2021	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2022	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2023	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2024	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2025	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
To Complete	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
Total	- / -	- / -	2 / 0.922	2 / 0.940	0 / 0.000	2 / 0.940	- / -	- / -	- / -	- / -	0 / 0.000	4 / 1.862

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	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4
Out	-	-	-	-	-	-	1	1	-	-	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4

Footnotes:

(12) FY19 Below Threshold Reprogramming (BTR) funded the installs for the two additional VIRGINIA Class SWFTS shipsets procured in FY18 by congressional direction.

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0840 / Sub Periscope, Imaging and Supt Equip Prog	**Modification Number / Title:** 8 / ML012 - AN/BLQ-10B TECHNICAL INSERTION (SWFTS)
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

Resource Summary	Prior Years	FY 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	6.042	51.356	0.000	51.356	79.604	85.470	87.180	82.259	20.398	412.309
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	0.000	0.000	6.042	51.356	0.000	51.356	79.604	85.470	87.180	82.259	20.398	412.309
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**0.000**	**0.000**	**6.042**	**51.356**	**0.000**	**51.356**	**79.604**	**85.470**	**87.180**	**82.259**	**20.398**	**412.309**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)												
Initial Spares *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Dollars)*	-	-	-	-	-	-	-	-	-	-	-	-

Description:

Procures the AN/BLQ-10B EW system for installation on LOS ANGELES, SEAWOLF, and VIRGINIA Class submarines beginning with TI-20. AN/BLQ-10B achieves EW superiority through hardware and software updates to pace the threat and brings EW fully onto the SWFTS model. Tech insertion procures the hardware necessary to upgrade and back-fit EW systems. This system will be fully aligned with SWFTS with the exception of SSBN Class and provides capabilities required by the EW Capability Development Document (CDD). The AN/BLQ-10B is a more complex design over the AN/BLQ-10A resulting in a higher unit cost. NRE costs have been broken out from shipset costs consistent with the other SWFTS subsystems (SSN Acoustic Equipment, SSN Combat Control Systems, and Imaging Systems) who use the SWFTS model.

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0840 / Sub Periscope, Imaging and Supt Equip Prog	**Modification Number / Title:** 8 / ML012 - AN/BLQ-10B TECHNICAL INSERTION (SWFTS)

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

Models of Systems Affected: TECHNICAL INSERTION	Modification Type: SHIPALT	Related RDT&E PEs: 0604503N

Financial Plan	Prior Years	FY 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: ML012 - AN/BLQ-10B TECHNICAL INSERTION (SWFTS)												
A Kits												
Recurring												
1.1.1) TI-20 VA Class - NonOrganic	- / -	- / -	1 / 6.042	8 / 49.304	- / -	8 / 49.304	4 / 25.144	- / -	- / -	- / -	- / -	13 / 80.490
1.1.2) TI-22 688/21 Class - NonOrganic	- / -	- / -	- / -	- / -	- / -	- / -	6 / 37.716	10 / 64.120	3 / 19.620	- / -	- / -	19 / 121.456
1.1.3) TI-24 VA Class - NonOrganic	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	7 / 45.780	9 / 60.039	- / -	16 / 105.819
Subtotal: Recurring	*- / 0.000*	*- / -*	*- / 6.042*	*- / 49.304*	*- / -*	*- / 49.304*	*- / 62.860*	*- / 64.120*	*- / 65.400*	*- / 60.039*	*- / 0.000*	*- / 307.765*
Subtotal: ML012 - AN/BLQ-10B TECHNICAL INSERTION (SWFTS)	*- / -*	*- / -*	*1 / 6.042*	*8 / 49.304*	*- / -*	*8 / 49.304*	*10 / 62.860*	*10 / 64.120*	*10 / 65.400*	*9 / 60.039*	*- / -*	*48 / 307.765*
Subtotal: Procurement, All Modification Items	*- / 0.000*	*- / -*	*- / 6.042*	*- / 49.304*	*- / -*	*- / 49.304*	*- / 62.860*	*- / 64.120*	*- / 65.400*	*- / 60.039*	*- / 0.000*	*- / 307.765*
Installation												
Modification Item 1 of 1: ML012 - AN/BLQ-10B TECHNICAL INSERTION (SWFTS)	- / 0.000	- / 0.000	- / 0.000	- / 2.052	- / 0.000	- / 2.052	- / 16.744	- / 21.350	- / 21.780	- / 22.220	- / 20.398	- / 104.544
Subtotal: Installation	*- / 0.000*	*- / -*	*- / -*	*- / 2.052*	*- / -*	*- / 2.052*	*- / 16.744*	*- / 21.350*	*- / 21.780*	*- / 22.220*	*- / 20.398*	*- / 104.544*
Total												
Total Cost (Procurement + Support + Installation)	**0.000**	**0.000**	**6.042**	**51.356**	**0.000**	**51.356**	**79.604**	**85.470**	**87.180**	**82.259**	**20.398**	**412.309**

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0840 / Sub Periscope, Imaging and Supt Equip Prog	**Modification Number / Title:** 8 / ML012 - AN/BLQ-10B TECHNICAL INSERTION (SWFTS)

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

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

Manufacturer Information

Manufacturer Name: Lockheed Martin | Manufacturer Location: Syracuse, NY

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 2020	Mar 2021	Mar 2022	Mar 2023	Mar 2024	Mar 2025
Delivery Dates		Mar 2021	Mar 2022	Mar 2023	Mar 2024	Mar 2025	Mar 2026

Installation Information

Method of Implementation: AIT:: Installation Name: TI-20 VA Class

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 / 2.052	0 / 0.000	1 / 2.052	- / -	- / -	- / -	- / -	0 / 0.000	1 / 2.052
FY 2021	- / -	- / -	- / -	- / -	- / -	- / -	8 / 16.744	- / -	- / -	- / -	0 / 0.000	8 / 16.744
FY 2022	- / -	- / -	- / -	- / -	- / -	- / -	- / -	4 / 8.540	- / -	- / -	0 / 0.000	4 / 8.540
FY 2023	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2024	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2025	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
To Complete	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
Total	- / -	- / -	- / -	1 / 2.052	0 / 0.000	1 / 2.052	8 / 16.744	4 / 8.540	- / -	- / -	0 / 0.000	13 / 27.336

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	-	-	-	3	3	2	-	2	1	1	-	-	-	-	-	-	-	-	-	13
Out	-	-	-	-	-	-	-	-	-	-	1	-	-	-	3	3	2	-	2	1	1	-	-	-	-	-	-	-	-	-	13

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0840 / Sub Periscope, Imaging and Supt Equip Prog	**Modification Number / Title:** 8 / ML012 - AN/BLQ-10B TECHNICAL INSERTION (SWFTS)

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

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

Installation Information

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

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	- / -	- / -	- / -	- / -	- / -	- / -	- / -	6 / 12.810	- / -	- / -	0 / 0.000	6 / 12.810
FY 2023	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	10 / 21.780	- / -	0 / 0.000	10 / 21.780
FY 2024	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	3 / 6.666	0 / 0.000	3 / 6.666
FY 2025	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
To Complete	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
Total	- / -	- / -	- / -	- / -	- / -	- / -	- / -	6 / 12.810	10 / 21.780	3 / 6.666	0 / 0.000	19 / 41.256

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	2	-	4	3	3	-	1	1	1	-	19
Out	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	-	4	3	3	-	1	1	1	-	19

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

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	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	7 / 15.554	0 / 0.000	7 / 15.554
FY 2025	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	9 / 20.398	9 / 20.398

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0840 / Sub Periscope, Imaging and Supt Equip Prog	**Modification Number / Title:** 8 / ML012 - AN/BLQ-10B TECHNICAL INSERTION (SWFTS)

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

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

Installation Information

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

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)*
To Complete	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
Total	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	7 / 15.554	9 / 20.398	16 / 35.952

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	3	9	16
Out	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	3	9	16

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0840 / Sub Periscope, Imaging and Supt Equip Prog	**Modification Number / Title:** 9 / ML017 AN/BLQ-10 FIELD CHANGE KITS
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

Resource Summary	Prior Years	FY 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)*	24.067	23.092	14.933	16.687	0.000	16.687	18.765	22.487	23.197	23.660	Continuing	Continuing
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	24.067	23.092	14.933	16.687	0.000	16.687	18.765	22.487	23.197	23.660	Continuing	Continuing
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**24.067**	**23.092**	**14.933**	**16.687**	**0.000**	**16.687**	**18.765**	**22.487**	**23.197**	**23.660**	**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:

Procures AN/BLQ-10 and subsystem Product Improvement Field Change Kits (FCK). One (1) set of AN/BLQ-10 FCKs is procured in each fiscal year that includes variable quantities and types, procured from a variety of vendors.

Procures Submarine Launched Device (SLD) to reduce risk of counter-detection for operating submarines. FY21 funding is cut in order to fund other higher priority requirements.

Procures MMM Payload Module antennas to support submarine Fleet required improved Unmanned Aerial System (UAS) communications and Electronic Warfare (EW) capability to meet emerging threats and provide new capabilities required by the Fleet. FY21 funding and quantities increase from FY20 to meet Fleet goals. Compared to the FY 2020 President's Budget request, FY21 reflects a reduction in order to fund other higher priority requirements.

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0840 / Sub Periscope, Imaging and Supt Equip Prog	**Modification Number / Title:** 9 / ML017 AN/BLQ-10 FIELD CHANGE KITS

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

Models of Systems Affected: AN/BLQ-10 **Modification Type:** ORDALT **Related RDT&E PEs:** 0604503N

Financial Plan	Prior Years	FY 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: ML017 AN/BLQ-10 FIELD CHANGE KITS												
B Kits												
Recurring												
1.1.1) AN/BLQ-10 FCKs - NonOrganic (13)	7 / 22.660	1 / 10.851	1 / 11.068	1 / 11.289	- / -	1 / 11.289	1 / 11.515	1 / 11.745	1 / 11.980	1 / 12.220	Continuing	Continuing
1.1.2) Submarine Launch Device (SLD) - NonOrganic (14)	- / -	18 / 3.333	4 / 1.149	- / -	- / -	- / -	4 / 1.157	5 / 2.082	5 / 2.124	5 / 2.166	Continuing	Continuing
1.1.3) MMM Payloads - NonOrganic (15)	- / -	6 / 7.344	1 / 1.129	4 / 4.604	- / -	4 / 4.604	4 / 4.696	6 / 7.182	6 / 7.326	6 / 7.470	Continuing	Continuing
Subtotal: Recurring	*- / 22.660*	*- / 21.528*	*- / 13.346*	*- / 15.893*	*- / -*	*- / 15.893*	*- / 17.368*	*- / 21.009*	*- / 21.430*	*- / 21.856*	*Continuing*	*Continuing*
Subtotal: ML017 AN/BLQ-10 FIELD CHANGE KITS	*7 / 22.660*	*25 / 21.528*	*6 / 13.346*	*5 / 15.893*	*- / -*	*5 / 15.893*	*9 / 17.368*	*12 / 21.009*	*12 / 21.430*	*12 / 21.856*	*Continuing*	*Continuing*
Subtotal: Procurement, All Modification Items	*- / 22.660*	*- / 21.528*	*- / 13.346*	*- / 15.893*	*- / -*	*- / 15.893*	*- / 17.368*	*- / 21.009*	*- / 21.430*	*- / 21.856*	*Continuing*	*Continuing*
Installation												
Modification Item 1 of 1: ML017 AN/BLQ-10 FIELD CHANGE KITS	- / 1.407	- / 1.564	- / 1.587	- / 0.794	- / 0.000	- / 0.794	- / 1.397	- / 1.478	- / 1.767	- / 1.804	- / 0.808	- / 12.606
Subtotal: Installation	*- / 1.407*	*- / 1.564*	*- / 1.587*	*- / 0.794*	*- / -*	*- / 0.794*	*- / 1.397*	*- / 1.478*	*- / 1.767*	*- / 1.804*	*- / 0.808*	*- / 12.606*
Total												
Total Cost (Procurement + Support + Installation)	**24.067**	**23.092**	**14.933**	**16.687**	**0.000**	**16.687**	**18.765**	**22.487**	**23.197**	**23.660**	**Continuing**	**Continuing**

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0840 / Sub Periscope, Imaging and Supt Equip Prog	**Modification Number / Title:** 9 / ML017 AN/BLQ-10 FIELD CHANGE KITS

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

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

Manufacturer Information

Manufacturer Name: Lockheed Martin | Manufacturer Location: Syracuse, NY

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

Dates	FY 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

Installation Information

Method of Implementation: AIT:: Installation Name: AN/BLQ-10 FCKs

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	7 / 1.407	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	7 / 1.407
FY 2019	- / -	1 / 0.646	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	1 / 0.646
FY 2020	- / -	- / -	1 / 0.659	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	1 / 0.659
FY 2021	- / -	- / -	- / -	1 / 0.672	0 / 0.000	1 / 0.672	- / -	- / -	- / -	- / -	0 / 0.000	1 / 0.672
FY 2022	- / -	- / -	- / -	- / -	- / -	- / -	1 / 0.685	- / -	- / -	- / -	0 / 0.000	1 / 0.685
FY 2023	- / -	- / -	- / -	- / -	- / -	- / -	- / -	1 / 0.699	- / -	- / -	0 / 0.000	1 / 0.699
FY 2024	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	1 / 0.713	- / -	0 / 0.000	1 / 0.713
FY 2025	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	1 / 0.727	0 / 0.000	1 / 0.727
To Complete	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
Total	7 / 1.407	1 / 0.646	1 / 0.659	1 / 0.672	0 / 0.000	1 / 0.672	1 / 0.685	1 / 0.699	1 / 0.713	1 / 0.727	0 / 0.000	14 / 6.208

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	7	-	-	1	-	-	-	1	-	-	-	1	-	-	-	1	-	-	-	1	-	-	-	1	-	-	-	1	-	-	14
Out	7	-	-	1	-	-	-	1	-	-	-	1	-	-	-	1	-	-	-	1	-	-	-	1	-	-	-	1	-	-	14

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0840 / Sub Periscope, Imaging and Supt Equip Prog	**Modification Number / Title:** 9 / ML017 AN/BLQ-10 FIELD CHANGE KITS

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

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

Installation Information

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

Installation Cost	Prior Years	FY 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	- / -	18 / 0.918	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	18 / 0.918
FY 2020	- / -	- / -	4 / 0.208	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	4 / 0.208
FY 2021	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2022	- / -	- / -	- / -	- / -	- / -	- / -	4 / 0.216	- / -	- / -	- / -	0 / 0.000	4 / 0.216
FY 2023	- / -	- / -	- / -	- / -	- / -	- / -	- / -	5 / 0.275	- / -	- / -	0 / 0.000	5 / 0.275
FY 2024	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	5 / 0.280	- / -	0 / 0.000	5 / 0.280
FY 2025	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	5 / 0.285	0 / 0.000	5 / 0.285
To Complete	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
Total	- / -	18 / 0.918	4 / 0.208	- / -	- / -	- / -	4 / 0.216	5 / 0.275	5 / 0.280	5 / 0.285	0 / 0.000	41 / 2.182

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	13	-	-	4	-	-	-	-	-	-	-	4	-	-	-	5	-	-	-	5	-	-	5	-	-	-	41
Out	-	-	-	5	13	-	-	4	-	-	-	-	-	-	-	4	-	-	-	5	-	-	-	5	-	-	5	-	-	-	41

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

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 / 0.720	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	6 / 0.720
FY 2020	- / -	- / -	- / -	1 / 0.122	0 / 0.000	1 / 0.122	- / -	- / -	- / -	- / -	0 / 0.000	1 / 0.122
FY 2021	- / -	- / -	- / -	- / -	- / -	- / -	4 / 0.496	- / -	- / -	- / -	0 / 0.000	4 / 0.496
FY 2022	- / -	- / -	- / -	- / -	- / -	- / -	- / -	4 / 0.504	- / -	- / -	0 / 0.000	4 / 0.504
FY 2023	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	6 / 0.774	- / -	0 / 0.000	6 / 0.774
FY 2024	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	6 / 0.792	0 / 0.000	6 / 0.792
FY 2025	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	6 / 0.808	6 / 0.808

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0840 / Sub Periscope, Imaging and Supt Equip Prog	**Modification Number / Title:** 9 / ML017 AN/BLQ-10 FIELD CHANGE KITS

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

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

Installation Information

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

Installation Cost	Prior Years	FY 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)*
To Complete	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
Total	- / -	- / -	6 / 0.720	1 / 0.122	0 / 0.000	1 / 0.122	4 / 0.496	4 / 0.504	6 / 0.774	6 / 0.792	6 / 0.808	33 / 4.216

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	2	-	1	-	-	-	2	2	-	-	2	2	-	-	2	2	2	-	2	2	2	6	33
Out	-	-	-	-	-	-	2	2	2	-	1	-	-	-	2	2	-	-	2	2	-	-	2	2	2	-	2	2	2	6	33

Footnotes:

(13) AN/BLQ-10 FCKs are procured in variable quantities and types, and are bought from a variety of vendors each fiscal year.

(14) The number of buoys vary from year to year and as a result the quantity reflects the number of controllers with corresponding installs only. Unit costs may appear to fluctuate since both controller and buoy quantities are included in the total cost. FY21 funding is cut in order to fund other higher priority requirements.

(15) FY21 funding and quantities increase from FY20 to meet Fleet goals. Compared to the FY 2020 President's Budget request, FY21 reflects a reduction in order to fund other higher priority requirements.

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0840 / Sub Periscope, Imaging and Supt Equip Prog	**Modification Number / Title:** 10 / ML018 VA CLASS ES MODERNIZATION PATRIOT
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

Resource Summary	Prior Years	FY 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)*	5.681	0.360	0.367	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	6.408
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	5.681	0.360	0.367	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	6.408
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**5.681**	**0.360**	**0.367**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**6.408**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)												
Initial Spares *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Dollars)*	-	-	-	-	-	-	-	-	-	-	-	-

Description:
Procures EW Modernization upgrade of PATRIOT Phase B RADAR range finder for incorporation into the VIRGINIA CLASS Photonics Mast.

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0840 / Sub Periscope, Imaging and Supt Equip Prog	**Modification Number / Title:** 10 / ML018 VA CLASS ES MODERNIZATION PATRIOT

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

Models of Systems Affected: VA PATRIOT **Modification Type:** SHIPALT **Related RDT&E PEs:** 0604503N

Financial Plan	Prior Years	FY 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: ML018 VA CLASS ES MODERNIZATION PATRIOT												
B Kits												
Recurring												
1.1.1) VA PATRIOT - NonOrganic	18 / 4.803	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	18 / 4.803
Subtotal: Recurring	*- / 4.803*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / 0.000*	*- / 4.803*
Subtotal: ML018 VA CLASS ES MODERNIZATION PATRIOT	*18 / 4.803*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*18 / 4.803*
Subtotal: Procurement, All Modification Items	*- / 4.803*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / 0.000*	*- / 4.803*
Installation												
Modification Item 1 of 1: ML018 VA CLASS ES MODERNIZATION PATRIOT	- / 0.878	- / 0.360	- / 0.367	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 1.605
Subtotal: Installation	*- / 0.878*	*- / 0.360*	*- / 0.367*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / 0.000*	*- / 1.605*
Total												
Total Cost (Procurement + Support + Installation)	**5.681**	**0.360**	**0.367**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**6.408**

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0840 / Sub Periscope, Imaging and Supt Equip Prog	**Modification Number / Title:** 10 / ML018 VA CLASS ES MODERNIZATION PATRIOT

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

Modification Item 1 of 1: ML018 VA CLASS ES MODERNIZATION PATRIOT

Manufacturer Information

Manufacturer Name: VARIOUS | Manufacturer Location: VARIOUS

Administrative Leadtime *(in Months)*: 6 | Production Leadtime *(in Months)*: 19

Dates	FY 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: VA PATRIOT

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	14 / 0.878	2 / 0.360	2 / 0.367	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	18 / 1.605
FY 2019	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2020	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2021	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2022	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2023	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2024	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2025	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
To Complete	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
Total	14 / 0.878	2 / 0.360	2 / 0.367	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	18 / 1.605

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	14	2	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	18
Out	14	2	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	18

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0840 / Sub Periscope, Imaging and Supt Equip Prog	**Modification Number / Title:** 11 / ML020 AN/BLQ-10 (SWFTS)
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

Resource Summary	Prior Years	FY 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)*	76.891	30.954	20.762	1.722	0.000	1.722	0.000	0.000	0.000	0.000	0.000	130.329
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	76.891	30.954	20.762	1.722	0.000	1.722	0.000	0.000	0.000	0.000	0.000	130.329
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**76.891**	**30.954**	**20.762**	**1.722**	**0.000**	**1.722**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**130.329**
(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:

Procurement of AN/BLQ-10 NRE and modernization kits for EW Modernization upgrades for all submarine platforms. The rapid proliferation of complex radar, communications and navigation equipment available to potential adversaries creates a need for sustained and significant improvements to submarine systems in order to maintain tactical ship safety and operational effectiveness. Commander Submarine Forces and the Submarine Tactical Requirements Group (STRG) raised EW primary mission area in FY12 to be the number one modernization requirement. All funding for digital upgrades in ML020 for TI-20 and greater is combined into the ML012 line starting in FY20.

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0840 / Sub Periscope, Imaging and Supt Equip Prog	**Modification Number / Title:** 11 / ML020 AN/BLQ-10 (SWFTS)
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	
Models of Systems Affected: AN/BLQ-10	**Modification Type:** SHIPALT	**Related RDT&E PEs:** 0604503N

Financial Plan	Prior Years	FY 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: ML020 AN/BLQ-10 (SWFTS)												
B Kits												
Recurring												
1.1.1) AN/BLQ-10 Backfit Kits - NonOrganic (16)	26 / 51.332	8 / 21.104	7 / 18.837	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	41 / 91.273
Subtotal: Recurring	*- / 51.332*	*- / 21.104*	*- / 18.837*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / 0.000*	*- / 91.273*
Subtotal: ML020 AN/BLQ-10 (SWFTS)	*26 / 51.332*	*8 / 21.104*	*7 / 18.837*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*41 / 91.273*
Subtotal: Procurement, All Modification Items	*- / 51.332*	*- / 21.104*	*- / 18.837*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / 0.000*	*- / 91.273*
Support *(All Modification Items)*												
2.1) NRE (17)	- / 22.346	- / 7.013	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / 29.359
Subtotal: Support	*- / 22.346*	*- / 7.013*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / 0.000*	*- / 29.359*
Installation												
Modification Item 1 of 1: ML020 AN/BLQ-10 (SWFTS)	- / 3.213	- / 2.837	- / 1.925	- / 1.722	- / 0.000	- / 1.722	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 9.697
Subtotal: Installation	*- / 3.213*	*- / 2.837*	*- / 1.925*	*- / 1.722*	*- / -*	*- / 1.722*	*- / -*	*- / -*	*- / -*	*- / -*	*- / 0.000*	*- / 9.697*
Total												
Total Cost (Procurement + Support + Installation)	**76.891**	**30.954**	**20.762**	**1.722**	**0.000**	**1.722**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**130.329**

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0840 / Sub Periscope, Imaging and Supt Equip Prog	**Modification Number / Title:** 11 / ML020 AN/BLQ-10 (SWFTS)
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

Modification Item 1 of 1: ML020 AN/BLQ-10 (SWFTS)

Manufacturer Information

Manufacturer Name: VARIOUS	Manufacturer Location: TBD
Administrative Leadtime *(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	Mar 2020					
Delivery Dates	Mar 2020	Mar 2021					

Installation Information

Method of Implementation: AIT:: Installation Name: AN/BLQ-10 Backfit 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	14 / 3.213	12 / 2.837	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	26 / 6.050
FY 2019	- / -	- / -	8 / 1.925	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	8 / 1.925
FY 2020	- / -	- / -	- / -	7 / 1.722	0 / 0.000	7 / 1.722	- / -	- / -	- / -	- / -	0 / 0.000	7 / 1.722
FY 2021	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2022	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2023	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2024	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2025	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
To Complete	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
Total	14 / 3.213	12 / 2.837	8 / 1.925	7 / 1.722	0 / 0.000	7 / 1.722	- / -	- / -	- / -	- / -	0 / 0.000	41 / 9.697

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	14	-	4	4	4	-	3	3	2	-	3	3	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	41
Out	14	-	4	4	4	-	3	3	2	-	3	3	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	41

Footnotes:

(16) FY19 Below Threshold Reprogramming (BTR) funded the installs for the two additional VIRGINIA Class SWFTS shipsets procured in FY18 by congressional direction.

(17) FY19 reduced due to Congressional Action.

Exhibit P-40, Budget Line Item Justification: PB 2021 Navy	Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 01: Ships Support Equipment / BSA 9: Other Shipboard Equipment	**P-1 Line Item Number / Title:** 0900 / DDG Mod

ID Code (A=Service Ready, B=Not Service Ready): A	**Program Elements for Code B Items:** 0204228N	**Other Related Program Elements:** 0604567N, 0604307N
Line Item MDAP/MAIS Code: N/A		

Resource Summary	Prior Years	FY 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)*	3,283.194	452.908	564.966	547.569	0.000	547.569	813.820	956.877	1,015.245	1,127.859	2,303.514	11,065.952
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	3,283.194	452.908	564.966	547.569	0.000	547.569	813.820	956.877	1,015.245	1,127.859	2,303.514	11,065.952
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**3,283.194**	**452.908**	**564.966**	**547.569**	**0.000**	**547.569**	**813.820**	**956.877**	**1,015.245**	**1,127.859**	**2,303.514**	**11,065.952**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)												
Initial Spares *($ in Millions)*	-	0.813	4.844	4.064	-	4.064	3.976	3.716	4.281	4.359	Continuing	Continuing
Flyaway Unit Cost *($ in Dollars)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Dollars)*	-	-	-	-	-	-	-	-	-	-	-	-

Description:

The DDG Modernization Program is required to upgrade the in-service Flight I, II, and IIA DDG-51 Class ships in order to keep them relevant and affordable components of the Navy's Sea Power 21 Plan. The DDG Modernization Program is composed of a series of improvements in both the Hull, Mechanical, and Electrical (HM&E) and Combat Systems (CS). The modernization installations are planned for each ship at approximately the midlife point for each hull. The quantity line represents the total DDG Modernization availabilities (HM&E and Combat Systems) started in each fiscal year. HM&E: 5-4-3-4-4-4-4 Combat System: 2-3-2-3-3-4-4.

The HM&E modernization will be comprised of the technologies transitioned from SCN funded DDG 111/112 and those additional improvements required to support the expected service life of the DDG 51 Class. The upgrades will focus on technologies that reduce workload and Total Ownership Costs (TOC) for the remaining hull life of each ship.

The centerpiece of the CS modernization is the Aegis Weapon System (AWS) upgrade. This upgrade will consist of the introduction of displays, computing equipment and the computer program required to implement Aegis Open Architecture (AOA) and replacement of the existing SPY-1D Signal Processor (SIGPRO) with the Multi-Mission Signal Processor. Selected warfighting improvements will also be installed in conjunction with the combat systems upgrade. This modernization program will provide a core modernization of the infrastructure "foundation" of each ship including the core engineering plan, core computing plan, and Combat Information Center (CIC). This modernization program will also provide an infrastructure foundation that will function as a landing zone for future warfighting capabilities.

[P40A / DM002 - LAND BASED ENGINEERING SITES]: Funds will be used to upgrade shore facilities for HM&E alterations providing risk reduction testing and provide for Combat System and HM&E training products.

[P40A / DM013 - CONJUNCTIVE ALTERATION DEFINITION AND INTEGRATION]: Procures Conjunctive Alteration Definition and Integration that includes equipment procurement, non-recurring and recurring engineering, equipment integration and Integrated Logistics Support (ILS) products for DDG 51 Class ships.

[P40A / HELO HANGER DOOR (HHD)]: Helo Hanger Door (HHD)- FLTIIA ships have documented HHD reliability issues. This update installs several new reliability improvements that are planned for DDG113 AF.

[P40A / OFFICER OF THE DECK SCREEN (OOD)]: Officer Of The Deck Screen (OOD)- Replaces the Interior Communication/Standard Module alarm panels in the 3 OOD stations and Combat Systems Maintenance Center with Agimet Multi Function Color Repeaters for standardization of BF components and commonality with DDG105 AF design.

Exhibit P-40, Budget Line Item Justification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 01: Ships Support Equipment / BSA 9: Other Shipboard Equipment	**P-1 Line Item Number / Title:** 0900 / DDG Mod	
ID Code (A=Service Ready, B=Not Service Ready): A	**Program Elements for Code B Items:** 0204228N	**Other Related Program Elements:** 0604567N, 0604307N
Line Item MDAP/MAIS Code: N/A		

[P40A / AWS VIDEO DISTRIBUTION SYSTEM & CIRCUIT 3 TV]: This Ship Change replaces obsolete and unsupported legacy topside surveillance camera CKT-3TV Systems on NON-AMOD DDGs(including sensors, pan/tilt, unit, controllers and other HW) with shock and environmentally qualified COTS Camera System.

[P40A / DIGITAL VOLTAGE REGULATOR (DVR)]: Digital Voltage Regulator (DVR)- Replaces the obsolete legacy Excitation Control Panel (EXCOP) for each generator consistent with DDG 113AF.

[P40A / DM6IN - INSTALLATION]: Funds are for installation of DDG Modernization equipment in support of the Fleet Modernization Program.

[P40A / SOLID STATE RADAR]: Backfit a new gallium nitride antenna array and a multi-mission signal processor (MMSP).

[P40A / AEGIS MODERNIZATION TESTING (AMT)]: Provide on-site engineering and technical support of the planning and execution DDG Modernization availabilities. Provide engineering support in planning availability milestones, execute system and element testing requirements from AEGIS Light Off (ALO) to end of availability, support Combat Systems Alignment and Verification, provide crew training for maintaining newly installed AEGIS and legacy AEGIS equipment, and serve as the combat system engineering agent technical point of contact for combat system DDG Modernization matters. AMT is a two-part event: Planning and Execution. Planning consists of AMT test plan building, AMT schedule development and planning; AMT Execution consists of availability, support Combat Systems Alignment and Verification, provide crew training for maintaining newly installed AEGIS and legacy AEGIS equipment, and serve as the combat system engineering agent technical point of contract for combat system DDG Modernization matters. AMT costs are dependent on the number, scope and complexity of AMT planned per Fiscal Year (FY) with funding spread over two years: AMT Planning is executed during the year of installation (~$5M) and AMT Execution is the year following (~$5M).

FY 2019, FY 2020 and FY 2021 costs are broken down as follows:

-- FY 2019 AMT Planning: ($5M) to plan for two (2) AMT (DDG 84/86)(FLT IIA combined HM&E and combat systems modernization). Due to the FY19 $5M congressional reduction the two AMTs being planned were severely de-scoped.
- FY 2019 AMT Execution: ($5M) to execute two (2) AMT (DDG 79/83)(FLT IIA combined HM&E and combat systems modernization). Due to the FY19 $5M congressional reduction the two AMTs being executed were severely de-scoped.
- FY 2020 AMT Planning: ($15M) to plan three (3) AMTs (DDG 85/87/88) (FLT IIA combined HM&E and combat systems modernization).
- FY 2020 AMT Execution: ($10M) to execute two (2) AMTs (DDG 84/86) (FLT IIA combined HM&E and combat systems modernization). Due to the FY20 $5M Congressional reduction, DDG 84 AMT will not occur.
- FY 2021 AMT Planning: ($10.2M) to plan two (2) AMTs (DDG 81/89) (FLT IIA combined HM&E and combat systems modernization).
- FY 2021 AMT Execution: ($15.3M) to execute three (3) CSSQTs (DDG 85/87/88) (FLT IIA combined HM&E and combat systems modernization).

[P40A / COMBAT SYSTEM SHIP QUALIFICATION TRIALS (CSSQT)]: CSSQTs are required per Naval Sea Systems Instruction 90963.1C for all ships undergoing significant conversion/modernization availabilities. CSSQTs are a two-part event: Planning and Execution. Planning consists of CSSQT complex scenario building, CSSQT schedule development and planning; CSSQT Execution consists of a series of at-sea exercises and tests to verify/certify the newly installed DDG Modernization combat weapon systems have been installed properly and can be operated and maintained safely and effectively. This is accomplished by assisting ship's force in achieving (1) a sustainable level of combat/weapon system operational readiness and (2) a maintainable level of material readiness. CSSQT consists of real-life threats utilizing aircraft flight services, Air Warfare/Surface Warfare/Under Sea Warfare range services and support, scenario data recording and data analysis. CSSQT costs are dependent on the number, scope and complexity of CSSQTs planned per Fiscal Year (FY) with funding spread over two years: CSSQT Planning is executed during the year of installation (~$1.5M) and CSSQT Execution is the year following (~ $7.5M).

FY 2019, FY 2020 and FY2021 costs are broken down as follows:

- FY 2019 CSSQT Planning: ($0M) the two CSSQTs to be planned were cancelled in order to absorb the $9M FY19 congressional reduction.

Exhibit P-40, Budget Line Item Justification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 01: Ships Support Equipment / BSA 9: Other Shipboard Equipment	**P-1 Line Item Number / Title:** 0900 / DDG Mod	
ID Code (A=Service Ready, B=Not Service Ready): A	**Program Elements for Code B Items:** 0204228N	**Other Related Program Elements:** 0604567N, 0604307N
Line Item MDAP/MAIS Code: N/A		

- FY 2019 CSSQT Execution: ($9M) to execute two (2) CSSQTs (DDG 79/83) (FLT IIA combined HM&E and combat systems modernization). Due to the $9M FY19 congressional reduction the two CSSQTs being executed were severely de-scoped.
- FY 2020 CSSQT Planning: ($4.5M) to plan three (3) CSSQTs (DDG 85/87/88) (FLT IIA combined HM&E and combat systems modernization).
- FY 2020 CSSQT Execution: ($15.3M) to execute two (2) CSSQTs (DDG 84/86) (FLT IIA combined HM&E and combat systems modernization). Due to the FY20 $9M congressional reduction, DDG 84 CSSQT will not occur and DDG 86 will be severely de-scoped.
- FY 2021 CSSQT Planning: ($3.2M) to plan two (2) CSSQTs (DDG 81/89)) (FLT IIA combined HM&E and combat systems modernization).
- FY 2021 CSSQT Execution: ($23.4M) to execute three (3) CSSQTs (DDG 85/87/88) (FLT IIA combined HM&E and combat systems modernization).

[P40A / DM010 - FCS STAMO]: Procures Stabilized Master Oscillator (STAMO) combat systems that include equipment procurement, recurring engineering, equipment integration and Integrated Logistics Support (ILS) products for DDG 51 Class ships.

[P40A / DM012 - CEC]: Procures Cooperative Engagement Capability (CEC) combat systems that includes equipment procurement, recurring engineering, equipment integration and Integrated Logistics Support (ILS) products for DDG 51 Class ships. Flight IIA DDGs have previously received CEC installation.

[P3A / DM001 - DDG MODERNIZATION HME (GEDMS)]: Gigabit Ethernet Data Multiplexing System (GEDMS) replaces the obsolete copper machinery control LAN infrastructure with a new system based on the widely used Ethernet industry standard.

[P3A - 2 / DM001 - DDG MODERNIZATION HME (MCS/DCS)]: Machinery Control System (MCS) replaces the obsolete control consoles while also delivering enhanced capability to the fleet through improved situational awareness and reconfigurable user stations. The new consoles use Commercial Off The Shelf (COTS)-based computers which connect via Versa Modular Eurocard (VME)-chassis technology. The VME architecture is expected to be supportable for the remaining service life of the ship and will enable computer upgrades within the chassis thereby mitigating future obsolescence concerns.

[P3A - 3 / DM001 - DDG MODERNIZATION HME (DVSS)]: Digital Video Surveillance System (DVSS) is a network of video cameras which are integrated into the Machinery Control system. This system is primarily a watch-stander situational awareness tool which supplements the workload reduction benefits of the new MCS.

[P3A - 4 / DM001 - DDG MODERNIZATION HME (WIRELESS COMMUNICATIONS)]: Shipwide Interior Wireless Communication System (SIWCS) - provides point-to-point coverage throughout the internal spaces of the ship as well as topside, topside-to-interior, line of sight ship-to-ship & line of sight ship-to-shore communications capabilities.

[P3A - 5 / DM001 - DDG MODERNIZATION HME (IBNS)]: The Integrated Bridge & Navigation System (IBNS) replaces obsolete bridge consoles and introduces flexibility with how the pilot house is managed during navigation. The key benefit is the ability for operating with fewer watch-standers, reduced watch standard workloads, and improved safety of navigation.

[P3A - 6 / DM003 - MK 160 MOD 15 GWS]: Procures MK 160 Mod 15 Gun Weapon System (GWS) that includes equipment procurement, recurring engineering, equipment integration and Integrated Logistics Support (ILS) products for DDG 51 Class ships.

[P3A - 7 / DM004 - AWS UPGRADE]: Procures equipment for the Aegis Weapon System (AWS) Upgrades that includes equipment procurement, recurring engineering, equipment integration and Integrated Logistics Support (ILS) products for DDG 51 Class ships.

[P3A - 8 / DM005 - MULTI-MISSION SIGPRO]: Procures Multi-Mission SIGPRO combat systems that includes equipment procurement, recurring engineering, equipment integration and Integrated Logistics Support (ILS) products for DDG 51 Class ships.

[P3A - 9 / DM006 - MULTI-MISSION SSA/CWI MICROWAVE TUBES]: Procures Multi-Mission Solid State Amplifier (SSA)/Continuous Wave Illumination (CWI) Microwave Tubes upgrades for DDG Modernization Program that includes equipment procurement, recurring engineering, equipment integration and Integrated Logistics Support (ILS) products for DDG 51 Class ships.

Exhibit P-40, Budget Line Item Justification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 01: Ships Support Equipment / BSA 9: Other Shipboard Equipment	**P-1 Line Item Number / Title:** 0900 / DDG Mod	
ID Code (A=Service Ready, B=Not Service Ready): A	**Program Elements for Code B Items:** 0204228N	**Other Related Program Elements:** 0604567N, 0604307N
Line Item MDAP/MAIS Code: N/A		

[P3A - 10 / DM007 - SPY-1D TRANSMITTER UPGRADES]: Procures SPY-1D Transmitter Upgrades combat systems that includes equipment procurement, recurring engineering, equipment integration and Integrated Logistics Support (ILS) products for DDG 51 Class ships.

[P3A - 11 / DM008 - MULTI-MISSION BMD CAPABILITY]: Procures Multi-Mission Ballistic Missile Defense (BMD) Capability combat systems that includes equipment procurement, recurring engineering, equipment integration and Integrated Logistics Support (ILS) products for DDG 51 Class ships.

[P3A - 12 / DM009 - VLS UPGRADES]: Procures Vertical Launch System (VLS) Modifications, Evolved Sea Sparrow Missile VLS Modifications, SM3 Operability Heating Ventilation Air Conditioning (HVAC) and VLS MODS for SM3 Block 3 combat systems that includes equipment procurement, recurring engineering, equipment integration and Integrated Logistics Support (ILS) products for DDG 51 Class ships.

[P3A - 13 / DM011 - AN/SQQ-89 A(V15)]: Procures improved AN/SQQ-89(V)15 with Multi-Function Towed Array (MFTA) combat systems to replace the installed MIL-STD AN/SQQ-89(V) that includes equipment procurement, recurring engineering, equipment integration and Integrated Logistics Support (ILS) products for DDG 51 Class ships.

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

Appropriation / Budget Activity / Budget Sub Activity:
1810N: Other Procurement, Navy / BA 01: Ships Support Equipment / BSA 9: Other Shipboard Equipment

P-1 Line Item Number / Title:
0900 / DDG Mod

ID Code (A=Service Ready, B=Not Service Ready): A | **Program Elements for Code B Items:** 0204228N | **Other Related Program Elements:** 0604567N, 0604307N

Line Item MDAP/MAIS Code: N/A

Exhibits Schedule					Prior Years	FY 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	DDG Mod				- / 1,015.647	- / 86.711	- / 112.470	- / 115.341	- / -	- / 115.341
P-3a	1 / DM001 - DDG MODERNIZATION HME (GEDMS) (TBD)				- / 257.622	- / 34.847	- / 33.856	- / 33.360	- / 0.000	- / 33.360
P-3a	2 / DM001 - DDG MODERNIZATION HME (MCS/DCS) (TBD)				- / 445.391	- / 66.742	- / 65.321	- / 67.035	- / 0.000	- / 67.035
P-3a	3 / DM001 - DDG MODERNIZATION HME (DVSS) (TBD)				- / 35.677	- / 5.970	- / 6.035	- / 5.885	- / 0.000	- / 5.885
P-3a	4 / DM001 - DDG MODERNIZATION HME (WIRELESS COMMUNICATIONS) (TBD)				- / 17.441	- / 1.912	- / 1.329	- / 1.544	- / 0.000	- / 1.544
P-3a	5 / DM001 - DDG MODERNIZATION HME (IBNS) (TBD)				- / 196.122	- / 25.452	- / 27.628	- / 28.041	- / 0.000	- / 28.041
P-3a	6 / DM003 - MK 160 MOD 15 GWS (TBD)				- / 72.152	- / 12.020	- / 16.343	- / 16.129	- / 0.000	- / 16.129
P-3a	7 / DM004 - AWS UPGRADE (TBD)				- / 524.825	- / 93.860	- / 132.552	- / 123.041	- / 0.000	- / 123.041
P-3a	8 / DM005 - MULTI-MISSION SIGPRO (TBD)				- / 288.423	- / 44.301	- / 64.077	- / 63.437	- / 0.000	- / 63.437
P-3a	9 / DM006 - MULTI-MISSION SSA/CWI MICROWAVE TUBES (TBD)				- / 15.124	- / 2.171	- / 3.315	- / 3.375	- / 0.000	- / 3.375
P-3a	10 / DM007 - SPY-1D TRANSMITTER UPGRADES (TBD)				- / 73.142	- / 10.836	- / 11.031	- / 0.000	- / 0.000	- / 0.000
P-3a	11 / DM008 - MULTI-MISSION BMD CAPABILITY (TBD)				- / 25.739	- / 3.608	- / 5.510	- / 5.609	- / 0.000	- / 5.609
P-3a	12 / DM009 - VLS UPGRADES (TBD)				- / 129.259	- / 20.723	- / 27.581	- / 27.254	- / 0.000	- / 27.254
P-3a	13 / DM011 - AN/SQQ-89 A(V15) (TBD)				- / 144.394	- / 5.908	- / 11.384	- / 12.751	- / 0.000	- / 12.751
P-3a	14 / DM013 - (1 MC/DIAS UPGRADE) (TBD)				- / 15.075	- / 12.980	- / 12.039	- / 11.857	- / 0.000	- / 11.857
P-3a	15 / DM013 - (MORIAH WIND SYSTEM) (TBD)				- / 6.374	- / 5.304	- / 5.180	- / 5.535	- / 0.000	- / 5.535
P-3a	16 / DM013 - (IVCS UPGRADE) (TBD)				- / 17.341	- / 16.656	- / 25.010	- / 22.742	- / 0.000	- / 22.742
P-3a	17 / DM013 - Slewing Arm Davit (SLAD) (TBD)				- / 2.298	- / 1.799	- / 2.628	- / 2.526	- / 0.000	- / 2.526
P-3a	18 / DM013 - AN/SPA-25H (TBD)				- / 1.148	- / 1.108	- / 1.677	- / 2.107	- / 0.000	- / 2.107
P-40	**Total Gross/Weapon System Cost**				**- / 3,283.194**	**- / 452.908**	**- / 564.966**	**- / 547.569**	**- / 0.000**	**- / 547.569**

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	DDG Mod				- / -	- / -	- / -	- / -	- / -	- / -
P-3a	1 / DM001 - DDG MODERNIZATION HME (GEDMS) (TBD)				- / 36.637	- / 36.988	- / 37.336	- / 38.392	- / 97.591	- / 606.629
P-3a	2 / DM001 - DDG MODERNIZATION HME (MCS/DCS) (TBD)				- / 74.481	- / 75.196	- / 76.146	- / 78.174	- / 205.763	- / 1,154.249
P-3a	3 / DM001 - DDG MODERNIZATION HME (DVSS) (TBD)				- / 6.731	- / 6.807	- / 6.853	- / 7.069	- / 15.027	- / 96.054
P-3a	4 / DM001 - DDG MODERNIZATION HME (WIRELESS COMMUNICATIONS) (TBD)				- / 1.042	- / 0.603	- / 0.000	- / 0.000	- / 0.000	- / 23.871
P-3a	5 / DM001 - DDG MODERNIZATION HME (IBNS) (TBD)				- / 30.533	- / 30.893	- / 31.336	- / 32.089	- / 82.621	- / 484.715
P-3a	6 / DM003 - MK 160 MOD 15 GWS (TBD)				- / 20.950	- / 21.639	- / 23.017	- / 23.520	- / 62.075	- / 267.845
P-3a	7 / DM004 - AWS UPGRADE (TBD)				- / 164.271	- / 172.567	- / 195.970	- / 201.199	- / 468.828	- / 2,077.113
P-3a	8 / DM005 - MULTI-MISSION SIGPRO (TBD)				- / 84.964	- / 87.316	- / 92.017	- / 93.980	- / 230.107	- / 1,048.622

Exhibit P-40, Budget Line Item Justification: PB 2021 Navy	**Date:** February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 01: Ships Support Equipment / BSA 9: Other Shipboard Equipment	**P-1 Line Item Number / Title:** 0900 / DDG Mod

ID Code (A=Service Ready, B=Not Service Ready): A	**Program Elements for Code B Items:** 0204228N	**Other Related Program Elements:** 0604567N, 0604307N

Line Item MDAP/MAIS Code: N/A

Exhibits Schedule					FY 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-3a	9 / DM006 - MULTI-MISSION SSA/CWI MICROWAVE TUBES (TBD)				- / 4.581	- / 4.664	- / 4.748	- / 4.833	- / 11.660	- / 54.471
P-3a	10 / DM007 - SPY-1D TRANSMITTER UPGRADES (TBD)				- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 95.009
P-3a	11 / DM008 - MULTI-MISSION BMD CAPABILITY (TBD)				- / 7.613	- / 7.750	- / 7.890	- / 8.032	- / 19.375	- / 91.126
P-3a	12 / DM009 - VLS UPGRADES (TBD)				- / 34.857	- / 35.930	- / 38.118	- / 38.965	- / 108.430	- / 461.117
P-3a	13 / DM011 - AN/SQQ-89 A(V15) (TBD)				- / 5.352	- / 4.241	- / 0.000	- / 0.000	- / 0.000	- / 184.030
P-3a	14 / DM013 - (1 MC/DIAS UPGRADE) (TBD)				- / 14.000	- / 14.117	- / 14.194	- / 14.707	- / 31.425	- / 140.394
P-3a	15 / DM013 - (MORIAH WIND SYSTEM) (TBD)				- / 6.087	- / 5.324	- / 3.781	- / 1.717	- / 0.532	- / 39.834
P-3a	16 / DM013 - (IVCS UPGRADE) (TBD)				- / 30.452	- / 32.363	- / 37.902	- / 39.135	- / 86.993	- / 308.594
P-3a	17 / DM013 - Slewing Arm Davit (SLAD) (TBD)				- / 3.434	- / 3.534	- / 3.821	- / 3.913	- / 9.867	- / 33.820
P-3a	18 / DM013 - AN/SPA-25H (TBD)				- / 2.423	- / 2.919	- / 3.122	- / 3.109	- / 5.594	- / 23.207
P-40	**Total Gross/Weapon System Cost**				**- / 813.820**	**- / 956.877**	**- / 1,015.245**	**- / 1,127.859**	**- / 2,303.514**	**- / 11,065.952**

*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.

Exhibit P-40a, Budget Item Justification For Aggregated Items: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	P-1 Line Item Number / Title: 0900 / DDG Mod	Aggregated Items Title: DDG Mod

Item Number / Title [DODIC]	ID CD	MDAP/ MAIS Code	Prior Years			FY 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) DM002 - LAND BASED ENGINEERING SITES																				
1.1) DM002 - Land Based Engineering Sites (1)	A		-	-	199.950	-	-	8.838	-	-	8.098	-	-	7.419	-	-	-	-	-	7.419
Subtotal: 1) DM002 - LAND BASED ENGINEERING SITES			**-**	**-**	***199.950***	**-**	**-**	***8.838***	**-**	**-**	***8.098***	**-**	**-**	***7.419***	**-**	**-**	**-**	**-**	**-**	***7.419***
2) DM013 - CONJUNCTIVE ALTERATION DEFINITION AND INTEGRATION																				
2.1) DM013 - CONJUNCTIVE ALTERATION DEFINITION AND INTEGRATION	A		-	-	110.305	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: 2) DM013 - CONJUNCTIVE ALTERATION DEFINITION AND INTEGRATION			**-**	**-**	***110.305***	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
3) HELO HANGER DOOR (HHD)																				
3.1) HELO HANGER DOOR (HHD) EQUIPMENT	A		-	-	-	1,867K	2	3.734	1,901K	3	5.702	1,935K	3	5.804	-	-	-	1,935K	3	5.804
Subtotal: 3) HELO HANGER DOOR (HHD)			**-**	**-**	***0.000***	**-**	**-**	***3.734***	**-**	**-**	***5.702***	**-**	**-**	***5.804***	**-**	**-**	**-**	**-**	**-**	***5.804***
4) OFFICER OF THE DECK SCREEN (OOD)																				
4.1) OFFICER OF THE DECK SCREEN (OOD) EQUIPMENT	A		-	-	-	146,000.00	2	0.292	148,333.33	3	0.445	151,000.00	3	0.453	-	-	-	151,000.00	3	0.453
Subtotal: 4) OFFICER OF THE DECK SCREEN (OOD)			**-**	**-**	***0.000***	**-**	**-**	***0.292***	**-**	**-**	***0.445***	**-**	**-**	***0.453***	**-**	**-**	**-**	**-**	**-**	***0.453***
5) AWS VIDEO DISTRIBUTION SYSTEM & CIRCUIT 3 TV																				
5.1) AWS VDS & CK3TV EQUIPMENT	A		-	-	-	692,000.00	1	0.692	705,000.00	1	0.705	718,000.00	1	0.718	-	-	-	718,000.00	1	0.718
Subtotal: 5) AWS VIDEO DISTRIBUTION SYSTEM & CIRCUIT 3 TV			**-**	**-**	***0.000***	**-**	**-**	***0.692***	**-**	**-**	***0.705***	**-**	**-**	***0.718***	**-**	**-**	**-**	**-**	**-**	***0.718***
6) DIGITAL VOLTAGE REGULATOR (DVR)																				
6.1) DIGITAL VOLTAGE REGULATOR EQUIPMENT	A		-	-	-	1,384K	3	4.152	1,409K	4	5.636	1,434K	4	5.737	-	-	-	1,434K	4	5.737
6.2) CONJUNCTIVE ALTERATION ENGINEERING	A		-	-	-	-	-	0.557	-	-	0.567	-	-	0.577	-	-	-	-	-	0.577
Subtotal: 6) DIGITAL VOLTAGE REGULATOR (DVR)			**-**	**-**	***0.000***	**-**	**-**	***4.709***	**-**	**-**	***6.203***	**-**	**-**	***6.314***	**-**	**-**	**-**	**-**	**-**	***6.314***
7) DMCA1 - DDG-51 MODERNIZATION PROGRAM CONGRESSIONAL ADD																				

Exhibit P-40a, Budget Item Justification For Aggregated Items: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	P-1 Line Item Number / Title: 0900 / DDG Mod	Aggregated Items Title: DDG Mod

Item Number / Title [DODIC]	ID CD	MDAP/ MAIS Code	Prior Years			FY 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) DMCA1 - DDG-51 MODERNIZATION	A		-	-	5.000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7.2) SQQ-89A (V) W/ MFTA	A		-	-	25.000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: 7) DMCA1 - DDG-51 MODERNIZATION PROGRAM CONGRESSIONAL ADD			**-**	**-**	***30.000***	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
8) DMCA3 - COMMUNICATIONS UPGRADE FOR DDG MOD CONGRESSIONAL ADD																				
8.1) DMCA3 - COMMUNICATIONS UPGRADE	A		-	-	3.120	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: 8) DMCA3 - COMMUNICATIONS UPGRADE FOR DDG MOD CONGRESSIONAL ADD			**-**	**-**	***3.120***	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
9) DMCA4 - SMART VALVE AUTOMATIC FIRE SUPPRESSION SYSTEM CONGRESSIONAL ADD																				
9.1) SMART VALVE EQUIPMENT	A		-	-	2.480	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: 9) DMCA4 - SMART VALVE AUTOMATIC FIRE SUPPRESSION SYSTEM CONGRESSIONAL ADD			**-**	**-**	***2.480***	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
10) DSA FOR FY14 AVAILABILITY																				
10.1) DSA FOR FY14 AVAILABILITY	A		-	-	39.067	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: 10) DSA FOR FY14 AVAILABILITY			**-**	**-**	***39.067***	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
11) DM6IN - INSTALLATION																				
11.1) AIT & CONJUNCTIVE ALTS INSTALLATION	A		-	-	555.739	-	-	49.423	-	-	46.622	-	-	42.916	-	-	-	-	-	42.916
Subtotal: 11) DM6IN - INSTALLATION			**-**	**-**	***555.739***	**-**	**-**	***49.423***	**-**	**-**	***46.622***	**-**	**-**	***42.916***	**-**	**-**	**-**	**-**	**-**	***42.916***
12) MRG Procurement																				
12.1) MRG Equipment	A		15,000K	1	15.000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: 12) MRG Procurement			**-**	**-**	***15.000***	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
14) AEGIS MODERNIZATION TESTING (AMT) (2)																				
14.1) AEGIS MODERNIZATION TESTING (AMT)	A		-	-	-	-	-	10.023	-	-	19.844	-	-	25.291	-	-	-	-	-	25.291
Subtotal: 14) AEGIS MODERNIZATION TESTING (AMT)			**-**	**-**	***0.000***	**-**	**-**	***10.023***	**-**	**-**	***19.844***	**-**	**-**	***25.291***	**-**	**-**	**-**	**-**	**-**	***25.291***
15) COMBAT SYSTEM SHIP QUALIFICATION TRIALS (CSSQT) (3)																				
15.1) COMBAT SYSTEM SHIP	A		-	-	-	-	-	9.000	-	-	10.851	-	-	26.426	-	-	-	-	-	26.426

Exhibit P-40a, Budget Item Justification For Aggregated Items: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	P-1 Line Item Number / Title: 0900 / DDG Mod	Aggregated Items Title: DDG Mod

Item Number / Title [DODIC]	ID CD	MDAP/ MAIS Code	Prior Years			FY 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)
QUALIFICATION TRIALS (CSSQT)																				
Subtotal: 15) COMBAT SYSTEM SHIP QUALIFICATION TRIALS (CSSQT)			-	-	***0.000***	-	-	***9.000***	-	-	***10.851***	-	-	***26.426***	-	-	-	-	-	***26.426***
16) DMCA5-BROMINE-FREE WATER PURIFICATION SYSTEM CONGRESSIONAL ADD (4)																				
16.1) DMCA5-BROMINE-FREE WATER PURIFICATION SYSTEM	A		-	-	3.000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: 16) DMCA5-BROMINE-FREE WATER PURIFICATION SYSTEM CONGRESSIONAL ADD			-	-	***3.000***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
17) DM010 - FCS STAMO (5)																				
17.1) FCS STAMO EQUIPMENT	A		14,843K	1	14.843	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: 17) DM010 - FCS STAMO			-	-	***14.843***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
18) DM012 - CEC (6)																				
18.1) CEC EQUIPMENT	A		-	-	42.143	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: 18) DM012 - CEC			-	-	***42.143***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
19) TRAINING AND MAINTENANCE SUPPORT SYSTEM CONGRESSIONAL ADD																				
19.1) TRAINING AND MAINTENANCE SUPPORT SYSTEM	A		-	-	-	-	-	-	-	-	9.000	-	-	-	-	-	-	-	-	-
Subtotal: 19) TRAINING AND MAINTENANCE SUPPORT SYSTEM CONGRESSIONAL ADD			-	-	***0.000***	-	-	-	-	-	***9.000***	-	-	-	-	-	-	-	-	-
20) WATER PURIFICATION SYSTEMS CONGRESSIONAL ADD																				
20.1) WATER PURIFICATION SYSTEMS	A		-	-	-	-	-	-	-	-	5.000	-	-	-	-	-	-	-	-	-
Subtotal: 20) WATER PURIFICATION SYSTEMS CONGRESSIONAL ADD			-	-	***0.000***	-	-	-	-	-	***5.000***	-	-	-	-	-	-	-	-	-
Total			-	-	**1,015.647**	-	-	**86.711**	-	-	**112.470**	-	-	**115.341**	-	-	-	-	-	**115.341**

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

Footnotes:

(1) Funds are used to upgrade shore facilities utilized for pre-installation testing and crew training of HM&E and Combat Systems alterations.

(2) Provide on-site engineering and technical support of the planning and execution DDG Modernization availabilities. Provide engineering support in planning availability milestones, execute system and element testing requirements from AEGIS Light Off (ALO) to end of availability, support Combat Systems Alignment and Verification, provide crew training for maintaining newly installed AEGIS and legacy AEGIS equipment, and serve as the combat system engineering agent technical point of contact for combat system DDG Modernization matters. AMT is a two-part event: Planning and Execution. Planning consists of AMT test plan building, AMT schedule development and planning; AMT Execution consists of availability, support Combat Systems Alignment and Verification, provide crew training for maintaining newly installed AEGIS and legacy AEGIS equipment, and serve as the combat system engineering agent technical point of

Exhibit P-40a, Budget Item Justification For Aggregated Items: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0900 / DDG Mod	**Aggregated Items Title:** DDG Mod

contract for combat system DDG Modernization matters. AMT costs are dependent on the number, scope and complexity of AMT planned per Fiscal Year (FY) with funding spread over two years: AMT Planning is executed during the year of installation (~$5M) and AMT Execution is the year following (~$5M). FY 2019, FY 2020 and FY2021 costs are broken down as follows: - FY 2019 AMT Planning: ($5M) to plan for two (2) AMT (DDG 84/86)(FLT IIA combined HM&E and combat systems modernization). Due to the $5M FY19 congressional reduction, the two AMTs being planned were severely de-scoped. - FY 2019 AMT Execution: ($5M) to execute two (2) AMT (DDG 79/83)(FLT IIA combined HM&E and combat systems modernization). Due to the $5M FY19 congressional reduction, the two AMTs being executed were severely de-scoped. - FY 2020 AMT Planning: ($15M) to plan three (3) AMTs (DDG 85/87/88) (FLT IIA combined HM&E and combat systems modernization). - FY 2020 AMT Execution: ($10M) to execute two (2) AMTs (DDG 84/86) (FLT IIA combined HM&E and combat systems modernization). Due to the FY20 $5M Congressional reduction, DDG 84 AMT will not occur. - FY 2021 AMT Planning: ($10.2M) to plan two (2) AMTs (DDG 81/89) (FLT IIA combined HM&E and combat systems modernization). - FY 2021 AMT Execution: ($15.3M) to execute three (3) CSSQTs (DDG 85/87/88) (FLT IIA combined HM&E and combat systems modernization).

(3) CSSQTs are required per Naval Sea Systems Instruction 90963.1C for all ships undergoing significant conversion/modernization availabilities. CSSQTs are a two-part event: Planning and Execution. Planning consists of CSSQT complex scenario building, CSSQT schedule development and planning; CSSQT Execution consists of a series of at-sea exercises and tests to verify/certify the newly installed DDG Modernization combat weapon systems have been installed properly and can be operated and maintained safely and effectively. This is accomplished by assisting ship's force in achieving (1) a sustainable level of combat/weapon system operational readiness and (2) a maintainable level of material readiness. CSSQT consists of real-life threats utilizing aircraft flight services, Air Warfare/Surface Warfare/Under Sea Warfare range services and support, scenario data recording and data analysis. CSSQT costs are dependent on the number, scope and complexity of CSSQTs planned per Fiscal Year with funding spread over two years: CSSQT Planning is executed during the year of installation (~$1.5M) and CSSQT Execution is the year following (~$7.5M). FY 2019 , FY 2020 and FY2021 costs are broken down as follows: - FY 2019 CSSQT Planning: ($0M) the two CSSQTs to be planned were cancelled in order to absorb the $9M FY19 congressional reduction. - FY 2019 CSSQT Execution: ($9M) to execute two (2) CSSQTs (DDG 79/83) (FLT IIA combined HM&E and combat systems modernization). Due to the $9M FY19 congressional reduction the two CSSQTs being executed were severely de-scoped. - FY 2020 CSSQT Planning: ($4.5M) to plan three (3) CSSQTs (DDG 85/87/88) (FLT IIA combined HM&E and combat systems modernization). - FY 2020 CSSQT Execution: ($15.3M) to execute two (2) CSSQTs (DDG 84/86) (FLT IIA combined HM&E and combat systems modernization). Due to the FY20 $9M congressional reduction, DDG 84 CSSQT will not occur and DDG 86 will be severely de-scoped. - FY 2021 CSSQT Planning: ($3.2M) to plan two (2) CSSQTs (DDG 81/89)) (FLT IIA combined HM&E and combat systems modernization). - FY 2021 CSSQT Execution: ($23.4M) to execute three (3) CSSQTs (DDG 85/87/88) (FLT IIA combined HM&E and combat systems modernization).

(4) Congressional Add for-Bromine-free Water Purification Systems. Until recently, most onboard ship water purification systems used bromine as an antimicrobial. However, bromine is toxic and requires special hazardous material [HAZMAT] handling which is time consuming and expensive. While the Navy has placed bromine-free systems on most of the large-deck surface ship classes, it has not yet removed bromine systems from the Littoral Combat Ship, Ticonderoga class cruisers, destroyers or frigates.

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

(6) Procures Cooperative Engagement Capability (CEC) combat systems that includes equipment procurement, recurring engineering, equipment integration and Integrated Logistics Support (ILS) products for DDG 51 Class ships. Flight IIA DDGs have previously received CEC installation.

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0900 / DDG Mod	**Modification Number / Title:** 1 / DM001 - DDG MODERNIZATION HME (GEDMS)
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

Resource Summary	Prior Years	FY 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)*	257.622	34.847	33.856	33.360	0.000	33.360	36.637	36.988	37.336	38.392	97.591	606.629
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	257.622	34.847	33.856	33.360	0.000	33.360	36.637	36.988	37.336	38.392	97.591	606.629
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**257.622**	**34.847**	**33.856**	**33.360**	**0.000**	**33.360**	**36.637**	**36.988**	**37.336**	**38.392**	**97.591**	**606.629**
(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:

Gigabit Ethernet Data Multiplexing System (GEDMS) replaces the obsolete copper machinery control LAN infrastructure with a new system based on the widely used Ethernet industry standard.

Engineering Services:

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

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

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

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

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

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

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

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0900 / DDG Mod	**Modification Number / Title:** 1 / DM001 - DDG MODERNIZATION HME (GEDMS)
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	
Models of Systems Affected: [No Model Specified]	**Modification Type:** TBD	**Related RDT&E PEs:** 0604567N

Financial Plan	Prior Years	FY 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: DM001 - DDG MODERNIZATION HME (GEDMS)												
B Kits												
Recurring												
1.1.1) GEDMS Equipment - NonOrganic (7)	25 / 89.778	1 / 2.492	1 / 2.700	1 / 2.749	- / -	1 / 2.749	- / -	- / -	- / -	- / -	- / -	28 / 97.719
1.1.2) GEDMS EQUIPMENT FLIGHT IIA - NonOrganic (8)	8 / 10.629	2 / 2.758	3 / 4.390	3 / 4.468	- / -	3 / 4.468	4 / 6.065	4 / 6.174	4 / 6.285	4 / 6.399	2 / 14.818	34 / 61.986
Subtotal: Recurring	*- / 100.407*	*- / 5.250*	*- / 7.090*	*- / 7.217*	*- / -*	*- / 7.217*	*- / 6.065*	*- / 6.174*	*- / 6.285*	*- / 6.399*	*- / 14.818*	*- / 159.705*
Subtotal: DM001 - DDG MODERNIZATION HME (GEDMS)	*33 / 100.407*	*3 / 5.250*	*4 / 7.090*	*4 / 7.217*	*- / -*	*4 / 7.217*	*4 / 6.065*	*4 / 6.174*	*4 / 6.285*	*4 / 6.399*	*2 / 14.818*	*62 / 159.705*
Subtotal: Procurement, All Modification Items	*- / 100.407*	*- / 5.250*	*- / 7.090*	*- / 7.217*	*- / -*	*- / 7.217*	*- / 6.065*	*- / 6.174*	*- / 6.285*	*- / 6.399*	*- / 14.818*	*- / 159.705*
Support *(All Modification Items)*												
2.1) GEDMS ENGINEERING SERVICES	- / 36.169	- / 4.535	- / 4.617	- / 4.700	- / -	- / 4.700	- / 4.785	- / 4.871	- / 4.958	- / 5.048	- / 25.700	- / 95.383
Subtotal: Support	*- / 36.169*	*- / 4.535*	*- / 4.617*	*- / 4.700*	*- / -*	*- / 4.700*	*- / 4.785*	*- / 4.871*	*- / 4.958*	*- / 5.048*	*- / 25.700*	*- / 95.383*
Installation												
Modification Item 1 of 1: DM001 - DDG MODERNIZATION HME (GEDMS)	- / 121.046	- / 25.062	- / 22.149	- / 21.443	- / 0.000	- / 21.443	- / 25.787	- / 25.943	- / 26.093	- / 26.945	- / 57.073	- / 351.541
Subtotal: Installation	*- / 121.046*	*- / 25.062*	*- / 22.149*	*- / 21.443*	*- / -*	*- / 21.443*	*- / 25.787*	*- / 25.943*	*- / 26.093*	*- / 26.945*	*- / 57.073*	*- / 351.541*
Total												
Total Cost (Procurement + Support + Installation)	**257.622**	**34.847**	**33.856**	**33.360**	**0.000**	**33.360**	**36.637**	**36.988**	**37.336**	**38.392**	**97.591**	**606.629**

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0900 / DDG Mod	**Modification Number / Title:** 1 / DM001 - DDG MODERNIZATION HME (GEDMS)

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

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

Manufacturer Information

Manufacturer Name: Boeing | Manufacturer Location: Anaheim, CA

Administrative Leadtime *(in Months)*: 6 | Production Leadtime *(in Months)*: 16

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

Installation Information

Method of Implementation: SHIPYARD:: Installation Name: GEDMS Equipment

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	21 / 99.018	3 / 11.182	1 / 3.419	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	25 / 113.619
FY 2019	- / -	0 / 0.313	0 / 1.752	1 / 4.822	0 / 0.000	1 / 4.822	- / -	- / -	- / -	- / -	0 / 0.000	1 / 6.887
FY 2020	- / -	- / -	0 / 0.320	0 / 1.787	0 / 0.000	0 / 1.787	1 / 4.906	- / -	- / -	- / -	0 / 0.000	1 / 7.013
FY 2021	- / -	- / -	- / -	0 / 0.326	0 / 0.000	0 / 0.326	0 / 1.823	1 / 4.991	- / -	- / -	0 / 0.000	1 / 7.140
FY 2022	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2023	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2024	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2025	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
To Complete	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
Total	21 / 99.018	3 / 11.495	1 / 5.491	1 / 6.935	0 / 0.000	1 / 6.935	1 / 6.729	1 / 4.991	- / -	- / -	0 / 0.000	28 / 134.659

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	21	-	2	-	1	-	-	-	1	-	-	1	-	-	1	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	28
Out	17	1	-	2	1	-	1	1	1	-	-	1	-	-	-	1	-	-	1	-	-	1	-	-	-	-	-	-	-	-	28

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0900 / DDG Mod	**Modification Number / Title:** 1 / DM001 - DDG MODERNIZATION HME (GEDMS)

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

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

Installation Information

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

Installation Cost	Prior Years	FY 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 / 22.028	2 / 12.988	3 / 12.602	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	8 / 47.618
FY 2019	- / -	0 / 0.579	0 / 3.214	2 / 8.955	0 / 0.000	2 / 8.955	- / -	- / -	- / -	- / -	0 / 0.000	2 / 12.748
FY 2020	- / -	- / -	0 / 0.842	0 / 4.704	0 / 0.000	0 / 4.704	3 / 13.155	- / -	- / -	- / -	0 / 0.000	3 / 18.701
FY 2021	- / -	- / -	- / -	0 / 0.849	0 / 0.000	0 / 0.849	0 / 4.746	3 / 13.253	- / -	- / -	0 / 0.000	3 / 18.848
FY 2022	- / -	- / -	- / -	- / -	- / -	- / -	0 / 1.157	0 / 6.467	4 / 18.003	- / -	0 / 0.000	4 / 25.627
FY 2023	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 1.232	0 / 6.889	4 / 19.006	0 / 0.000	4 / 27.127
FY 2024	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 1.201	0 / 6.714	4 / 18.591	4 / 26.506
FY 2025	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 1.225	4 / 25.727	4 / 26.952
To Complete	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	2 / 12.755	2 / 12.755
Total	3 / 22.028	2 / 13.567	3 / 16.658	2 / 14.508	0 / 0.000	2 / 14.508	3 / 19.058	3 / 20.952	4 / 26.093	4 / 26.945	10 / 57.073	34 / 216.882

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	-	2	-	-	-	1	-	2	-	1	1	-	2	1	-	-	1	1	-	1	-	2	1	1	-	2	-	2	10	34
Out	1	-	-	2	-	-	-	2	-	-	-	1	-	-	2	1	2	-	2	-	-	-	1	1	-	1	-	3	-	15	34

Footnotes:

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

(8) Due to ship specific differences, the unit cost for a Flight IIA ship is less than that for a Flight I/II ship. DDG 111 & 112 received GEDMS during new construction.

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0900 / DDG Mod	**Modification Number / Title:** 2 / DM001 - DDG MODERNIZATION HME (MCS/DCS)
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

Resource Summary	Prior Years	FY 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)*	445.391	66.742	65.321	67.035	0.000	67.035	74.481	75.196	76.146	78.174	205.763	1,154.249
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	445.391	66.742	65.321	67.035	0.000	67.035	74.481	75.196	76.146	78.174	205.763	1,154.249
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**445.391**	**66.742**	**65.321**	**67.035**	**0.000**	**67.035**	**74.481**	**75.196**	**76.146**	**78.174**	**205.763**	**1,154.249**
(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:

Machinery Control System (MCS) replaces the obsolete control consoles while also delivering enhanced capability to the fleet through improved situational awareness and reconfigurable user stations. The new consoles use COTS-based computers which connect via Versa Modular Eurocard (VME)-chassis technology. The VME architecture is expected to be supportable for the remaining service life of the ship and will enable computer upgrades within the chassis thereby mitigating future obsolescence concerns.

Engineering Services:

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

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

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

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

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

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

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

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0900 / DDG Mod	**Modification Number / Title:** 2 / DM001 - DDG MODERNIZATION HME (MCS/DCS)
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	
Models of Systems Affected: [No Model Specified]	**Modification Type:** TBD	**Related RDT&E PEs:** 0604567N

Financial Plan	Prior Years	FY 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: DM001 - DDG MODERNIZATION HME (MCS/DCS)												
B Kits												
Recurring												
1.1.1) MCS/DCS EQUIPMENT FL II/IIA - NonOrganic (9)	33 / 133.581	3 / 12.462	4 / 17.400	4 / 17.543	- / -	4 / 17.543	4 / 17.859	4 / 18.180	4 / 18.507	4 / 18.841	2 / 48.480	62 / 302.853
Subtotal: Recurring	*- / 133.581*	*- / 12.462*	*- / 17.400*	*- / 17.543*	*- / -*	*- / 17.543*	*- / 17.859*	*- / 18.180*	*- / 18.507*	*- / 18.841*	*- / 48.480*	*- / 302.853*
Non-Recurring												
1.2.1) MCS/DCS 1ST ARTICLE & NRE - Organic	- / 8.643	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / 8.643
Subtotal: Non-Recurring	*- / 8.643*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / 0.000*	*- / 8.643*
Subtotal: DM001 - DDG MODERNIZATION HME (MCS/DCS)	*33 / 142.224*	*3 / 12.462*	*4 / 17.400*	*4 / 17.543*	*- / -*	*4 / 17.543*	*4 / 17.859*	*4 / 18.180*	*4 / 18.507*	*4 / 18.841*	*2 / 48.480*	*62 / 311.496*
Subtotal: Procurement, All Modification Items	*- / 142.224*	*- / 12.462*	*- / 17.400*	*- / 17.543*	*- / -*	*- / 17.543*	*- / 17.859*	*- / 18.180*	*- / 18.507*	*- / 18.841*	*- / 48.480*	*- / 311.496*
Support *(All Modification Items)*												
2.1) MCS/DCS ENGINEERING SERVICES	- / 81.201	- / 10.511	- / 10.700	- / 10.892	- / -	- / 10.892	- / 11.089	- / 11.288	- / 11.492	- / 11.698	- / 59.563	- / 218.434
Subtotal: Support	*- / 81.201*	*- / 10.511*	*- / 10.700*	*- / 10.892*	*- / -*	*- / 10.892*	*- / 11.089*	*- / 11.288*	*- / 11.492*	*- / 11.698*	*- / 59.563*	*- / 218.434*
Installation												
Modification Item 1 of 1: DM001 - DDG MODERNIZATION HME (MCS/DCS)	- / 221.966	- / 43.769	- / 37.221	- / 38.600	- / 0.000	- / 38.600	- / 45.533	- / 45.728	- / 46.147	- / 47.635	- / 97.720	- / 624.319
Subtotal: Installation	*- / 221.966*	*- / 43.769*	*- / 37.221*	*- / 38.600*	*- / -*	*- / 38.600*	*- / 45.533*	*- / 45.728*	*- / 46.147*	*- / 47.635*	*- / 97.720*	*- / 624.319*
Total												
Total Cost (Procurement + Support + Installation)	**445.391**	**66.742**	**65.321**	**67.035**	**0.000**	**67.035**	**74.481**	**75.196**	**76.146**	**78.174**	**205.763**	**1,154.249**

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0900 / DDG Mod	**Modification Number / Title:** 2 / DM001 - DDG MODERNIZATION HME (MCS/DCS)

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

Modification Item 1 of 1: DM001 - DDG MODERNIZATION HME (MCS/DCS)

Manufacturer Information

Manufacturer Name: Lockheed Martin | Manufacturer Location: Orlando, FL

Administrative Leadtime *(in Months)*: 6 | Production Leadtime *(in Months)*: 16

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

Installation Information

Method of Implementation: [none specified]:: Installation Name: MCS/DCS EQUIPMENT FL II/IIA

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	24 / 221.966	5 / 42.017	4 / 24.160	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	33 / 288.143
FY 2019	- / -	0 / 1.752	0 / 10.826	3 / 22.199	0 / 0.000	3 / 22.199	- / -	- / -	- / -	- / -	0 / 0.000	3 / 34.777
FY 2020	- / -	- / -	0 / 2.235	0 / 14.143	0 / 0.000	0 / 14.143	4 / 29.018	- / -	- / -	- / -	0 / 0.000	4 / 45.396
FY 2021	- / -	- / -	- / -	0 / 2.258	0 / 0.000	0 / 2.258	0 / 14.291	4 / 29.289	- / -	- / -	0 / 0.000	4 / 45.838
FY 2022	- / -	- / -	- / -	- / -	- / -	- / -	0 / 2.224	0 / 14.071	4 / 28.851	- / -	0 / 0.000	4 / 45.146
FY 2023	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 2.368	0 / 14.988	4 / 30.674	0 / 0.000	4 / 48.030
FY 2024	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 2.308	0 / 14.607	4 / 29.918	4 / 46.833
FY 2025	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 2.354	4 / 45.341	4 / 47.695
To Complete	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	2 / 22.461	2 / 22.461
Total	24 / 221.966	5 / 43.769	4 / 37.221	3 / 38.600	0 / 0.000	3 / 38.600	4 / 45.533	4 / 45.728	4 / 46.147	4 / 47.635	10 / 97.720	62 / 624.319

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	24	-	4	-	1	-	2	-	2	-	1	1	1	2	2	-	-	2	1	-	1	-	2	1	1	-	2	-	2	10	62
Out	18	1	-	4	1	1	1	2	1	-	-	2	1	-	1	1	2	-	4	-	-	1	1	2	-	1	-	3	-	14	62

Footnotes:

(9) Installation costs across the FYDP vary depending on current port rates - avails not designated with a specific execution port (TBD) have a generic rate for budgeting, and install costs will be updated once an execution port is assigned. Port rates are updated every year by CNRMC based on the forecasted port loading model. Port loading rate forecasts are the rates recommended for all budgeted maintenance and organic modernization within a specific port. Individual ship's availability durations vary dependent upon the integration of ship's maintenance and modernization work packages. Installation funding for a ship

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0900 / DDG Mod	**Modification Number / Title:** 2 / DM001 - DDG MODERNIZATION HME (MCS/DCS)
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

is divided over a three-year period. Installation execution funding in the year of availability, and Design Service Allocation (DSA) two years prior to availability, and DSA in the year prior to the availability. This includes ship checks, ship installation drawing (SID) development, logistic document development and long lead time material procurements (LLTM).

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0900 / DDG Mod	**Modification Number / Title:** 3 / DM001 - DDG MODERNIZATION HME (DVSS)
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

Resource Summary	Prior Years	FY 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)*	35.677	5.970	6.035	5.885	0.000	5.885	6.731	6.807	6.853	7.069	15.027	96.054
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	35.677	5.970	6.035	5.885	0.000	5.885	6.731	6.807	6.853	7.069	15.027	96.054
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**35.677**	**5.970**	**6.035**	**5.885**	**0.000**	**5.885**	**6.731**	**6.807**	**6.853**	**7.069**	**15.027**	**96.054**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)												
Initial Spares *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Dollars)*	-	-	-	-	-	-	-	-	-	-	-	-

Description:
Digital Video Surveillance System (DVSS) is a network of video cameras which are integrated into the Machinery Control System. This system is primarily a watch-stander situational awareness tool which supplements the workload reduction benefits of the new MCS.

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0900 / DDG Mod	**Modification Number / Title:** 3 / DM001 - DDG MODERNIZATION HME (DVSS)
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	
Models of Systems Affected: [No Model Specified]	**Modification Type:** TBD	**Related RDT&E PEs:** 0604567N

Financial Plan	Prior Years	FY 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: DM001 - DDG MODERNIZATION HME (DVSS)												
B Kits												
Recurring												
1.1.1) DVSS Equipment - NonOrganic [10]	33 / 13.609	3 / 1.592	4 / 2.160	4 / 2.200	- / -	4 / 2.200	4 / 2.239	4 / 2.280	4 / 2.320	4 / 2.362	2 / 2.362	62 / 31.124
Subtotal: Recurring	*- / 13.609*	*- / 1.592*	*- / 2.160*	*- / 2.200*	*- / -*	*- / 2.200*	*- / 2.239*	*- / 2.280*	*- / 2.320*	*- / 2.362*	*- / 2.362*	*- / 31.124*
Non-Recurring												
1.2.1) DVSS 1st Article & NRE - Organic	- / 0.477	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / 0.477
Subtotal: Non-Recurring	*- / 0.477*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / 0.000*	*- / 0.477*
Subtotal: DM001 - DDG MODERNIZATION HME (DVSS)	*33 / 14.086*	*3 / 1.592*	*4 / 2.160*	*4 / 2.200*	*- / -*	*4 / 2.200*	*4 / 2.239*	*4 / 2.280*	*4 / 2.320*	*4 / 2.362*	*2 / 2.362*	*62 / 31.601*
Subtotal: Procurement, All Modification Items	*- / 14.086*	*- / 1.592*	*- / 2.160*	*- / 2.200*	*- / -*	*- / 2.200*	*- / 2.239*	*- / 2.280*	*- / 2.320*	*- / 2.362*	*- / 2.362*	*- / 31.601*
Installation												
Modification Item 1 of 1: DM001 - DDG MODERNIZATION HME (DVSS)	- / 21.591	- / 4.378	- / 3.875	- / 3.685	- / 0.000	- / 3.685	- / 4.492	- / 4.527	- / 4.533	- / 4.707	- / 12.665	- / 64.453
Subtotal: Installation	*- / 21.591*	*- / 4.378*	*- / 3.875*	*- / 3.685*	*- / -*	*- / 3.685*	*- / 4.492*	*- / 4.527*	*- / 4.533*	*- / 4.707*	*- / 12.665*	*- / 64.453*
Total												
Total Cost (Procurement + Support + Installation)	**35.677**	**5.970**	**6.035**	**5.885**	**0.000**	**5.885**	**6.731**	**6.807**	**6.853**	**7.069**	**15.027**	**96.054**

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0900 / DDG Mod	**Modification Number / Title:** 3 / DM001 - DDG MODERNIZATION HME (DVSS)

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

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

Manufacturer Information

Manufacturer Name: NSWC SSES | Manufacturer Location: Philadelphia, PA

Administrative Leadtime *(in Months)*: 6 | Production Leadtime *(in Months)*: 16

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

Installation Information

Method of Implementation: [none specified]:: Installation Name: DVSS Equipment

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	24 / 21.591	5 / 4.221	4 / 2.982	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	33 / 28.794
FY 2019	- / -	0 / 0.157	0 / 0.688	3 / 2.578	0 / 0.000	3 / 2.578	- / -	- / -	- / -	- / -	0 / 0.000	3 / 3.423
FY 2020	- / -	- / -	0 / 0.205	0 / 0.900	0 / 0.000	0 / 0.900	4 / 3.377	- / -	- / -	- / -	0 / 0.000	4 / 4.482
FY 2021	- / -	- / -	- / -	0 / 0.207	0 / 0.000	0 / 0.207	0 / 0.911	4 / 3.412	- / -	- / -	0 / 0.000	4 / 4.530
FY 2022	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.204	0 / 0.897	4 / 3.366	- / -	0 / 0.000	4 / 4.467
FY 2023	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.218	0 / 0.955	4 / 3.560	0 / 0.000	4 / 4.733
FY 2024	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.212	0 / 0.931	4 / 3.479	4 / 4.622
FY 2025	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.216	4 / 4.485	4 / 4.701
To Complete	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	2 / 4.701	2 / 4.701
Total	24 / 21.591	5 / 4.378	4 / 3.875	3 / 3.685	0 / 0.000	3 / 3.685	4 / 4.492	4 / 4.527	4 / 4.533	4 / 4.707	10 / 12.665	62 / 64.453

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	24	-	4	-	1	-	2	-	2	-	1	1	1	2	2	-	-	2	1	-	1	-	2	1	1	-	2	-	2	10	62
Out	18	1	-	4	1	1	1	2	1	-	-	2	1	-	2	1	2	-	3	-	-	1	1	1	-	1	-	3	-	15	62

Footnotes:

(10) Installation costs across the FYDP vary depending on current port rates - avails not designated with a specific execution port (TBD) have a generic rate for budgeting, and install costs will be updated once an execution port is assigned. Port rates are updated every year by CNRMC based on the forecasted port loading model. Port loading rate forecasts are the rates recommended for all budgeted maintenance and organic modernization within a specific port. Individual ship's availability durations vary dependent upon the integration of ship's maintenance and modernization work packages. Installation funding for a ship

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0900 / DDG Mod	**Modification Number / Title:** 3 / DM001 - DDG MODERNIZATION HME (DVSS)
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

is divided over a three-year period. Installation execution funding in the year of availability, and Design Service Allocation (DSA) two years prior to availability, and DSA in the year prior to the availability. This includes ship checks, ship installation drawing (SID) development, logistic document development and long lead time material procurements (LLTM).

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0900 / DDG Mod	**Modification Number / Title:** 4 / DM001 - DDG MODERNIZATION HME (WIRELESS COMMUNICATIONS)
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

Resource Summary	Prior Years	FY 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)*	17.441	1.912	1.329	1.544	0.000	1.544	1.042	0.603	0.000	0.000	0.000	23.871
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	17.441	1.912	1.329	1.544	0.000	1.544	1.042	0.603	0.000	0.000	0.000	23.871
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**17.441**	**1.912**	**1.329**	**1.544**	**0.000**	**1.544**	**1.042**	**0.603**	**0.000**	**0.000**	**0.000**	**23.871**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)												
Initial Spares *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Dollars)*	-	-	-	-	-	-	-	-	-	-	-	-

Description:

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

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0900 / DDG Mod	**Modification Number / Title:** 4 / DM001 - DDG MODERNIZATION HME (WIRELESS COMMUNICATIONS)
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	
Models of Systems Affected: [No Model Specified]	**Modification Type:** TBD	**Related RDT&E PEs:** 0604567N

Financial Plan	Prior Years	FY 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: DM001 - DDG MODERNIZATION HME (WIRELESS COMMUNICATIONS)												
B Kits												
Recurring												
1.1.1) Wireless Communications Equipment - NonOrganic (11)	18 / 7.014	1 / 0.449	1 / 0.457	1 / 0.466	- / -	1 / 0.466	- / -	- / -	- / -	- / -	- / -	21 / 8.386
Subtotal: Recurring	*- / 7.014*	*- / 0.449*	*- / 0.457*	*- / 0.466*	*- / -*	*- / 0.466*	*- / -*	*- / -*	*- / -*	*- / -*	*- / 0.000*	*- / 8.386*
Subtotal: DM001 - DDG MODERNIZATION HME (WIRELESS COMMUNICATIONS)	*18 / 7.014*	*1 / 0.449*	*1 / 0.457*	*1 / 0.466*	*- / -*	*1 / 0.466*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*21 / 8.386*
Subtotal: Procurement, All Modification Items	*- / 7.014*	*- / 0.449*	*- / 0.457*	*- / 0.466*	*- / -*	*- / 0.466*	*- / -*	*- / -*	*- / -*	*- / -*	*- / 0.000*	*- / 8.386*
Installation												
Modification Item 1 of 1: DM001 - DDG MODERNIZATION HME (WIRELESS COMMUNICATIONS)	- / 10.427	- / 1.463	- / 0.872	- / 1.078	- / 0.000	- / 1.078	- / 1.042	- / 0.603	- / 0.000	- / 0.000	- / 0.000	- / 15.485
Subtotal: Installation	*- / 10.427*	*- / 1.463*	*- / 0.872*	*- / 1.078*	*- / -*	*- / 1.078*	*- / 1.042*	*- / 0.603*	*- / -*	*- / -*	*- / 0.000*	*- / 15.485*
Total												
Total Cost (Procurement + Support + Installation)	**17.441**	**1.912**	**1.329**	**1.544**	**0.000**	**1.544**	**1.042**	**0.603**	**0.000**	**0.000**	**0.000**	**23.871**

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0900 / DDG Mod	**Modification Number / Title:** 4 / DM001 - DDG MODERNIZATION HME (WIRELESS COMMUNICATIONS)

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

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

Manufacturer Information

Manufacturer Name: Naval Information Warfare Center Atlantic | Manufacturer Location: Charleston, SC

Administrative Leadtime *(in Months)*: 6 | Production Leadtime *(in Months)*: 16

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

Installation Information

Method of Implementation: [none specified]:: Installation Name: Wireless Communications Equipment

Installation Cost	Prior Years	FY 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	15 / 10.427	3 / 1.410	0 / 0.385	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	18 / 12.222
FY 2019	- / -	0 / 0.053	0 / 0.433	1 / 0.580	0 / 0.000	1 / 0.580	- / -	- / -	- / -	- / -	0 / 0.000	1 / 1.066
FY 2020	- / -	- / -	0 / 0.054	0 / 0.442	0 / 0.000	0 / 0.442	1 / 0.591	- / -	- / -	- / -	0 / 0.000	1 / 1.087
FY 2021	- / -	- / -	- / -	0 / 0.056	0 / 0.000	0 / 0.056	0 / 0.451	1 / 0.603	- / -	- / -	0 / 0.000	1 / 1.110
FY 2022	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2023	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2024	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2025	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
To Complete	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
Total	15 / 10.427	3 / 1.463	0 / 0.872	1 / 1.078	0 / 0.000	1 / 1.078	1 / 1.042	1 / 0.603	- / -	- / -	0 / 0.000	21 / 15.485

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	15	-	2	-	1	-	-	-	-	-	-	1	-	-	1	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	21
Out	12	1	-	1	1	1	1	-	1	-	-	-	-	-	-	1	-	-	1	-	-	1	-	-	-	-	-	-	-	-	21

Footnotes:

(11) All flight I & II require SIWCS with the exception of DDGs 53-56 and 63 (previously installed). All flight IIA's have a version of SIWCS installed. Installation costs across the FYDP vary depending on current port rates - avails not designated with a specific execution port (TBD) have a generic rate for budgeting, and install costs will be updated once an execution port is assigned. Port rates are updated every year by CNRMC based on the forecasted port loading model. Port loading rate forecasts are the rates recommended for all budgeted maintenance and organic modernization within a specific port. Individual ship's

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0900 / DDG Mod	**Modification Number / Title:** 4 / DM001 - DDG MODERNIZATION HME (WIRELESS COMMUNICATIONS)
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

availability durations vary dependent upon the integration of ship's maintenance and modernization work packages. Installation funding for a ship is divided over a three-year period. Installation execution funding in the year of availability, and Design Service Allocation (DSA) two years prior to availability, and DSA in the year prior to the availability. This includes ship checks, ship installation drawing (SID) development, logistic document development and long lead time material procurements (LLTM).

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0900 / DDG Mod	**Modification Number / Title:** 5 / DM001 - DDG MODERNIZATION HME (IBNS)
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

Resource Summary	Prior Years	FY 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)*	196.122	25.452	27.628	28.041	0.000	28.041	30.533	30.893	31.336	32.089	82.621	484.715
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	196.122	25.452	27.628	28.041	0.000	28.041	30.533	30.893	31.336	32.089	82.621	484.715
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**196.122**	**25.452**	**27.628**	**28.041**	**0.000**	**28.041**	**30.533**	**30.893**	**31.336**	**32.089**	**82.621**	**484.715**
(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 Integrated Bridge & Navigation System (IBNS) replaces obsolete bridge consoles and introduces flexibility with how the pilot house is managed during navigation. The key benefit is the ability for operating with fewer watch-standers, reduced watch standard workloads, and improved safety of navigation.

Engineering Services:

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

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

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

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

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

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

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

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0900 / DDG Mod	**Modification Number / Title:** 5 / DM001 - DDG MODERNIZATION HME (IBNS)
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	
Models of Systems Affected: [No Model Specified]	**Modification Type:** TBD	**Related RDT&E PEs:** 0604567N

Financial Plan	Prior Years	FY 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: DM001 - DDG MODERNIZATION HME (IBNS)												
B Kits												
Recurring												
1.1.1) IBNS Equipment - NonOrganic (12)	33 / 104.502	3 / 10.185	4 / 13.824	4 / 14.073	- / -	4 / 14.073	4 / 14.327	4 / 14.585	4 / 14.847	4 / 15.115	2 / 36.463	62 / 237.921
1.1.2) IBNS 1st Article & NRE - Organic	- / 4.186	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / 4.186
Subtotal: Recurring	*- / 108.688*	*- / 10.185*	*- / 13.824*	*- / 14.073*	*- / -*	*- / 14.073*	*- / 14.327*	*- / 14.585*	*- / 14.847*	*- / 15.115*	*- / 36.463*	*- / 242.107*
Subtotal: DM001 - DDG MODERNIZATION HME (IBNS)	*33 / 108.688*	*3 / 10.185*	*4 / 13.824*	*4 / 14.073*	*- / -*	*4 / 14.073*	*4 / 14.327*	*4 / 14.585*	*4 / 14.847*	*4 / 15.115*	*2 / 36.463*	*62 / 242.107*
Subtotal: Procurement, All Modification Items	*- / 108.688*	*- / 10.185*	*- / 13.824*	*- / 14.073*	*- / -*	*- / 14.073*	*- / 14.327*	*- / 14.585*	*- / 14.847*	*- / 15.115*	*- / 36.463*	*- / 242.107*
Support *(All Modification Items)*												
2.1) IBNS ENGINEERING SERVICES	- / 9.861	- / 1.345	- / 1.369	- / 1.394	- / -	- / 1.394	- / 1.419	- / 1.444	- / 1.470	- / 1.497	- / 7.622	- / 27.421
Subtotal: Support	*- / 9.861*	*- / 1.345*	*- / 1.369*	*- / 1.394*	*- / -*	*- / 1.394*	*- / 1.419*	*- / 1.444*	*- / 1.470*	*- / 1.497*	*- / 7.622*	*- / 27.421*
Installation												
Modification Item 1 of 1: DM001 - DDG MODERNIZATION HME (IBNS)	- / 77.573	- / 13.922	- / 12.435	- / 12.574	- / 0.000	- / 12.574	- / 14.787	- / 14.864	- / 15.019	- / 15.477	- / 38.536	- / 215.187
Subtotal: Installation	*- / 77.573*	*- / 13.922*	*- / 12.435*	*- / 12.574*	*- / -*	*- / 12.574*	*- / 14.787*	*- / 14.864*	*- / 15.019*	*- / 15.477*	*- / 38.536*	*- / 215.187*
Total												
Total Cost (Procurement + Support + Installation)	**196.122**	**25.452**	**27.628**	**28.041**	**0.000**	**28.041**	**30.533**	**30.893**	**31.336**	**32.089**	**82.621**	**484.715**

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0900 / DDG Mod	**Modification Number / Title:** 5 / DM001 - DDG MODERNIZATION HME (IBNS)

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

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

Manufacturer Information

Manufacturer Name: Northrop Grumman Sperry | Manufacturer Location: Charlottesville, VA

Administrative Leadtime *(in Months)*: 6 | Production Leadtime *(in Months)*: 16

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

Installation Information

Method of Implementation: [none specified]:: Installation Name: IBNS Equipment

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	24 / 77.573	5 / 13.369	4 / 8.031	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	33 / 98.973
FY 2019	- / -	0 / 0.553	0 / 3.682	3 / 7.030	0 / 0.000	3 / 7.030	- / -	- / -	- / -	- / -	0 / 0.000	3 / 11.265
FY 2020	- / -	- / -	0 / 0.722	0 / 4.813	0 / 0.000	0 / 4.813	4 / 9.197	- / -	- / -	- / -	0 / 0.000	4 / 14.732
FY 2021	- / -	- / -	- / -	0 / 0.731	0 / 0.000	0 / 0.731	0 / 4.870	4 / 9.302	- / -	- / -	0 / 0.000	4 / 14.903
FY 2022	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.720	0 / 4.795	4 / 9.164	- / -	0 / 0.000	4 / 14.679
FY 2023	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.767	0 / 5.108	4 / 9.737	0 / 6.991	4 / 22.603
FY 2024	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.747	0 / 4.978	4 / 9.499	4 / 15.224
FY 2025	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.762	4 / 14.742	4 / 15.504
To Complete	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	2 / 7.304	2 / 7.304
Total	24 / 77.573	5 / 13.922	4 / 12.435	3 / 12.574	0 / 0.000	3 / 12.574	4 / 14.787	4 / 14.864	4 / 15.019	4 / 15.477	10 / 38.536	62 / 215.187

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	24	-	4	-	1	-	2	-	2	-	1	1	1	1	2	1	-	2	1	-	1	-	2	1	1	-	2	-	2	10	62
Out	18	1	-	4	1	1	1	2	1	-	-	2	1	-	1	1	2	-	3	-	1	1	1	1	-	1	-	3	-	15	62

Footnotes:

(12) Installation costs across the FYDP vary depending on current port rates - avails not designated with a specific execution port (TBD) have a generic rate for budgeting, and install costs will be updated once an execution port is assigned. Port rates are updated every year by CNRMC based on the forecasted port loading model. Port loading rate forecasts are the rates recommended for all budgeted maintenance and organic modernization within a specific port. Individual ship's availability durations vary dependent upon the integration of ship's maintenance and modernization work packages. Installation funding for a ship

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0900 / DDG Mod	**Modification Number / Title:** 5 / DM001 - DDG MODERNIZATION HME (IBNS)
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

is divided over a three-year period. Installation execution funding in the year of availability, and Design Service Allocation (DSA) two years prior to availability, and DSA in the year prior to the availability. This includes ship checks, ship installation drawing (SID) development, logistic document development and long lead time material procurements (LLTM).

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0900 / DDG Mod	**Modification Number / Title:** 6 / DM003 - MK 160 MOD 15 GWS
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

Resource Summary	Prior Years	FY 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)*	72.152	12.020	16.343	16.129	0.000	16.129	20.950	21.639	23.017	23.520	62.075	267.845
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	72.152	12.020	16.343	16.129	0.000	16.129	20.950	21.639	23.017	23.520	62.075	267.845
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**72.152**	**12.020**	**16.343**	**16.129**	**0.000**	**16.129**	**20.950**	**21.639**	**23.017**	**23.520**	**62.075**	**267.845**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)												
Initial Spares *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Dollars)*	-	-	-	-	-	-	-	-	-	-	-	-

Description:

Procures MK 160 Mod 15 Gun Weapon System (GWS) that includes equipment procurement, recurring engineering, equipment integration and Integrated Logistics Support (ILS) products for DDG 51 Class ships.

Engineering Services:

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

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

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

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

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

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

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

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0900 / DDG Mod	**Modification Number / Title:** 6 / DM003 - MK 160 MOD 15 GWS
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	
Models of Systems Affected: [No Model Specified]	**Modification Type:** TBD	**Related RDT&E PEs:**

Financial Plan	Prior Years	FY 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: DM003 - MK 160 MOD 15 GWS												
B Kits												
Recurring												
1.1.1) MK 160 MOD 15 GWS EQUIPMENT - NonOrganic (13)	14 / 44.326	2 / 6.900	3 / 10.536	3 / 10.725	- / -	3 / 10.725	4 / 14.559	4 / 14.820	4 / 15.088	4 / 15.358	2 / 37.050	40 / 169.362
Subtotal: Recurring	*- / 44.326*	*- / 6.900*	*- / 10.536*	*- / 10.725*	*- / -*	*- / 10.725*	*- / 14.559*	*- / 14.820*	*- / 15.088*	*- / 15.358*	*- / 37.050*	*- / 169.362*
Subtotal: DM003 - MK 160 MOD 15 GWS	*14 / 44.326*	*2 / 6.900*	*3 / 10.536*	*3 / 10.725*	*- / -*	*3 / 10.725*	*4 / 14.559*	*4 / 14.820*	*4 / 15.088*	*4 / 15.358*	*2 / 37.050*	*40 / 169.362*
Subtotal: Procurement, All Modification Items	*- / 44.326*	*- / 6.900*	*- / 10.536*	*- / 10.725*	*- / -*	*- / 10.725*	*- / 14.559*	*- / 14.820*	*- / 15.088*	*- / 15.358*	*- / 37.050*	*- / 169.362*
Support *(All Modification Items)*												
2.1) ENGINEERING SERVICES	- / 17.067	- / 2.335	- / 2.377	- / 2.420	- / -	- / 2.420	- / 2.464	- / 2.508	- / 2.553	- / 2.599	- / 13.234	- / 47.557
Subtotal: Support	*- / 17.067*	*- / 2.335*	*- / 2.377*	*- / 2.420*	*- / -*	*- / 2.420*	*- / 2.464*	*- / 2.508*	*- / 2.553*	*- / 2.599*	*- / 13.234*	*- / 47.557*
Installation												
Modification Item 1 of 1: DM003 - MK 160 MOD 15 GWS	- / 10.759	- / 2.785	- / 3.430	- / 2.984	- / 0.000	- / 2.984	- / 3.927	- / 4.311	- / 5.376	- / 5.563	- / 11.791	- / 50.926
Subtotal: Installation	*- / 10.759*	*- / 2.785*	*- / 3.430*	*- / 2.984*	*- / -*	*- / 2.984*	*- / 3.927*	*- / 4.311*	*- / 5.376*	*- / 5.563*	*- / 11.791*	*- / 50.926*
Total												
Total Cost (Procurement + Support + Installation)	**72.152**	**12.020**	**16.343**	**16.129**	**0.000**	**16.129**	**20.950**	**21.639**	**23.017**	**23.520**	**62.075**	**267.845**

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0900 / DDG Mod	**Modification Number / Title:** 6 / DM003 - MK 160 MOD 15 GWS
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

Modification Item 1 of 1: DM003 - MK 160 MOD 15 GWS

Manufacturer Information

Manufacturer Name: VARIOUS	Manufacturer Location: VARIOUS
Administrative Leadtime *(in Months)*: 6	Production Leadtime *(in Months)*: 18

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

Installation Information

Method of Implementation: [none specified]:: Installation Name: MK 160 MOD 15 GWS EQUIPMENT

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	10 / 10.759	2 / 2.663	2 / 2.604	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	14 / 16.026
FY 2019	- / -	0 / 0.122	0 / 0.648	2 / 1.856	0 / 0.000	2 / 1.856	- / -	- / -	- / -	- / -	0 / 0.000	2 / 2.626
FY 2020	- / -	- / -	0 / 0.178	0 / 0.948	0 / 0.000	0 / 0.948	3 / 2.725	- / -	- / -	- / -	0 / 0.000	3 / 3.851
FY 2021	- / -	- / -	- / -	0 / 0.180	0 / 0.000	0 / 0.180	0 / 0.957	3 / 2.746	- / -	- / -	0 / 0.000	3 / 3.883
FY 2022	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.245	0 / 1.304	4 / 3.733	- / -	0 / 0.000	4 / 5.282
FY 2023	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.261	0 / 1.389	4 / 3.951	0 / 0.000	4 / 5.601
FY 2024	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.254	0 / 1.353	4 / 3.860	4 / 5.467
FY 2025	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.259	4 / 5.303	4 / 5.562
To Complete	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	2 / 2.628	2 / 2.628
Total	10 / 10.759	2 / 2.785	2 / 3.430	2 / 2.984	0 / 0.000	2 / 2.984	3 / 3.927	3 / 4.311	4 / 5.376	4 / 5.563	10 / 11.791	40 / 50.926

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	10	-	2	-	-	-	2	-	-	-	1	-	1	2	1	-	-	1	1	-	1	-	2	1	1	-	2	-	2	10	40
Out	8	-	-	2	-	-	-	2	-	-	-	1	1	-	1	-	2	-	2	-	-	-	1	1	-	1	-	3	-	15	40

Footnotes:

(13) Installation costs across the FYDP vary depending on current port rates - avails not designated with a specific execution port (TBD) have a generic rate for budgeting, and install costs will be updated once an execution port is assigned. Port rates are updated every year by CNRMC based on the forecasted port loading model. Port loading rate forecasts are the rates recommended for all budgeted maintenance and organic modernization within a specific port. Individual ship's availability durations vary dependent upon the integration of ship's maintenance and modernization work packages. Installation funding for a ship

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0900 / DDG Mod	**Modification Number / Title:** 6 / DM003 - MK 160 MOD 15 GWS
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

is divided over a three-year period. Installation execution funding in the year of availability, and Design Service Allocation (DSA) two years prior to availability, and DSA in the year prior to the availability. This includes ship checks, ship installation drawing (SID) development, logistic document development and long lead time material procurements (LLTM).

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0900 / DDG Mod	**Modification Number / Title:** 7 / DM004 - AWS UPGRADE
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

Resource Summary	Prior Years	FY 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)*	524.825	93.860	132.552	123.041	0.000	123.041	164.271	172.567	195.970	201.199	468.828	2,077.113
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	524.825	93.860	132.552	123.041	0.000	123.041	164.271	172.567	195.970	201.199	468.828	2,077.113
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**524.825**	**93.860**	**132.552**	**123.041**	**0.000**	**123.041**	**164.271**	**172.567**	**195.970**	**201.199**	**468.828**	**2,077.113**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)												
Initial Spares *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Dollars)*	-	-	-	-	-	-	-	-	-	-	-	-

Description:

Procures equipment for the Aegis Weapon System (AWS) Upgrades that includes equipment procurement, recurring engineering, equipment integration and Integrated Logistics Support (ILS) products for DDG 51 Class ships.

Engineering Services:

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

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

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

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

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

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

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

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0900 / DDG Mod	**Modification Number / Title:** 7 / DM004 - AWS UPGRADE
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	
Models of Systems Affected: [No Model Specified]	**Modification Type:** TBD	**Related RDT&E PEs:**

Financial Plan	Prior Years	FY 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: DM004 - AWS UPGRADE												
B Kits												
Recurring												
1.1.1) AWS EQUIPMENT - NonOrganic (14)	14 / 288.209	2 / 38.884	3 / 59.376	3 / 60.445	- / -	3 / 60.445	4 / 82.044	4 / 83.520	4 / 85.024	4 / 86.555	2 / 208.800	40 / 992.857
Subtotal: Recurring	*- / 288.209*	*- / 38.884*	*- / 59.376*	*- / 60.445*	*- / -*	*- / 60.445*	*- / 82.044*	*- / 83.520*	*- / 85.024*	*- / 86.555*	*- / 208.800*	*- / 992.857*
Subtotal: DM004 - AWS UPGRADE	*14 / 288.209*	*2 / 38.884*	*3 / 59.376*	*3 / 60.445*	*- / -*	*3 / 60.445*	*4 / 82.044*	*4 / 83.520*	*4 / 85.024*	*4 / 86.555*	*2 / 208.800*	*40 / 992.857*
Subtotal: Procurement, All Modification Items	*- / 288.209*	*- / 38.884*	*- / 59.376*	*- / 60.445*	*- / -*	*- / 60.445*	*- / 82.044*	*- / 83.520*	*- / 85.024*	*- / 86.555*	*- / 208.800*	*- / 992.857*
Support *(All Modification Items)*												
2.1) ENGINEERING SERVICES	- / 22.970	- / 3.914	- / 3.984	- / 4.056	- / -	- / 4.056	- / 4.129	- / 4.204	- / 4.279	- / 4.356	- / 22.180	- / 74.072
Subtotal: Support	*- / 22.970*	*- / 3.914*	*- / 3.984*	*- / 4.056*	*- / -*	*- / 4.056*	*- / 4.129*	*- / 4.204*	*- / 4.279*	*- / 4.356*	*- / 22.180*	*- / 74.072*
Installation												
Modification Item 1 of 1: DM004 - AWS UPGRADE	- / 213.646	- / 51.062	- / 69.192	- / 58.540	- / 0.000	- / 58.540	- / 78.098	- / 84.843	- / 106.667	- / 110.288	- / 237.848	- / 1,010.184
Subtotal: Installation	*- / 213.646*	*- / 51.062*	*- / 69.192*	*- / 58.540*	*- / -*	*- / 58.540*	*- / 78.098*	*- / 84.843*	*- / 106.667*	*- / 110.288*	*- / 237.848*	*- / 1,010.184*
Total												
Total Cost (Procurement + Support + Installation)	**524.825**	**93.860**	**132.552**	**123.041**	**0.000**	**123.041**	**164.271**	**172.567**	**195.970**	**201.199**	**468.828**	**2,077.113**

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0900 / DDG Mod	**Modification Number / Title:** 7 / DM004 - AWS UPGRADE
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

Modification Item 1 of 1: DM004 - AWS UPGRADE

Manufacturer Information

Manufacturer Name: LOCKHEED MARTIN	Manufacturer Location: MOORESTOWN, NJ
Administrative Leadtime *(in Months)*: 6	Production Leadtime *(in Months)*: 20

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

Installation Information

Method of Implementation: [none specified]:: Installation Name: AWS EQUIPMENT

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	9 / 213.646	2 / 48.779	3 / 54.591	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	14 / 317.016
FY 2019	- / -	0 / 2.283	0 / 11.285	2 / 38.681	0 / 0.000	2 / 38.681	- / -	- / -	- / -	- / -	0 / 0.000	2 / 52.249
FY 2020	- / -	- / -	0 / 3.316	0 / 16.514	0 / 0.000	0 / 16.514	3 / 56.876	- / -	- / -	- / -	0 / 0.000	3 / 76.706
FY 2021	- / -	- / -	- / -	0 / 3.345	0 / 0.000	0 / 3.345	0 / 16.663	3 / 57.281	- / -	- / -	0 / 0.000	3 / 77.289
FY 2022	- / -	- / -	- / -	- / -	- / -	- / -	0 / 4.559	0 / 22.706	4 / 77.747	- / -	0 / 0.000	4 / 105.012
FY 2023	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 4.856	0 / 24.187	4 / 81.889	0 / 0.000	4 / 110.932
FY 2024	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 4.733	0 / 23.572	4 / 80.172	4 / 108.477
FY 2025	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 4.827	4 / 105.404	4 / 110.231
To Complete	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	2 / 52.272	2 / 52.272
Total	9 / 213.646	2 / 51.062	3 / 69.192	2 / 58.540	0 / 0.000	2 / 58.540	3 / 78.098	3 / 84.843	4 / 106.667	4 / 110.288	10 / 237.848	40 / 1,010.184

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	9	-	2	-	-	-	2	-	1	-	1	-	1	2	1	-	-	1	1	-	1	-	2	1	1	-	2	-	2	10	40
Out	7	-	-	2	-	-	-	2	-	-	-	1	1	-	1	-	2	-	3	-	-	-	1	1	-	1	-	3	-	15	40

Footnotes:

(14) Installation costs across the FYDP vary depending on current port rates - avails not designated with a specific execution port (TBD) have a generic rate for budgeting, and install costs will be updated once an execution port is assigned. Port rates are updated every year by CNRMC based on the forecasted port loading model. Port loading rate forecasts are the rates recommended for all budgeted maintenance and organic modernization within a specific port. Individual ship's availability durations vary dependent upon the integration of ship's maintenance and modernization work packages. Installation funding for a ship

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0900 / DDG Mod	**Modification Number / Title:** 7 / DM004 - AWS UPGRADE
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

is divided over a three-year period. Installation execution funding in the year of availability, and Design Service Allocation (DSA) two years prior to availability, and DSA in the year prior to the availability. This includes ship checks, ship installation drawing (SID) development, logistic document development and long lead time material procurements (LLTM).

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0900 / DDG Mod	**Modification Number / Title:** 8 / DM005 - MULTI-MISSION SIGPRO
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

Resource Summary	Prior Years	FY 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)*	288.423	44.301	64.077	63.437	0.000	63.437	84.964	87.316	92.017	93.980	230.107	1,048.622
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	288.423	44.301	64.077	63.437	0.000	63.437	84.964	87.316	92.017	93.980	230.107	1,048.622
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**288.423**	**44.301**	**64.077**	**63.437**	**0.000**	**63.437**	**84.964**	**87.316**	**92.017**	**93.980**	**230.107**	**1,048.622**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)												
Initial Spares *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Dollars)*	-	-	-	-	-	-	-	-	-	-	-	-

Description:

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

Engineering Services:

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

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

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

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

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

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

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

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0900 / DDG Mod	**Modification Number / Title:** 8 / DM005 - MULTI-MISSION SIGPRO
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	
Models of Systems Affected: [No Model Specified]	**Modification Type:** TBD	**Related RDT&E PEs:**

Financial Plan	Prior Years	FY 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: DM005 - MULTI-MISSION SIGPRO												
B Kits												
Recurring												
1.1.1) MULTI-MISSION SIGPRO EQUIPMENT - NonOrganic (15)	15 / 234.964	2 / 33.264	3 / 50.794	3 / 51.709	- / -	3 / 51.709	4 / 70.186	4 / 71.449	4 / 72.736	4 / 74.045	2 / 178.623	41 / 837.770
Subtotal: Recurring	*- / 234.964*	*- / 33.264*	*- / 50.794*	*- / 51.709*	*- / -*	*- / 51.709*	*- / 70.186*	*- / 71.449*	*- / 72.736*	*- / 74.045*	*- / 178.623*	*- / 837.770*
Subtotal: DM005 - MULTI-MISSION SIGPRO	*15 / 234.964*	*2 / 33.264*	*3 / 50.794*	*3 / 51.709*	*- / -*	*3 / 51.709*	*4 / 70.186*	*4 / 71.449*	*4 / 72.736*	*4 / 74.045*	*2 / 178.623*	*41 / 837.770*
Subtotal: Procurement, All Modification Items	*- / 234.964*	*- / 33.264*	*- / 50.794*	*- / 51.709*	*- / -*	*- / 51.709*	*- / 70.186*	*- / 71.449*	*- / 72.736*	*- / 74.045*	*- / 178.623*	*- / 837.770*
Support *(All Modification Items)*												
2.1) ENGINEERING SERVICES	- / 20.121	- / 2.625	- / 2.672	- / 2.720	- / -	- / 2.720	- / 2.769	- / 2.819	- / 2.870	- / 2.921	- / 14.875	- / 54.392
Subtotal: Support	*- / 20.121*	*- / 2.625*	*- / 2.672*	*- / 2.720*	*- / -*	*- / 2.720*	*- / 2.769*	*- / 2.819*	*- / 2.870*	*- / 2.921*	*- / 14.875*	*- / 54.392*
Installation												
Modification Item 1 of 1: DM005 - MULTI-MISSION SIGPRO	- / 33.338	- / 8.412	- / 10.611	- / 9.008	- / 0.000	- / 9.008	- / 12.009	- / 13.048	- / 16.411	- / 17.014	- / 36.609	- / 156.460
Subtotal: Installation	*- / 33.338*	*- / 8.412*	*- / 10.611*	*- / 9.008*	*- / -*	*- / 9.008*	*- / 12.009*	*- / 13.048*	*- / 16.411*	*- / 17.014*	*- / 36.609*	*- / 156.460*
Total												
Total Cost (Procurement + Support + Installation)	**288.423**	**44.301**	**64.077**	**63.437**	**0.000**	**63.437**	**84.964**	**87.316**	**92.017**	**93.980**	**230.107**	**1,048.622**

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0900 / DDG Mod	**Modification Number / Title:** 8 / DM005 - MULTI-MISSION SIGPRO
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

Modification Item 1 of 1: DM005 - MULTI-MISSION SIGPRO

Manufacturer Information

Manufacturer Name: LOCKHEED MARTIN	Manufacturer Location: MOORESTOWN, NJ
Administrative Leadtime *(in Months)*: 6	Production Leadtime *(in Months)*: 18

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

Installation Information

Method of Implementation: [none specified]:: Installation Name: MULTI-MISSION SIGPRO EQUIPMENT

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	10 / 33.338	2 / 8.046	3 / 8.351	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	15 / 49.735
FY 2019	- / -	0 / 0.366	0 / 1.724	2 / 5.944	0 / 0.000	2 / 5.944	- / -	- / -	- / -	- / -	0 / 0.000	2 / 8.034
FY 2020	- / -	- / -	0 / 0.536	0 / 2.524	0 / 0.000	0 / 2.524	3 / 8.727	- / -	- / -	- / -	0 / 0.000	3 / 11.787
FY 2021	- / -	- / -	- / -	0 / 0.540	0 / 0.000	0 / 0.540	0 / 2.546	3 / 8.794	- / -	- / -	0 / 0.000	3 / 11.880
FY 2022	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.736	0 / 3.470	4 / 11.950	- / -	0 / 0.000	4 / 16.156
FY 2023	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.784	0 / 3.696	4 / 12.632	0 / 0.000	4 / 17.112
FY 2024	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.765	0 / 3.602	4 / 12.350	4 / 16.717
FY 2025	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.780	4 / 16.219	4 / 16.999
To Complete	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	2 / 8.040	2 / 8.040
Total	10 / 33.338	2 / 8.412	3 / 10.611	2 / 9.008	0 / 0.000	2 / 9.008	3 / 12.009	3 / 13.048	4 / 16.411	4 / 17.014	10 / 36.609	41 / 156.460

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	10	-	2	-	-	-	2	-	1	-	1	-	1	2	1	-	-	1	1	-	1	-	2	1	1	-	2	-	2	10	41
Out	8	-	-	2	-	-	-	2	-	-	-	1	1	-	1	-	2	-	2	-	1	-	1	1	-	1	-	3	-	15	41

Footnotes:

(15) Installation costs across the FYDP vary depending on current port rates - avails not designated with a specific execution port (TBD) have a generic rate for budgeting, and install costs will be updated once an execution port is assigned. Port rates are updated every year by CNRMC based on the forecasted port loading model. Port loading rate forecasts are the rates recommended for all budgeted maintenance and organic modernization within a specific port. Individual ship's availability durations vary dependent upon the integration of ship's maintenance and modernization work packages. Installation funding for a ship

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0900 / DDG Mod	**Modification Number / Title:** 8 / DM005 - MULTI-MISSION SIGPRO
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

is divided over a three-year period. Installation execution funding in the year of availability, and Design Service Allocation (DSA) two years prior to availability, and DSA in the year prior to the availability. This includes ship checks, ship installation drawing (SID) development, logistic document development and long lead time material procurements (LLTM).

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0900 / DDG Mod	**Modification Number / Title:** 9 / DM006 - MULTI-MISSION SSA/CWI MICROWAVE TUBES
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

Resource Summary	Prior Years	FY 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)*	15.124	2.171	3.315	3.375	0.000	3.375	4.581	4.664	4.748	4.833	11.660	54.471
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	15.124	2.171	3.315	3.375	0.000	3.375	4.581	4.664	4.748	4.833	11.660	54.471
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**15.124**	**2.171**	**3.315**	**3.375**	**0.000**	**3.375**	**4.581**	**4.664**	**4.748**	**4.833**	**11.660**	**54.471**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)												
Initial Spares *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Dollars)*	-	-	-	-	-	-	-	-	-	-	-	-

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

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0900 / DDG Mod	**Modification Number / Title:** 9 / DM006 - MULTI-MISSION SSA/CWI MICROWAVE TUBES
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	
Models of Systems Affected: [No Model Specified]	**Modification Type:** TBD	**Related RDT&E PEs:**

Financial Plan	Prior Years	FY 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: DM006 - MULTI-MISSION SSA/CWI MICROWAVE TUBES												
B Kits												
Recurring												
1.1.1) MULTI-MISSION SSA/CWI MICROWAVE TUBES EQUIPMENT - Organic (16)	15 / 15.124	2 / 2.171	3 / 3.315	3 / 3.375	- / -	3 / 3.375	4 / 4.581	4 / 4.664	4 / 4.748	4 / 4.833	2 / 11.660	41 / 54.471
Subtotal: Recurring	*- / 15.124*	*- / 2.171*	*- / 3.315*	*- / 3.375*	*- / -*	*- / 3.375*	*- / 4.581*	*- / 4.664*	*- / 4.748*	*- / 4.833*	*- / 11.660*	*- / 54.471*
Subtotal: DM006 - MULTI-MISSION SSA/CWI MICROWAVE TUBES	*15 / 15.124*	*2 / 2.171*	*3 / 3.315*	*3 / 3.375*	*- / -*	*3 / 3.375*	*4 / 4.581*	*4 / 4.664*	*4 / 4.748*	*4 / 4.833*	*2 / 11.660*	*41 / 54.471*
Subtotal: Procurement, All Modification Items	*- / 15.124*	*- / 2.171*	*- / 3.315*	*- / 3.375*	*- / -*	*- / 3.375*	*- / 4.581*	*- / 4.664*	*- / 4.748*	*- / 4.833*	*- / 11.660*	*- / 54.471*
Installation												
Subtotal: Installation	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*
Total												
Total Cost (Procurement + Support + Installation)	**15.124**	**2.171**	**3.315**	**3.375**	**0.000**	**3.375**	**4.581**	**4.664**	**4.748**	**4.833**	**11.660**	**54.471**

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0900 / DDG Mod	**Modification Number / Title:** 9 / DM006 - MULTI-MISSION SSA/CWI MICROWAVE TUBES
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

Modification Item 1 of 1: DM006 - MULTI-MISSION SSA/CWI MICROWAVE TUBES

Manufacturer Information

Manufacturer Name: VARIOUS	Manufacturer Location: VARIOUS
Administrative Leadtime *(in Months)*: 6	Production Leadtime *(in Months)*: 18

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

Footnotes:

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

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0900 / DDG Mod	**Modification Number / Title:** 10 / DM007 - SPY-1D TRANSMITTER UPGRADES
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

Resource Summary	Prior Years	FY 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)*	73.142	10.836	11.031	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	95.009
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	73.142	10.836	11.031	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	95.009
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**73.142**	**10.836**	**11.031**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**95.009**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)												
Initial Spares *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Dollars)*	-	-	-	-	-	-	-	-	-	-	-	-

Description:

Procures SPY-1D Transmitter Upgrades combat systems that includes equipment procurement, recurring engineering, equipment integration and Integrated Logistics Support (ILS) products for DDG 51 Class ships.

Engineering Services:

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

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

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

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

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

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

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

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0900 / DDG Mod	**Modification Number / Title:** 10 / DM007 - SPY-1D TRANSMITTER UPGRADES
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	
Models of Systems Affected: [No Model Specified]	**Modification Type:** TBD	**Related RDT&E PEs:**

Financial Plan	Prior Years	FY 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: DM007 - SPY-1D TRANSMITTER UPGRADES												
B Kits												
Recurring												
1.1.1) SPY-1D TRANSMITTER UPGRADES EQUIPMENT - Organic (17)	15 / 68.484	2 / 9.965	2 / 10.144	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	19 / 88.593
Subtotal: Recurring	*- / 68.484*	*- / 9.965*	*- / 10.144*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / 0.000*	*- / 88.593*
Subtotal: DM007 - SPY-1D TRANSMITTER UPGRADES	*15 / 68.484*	*2 / 9.965*	*2 / 10.144*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*19 / 88.593*
Subtotal: Procurement, All Modification Items	*- / 68.484*	*- / 9.965*	*- / 10.144*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / 0.000*	*- / 88.593*
Support *(All Modification Items)*												
2.1) ENGINEERING SERVICES	- / 4.658	- / 0.871	- / 0.887	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / 6.416
Subtotal: Support	*- / 4.658*	*- / 0.871*	*- / 0.887*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / 0.000*	*- / 6.416*
Installation												
Subtotal: Installation	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*
Total												
Total Cost (Procurement + Support + Installation)	**73.142**	**10.836**	**11.031**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**95.009**

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0900 / DDG Mod	**Modification Number / Title:** 10 / DM007 - SPY-1D TRANSMITTER UPGRADES
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	
Modification Item 1 of 1: DM007 - SPY-1D TRANSMITTER UPGRADES		

Manufacturer Information

Manufacturer Name: Raytheon	Manufacturer Location: Marlborough, MA
Administrative Leadtime *(in Months)*: 6	Production Leadtime *(in Months)*: 18

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

Footnotes:

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

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0900 / DDG Mod	**Modification Number / Title:** 11 / DM008 - MULTI-MISSION BMD CAPABILITY
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

Resource Summary	Prior Years	FY 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)*	25.739	3.608	5.510	5.609	0.000	5.609	7.613	7.750	7.890	8.032	19.375	91.126
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	25.739	3.608	5.510	5.609	0.000	5.609	7.613	7.750	7.890	8.032	19.375	91.126
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**25.739**	**3.608**	**5.510**	**5.609**	**0.000**	**5.609**	**7.613**	**7.750**	**7.890**	**8.032**	**19.375**	**91.126**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)												
Initial Spares *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Dollars)*	-	-	-	-	-	-	-	-	-	-	-	-

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

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0900 / DDG Mod	**Modification Number / Title:** 11 / DM008 - MULTI-MISSION BMD CAPABILITY
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	
Models of Systems Affected: [No Model Specified]	**Modification Type:** TBD	**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: DM008 - MULTI-MISSION BMD CAPABILITY												
B Kits												
Recurring												
1.1.1) MULTI-MISSION BMD EQUIPMENT - Organic (18)	15 / 25.739	2 / 3.608	3 / 5.510	3 / 5.609	- / -	3 / 5.609	4 / 7.613	4 / 7.750	4 / 7.890	4 / 8.032	2 / 19.375	41 / 91.126
Subtotal: Recurring	*- / 25.739*	*- / 3.608*	*- / 5.510*	*- / 5.609*	*- / -*	*- / 5.609*	*- / 7.613*	*- / 7.750*	*- / 7.890*	*- / 8.032*	*- / 19.375*	*- / 91.126*
Subtotal: DM008 - MULTI-MISSION BMD CAPABILITY	*15 / 25.739*	*2 / 3.608*	*3 / 5.510*	*3 / 5.609*	*- / -*	*3 / 5.609*	*4 / 7.613*	*4 / 7.750*	*4 / 7.890*	*4 / 8.032*	*2 / 19.375*	*41 / 91.126*
Subtotal: Procurement, All Modification Items	*- / 25.739*	*- / 3.608*	*- / 5.510*	*- / 5.609*	*- / -*	*- / 5.609*	*- / 7.613*	*- / 7.750*	*- / 7.890*	*- / 8.032*	*- / 19.375*	*- / 91.126*
Installation												
Subtotal: Installation	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*
Total												
Total Cost (Procurement + Support + Installation)	**25.739**	**3.608**	**5.510**	**5.609**	**0.000**	**5.609**	**7.613**	**7.750**	**7.890**	**8.032**	**19.375**	**91.126**

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0900 / DDG Mod	**Modification Number / Title:** 11 / DM008 - MULTI-MISSION BMD CAPABILITY
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	
Modification Item 1 of 1: DM008 - MULTI-MISSION BMD CAPABILITY		

Manufacturer Information

Manufacturer Name: LOCKHEED MARTIN	Manufacturer Location: MOORESTOWN, NJ
Administrative Leadtime *(in Months)*: 6	Production Leadtime *(in Months)*: 18

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

Footnotes:

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

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0900 / DDG Mod	**Modification Number / Title:** 12 / DM009 - VLS UPGRADES
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

Resource Summary	Prior Years	FY 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)*	129.259	20.723	27.581	27.254	0.000	27.254	34.857	35.930	38.118	38.965	108.430	461.117
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	129.259	20.723	27.581	27.254	0.000	27.254	34.857	35.930	38.118	38.965	108.430	461.117
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**129.259**	**20.723**	**27.581**	**27.254**	**0.000**	**27.254**	**34.857**	**35.930**	**38.118**	**38.965**	**108.430**	**461.117**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)												
Initial Spares *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Dollars)*	-	-	-	-	-	-	-	-	-	-	-	-

Description:

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

Engineering Services:

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

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

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

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

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

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

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

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0900 / DDG Mod	**Modification Number / Title:** 12 / DM009 - VLS UPGRADES
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	
Models of Systems Affected: [No Model Specified]	**Modification Type:** TBD	**Related RDT&E PEs:**

Financial Plan	Prior Years	FY 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: DM009 - VLS UPGRADES												
B Kits												
Recurring												
1.1.1) VLS EQUIPMENT - NonOrganic [19]	14 / 80.187	2 / 10.851	3 / 16.570	3 / 16.868	- / -	3 / 16.868	4 / 22.896	4 / 23.308	4 / 23.728	4 / 24.154	2 / 58.270	40 / 276.832
Subtotal: Recurring	*- / 80.187*	*- / 10.851*	*- / 16.570*	*- / 16.868*	*- / -*	*- / 16.868*	*- / 22.896*	*- / 23.308*	*- / 23.728*	*- / 24.154*	*- / 58.270*	*- / 276.832*
Subtotal: DM009 - VLS UPGRADES	*14 / 80.187*	*2 / 10.851*	*3 / 16.570*	*3 / 16.868*	*- / -*	*3 / 16.868*	*4 / 22.896*	*4 / 23.308*	*4 / 23.728*	*4 / 24.154*	*2 / 58.270*	*40 / 276.832*
Subtotal: Procurement, All Modification Items	*- / 80.187*	*- / 10.851*	*- / 16.570*	*- / 16.868*	*- / -*	*- / 16.868*	*- / 22.896*	*- / 23.308*	*- / 23.728*	*- / 24.154*	*- / 58.270*	*- / 276.832*
Support *(All Modification Items)*												
2.1) ENGINEERING SERVICES	- / 32.503	- / 5.642	- / 5.743	- / 5.847	- / -	- / 5.847	- / 5.952	- / 6.059	- / 6.168	- / 6.279	- / 31.971	- / 106.164
Subtotal: Support	*- / 32.503*	*- / 5.642*	*- / 5.743*	*- / 5.847*	*- / -*	*- / 5.847*	*- / 5.952*	*- / 6.059*	*- / 6.168*	*- / 6.279*	*- / 31.971*	*- / 106.164*
Installation												
Modification Item 1 of 1: DM009 - VLS UPGRADES	- / 16.569	- / 4.230	- / 5.268	- / 4.539	- / 0.000	- / 4.539	- / 6.009	- / 6.563	- / 8.222	- / 8.532	- / 18.189	- / 78.121
Subtotal: Installation	*- / 16.569*	*- / 4.230*	*- / 5.268*	*- / 4.539*	*- / -*	*- / 4.539*	*- / 6.009*	*- / 6.563*	*- / 8.222*	*- / 8.532*	*- / 18.189*	*- / 78.121*
Total												
Total Cost (Procurement + Support + Installation)	**129.259**	**20.723**	**27.581**	**27.254**	**0.000**	**27.254**	**34.857**	**35.930**	**38.118**	**38.965**	**108.430**	**461.117**

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0900 / DDG Mod	**Modification Number / Title:** 12 / DM009 - VLS UPGRADES
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

Modification Item 1 of 1: DM009 - VLS UPGRADES

Manufacturer Information

Manufacturer Name: LOCKHEED MARTIN	Manufacturer Location: MOORESTOWN, NJ
Administrative Leadtime *(in Months)*: 6	Production Leadtime *(in Months)*: 18

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

Installation Information

Method of Implementation: [none specified]:: Installation Name: VLS EQUIPMENT

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	10 / 16.569	2 / 4.039	2 / 4.063	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	14 / 24.671
FY 2019	- / -	0 / 0.191	0 / 0.925	2 / 2.904	0 / 0.000	2 / 2.904	- / -	- / -	- / -	- / -	0 / 0.000	2 / 4.020
FY 2020	- / -	- / -	0 / 0.280	0 / 1.353	0 / 0.000	0 / 1.353	3 / 4.258	- / -	- / -	- / -	0 / 0.000	3 / 5.891
FY 2021	- / -	- / -	- / -	0 / 0.282	0 / 0.000	0 / 0.282	0 / 1.366	3 / 4.292	- / -	- / -	0 / 0.000	3 / 5.940
FY 2022	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.385	0 / 1.861	4 / 5.840	- / -	0 / 0.000	4 / 8.086
FY 2023	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.410	0 / 1.982	4 / 6.193	0 / 0.000	4 / 8.585
FY 2024	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.400	0 / 1.932	4 / 6.047	4 / 8.379
FY 2025	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.407	4 / 8.119	4 / 8.526
To Complete	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	2 / 4.023	2 / 4.023
Total	10 / 16.569	2 / 4.230	2 / 5.268	2 / 4.539	0 / 0.000	2 / 4.539	3 / 6.009	3 / 6.563	4 / 8.222	4 / 8.532	10 / 18.189	40 / 78.121

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	10	-	2	-	-	-	1	-	1	-	1	-	1	2	1	-	-	1	1	-	1	-	2	1	1	-	2	-	2	10	40
Out	8	-	-	2	-	-	-	2	-	-	-	1	1	-	1	-	1	-	3	-	-	-	1	1	-	1	-	3	-	15	40

Footnotes:

(19) Installation costs across the FYDP vary depending on current port rates - avails not designated with a specific execution port (TBD) have a generic rate for budgeting, and install costs will be updated once an execution port is assigned. Port rates are updated every year by CNRMC based on the forecasted port loading model. Port loading rate forecasts are the rates recommended for all budgeted maintenance and organic modernization within a specific port. Individual ship's availability durations vary dependent upon the integration of ship's maintenance and modernization work packages. Installation funding for a ship

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0900 / DDG Mod	**Modification Number / Title:** 12 / DM009 - VLS UPGRADES
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

is divided over a three-year period. Installation execution funding in the year of availability, and Design Service Allocation (DSA) two years prior to availability, and DSA in the year prior to the availability. This includes ship checks, ship installation drawing (SID) development, logistic document development and long lead time material procurements (LLTM).

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0900 / DDG Mod	**Modification Number / Title:** 13 / DM011 - AN/SQQ-89 A(V15)
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

Resource Summary	Prior Years	FY 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)*	144.394	5.908	11.384	12.751	0.000	12.751	5.352	4.241	0.000	0.000	0.000	184.030
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	144.394	5.908	11.384	12.751	0.000	12.751	5.352	4.241	0.000	0.000	0.000	184.030
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**144.394**	**5.908**	**11.384**	**12.751**	**0.000**	**12.751**	**5.352**	**4.241**	**0.000**	**0.000**	**0.000**	**184.030**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)												
Initial Spares *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Dollars)*	-	-	-	-	-	-	-	-	-	-	-	-

Description:

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

Engineering Services:

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

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

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

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

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

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

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

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0900 / DDG Mod	**Modification Number / Title:** 13 / DM011 - AN/SQQ-89 A(V15)
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	
Models of Systems Affected: [No Model Specified]	**Modification Type:** TBD	**Related RDT&E PEs:**

Financial Plan	Prior Years	FY 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: DM011 - AN/SQQ-89 A(V15)												
B Kits												
Recurring												
1.1.1) AN/SQQ-89 EQUIPMENT A(V15) - NonOrganic (20)	10 / 77.095	- / -	1 / 8.424	1 / 8.576	- / -	1 / 8.576	- / -	- / -	- / -	- / -	- / -	12 / 94.095
Subtotal: Recurring	*- / 77.095*	*- / -*	*- / 8.424*	*- / 8.576*	*- / -*	*- / 8.576*	*- / -*	*- / -*	*- / -*	*- / -*	*- / 0.000*	*- / 94.095*
Subtotal: DM011 - AN/SQQ-89 A(V15)	*10 / 77.095*	*- / -*	*1 / 8.424*	*1 / 8.576*	*- / -*	*1 / 8.576*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*12 / 94.095*
Subtotal: Procurement, All Modification Items	*- / 77.095*	*- / -*	*- / 8.424*	*- / 8.576*	*- / -*	*- / 8.576*	*- / -*	*- / -*	*- / -*	*- / -*	*- / 0.000*	*- / 94.095*
Support *(All Modification Items)*												
2.1) ENGINEERING SERVICES	- / 24.672	- / 2.654	- / 2.702	- / 2.750	- / -	- / 2.750	- / -	- / -	- / -	- / -	- / -	- / 32.778
Subtotal: Support	*- / 24.672*	*- / 2.654*	*- / 2.702*	*- / 2.750*	*- / -*	*- / 2.750*	*- / -*	*- / -*	*- / -*	*- / -*	*- / 0.000*	*- / 32.778*
Installation												
Modification Item 1 of 1: DM011 - AN/SQQ-89 A(V15)	- / 42.627	- / 3.254	- / 0.258	- / 1.425	- / 0.000	- / 1.425	- / 5.352	- / 4.241	- / 0.000	- / 0.000	- / 0.000	- / 57.157
Subtotal: Installation	*- / 42.627*	*- / 3.254*	*- / 0.258*	*- / 1.425*	*- / -*	*- / 1.425*	*- / 5.352*	*- / 4.241*	*- / -*	*- / -*	*- / 0.000*	*- / 57.157*
Total												
Total Cost (Procurement + Support + Installation)	**144.394**	**5.908**	**11.384**	**12.751**	**0.000**	**12.751**	**5.352**	**4.241**	**0.000**	**0.000**	**0.000**	**184.030**

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0900 / DDG Mod	**Modification Number / Title:** 13 / DM011 - AN/SQQ-89 A(V15)
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

Modification Item 1 of 1: DM011 - AN/SQQ-89 A(V15)

Manufacturer Information

Manufacturer Name: Lockheed Martin	Manufacturer Location: Syracuse, NY
Administrative Leadtime *(in Months)*: 6	Production Leadtime *(in Months)*: 18

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

Installation Information

Method of Implementation: [none specified]:: Installation Name: AN/SQQ-89 EQUIPMENT A(V15)

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	9 / 42.627	1 / 3.254	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	10 / 45.881
FY 2019	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2020	- / -	- / -	0 / 0.258	0 / 1.162	0 / 0.000	0 / 1.162	1 / 4.166	- / -	- / -	- / -	0 / 0.000	1 / 5.586
FY 2021	- / -	- / -	- / -	0 / 0.263	0 / 0.000	0 / 0.263	0 / 1.186	1 / 4.241	- / -	- / -	0 / 0.000	1 / 5.690
FY 2022	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2023	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2024	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2025	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
To Complete	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
Total	9 / 42.627	1 / 3.254	0 / 0.258	0 / 1.425	0 / 0.000	0 / 1.425	1 / 5.352	1 / 4.241	- / -	- / -	0 / 0.000	12 / 57.157

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	9	-	-	-	1	-	-	-	-	-	-	-	-	-	1	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	12
Out	7	-	-	1	1	-	-	-	1	-	-	-	-	-	-	-	-	-	1	-	-	1	-	-	-	-	-	-	-	-	12

Footnotes:

(20) Flight IIA DDGs have previously received an SQQ-89(A)V15 installation. Installation costs across the FYDP vary depending on current port rates - avails not designated with a specific execution port (TBD) have a generic rate for budgeting, and install costs will be updated once an execution port is assigned. Port rates are updated every year by CNRMC based on the forecasted port loading model. Port loading rate forecasts are the rates recommended for all budgeted maintenance and organic modernization within a specific port. Individual ship's availability durations vary dependent upon the integration of ship's maintenance and modernization work packages. Installation funding for a ship is divided over a three-year period. Installation execution funding in the year of availability, and Design Service Allocation (DSA)

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0900 / DDG Mod	**Modification Number / Title:** 13 / DM011 - AN/SQQ-89 A(V15)
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

two years prior to availability, and DSA in the year prior to the availability. This includes ship checks, ship installation drawing (SID) development, logistic document development and long lead time material procurements (LLTM).

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0900 / DDG Mod	**Modification Number / Title:** 14 / DM013 - (1 MC/DIAS UPGRADE)
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

Resource Summary	Prior Years	FY 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)*	15.075	12.980	12.039	11.857	0.000	11.857	14.000	14.117	14.194	14.707	31.425	140.394
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	15.075	12.980	12.039	11.857	0.000	11.857	14.000	14.117	14.194	14.707	31.425	140.394
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**15.075**	**12.980**	**12.039**	**11.857**	**0.000**	**11.857**	**14.000**	**14.117**	**14.194**	**14.707**	**31.425**	**140.394**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)												
Initial Spares *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Dollars)*	-	-	-	-	-	-	-	-	-	-	-	-

Description:

Procures the Dynalec Integrated Announcing System (DIAS) that replaces the ship's existing obsolete and unreliable general announcing system, that enables key control stations to publish critical information to the ship by voice.

Integrated Logistics Support includes development of ILS documentation, review and certification. Environmental Quality Testing includes Shock, Vibration and EMI certification to ensure DIAS meets survivability requirements.

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0900 / DDG Mod	**Modification Number / Title:** 14 / DM013 - (1 MC/DIAS UPGRADE)
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	
Models of Systems Affected: [No Model Specified]	**Modification Type:** TBD	**Related RDT&E PEs:**

Financial Plan	Prior Years	FY 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: DM013 - (1 MC/DIAS UPGRADE)												
B Kits												
Recurring												
1.1.1) 1 MC/DIAS EQUIPMENT - NonOrganic (21)	15 / 1.168	3 / 0.897	4 / 1.217	4 / 1.238	- / -	4 / 1.238	4 / 1.254	4 / 1.277	4 / 1.300	4 / 1.323	2 / 3.193	44 / 12.867
Subtotal: Recurring	*- / 1.168*	*- / 0.897*	*- / 1.217*	*- / 1.238*	*- / -*	*- / 1.238*	*- / 1.254*	*- / 1.277*	*- / 1.300*	*- / 1.323*	*- / 3.193*	*- / 12.867*
Subtotal: DM013 - (1 MC/DIAS UPGRADE)	*15 / 1.168*	*3 / 0.897*	*4 / 1.217*	*4 / 1.238*	*- / -*	*4 / 1.238*	*4 / 1.254*	*4 / 1.277*	*4 / 1.300*	*4 / 1.323*	*2 / 3.193*	*44 / 12.867*
Subtotal: Procurement, All Modification Items	*- / 1.168*	*- / 0.897*	*- / 1.217*	*- / 1.238*	*- / -*	*- / 1.238*	*- / 1.254*	*- / 1.277*	*- / 1.300*	*- / 1.323*	*- / 3.193*	*- / 12.867*
Installation												
Modification Item 1 of 1: DM013 - (1 MC/DIAS UPGRADE)	- / 13.907	- / 12.083	- / 10.822	- / 10.619	- / 0.000	- / 10.619	- / 12.746	- / 12.840	- / 12.894	- / 13.384	- / 28.232	- / 127.527
Subtotal: Installation	*- / 13.907*	*- / 12.083*	*- / 10.822*	*- / 10.619*	*- / -*	*- / 10.619*	*- / 12.746*	*- / 12.840*	*- / 12.894*	*- / 13.384*	*- / 28.232*	*- / 127.527*
Total												
Total Cost (Procurement + Support + Installation)	**15.075**	**12.980**	**12.039**	**11.857**	**0.000**	**11.857**	**14.000**	**14.117**	**14.194**	**14.707**	**31.425**	**140.394**

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0900 / DDG Mod	**Modification Number / Title:** 14 / DM013 - (1 MC/DIAS UPGRADE)
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

Modification Item 1 of 1: DM013 - (1 MC/DIAS UPGRADE)

Manufacturer Information

Manufacturer Name: Naval Information Warfare Center Atlantic	Manufacturer Location: Charleston, SC
Administrative Leadtime *(in Months)*: 6	Production Leadtime *(in Months)*: 16

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

Installation Information

Method of Implementation: [none specified]:: Installation Name: 1 MC/DIAS EQUIPMENT

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 / 13.907	5 / 11.605	4 / 7.773	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	15 / 33.285
FY 2019	- / -	0 / 0.478	0 / 2.424	3 / 6.818	0 / 0.000	3 / 6.818	- / -	- / -	- / -	- / -	0 / 0.000	3 / 9.720
FY 2020	- / -	- / -	0 / 0.625	0 / 3.169	0 / 0.000	0 / 3.169	4 / 8.917	- / -	- / -	- / -	0 / 0.000	4 / 12.711
FY 2021	- / -	- / -	- / -	0 / 0.632	0 / 0.000	0 / 0.632	0 / 3.207	4 / 9.020	- / -	- / -	0 / 0.000	4 / 12.859
FY 2022	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.622	0 / 3.157	4 / 8.885	- / -	0 / 0.000	4 / 12.664
FY 2023	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.663	0 / 3.363	4 / 9.447	0 / 0.000	4 / 13.473
FY 2024	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.646	0 / 3.278	4 / 9.214	4 / 13.138
FY 2025	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.659	4 / 12.718	4 / 13.377
To Complete	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	2 / 6.300	2 / 6.300
Total	6 / 13.907	5 / 12.083	4 / 10.822	3 / 10.619	0 / 0.000	3 / 10.619	4 / 12.746	4 / 12.840	4 / 12.894	4 / 13.384	10 / 28.232	44 / 127.527

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	-	4	-	1	-	2	-	2	-	1	1	1	2	2	-	-	2	1	-	1	-	2	1	1	-	2	-	2	10	44
Out	-	1	-	4	1	1	1	2	1	-	-	2	1	-	1	1	2	1	3	-	-	-	1	1	2	1	-	3	-	14	44

Footnotes:

(21) Installation costs across the FYDP vary depending on current port rates - avails not designated with a specific execution port (TBD) have a generic rate for budgeting, and install costs will be updated once an execution port is assigned. Port rates are updated every year by CNRMC based on the forecasted port loading model. Port loading rate forecasts are the rates recommended for all budgeted maintenance and organic modernization within a specific port. Individual ship's availability durations vary dependent upon the integration of ship's maintenance and modernization work packages. All cost from FY 18 and follows will be captured in this P3-A exhibit. Installation funding for a ship is divided over a three-year period. Installation execution funding in the year of availability, and Design Service Allocation (DSA) two years

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0900 / DDG Mod	**Modification Number / Title:** 14 / DM013 - (1 MC/DIAS UPGRADE)
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

prior to availability, and DSA in the year prior to the availability. This includes ship checks, ship installation drawing (SID) development, logistic document development and long lead time material procurements (LLTM).

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0900 / DDG Mod	**Modification Number / Title:** 15 / DM013 - (MORIAH WIND SYSTEM)
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

Resource Summary	Prior Years	FY 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)*	6.374	5.304	5.180	5.535	0.000	5.535	6.087	5.324	3.781	1.717	0.532	39.834
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	6.374	5.304	5.180	5.535	0.000	5.535	6.087	5.324	3.781	1.717	0.532	39.834
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**6.374**	**5.304**	**5.180**	**5.535**	**0.000**	**5.535**	**6.087**	**5.324**	**3.781**	**1.717**	**0.532**	**39.834**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)												
Initial Spares *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Dollars)*	-	-	-	-	-	-	-	-	-	-	-	-

Description:

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

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0900 / DDG Mod	**Modification Number / Title:** 15 / DM013 - (MORIAH WIND SYSTEM)
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	
Models of Systems Affected: [No Model Specified]	**Modification Type:** TBD	**Related RDT&E PEs:**

Financial Plan	Prior Years	FY 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: DM013 - (MORIAH WIND SYSTEM)												
B Kits												
Recurring												
1.1.1) MORIAH WIND SYSTEM EQUIPMENT - NonOrganic (22)	15 / 1.211	3 / 0.924	4 / 1.255	4 / 1.277	- / -	4 / 1.277	4 / 1.300	2 / 0.662	1 / 0.337	- / -	- / -	33 / 6.966
Subtotal: Recurring	*- / 1.211*	*- / 0.924*	*- / 1.255*	*- / 1.277*	*- / -*	*- / 1.277*	*- / 1.300*	*- / 0.662*	*- / 0.337*	*- / -*	*- / 0.000*	*- / 6.966*
Subtotal: DM013 - (MORIAH WIND SYSTEM)	*15 / 1.211*	*3 / 0.924*	*4 / 1.255*	*4 / 1.277*	*- / -*	*4 / 1.277*	*4 / 1.300*	*2 / 0.662*	*1 / 0.337*	*- / -*	*- / -*	*33 / 6.966*
Subtotal: Procurement, All Modification Items	*- / 1.211*	*- / 0.924*	*- / 1.255*	*- / 1.277*	*- / -*	*- / 1.277*	*- / 1.300*	*- / 0.662*	*- / 0.337*	*- / -*	*- / 0.000*	*- / 6.966*
Installation												
Modification Item 1 of 1: DM013 - (MORIAH WIND SYSTEM)	- / 5.163	- / 4.380	- / 3.925	- / 4.258	- / 0.000	- / 4.258	- / 4.787	- / 4.662	- / 3.444	- / 1.717	- / 0.532	- / 32.868
Subtotal: Installation	*- / 5.163*	*- / 4.380*	*- / 3.925*	*- / 4.258*	*- / -*	*- / 4.258*	*- / 4.787*	*- / 4.662*	*- / 3.444*	*- / 1.717*	*- / 0.532*	*- / 32.868*
Total												
Total Cost (Procurement + Support + Installation)	**6.374**	**5.304**	**5.180**	**5.535**	**0.000**	**5.535**	**6.087**	**5.324**	**3.781**	**1.717**	**0.532**	**39.834**

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0900 / DDG Mod	**Modification Number / Title:** 15 / DM013 - (MORIAH WIND SYSTEM)
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

Modification Item 1 of 1: DM013 - (MORIAH WIND SYSTEM)

Manufacturer Information

Manufacturer Name: NAWCAD LAKEHURST	Manufacturer Location: LAKEHURST, NEW JERSEY
Administrative Leadtime *(in Months)*: 6	Production Leadtime *(in Months)*: 16

Dates	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025
Contract Dates	Jul 2019	Jul 2020	Jun 2021	Jun 2022	Jun 2023	Jun 2024	
Delivery Dates	Nov 2020	Nov 2021	Oct 2022	Oct 2023	Oct 2024	Oct 2025	

Installation Information

Method of Implementation: [none specified]:: Installation Name: MORIAH WIND SYSTEM EQUIPMENT

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 / 5.163	5 / 4.198	4 / 1.865	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	15 / 11.226
FY 2019	- / -	0 / 0.182	0 / 1.822	3 / 1.636	0 / 0.000	3 / 1.636	- / -	- / -	- / -	- / -	0 / 0.000	3 / 3.640
FY 2020	- / -	- / -	0 / 0.238	0 / 2.381	0 / 0.000	0 / 2.381	4 / 2.140	- / -	- / -	- / -	0 / 0.000	4 / 4.759
FY 2021	- / -	- / -	- / -	0 / 0.241	0 / 0.000	0 / 0.241	0 / 2.409	4 / 2.164	- / -	- / -	0 / 0.000	4 / 4.814
FY 2022	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.238	0 / 2.372	4 / 2.132	- / -	0 / 0.000	4 / 4.742
FY 2023	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.126	0 / 1.253	2 / 1.125	0 / 0.000	2 / 2.504
FY 2024	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.059	0 / 0.592	1 / 0.532	1 / 1.183
FY 2025	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
To Complete	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
Total	6 / 5.163	5 / 4.380	4 / 3.925	3 / 4.258	0 / 0.000	3 / 4.258	4 / 4.787	4 / 4.662	4 / 3.444	2 / 1.717	1 / 0.532	33 / 32.868

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	-	4	-	1	-	2	-	2	-	1	1	1	2	2	-	-	2	1	-	1	-	2	1	1	-	1	-	1	1	33
Out	-	1	-	4	1	1	1	2	1	-	-	2	1	-	2	-	2	-	3	1	-	1	1	1	1	1	-	3	-	3	33

Footnotes:

(22) Installation costs across the FYDP vary depending on current port rates - avails not designated with a specific execution port (TBD) have a generic rate for budgeting, and install costs will be updated once an execution port is assigned. Port rates are updated every year by CNRMC based on the forecasted port loading model. Port loading rate forecasts are the rates recommended for all budgeted maintenance and organic modernization within a specific port. Individual ship's availability durations vary dependent upon the integration of ship's maintenance and modernization work packages. All costs from FY18 and out will

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0900 / DDG Mod	**Modification Number / Title:** 15 / DM013 - (MORIAH WIND SYSTEM)
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

be captured in this P3A exhibit. Installation funding for a ship is divided over a three-year period. Installation execution funding in the year of availability, and Design Service Allocation (DSA) two years prior to availability, and DSA in the year prior to the availability. This includes ship checks, ship installation drawing (SID) development, logistic document development and long lead time material procurements (LLTM).

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0900 / DDG Mod	**Modification Number / Title:** 16 / DM013 - (IVCS UPGRADE)
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

Resource Summary	Prior Years	FY 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)*	17.341	16.656	25.010	22.742	0.000	22.742	30.452	32.363	37.902	39.135	86.993	308.594
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	17.341	16.656	25.010	22.742	0.000	22.742	30.452	32.363	37.902	39.135	86.993	308.594
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**17.341**	**16.656**	**25.010**	**22.742**	**0.000**	**22.742**	**30.452**	**32.363**	**37.902**	**39.135**	**86.993**	**308.594**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)												
Initial Spares *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Dollars)*	-	-	-	-	-	-	-	-	-	-	-	-

Description:

Procures the AN/STC-3(V)3 Internal Voice Communication System that replaces the ship's existing obsolete telephone services system that provides voice communications between spaces in the ship, along with ship to shore services. Integrated Logistics Support includes development of ILS documentation, review and certification. Environmental Quality Testing includes Shock, Vibration and EMI certification to ensure IVCS meets survivability requirements.

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0900 / DDG Mod	**Modification Number / Title:** 16 / DM013 - (IVCS UPGRADE)
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	
Models of Systems Affected: [No Model Specified]	**Modification Type:** TBD	**Related RDT&E PEs:**

Financial Plan	Prior Years	FY 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: DM013 - (IVCS UPGRADE)												
B Kits												
Recurring												
1.1.1) IVCS EQUIPMENT - NonOrganic (23)	7 / 7.567	2 / 5.363	3 / 8.189	3 / 8.336	- / -	3 / 8.336	4 / 11.315	4 / 11.519	4 / 11.726	4 / 11.938	2 / 28.798	33 / 104.751
Subtotal: Recurring	*- / 7.567*	*- / 5.363*	*- / 8.189*	*- / 8.336*	*- / -*	*- / 8.336*	*- / 11.315*	*- / 11.519*	*- / 11.726*	*- / 11.938*	*- / 28.798*	*- / 104.751*
Subtotal: DM013 - (IVCS UPGRADE)	*7 / 7.567*	*2 / 5.363*	*3 / 8.189*	*3 / 8.336*	*- / -*	*3 / 8.336*	*4 / 11.315*	*4 / 11.519*	*4 / 11.726*	*4 / 11.938*	*2 / 28.798*	*33 / 104.751*
Subtotal: Procurement, All Modification Items	*- / 7.567*	*- / 5.363*	*- / 8.189*	*- / 8.336*	*- / -*	*- / 8.336*	*- / 11.315*	*- / 11.519*	*- / 11.726*	*- / 11.938*	*- / 28.798*	*- / 104.751*
Installation												
Modification Item 1 of 1: DM013 - (IVCS UPGRADE)	- / 9.774	- / 11.293	- / 16.821	- / 14.406	- / 0.000	- / 14.406	- / 19.137	- / 20.844	- / 26.176	- / 27.197	- / 58.195	- / 203.843
Subtotal: Installation	*- / 9.774*	*- / 11.293*	*- / 16.821*	*- / 14.406*	*- / -*	*- / 14.406*	*- / 19.137*	*- / 20.844*	*- / 26.176*	*- / 27.197*	*- / 58.195*	*- / 203.843*
Total												
Total Cost (Procurement + Support + Installation)	**17.341**	**16.656**	**25.010**	**22.742**	**0.000**	**22.742**	**30.452**	**32.363**	**37.902**	**39.135**	**86.993**	**308.594**

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0900 / DDG Mod	**Modification Number / Title:** 16 / DM013 - (IVCS UPGRADE)
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

Modification Item 1 of 1: DM013 - (IVCS UPGRADE)

Manufacturer Information

Manufacturer Name: Naval Information Warfare Center Atlantic	Manufacturer Location: Charleston, SC
Administrative Leadtime *(in Months)*: 6	Production Leadtime *(in Months)*: 16

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

Installation Information

Method of Implementation: [none specified]:: Installation Name: IVCS EQUIPMENT

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 / 9.774	2 / 10.681	3 / 13.100	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	7 / 33.555
FY 2019	- / -	0 / 0.612	0 / 2.826	2 / 9.367	0 / 0.000	2 / 9.367	- / -	- / -	- / -	- / -	0 / 0.000	2 / 12.805
FY 2020	- / -	- / -	0 / 0.895	0 / 4.136	0 / 0.000	0 / 4.136	3 / 13.733	- / -	- / -	- / -	0 / 0.000	3 / 18.764
FY 2021	- / -	- / -	- / -	0 / 0.903	0 / 0.000	0 / 0.903	0 / 4.173	3 / 13.846	- / -	- / -	0 / 0.000	3 / 18.922
FY 2022	- / -	- / -	- / -	- / -	- / -	- / -	0 / 1.231	0 / 5.687	4 / 18.841	- / -	0 / 0.000	4 / 25.759
FY 2023	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 1.311	0 / 6.058	4 / 19.990	0 / 0.000	4 / 27.359
FY 2024	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 1.277	0 / 5.904	4 / 19.514	4 / 26.695
FY 2025	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 1.303	4 / 25.865	4 / 27.168
To Complete	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	2 / 12.816	2 / 12.816
Total	2 / 9.774	2 / 11.293	3 / 16.821	2 / 14.406	0 / 0.000	2 / 14.406	3 / 19.137	3 / 20.844	4 / 26.176	4 / 27.197	10 / 58.195	33 / 203.843

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	-	-	-	2	-	1	-	-	1	1	2	1	-	-	1	1	1	-	-	2	1	1	-	2	-	2	10	33
Out	-	-	-	4	-	-	-	-	-	-	-	1	1	1	-	1	1	1	2	-	-	-	1	1	-	1	-	3	-	15	33

Footnotes:

(23) Installation costs across the FYDP vary depending on current port rates - avails not designated with a specific execution port (TBD) have a generic rate for budgeting, and install costs will be updated once an execution port is assigned. Port rates are updated every year by CNRMC based on the forecasted port loading model. Port loading rate forecasts are the rates recommended for all budgeted maintenance and organic modernization within a specific port. Individual ship's availability durations vary dependent upon the integration of ship's maintenance and modernization work packages. All costs from FY18 and out will

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0900 / DDG Mod	**Modification Number / Title:** 16 / DM013 - (IVCS UPGRADE)
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

be captured in this P3A exhibit. Installation funding for a ship is divided over a three-year period. Installation execution funding in the year of availability, and Design Service Allocation (DSA) two years prior to availability, and DSA in the year prior to the availability. This includes ship checks, ship installation drawing (SID) development, logistic document development and long lead time material procurements (LLTM).

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0900 / DDG Mod	**Modification Number / Title:** 17 / DM013 - Slewing Arm Davit (SLAD)
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

Resource Summary	Prior Years	FY 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)*	2.298	1.799	2.628	2.526	0.000	2.526	3.434	3.534	3.821	3.913	9.867	33.820
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	2.298	1.799	2.628	2.526	0.000	2.526	3.434	3.534	3.821	3.913	9.867	33.820
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**2.298**	**1.799**	**2.628**	**2.526**	**0.000**	**2.526**	**3.434**	**3.534**	**3.821**	**3.913**	**9.867**	**33.820**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)												
Initial Spares *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Dollars)*	-	-	-	-	-	-	-	-	-	-	-	-

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

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0900 / DDG Mod	**Modification Number / Title:** 17 / DM013 - Slewing Arm Davit (SLAD)
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	
Models of Systems Affected: [No Model Specified]	**Modification Type:** TBD	**Related RDT&E PEs:**

Financial Plan	Prior Years	FY 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: DM013 - Slewing Arm Davit (SLAD)												
B Kits												
Recurring												
1.1.1) SLAD EQUIPMENT - NonOrganic (24)	7 / 1.832	2 / 1.244	3 / 1.899	3 / 1.933	- / -	3 / 1.933	4 / 2.624	4 / 2.671	4 / 2.719	4 / 2.768	2 / 6.678	33 / 24.368
Subtotal: Recurring	*- / 1.832*	*- / 1.244*	*- / 1.899*	*- / 1.933*	*- / -*	*- / 1.933*	*- / 2.624*	*- / 2.671*	*- / 2.719*	*- / 2.768*	*- / 6.678*	*- / 24.368*
Subtotal: DM013 - Slewing Arm Davit (SLAD)	*7 / 1.832*	*2 / 1.244*	*3 / 1.899*	*3 / 1.933*	*- / -*	*3 / 1.933*	*4 / 2.624*	*4 / 2.671*	*4 / 2.719*	*4 / 2.768*	*2 / 6.678*	*33 / 24.368*
Subtotal: Procurement, All Modification Items	*- / 1.832*	*- / 1.244*	*- / 1.899*	*- / 1.933*	*- / -*	*- / 1.933*	*- / 2.624*	*- / 2.671*	*- / 2.719*	*- / 2.768*	*- / 6.678*	*- / 24.368*
Installation												
Modification Item 1 of 1: DM013 - Slewing Arm Davit (SLAD)	- / 0.466	- / 0.555	- / 0.729	- / 0.593	- / 0.000	- / 0.593	- / 0.810	- / 0.863	- / 1.102	- / 1.145	- / 3.189	- / 9.452
Subtotal: Installation	*- / 0.466*	*- / 0.555*	*- / 0.729*	*- / 0.593*	*- / -*	*- / 0.593*	*- / 0.810*	*- / 0.863*	*- / 1.102*	*- / 1.145*	*- / 3.189*	*- / 9.452*
Total												
Total Cost (Procurement + Support + Installation)	**2.298**	**1.799**	**2.628**	**2.526**	**0.000**	**2.526**	**3.434**	**3.534**	**3.821**	**3.913**	**9.867**	**33.820**

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0900 / DDG Mod	**Modification Number / Title:** 17 / DM013 - Slewing Arm Davit (SLAD)

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

Modification Item 1 of 1: DM013 - Slewing Arm Davit (SLAD)

Manufacturer Information

Manufacturer Name: NSWC SSES | Manufacturer Location: Philadelphia, PA

Administrative Leadtime *(in Months)*: 6 | Production Leadtime *(in Months)*: 16

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

Installation Information

Method of Implementation: [none specified]:: Installation Name: SLAD EQUIPMENT

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 / 0.466	2 / 0.531	3 / 0.607	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	7 / 1.604
FY 2019	- / -	0 / 0.024	0 / 0.087	2 / 0.431	0 / 0.000	2 / 0.431	- / -	- / -	- / -	- / -	0 / 0.000	2 / 0.542
FY 2020	- / -	- / -	0 / 0.035	0 / 0.127	0 / 0.000	0 / 0.127	3 / 0.634	- / -	- / -	- / -	0 / 0.000	3 / 0.796
FY 2021	- / -	- / -	- / -	0 / 0.035	0 / 0.000	0 / 0.035	0 / 0.128	3 / 0.638	- / -	- / -	0 / 0.000	3 / 0.801
FY 2022	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.048	0 / 0.174	4 / 0.867	- / -	0 / 0.000	4 / 1.089
FY 2023	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.051	0 / 0.186	4 / 0.914	0 / 0.660	4 / 1.811
FY 2024	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.049	0 / 0.181	4 / 0.894	4 / 1.124
FY 2025	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.050	4 / 1.093	4 / 1.143
To Complete	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	2 / 0.542	2 / 0.542
Total	2 / 0.466	2 / 0.555	3 / 0.729	2 / 0.593	0 / 0.000	2 / 0.593	3 / 0.810	3 / 0.863	4 / 1.102	4 / 1.145	10 / 3.189	33 / 9.452

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	-	-	-	2	-	1	-	-	1	1	2	1	-	-	1	1	-	1	-	2	1	1	-	2	-	2	10	33
Out	-	-	-	2	-	-	-	2	-	-	-	1	1	-	1	-	2	-	3	-	-	-	1	1	-	1	-	3	-	15	33

Footnotes:

(24) Installation costs across the FYDP vary depending on current port rates - avails not designated with a specific execution port (TBD) have a generic rate for budgeting, and install costs will be updated once an execution port is assigned. Port rates are updated every year by CNRMC based on the forecasted port loading model. Port loading rate forecasts are the rates recommended for all budgeted maintenance and organic modernization within a specific port. SLAD is upgraded on Flight IIA's only due to a design change in previous SLAD onboard Flight I and Flight II DDG's. Individual ship's availability durations vary dependent upon the integration of ship's maintenance and modernization work packages. All cost from FY 18 and follows will be captured in this P3-A exhibit. Installation funding for a ship is divided over

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0900 / DDG Mod	**Modification Number / Title:** 17 / DM013 - Slewing Arm Davit (SLAD)
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

a three-year period. Installation execution funding in the year of availability, and Design Service Allocation (DSA) two years prior to availability, and DSA in the year prior to the availability. This includes ship checks, ship installation drawing (SID) development, logistic document development and long lead time material procurements (LLTM).

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0900 / DDG Mod	**Modification Number / Title:** 18 / DM013 - AN/SPA-25H
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

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)*	1.148	1.108	1.677	2.107	0.000	2.107	2.423	2.919	3.122	3.109	5.594	23.207
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	1.148	1.108	1.677	2.107	0.000	2.107	2.423	2.919	3.122	3.109	5.594	23.207
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**1.148**	**1.108**	**1.677**	**2.107**	**0.000**	**2.107**	**2.423**	**2.919**	**3.122**	**3.109**	**5.594**	**23.207**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)												
Initial Spares *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Dollars)*	-	-	-	-	-	-	-	-	-	-	-	-

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

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0900 / DDG Mod	**Modification Number / Title:** 18 / DM013 - AN/SPA-25H
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	
Models of Systems Affected: [No Model Specified]	**Modification Type:** TBD	**Related RDT&E PEs:**

Financial Plan	Prior Years	FY 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: DM013 - AN/SPA-25H												
B Kits												
Recurring												
1.1.1) AN/SPA-25H EQUIPMENT - NonOrganic (25)	7 / 0.561	2 / 0.380	3 / 0.581	3 / 0.592	- / -	3 / 0.592	4 / 0.803	4 / 0.817	4 / 0.832	4 / 0.847	2 / 2.045	33 / 7.458
Subtotal: Recurring	*- / 0.561*	*- / 0.380*	*- / 0.581*	*- / 0.592*	*- / -*	*- / 0.592*	*- / 0.803*	*- / 0.817*	*- / 0.832*	*- / 0.847*	*- / 2.045*	*- / 7.458*
Subtotal: DM013 - AN/SPA-25H	*7 / 0.561*	*2 / 0.380*	*3 / 0.581*	*3 / 0.592*	*- / -*	*3 / 0.592*	*4 / 0.803*	*4 / 0.817*	*4 / 0.832*	*4 / 0.847*	*2 / 2.045*	*33 / 7.458*
Subtotal: Procurement, All Modification Items	*- / 0.561*	*- / 0.380*	*- / 0.581*	*- / 0.592*	*- / -*	*- / 0.592*	*- / 0.803*	*- / 0.817*	*- / 0.832*	*- / 0.847*	*- / 2.045*	*- / 7.458*
Installation												
Modification Item 1 of 1: DM013 - AN/SPA-25H	- / 0.587	- / 0.728	- / 1.096	- / 1.515	- / 0.000	- / 1.515	- / 1.620	- / 2.102	- / 2.290	- / 2.262	- / 3.549	- / 15.749
Subtotal: Installation	*- / 0.587*	*- / 0.728*	*- / 1.096*	*- / 1.515*	*- / -*	*- / 1.515*	*- / 1.620*	*- / 2.102*	*- / 2.290*	*- / 2.262*	*- / 3.549*	*- / 15.749*
Total												
Total Cost (Procurement + Support + Installation)	**1.148**	**1.108**	**1.677**	**2.107**	**0.000**	**2.107**	**2.423**	**2.919**	**3.122**	**3.109**	**5.594**	**23.207**

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0900 / DDG Mod	**Modification Number / Title:** 18 / DM013 - AN/SPA-25H
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

Modification Item 1 of 1: DM013 - AN/SPA-25H

Manufacturer Information

Manufacturer Name: CDSA DAM NECK	Manufacturer Location: DAM NECK, VA
Administrative Leadtime *(in Months)*: 6	Production Leadtime *(in Months)*: 16

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

Installation Information

Method of Implementation: [none specified]:: Installation Name: AN/SPA-25H EQUIPMENT

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 / 0.587	2 / 0.674	3 / 0.131	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	7 / 1.392
FY 2019	- / -	0 / 0.054	0 / 0.886	2 / 0.138	0 / 0.000	2 / 0.138	- / -	- / -	- / -	- / -	0 / 0.000	2 / 1.078
FY 2020	- / -	- / -	0 / 0.079	0 / 1.297	0 / 0.000	0 / 1.297	3 / 0.202	- / -	- / -	- / -	0 / 0.000	3 / 1.578
FY 2021	- / -	- / -	- / -	0 / 0.080	0 / 0.000	0 / 0.080	0 / 1.309	3 / 0.203	- / -	- / -	0 / 0.000	3 / 1.592
FY 2022	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.109	0 / 1.783	4 / 0.277	- / -	0 / 0.000	4 / 2.169
FY 2023	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.116	0 / 1.900	4 / 0.295	0 / 0.000	4 / 2.311
FY 2024	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.113	0 / 1.851	4 / 0.287	4 / 2.251
FY 2025	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.116	4 / 2.181	4 / 2.297
To Complete	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	2 / 1.081	2 / 1.081
Total	2 / 0.587	2 / 0.728	3 / 1.096	2 / 1.515	0 / 0.000	2 / 1.515	3 / 1.620	3 / 2.102	4 / 2.290	4 / 2.262	10 / 3.549	33 / 15.749

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	-	-	-	2	-	1	-	1	-	1	2	1	-	-	1	1	-	1	-	2	1	1	-	2	-	2	10	33
Out	-	-	-	4	-	-	-	-	-	-	-	1	1	-	1	-	2	1	2	-	-	-	1	1	-	1	-	3	-	15	33

Footnotes:

(25) Installation costs across the FYDP vary depending on current port rates - avails not designated with a specific execution port (TBD) have a generic rate for budgeting, and install costs will be updated once an execution port is assigned. Port rates are updated every year by CNRMC based on the forecasted port loading model. Port loading rate forecasts are the rates recommended for all budgeted maintenance and organic modernization within a specific port. Individual ship's availability durations vary dependent upon the integration of ship's maintenance and modernization work packages. All cost from FY 18 and follows will be captured in this P3-A exhibit. Installation funding for a ship is divided over a three-year period. Installation execution funding in the year of availability, and Design Service Allocation (DSA) two years

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0900 / DDG Mod	**Modification Number / Title:** 18 / DM013 - AN/SPA-25H
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

prior to availability, and DSA in the year prior to the availability. This includes ship checks, ship installation drawing (SID) development, logistic document development and long lead time material procurements (LLTM).

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Exhibit P-40, Budget Line Item Justification: PB 2021 Navy	Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 01: Ships Support Equipment / BSA 9: Other Shipboard Equipment	**P-1 Line Item Number / Title:** 0910 / Firefighting Equipment

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

Line Item MDAP/MAIS Code: N/A

Resource Summary	Prior Years	FY 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)*	111.172	28.143	17.547	18.394	0.000	18.394	18.683	17.724	17.951	21.689	354.690	605.993
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	111.172	28.143	17.547	18.394	0.000	18.394	18.683	17.724	17.951	21.689	354.690	605.993
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**111.172**	**28.143**	**17.547**	**18.394**	**0.000**	**18.394**	**18.683**	**17.724**	**17.951**	**21.689**	**354.690**	**605.993**
(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:

The Department decided that a number of survivability improvements needed to be incorporated into mission-essential ship and combat systems during their acquisition and modernization. Shipboard fires have emphasized the urgent need to upgrade features and design standards that contribute to survivability.

[P40A / HB003 - EMERGENCY ESCAPE BREATHING DEVICE (EEBD)]: Emergency Escape Breathing Device (EEBD) breathing apparatus for firefighters are reaching their service life of 15 years and must be replaced. EEBDs address a high priority CNO effort to replace expired breathing equipment aboard ships throughout the Fleet. The requirement for this capability has been validated by the experience of numerous shipboard casualties. EEBD replacement is required to ensure that ships will deploy with operational safety equipment on-board to allow for emergency escape from shipboard fires.

[P40A / HB830 - PRODUCTION ENGINEERING (PE)]: PE includes development of technical manuals, Planned Maintenance System (PMS), Provisioning Technical Documentation (PTD), Program Support Data (PSD) and Allowance Parts List (APLs), engineering to manage procurement and material support of design reviews, and program management

[P3A / HB002 - MAGAZINE SPRINKLING IMPROVEMENT]: Replaces the detection system designed in the 1960s which has performance deficiencies and is difficult to support and maintain. Replacement includes the Fire Detection and Actuation System (FDAS) and the Motor-Operated Pilot Valves (MOPV). When the FDAS detects a fire, the MOPV opens to provide the sprinkling for the magazine. The FDAS consists of heat detectors, smoke detectors for amphibious ships, and associated controls. MOPV is the same item procured under HB007 - SOPV Replacement. FDAS/MOPV provides increased fire performance and reduced lifecycle and logistics costs.

[P3A - 2 / HB007 - SOPV REPLACEMENT]: The Solenoid Operated Pilot Valve (SOPV) provides a way for remote control of the Aqueous Film Forming Foam (AFFF) and Countermeasure Wash Down (CMWD) systems. Existing SOPVs are unreliable, costly to repair, and produce the longest downtime for the AFFF system. Top Management Attention/Top Management Initiative (TMA/TMI) and INSURV interest due to impact of this item on AFFF system operation. Replacement of the SOPV with the Motor Operated Pilot Valve (MOPV) is required to ensure these systems are operational for emergencies. MOPV has a 50 year service life and will provide a significant reduction in preventative maintenance and cost.

[P3A - 3 / HB008 - SCBA REPLACEMENT]: Self-Contained Breathing Apparatus (SCBA) is a compressed air breathing device compatible with a firefighter's protective wear and helmet, and other damage control equipment. The SCBA are reaching the end of their service life of 15 years and are being replaced with 30 year cylinders. SCBA replacement is required to ensure that ships will deploy with operational safety equipment on-board to provide breathable air while fighting shipboard fires.

Exhibit P-40, Budget Line Item Justification: PB 2021 Navy	**Date:** February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 01: Ships Support Equipment / BSA 9: Other Shipboard Equipment	**P-1 Line Item Number / Title:** 0910 / Firefighting Equipment

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

Line Item MDAP/MAIS Code: N/A

Exhibits Schedule					Prior Years	FY 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	Firefighting Equipment				- / 54.687	- / 4.137	- / 1.170	- / 3.171	- / -	- / 3.171
P-3a	1 / HB002 - MAGAZINE SPRINKLING IMPROVEMENT (FDAS/MOPV Installation)				- / 3.559	- / 8.850	- / 6.496	- / 3.569	- / 0.000	- / 3.569
P-3a	2 / HB007 - SOPV REPLACEMENT (SOPV REPLACEMENT)				- / 5.202	- / 2.609	- / 2.357	- / 6.144	- / 0.000	- / 6.144
P-3a	3 / HB008 - SCBA REPLACEMENT (SCBA REPLACEMENT)				- / 47.724	- / 12.547	- / 7.524	- / 5.510	- / 0.000	- / 5.510
P-40	**Total Gross/Weapon System Cost**				**- / 111.172**	**- / 28.143**	**- / 17.547**	**- / 18.394**	**- / 0.000**	**- / 18.394**

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	Firefighting Equipment				- / -	- / -	- / -	- / -	- / -	- / -
P-3a	1 / HB002 - MAGAZINE SPRINKLING IMPROVEMENT (FDAS/MOPV Installation)				- / 7.376	- / 6.736	- / 7.913	- / 12.706	- / 236.753	- / 293.958
P-3a	2 / HB007 - SOPV REPLACEMENT (SOPV REPLACEMENT)				- / 3.786	- / 8.993	- / 9.097	- / 8.323	- / 97.479	- / 143.990
P-3a	3 / HB008 - SCBA REPLACEMENT (SCBA REPLACEMENT)				- / 5.929	- / 0.000	- / 0.000	- / 0.000	- / 4.002	- / 83.236
P-40	**Total Gross/Weapon System Cost**				**- / 18.683**	**- / 17.724**	**- / 17.951**	**- / 21.689**	**- / 354.690**	**- / 605.993**

*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.

Exhibit P-40a, Budget Item Justification For Aggregated Items: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0910 / Firefighting Equipment	**Aggregated Items Title:** Firefighting Equipment

Item Number / Title [DODIC]	ID CD	MDAP/ MAIS Code	Prior Years			FY 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) HB003 - EMERGENCY ESCAPE BREATHING DEVICE (EEBD) [1]																				
1.1) EEBD REPLACEMENT	A		288,525.86	116	33.469	496,800.00	5	2.484	-	-	-	214,500.00	8	1.716	-	-	-	214,500.00	8	1.716
Subtotal: 1) HB003 - EMERGENCY ESCAPE BREATHING DEVICE (EEBD)			**-**	**-**	***33.469***	**-**	**-**	***2.484***	**-**	**-**	**-**	**-**	**-**	***1.716***	**-**	**-**	**-**	**-**	**-**	***1.716***
2) HB830 - PRODUCTION ENGINEERING (PE)																				
2.1) PRODUCTION ENGINEERING [2]	A		-	-	21.218	-	-	1.653	-	-	1.170	-	-	1.455	-	-	-	-	-	1.455
Subtotal: 2) HB830 - PRODUCTION ENGINEERING (PE)			**-**	**-**	***21.218***	**-**	**-**	***1.653***	**-**	**-**	***1.170***	**-**	**-**	***1.455***	**-**	**-**	**-**	**-**	**-**	***1.455***
Total			**-**	**-**	**54.687**	**-**	**-**	**4.137**	**-**	**-**	**1.170**	**-**	**-**	**3.171**	**-**	**-**	**-**	**-**	**-**	**3.171**

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

Footnotes:

[1] The P40 unit costs are identified as costs per ship for EEBD. Unit costs can vary based on the distribution of ship classes planned during each FY, quantities per ship class, and the ship port location. Requirement is for CG-47, DDG-51 (Flight I, II, IIA), LCS-1, LCS-2, LHD-1, LSD-41, LSD-49, MCM-1, and PC-1 ship classes. PROCUREMENT: Funding includes the breathing apparatus, shipping, and distribution to ships. There are no EEBD procurements scheduled for FY2020. FY2021 procurement includes one (1) LPD 0017 class ship (total $0.518M), six (6) DDG 0051 Flight IIA class ships (average $0.193M), and (1) LCS 0001 class ship (total $0.040M) for a program total of $1.716M. FY2022 procurement includes three (3) DDG 0051 Flight IIA (average $0.197M) and one (1) LCS 0002 class ship (total $0.040M) for a program total of $0.631M. FY2023 procurement includes one (1) LPD 0017 class ship (total $0.528M), one (1) MCM 0001 class ship (total $0.039M) and one (1) DDG 0051 Flight IIA class ship (total $0.206M) for a program total of $0.773M. EEBD replacement fielding will complete in FY2023.

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

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0910 / Firefighting Equipment	**Modification Number / Title:** 1 / HB002 - MAGAZINE SPRINKLING IMPROVEMENT
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

Resource Summary	Prior Years	FY 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)*	3.559	8.850	6.496	3.569	0.000	3.569	7.376	6.736	7.913	12.706	236.753	293.958
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	3.559	8.850	6.496	3.569	0.000	3.569	7.376	6.736	7.913	12.706	236.753	293.958
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**3.559**	**8.850**	**6.496**	**3.569**	**0.000**	**3.569**	**7.376**	**6.736**	**7.913**	**12.706**	**236.753**	**293.958**
(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:

Replaces the detection system designed in the 1960s which has performance deficiencies and is difficult to support and maintain. Replacement includes the Fire Detection and Actuation System (FDAS) and the Motor-Operated Pilot Valves (MOPV). When the FDAS detects a fire, the MOPV opens to provide the sprinkling for the magazine. The FDAS consists of heat detectors, smoke detectors for amphibious ships, and associated controls. MOPV is the same item procured under HB007 - SOPV Replacement. FDAS/MOPV provides increased fire performance and reduced lifecycle and logistics costs.

Procurement costs shown are based on new hardware contract award estimates (HB002/HB007) and actual installation costs from prior years . Installation costs shown are weighted and will vary based on ship class, ship port location, and installation availability.

Quantities are number of ships.

Requirement is for all CG 0047, DDG 0051, LHA 0006, LHD 0001, LPD 0017, LSD 0041/0049 ship classes.

PROCUREMENT: Procurement costs include FDAS and MOPV equipment, shipping, and distribution to ship. FDAS/MOPV procurement costs can vary significantly by ship class, and quantity and/or size of the magazines. DDG-51 ships already have smoke detectors.

INSTALLATION (HB5IN/HB6IN): Funding includes all costs associated with the Fleet Modernization Program Magazine Sprinkling Improvement Design Support Allocation (DSA) and equipment installations onboard ships. DSA costs are budgeted in the FY prior to equipment procurement. FDAS/MOPV installation costs can vary significantly by ship class, ship port location, and ship installation availability.

FY 2020 procurement costs include one (1) DDG 0051 Flight I class ship (total $0.127M), one (1) DDG 0051 Flight II class ship (total $0.127M), and four (4) DDG 0051 Flight IIA class ships (average $0.236M) for a program total of $1.198M.

FY 2020 installation costs include six (6) FY 2020 procurement hulls ($4.698M) and three (3) DSA for FY 2021 planned installations ($0.600M) for a program total of $5.298M. FY 2020 installation support services costs include one (1) CONUS DDG 0051 (Flight I) class ship (total $0.553M), one (1) CONUS DDG 0051 Flight II class ship (total $0.553M), and four (4) CONUS DDG 0051 Flight IIA class ships (average $0.898M) for a total of $4.698M. FY 2020 installation DSA costs include two (2) OCONUS DDG 0051 Flight I class ships (average $0.190M) and one (1) CONUS DDG 0051 Flight II class ship (total $0.220M) for a total of $0.600M.

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0910 / Firefighting Equipment	**Modification Number / Title:** 1 / HB002 - MAGAZINE SPRINKLING IMPROVEMENT
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

FY 2021 procurement costs include one (1) DDG 0051 Flight I class ship (total $0.129M) and two (2) DDG 0051 Flight II class ships (average $0.129M) for a program total of $0.388M.

FY 2021 installation costs include three (3) FY 2021 procurement hulls (total $1.855M) and six (6) DSA for FY 2022 planned installations (total $1.326M) for a program total of $3.181M. FY 2021 installation support services costs include one (1) CONUS DDG 0051 Flight I class ship (total $0.6183M), and two (2) DDG 0051 Flight II class ships (average $0.6183M) for a total of $1.855M. FY 2021 installation DSA costs include two (2) CONUS DDG 0051 Flight I class ships (average $0.190M), one (1) CONUS DDG 0051 Flight II class ship (total $0.190M), two (2) CONUS DDG 0051 Flight IIA class ships (average $0.238M), and one (1) CONUS LSD 0041 class ship (total $0.280M) for a total of $1.326M.

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0910 / Firefighting Equipment	**Modification Number / Title:** 1 / HB002 - MAGAZINE SPRINKLING IMPROVEMENT
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	
Models of Systems Affected: N/A	**Modification Type:** FDAS/MOPV Installation	**Related RDT&E PEs:**

Financial Plan	Prior Years	FY 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: HB002 - MAGAZINE SPRINKLING IMPROVEMENT												
B Kits												
Recurring												
1.1.1) MAGAZINE SPRINKLING IMPROVEMENT HW - NonOrganic (3)	5 / 0.968	7 / 0.962	6 / 1.198	3 / 0.388	- / -	3 / 0.388	6 / 1.094	6 / 0.806	7 / 0.956	6 / 1.436	82 / 38.067	128 / 45.875
Subtotal: Recurring	*- / 0.968*	*- / 0.962*	*- / 1.198*	*- / 0.388*	*- / -*	*- / 0.388*	*- / 1.094*	*- / 0.806*	*- / 0.956*	*- / 1.436*	*- / 38.067*	*- / 45.875*
Subtotal: HB002 - MAGAZINE SPRINKLING IMPROVEMENT	*5 / 0.968*	*7 / 0.962*	*6 / 1.198*	*3 / 0.388*	*- / -*	*3 / 0.388*	*6 / 1.094*	*6 / 0.806*	*7 / 0.956*	*6 / 1.436*	*82 / 38.067*	*128 / 45.875*
Subtotal: Procurement, All Modification Items	*- / 0.968*	*- / 0.962*	*- / 1.198*	*- / 0.388*	*- / -*	*- / 0.388*	*- / 1.094*	*- / 0.806*	*- / 0.956*	*- / 1.436*	*- / 38.067*	*- / 45.875*
Installation												
Modification Item 1 of 1: HB002 - MAGAZINE SPRINKLING IMPROVEMENT	- / 2.591	- / 7.888	- / 5.298	- / 3.181	- / 0.000	- / 3.181	- / 6.282	- / 5.930	- / 6.957	- / 11.270	- / 198.686	- / 248.083
Subtotal: Installation	*- / 2.591*	*- / 7.888*	*- / 5.298*	*- / 3.181*	*- / -*	*- / 3.181*	*- / 6.282*	*- / 5.930*	*- / 6.957*	*- / 11.270*	*- / 198.686*	*- / 248.083*
Total												
Total Cost (Procurement + Support + Installation)	**3.559**	**8.850**	**6.496**	**3.569**	**0.000**	**3.569**	**7.376**	**6.736**	**7.913**	**12.706**	**236.753**	**293.958**

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0910 / Firefighting Equipment	**Modification Number / Title:** 1 / HB002 - MAGAZINE SPRINKLING IMPROVEMENT

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

Modification Item 1 of 1: HB002 - MAGAZINE SPRINKLING IMPROVEMENT

Manufacturer Information

Manufacturer Name: TBD (4) | Manufacturer Location: TBD

Administrative Leadtime *(in Months)*: 2 | Production Leadtime *(in Months)*: 4

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

Manufacturer Name: TBD | Manufacturer Location: TBD

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	Jan 2019	Jan 2020	Jan 2021	Jan 2022	Jan 2023	Jan 2024	Jan 2025
Delivery Dates	Jul 2019	Jul 2020	Jul 2021	Jul 2022	Jul 2023	Jul 2024	Jul 2025

Installation Information

Method of Implementation: SHIPALT/DSA:: Installation Name: MAGAZINE SPRINKLING IMPROVEMENT HW

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 / 2.591	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	5 / 2.591
FY 2019	- / -	7 / 7.888	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	7 / 7.888
FY 2020	- / -	- / -	6 / 5.298	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	6 / 5.298
FY 2021	- / -	- / -	- / -	3 / 3.181	0 / 0.000	3 / 3.181	- / -	- / -	- / -	- / -	0 / 0.000	3 / 3.181
FY 2022	- / -	- / -	- / -	- / -	- / -	- / -	6 / 6.282	- / -	- / -	- / -	0 / 0.000	6 / 6.282
FY 2023	- / -	- / -	- / -	- / -	- / -	- / -	- / -	6 / 5.930	- / -	- / -	0 / 0.000	6 / 5.930
FY 2024	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	7 / 6.957	- / -	0 / 0.000	7 / 6.957
FY 2025	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	6 / 11.270	0 / 0.000	6 / 11.270
To Complete	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	82 / 198.686	82 / 198.686
Total	5 / 2.591	7 / 7.888	6 / 5.298	3 / 3.181	0 / 0.000	3 / 3.181	6 / 6.282	6 / 5.930	7 / 6.957	6 / 11.270	82 / 198.686	128 / 248.083

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0910 / Firefighting Equipment	**Modification Number / Title:** 1 / HB002 - MAGAZINE SPRINKLING IMPROVEMENT
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

Modification Item 1 of 1: HB002 - MAGAZINE SPRINKLING IMPROVEMENT

Installation Information

Method of Implementation: SHIPALT/DSA:: Installation Name: MAGAZINE SPRINKLING IMPROVEMENT HW

Installation Schedule

		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	5	-	-	7	-	-	-	6	-	-	-	3	-	-	-	6	-	-	-	6	-	-	-	7	-	-	-	6	-	82	128
Out	2	-	1	2	3	3	1	-	2	2	2	-	2	1	-	-	2	2	2	-	2	2	2	-	2	2	2	1	2	86	128

Footnotes:

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

(4) Same contract for HB007 requirements. FY19 and prior installation hardware from Marotta, Montville NJ (MOPV) and Dynalec Corp, Sodus NY (FDAS components). FY20 currently undergoing new contract solicitation.

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0910 / Firefighting Equipment	**Modification Number / Title:** 2 / HB007 - SOPV REPLACEMENT
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

Resource Summary	Prior Years	FY 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)*	5.202	2.609	2.357	6.144	0.000	6.144	3.786	8.993	9.097	8.323	97.479	143.990
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	5.202	2.609	2.357	6.144	0.000	6.144	3.786	8.993	9.097	8.323	97.479	143.990
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**5.202**	**2.609**	**2.357**	**6.144**	**0.000**	**6.144**	**3.786**	**8.993**	**9.097**	**8.323**	**97.479**	**143.990**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)												
Initial Spares *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Dollars)*	-	-	-	-	-	-	-	-	-	-	-	-

Description:

The Solenoid Operated Pilot Valve (SOPV) provides a way for remote control of the Aqueous Film Forming Foam (AFFF) and Countermeasure Wash Down (CMWD) systems. Existing SOPVs are unreliable, costly to repair, and produce the longest downtime for the AFFF system. Top Management Attention/Top Management Initiative (TMA/TMI) and INSURV interest due to impact of this item on AFFF system operation. Replacement of the SOPV with the Motor Operated Pilot Valve (MOPV) is required to ensure these systems are operational for emergencies. MOPV has a 50 year service life and will provide a significant reduction in preventative maintenance and lifecycle cost.

Procurement costs shown are based on new hardware contract award estimates (HB002/HB007) and actual installation costs from prior years. Installation costs shown are weighted and will vary based on ship class, ship port location, and installation availability.

Quantities are number of ships.

Requirement is for CG 0047, DDG 0051, LHA 0006, LHD 0001, LPD 0017, LSD 0041/0049 ship classes.

PROCUREMENT: Costs include SOPV equipment, shipping, and distribution to ship. SOPV procurement costs vary significantly based on ship class.

INSTALLATION (HB5IN/HB6IN): Funding includes all costs associated with the Fleet Modernization Program SOPV replacement Design Support Allocation (DSA) and equipment installations onboard ships. DSA costs are budgeted in the FY prior to equipment procurement. SOPV installation costs vary significantly based on ship class, ship port location, and ship installation availability type.

FY 2020 procurement costs include one (1) DDG 0051 (Flight II) class ship (total $0.247M), and two (2) DDG 0051 (Flight IIA) class ships (average $0.247M) for a total of $0.741M.

FY 2020 installation costs are for the three (3) FY 2020 procurement hulls ($1.079M) and eight (8) DSA for FY 2021 planned installations ($0.537M) for a program total of $1.616M. FY 2020 installation costs include one (1) CONUS DDG 0051 Flight II class ship (total $0.360M), and two (2) CONUS DDG 0051 Flight IIA class ships (average $0.360M) for a total of $1.616M. FY2020 installation DSA costs include two (2) CONUS LSD 0041 class ships (average $0.092), two (2) CONUS DDG 0051 Flight I class ships (average $0.056), one (1) CONUS DDG 0051 Flight II class ship (total $0.056), two (2) CONUS DDG 0051 Flight IIA class ships (average $0.056M), and one (1) OCONUS DDG 0051 Flight IIA class ship (average $0.073M) for a total of $0.537M.

FY 2021 procurement costs include two (2) LSD 0041 class ships (average $0.325), two (2) DDG 0051 Flight I class ships (average $0.154), (1) DDG 0051 Flight II class ship (total $0.189), and (3) DDG 0051 Flight IIA class ships (average $0.189) for a program total of $1.713M.

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0910 / Firefighting Equipment	**Modification Number / Title:** 2 / HB007 - SOPV REPLACEMENT
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

FY 2021 installation costs include eight (8) FY 2021 procurement hulls (total $4.123M) and five (5) DSA (total $0.277M) in support of the FY22 planned installations for a program total of $4.400M. FY 2021 installation costs include two (2) CONUS LSD 0041 class ships (average $0.679), two (2) DDG 0051 Flight I class ships (average $0.443), one (1) CONUS DDG 0051 Flight II class ship (total $0.436), and two (2) CONUS DDG 0051 Flight IIA class ships (average $0.436), and one (1) CONUS DDG 0051 ship class (total $0.571M) for a total of $4.123M. FY2021 installation DSA costs include three (3) CONUS DDG 0051 Flight I (average $0.056M), one (1) OCONUS DDG 0051 Flight I (total $0.056), and one (1) CONUS DDG 0051 Flight IIA (total $0.056M) for a total of $0.277M.

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0910 / Firefighting Equipment	**Modification Number / Title:** 2 / HB007 - SOPV REPLACEMENT
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	
Models of Systems Affected: N/A	**Modification Type:** SOPV REPLACEMENT	**Related RDT&E PEs:**

Financial Plan	Prior Years	FY 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: HB007 - SOPV REPLACEMENT												
B Kits												
Recurring												
1.1.1) HB007 - SOPV REPLACEMENT HW - NonOrganic (5)	8 / 1.132	3 / 1.500	3 / 0.741	8 / 1.713	- / -	8 / 1.713	5 / 0.819	9 / 2.192	10 / 2.390	10 / 2.120	72 / 26.951	128 / 39.558
1.1.2) SOPV REPLACEMENT FIRST ARTICLES/ TESTING - Organic	- / 0.567	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / 0.567
Subtotal: Recurring	*- / 1.699*	*- / 1.500*	*- / 0.741*	*- / 1.713*	*- / -*	*- / 1.713*	*- / 0.819*	*- / 2.192*	*- / 2.390*	*- / 2.120*	*- / 26.951*	*- / 40.125*
Subtotal: HB007 - SOPV REPLACEMENT	*8 / 1.699*	*3 / 1.500*	*3 / 0.741*	*8 / 1.713*	*- / -*	*8 / 1.713*	*5 / 0.819*	*9 / 2.192*	*10 / 2.390*	*10 / 2.120*	*72 / 26.951*	*128 / 40.125*
Subtotal: Procurement, All Modification Items	*- / 1.699*	*- / 1.500*	*- / 0.741*	*- / 1.713*	*- / -*	*- / 1.713*	*- / 0.819*	*- / 2.192*	*- / 2.390*	*- / 2.120*	*- / 26.951*	*- / 40.125*
Installation												
Modification Item 1 of 1: HB007 - SOPV REPLACEMENT	- / 3.503	- / 1.109	- / 1.616	- / 4.431	- / 0.000	- / 4.431	- / 2.967	- / 6.801	- / 6.707	- / 6.203	- / 70.528	- / 103.865
Subtotal: Installation	*- / 3.503*	*- / 1.109*	*- / 1.616*	*- / 4.431*	*- / -*	*- / 4.431*	*- / 2.967*	*- / 6.801*	*- / 6.707*	*- / 6.203*	*- / 70.528*	*- / 103.865*
Total												
Total Cost (Procurement + Support + Installation)	**5.202**	**2.609**	**2.357**	**6.144**	**0.000**	**6.144**	**3.786**	**8.993**	**9.097**	**8.323**	**97.479**	**143.990**

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0910 / Firefighting Equipment	**Modification Number / Title:** 2 / HB007 - SOPV REPLACEMENT

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

Modification Item 1 of 1: HB007 - SOPV REPLACEMENT

Manufacturer Information

Manufacturer Name: TBD [6] | Manufacturer Location: TBD

Administrative Leadtime *(in Months)*: 2 | Production Leadtime *(in Months)*: 4

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

Installation Information

Method of Implementation: SHIPALT/DSA:: Installation Name: HB007 - SOPV REPLACEMENT HW

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 / 3.503	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	8 / 3.503
FY 2019	- / -	3 / 1.109	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	3 / 1.109
FY 2020	- / -	- / -	3 / 1.616	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	3 / 1.616
FY 2021	- / -	- / -	- / -	8 / 4.431	0 / 0.000	8 / 4.431	- / -	- / -	- / -	- / -	0 / 0.000	8 / 4.431
FY 2022	- / -	- / -	- / -	- / -	- / -	- / -	5 / 2.967	- / -	- / -	- / -	0 / 0.000	5 / 2.967
FY 2023	- / -	- / -	- / -	- / -	- / -	- / -	- / -	9 / 6.801	- / -	- / -	0 / 0.000	9 / 6.801
FY 2024	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	10 / 6.707	- / -	0 / 0.000	10 / 6.707
FY 2025	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	10 / 6.203	0 / 0.000	10 / 6.203
To Complete	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	72 / 70.528	72 / 70.528
Total	8 / 3.503	3 / 1.109	3 / 1.616	8 / 4.431	0 / 0.000	8 / 4.431	5 / 2.967	9 / 6.801	10 / 6.707	10 / 6.203	72 / 70.528	128 / 103.865

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	-	-	3	-	-	-	3	-	-	-	8	-	-	-	5	-	-	-	9	-	-	-	10	-	-	-	10	-	72	128
Out	7	-	1	-	2	1	-	-	2	1	-	-	2	2	2	2	2	2	1	-	3	3	3	-	3	3	3	1	3	79	128

Footnotes:

[5] Installation quantities reflect number of SHIPALTS to be performed during each FY. DSA quantities are not shown.

[6] Same contract provides motor-operated pilot valve requirements under HB002. FY19 and prior installation hardware from Marotta, Montville NJ (MOPV). FY20 currently undergoing new contract solicitation.

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0910 / Firefighting Equipment	**Modification Number / Title:** 3 / HB008 - SCBA REPLACEMENT
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

Resource Summary	Prior Years	FY 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)*	47.724	12.547	7.524	5.510	0.000	5.510	5.929	0.000	0.000	0.000	4.002	83.236
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	47.724	12.547	7.524	5.510	0.000	5.510	5.929	0.000	0.000	0.000	4.002	83.236
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**47.724**	**12.547**	**7.524**	**5.510**	**0.000**	**5.510**	**5.929**	**0.000**	**0.000**	**0.000**	**4.002**	**83.236**
(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:

Self-Contained Breathing Apparatus (SCBA) is a compressed air breathing device compatible with a firefighter's protective wear and helmet, and other damage control equipment. The SCBA are reaching the end of their service life of 15 years and are being replaced with 30 year cylinders. SCBA replacement is required to ensure that ships will deploy with operational safety equipment on-board to provide breathable air while fighting shipboard fires.

Quantities are number of ships.

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

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

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

FY 2020 procurement costs include one (1) LHD 0001 class ship (total $1.123M), one (1) LPD 0017 class ship (total $0.915M), two (2) LSD 0041 class ships (average $0.509M), five (5) MCM 0001 class ships (total $0.145M), one (1) AFDL 0001 class ship (total $0.046M), one (1) ARDM 0001 class ship (total $0.067M), two (2) CG 0047 class ships (average $0.292M), one (1) LCC 0019 class ship (total $0.544), and six (6) PC 0001 class ships (average $0.046M) for a program total of $5.294M.

FY 2020 installation costs include one (1) CONUS LHD 0001 class ship (total $0.248M), one (1) OCONUS LPD 0017 class ship (total $0.359M), two (2) CONUS LSD 0041 class ships (average $0.212M), five (5) OCONUS MCM 0001 class ships (total $0.109M), two (2) CONUS CG 0047 class ships (average $0.136M), one (1) OCONUS LCC 0019 class ship (total $0.382) for a program total of $2.230M. ARDM 0001, AFDL 0001, and PC 0001 ship classes do not have installation costs.

FY 2021 procurement costs include six (6) LCU class ships (average $0.024M), two (2) LPD 0017 class ships (average $0.933M), (2) MCM 0001 class ships (average $0.147M), four (4) DDG 0051 Flight IIA class ships (average $0.386M), and three (3) PC 0001 class ships (average $0.047M) for a program total of $3.990M.

FY 2021 installation costs include two (2) CONUS LPD 0017 class ships (average $0.309M), two (2) OCONUS MCM 0001 class ships (average $0.110M), three (3) CONUS DDG 0051 Flight IIA (average $0.159M), one (1) OCONUS DDG 0051 Flight IIA class ship (total $0.205M) for a program total of $1.520M. LCU and PC 0001 ship classes do not have installation costs.

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0910 / Firefighting Equipment	**Modification Number / Title:** 3 / HB008 - SCBA REPLACEMENT
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	
Models of Systems Affected: N/A	**Modification Type:** SCBA REPLACEMENT	**Related RDT&E PEs:**

Financial Plan	Prior Years	FY 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: HB008 - SCBA REPLACEMENT												
B Kits												
Recurring												
1.1.1) HB008 - SCBA REPLACEMENT HW - NonOrganic	115 / 42.308	20 / 9.355	20 / 5.294	17 / 3.990	- / -	17 / 3.990	7 / 4.423	- / -	- / -	- / -	3 / 3.000	182 / 68.370
Subtotal: Recurring	*- / 42.308*	*- / 9.355*	*- / 5.294*	*- / 3.990*	*- / -*	*- / 3.990*	*- / 4.423*	*- / -*	*- / -*	*- / -*	*- / 3.000*	*- / 68.370*
Subtotal: HB008 - SCBA REPLACEMENT	*115 / 42.308*	*20 / 9.355*	*20 / 5.294*	*17 / 3.990*	*- / -*	*17 / 3.990*	*7 / 4.423*	*- / -*	*- / -*	*- / -*	*3 / 3.000*	*182 / 68.370*
Subtotal: Procurement, All Modification Items	*- / 42.308*	*- / 9.355*	*- / 5.294*	*- / 3.990*	*- / -*	*- / 3.990*	*- / 4.423*	*- / -*	*- / -*	*- / -*	*- / 3.000*	*- / 68.370*
Installation												
Modification Item 1 of 1: HB008 - SCBA REPLACEMENT	- / 5.416	- / 3.192	- / 2.230	- / 1.520	- / 0.000	- / 1.520	- / 1.506	- / 0.000	- / 0.000	- / 0.000	- / 1.002	- / 14.866
Subtotal: Installation	*- / 5.416*	*- / 3.192*	*- / 2.230*	*- / 1.520*	*- / -*	*- / 1.520*	*- / 1.506*	*- / -*	*- / -*	*- / -*	*- / 1.002*	*- / 14.866*
Total												
Total Cost (Procurement + Support + Installation)	**47.724**	**12.547**	**7.524**	**5.510**	**0.000**	**5.510**	**5.929**	**0.000**	**0.000**	**0.000**	**4.002**	**83.236**

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0910 / Firefighting Equipment	**Modification Number / Title:** 3 / HB008 - SCBA REPLACEMENT

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

Modification Item 1 of 1: HB008 - SCBA REPLACEMENT

Manufacturer Information

Manufacturer Name: SCOTT HEALTH & SAFETY | Manufacturer Location: MONROE, NC

Administrative Leadtime *(in Months)*: 3 | 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	Jan 2021	Jan 2022	Jan 2023	Jan 2024	Jan 2025
Delivery Dates	Apr 2019	Apr 2020	Apr 2021	Apr 2022	Apr 2023	Apr 2024	Apr 2025

Installation Information

Method of Implementation: SHIPALT:: Installation Name: HB008 - SCBA REPLACEMENT HW

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	115 / 5.416	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	115 / 5.416
FY 2019	- / -	20 / 3.192	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	20 / 3.192
FY 2020	- / -	- / -	20 / 2.230	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	20 / 2.230
FY 2021	- / -	- / -	- / -	17 / 1.520	0 / 0.000	17 / 1.520	- / -	- / -	- / -	- / -	0 / 0.000	17 / 1.520
FY 2022	- / -	- / -	- / -	- / -	- / -	- / -	7 / 1.506	- / -	- / -	- / -	0 / 0.000	7 / 1.506
FY 2023	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2024	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2025	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
To Complete	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	3 / 1.002	3 / 1.002
Total	115 / 5.416	20 / 3.192	20 / 2.230	17 / 1.520	0 / 0.000	17 / 1.520	7 / 1.506	- / -	- / -	- / -	3 / 1.002	182 / 14.866

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	115	-	-	20	-	-	-	20	-	-	-	17	-	-	-	7	-	-	-	-	-	-	-	-	-	-	-	-	-	3	182
Out	88	9	9	9	5	5	5	5	5	5	5	5	5	5	5	2	2	2	2	1	-	-	-	-	-	-	-	-	-	3	182

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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 01: Ships Support Equipment / BSA 9: Other Shipboard Equipment	**P-1 Line Item Number / Title:** 0925 / Command and Control Switchboard

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

Line Item MDAP/MAIS Code: N/A

Resource Summary	Prior Years	FY 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)*	73.616	2.248	2.086	2.374	0.000	2.374	2.388	2.377	2.404	2.449	-	89.942
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	73.616	2.248	2.086	2.374	0.000	2.374	2.388	2.377	2.404	2.449	-	89.942
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**73.616**	**2.248**	**2.086**	**2.374**	**0.000**	**2.374**	**2.388**	**2.377**	**2.404**	**2.449**	**-**	**89.942**
(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:

The switchboard program provides mission critical switching capability required to link shipboard combat equipment including weapons, launchers, sensors, computers and navigation equipment. In essence, switchboards serve as
the central connection point for most elements of combat and weapon systems, interior communications, data transfer, and command and control systems. They are designed to accommodate either analog, digital interfaces, or a
combination of both. In total, this budget item supports approximately 200 ships and 1,000 pieces of equipment throughout the acquisition life cycle.

Functions include: data routing, action cutout, test and operating mode selection (including casualty back-up modes), power monitoring and control, circuit protection, peripheral equipment isolation, signal processing, and frequency conversion amplification and switching. In summary, the primary purpose is to provide systems intra and interface compatibility.

Changes in other elements of the combat and Interior Communication (IC) systems will frequently mandate either conjunctive modification to switchboards via ship change documents (SCDs), ordnance alteration (ORDALT)/
field changes (FCs) or partial or complete replacement of existing switchboards. Typical switchboard mods include hardware/field change kits, ORDALT/SCD/FC instructions, technical manual updates and revisions to other
supporting documentation. Hull unique switchboard configurations require hull unique documentation. Subsequent alterations to these switchboards require hull unique design, hardware, installation, and checkout procedures.
New Switchboards are normally installed during a regular overhaul by a shipyard.

Command and control switchboards are currently installed on and are required for almost all surface combatants and amphibious warfare ships. Individual switchboard unit cost varies from ship to ship, depending upon size,
complexity, and whether analog or digital interfaces or some combination thereof are utilized. Modifications to existing switchboards via Ship Alterations (SHIPALTs), SCDs, ORDALTs or FCs are quantified by kits or change
packages rather than individual units. The number of kits required for different classes of ships are as follows: DDGs/CGs require three to four (3 - 4) per ship, LSDs require two (2) per ship, LPDs require one (1) per ship, MCMs

Exhibit P-40, Budget Line Item Justification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 01: Ships Support Equipment / BSA 9: Other Shipboard Equipment	**P-1 Line Item Number / Title:** 0925 / Command and Control Switchboard	
ID Code (A=Service Ready, B=Not Service Ready): A	**Program Elements for Code B Items:** N/A	**Other Related Program Elements:** N/A
Line Item MDAP/MAIS Code: N/A		

require (3) per ship and LHDs require two (2) per ship. The magnitude of modifications also varies, as Cruiser Modernization is considerably more complex than the Amphibious Class hulls. Switchboard hardware is normally
procured by the Invitation For Bids (IFB) process, from manufacturers on Qualified Products List (QPL)-17000. There are currently six companies listed on QPL-17000. All contracts awarded are competitive, fixed price.

[P40A / GE003 ENG UPGRADES/MODS TO EQUIPMENT & TECH DOCUMENTATION]: Combat Systems & Interior Communication Switchboard Engineering and Modifications Upgrades to Equipment, Drawings, Technical Manuals (TMs) Allowance Parts Lists (APLs) and Allowance Equipage Lists (AELs). This line covers the costs to upgrade/modify existing equipment and associated technical documentation to implement and validate upgraded switching configurations essential for the ships' switchboards to properly integrate all elements of the Combat System and Interior Communication interfaces. The upgraded engineering modification drives the procurement of hardware modification kits (i.e., ORDALTs & Field Changes). These engineering modifications are essential to the functional deployment of Battle Force Interoperability.

Exhibit P-40, Budget Line Item Justification: PB 2021 Navy	**Date:** February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 01: Ships Support Equipment / BSA 9: Other Shipboard Equipment	**P-1 Line Item Number / Title:** 0925 / Command and Control Switchboard

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

Line Item MDAP/MAIS Code: N/A

Exhibits Schedule					Prior Years	FY 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	COMMAND AND CONTROL SWITCHBOARD				- / 23.366	- / 1.674	- / 1.472	- / 1.725	- / -	- / 1.725
P-3a	1 / COMMAND AND CONTROL ORDALT/FIELD CHANGE KITS (TBD)				- / 50.250	- / 0.574	- / 0.614	- / 0.649	- / 0.000	- / 0.649
P-40	**Total Gross/Weapon System Cost**				**- / 73.616**	**- / 2.248**	**- / 2.086**	**- / 2.374**	**- / 0.000**	**- / 2.374**

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	COMMAND AND CONTROL SWITCHBOARD				- / -	- / -	- / -	- / -	- / -	- / -
P-3a	1 / COMMAND AND CONTROL ORDALT/FIELD CHANGE KITS (TBD)				- / 0.646	- / 0.661	- / 0.677	- / 0.690	- / 0.000	- / 54.761
P-40	**Total Gross/Weapon System Cost**				**- / 2.388**	**- / 2.377**	**- / 2.404**	**- / 2.449**	**- / -**	**- / 89.942**

*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.

Exhibit P-40a, Budget Item Justification For Aggregated Items: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0925 / Command and Control Switchboard	**Aggregated Items Title:** COMMAND AND CONTROL SWITCHBOARD

Item Number / Title [DODIC]	ID CD	MDAP/ MAIS Code	Prior Years			FY 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) GE003 ENG UPGRADES/MODS TO EQUIPMENT & TECH DOCUMENTATION																				
1.1) ENGINEERING UPGRADES/MODS TO EQUIPMENT & TECHNICAL DOCUMENTATION	A		-	-	23.366	-	-	1.674	-	-	1.472	-	-	1.725	-	-	-	-	-	1.725
Subtotal: 1) GE003 ENG UPGRADES/ MODS TO EQUIPMENT & TECH DOCUMENTATION			**-**	**-**	***23.366***	**-**	**-**	***1.674***	**-**	**-**	***1.472***	**-**	**-**	***1.725***	**-**	**-**	**-**	**-**	**-**	***1.725***
Total			**-**	**-**	**23.366**	**-**	**-**	**1.674**	**-**	**-**	**1.472**	**-**	**-**	**1.725**	**-**	**-**	**-**	**-**	**-**	**1.725**

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

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0925 / Command and Control Switchboard	**Modification Number / Title:** 1 / COMMAND AND CONTROL ORDALT/FIELD CHANGE KITS
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

Resource Summary	Prior Years	FY 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)*	50.250	0.574	0.614	0.649	0.000	0.649	0.646	0.661	0.677	0.690	0.000	54.761
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	50.250	0.574	0.614	0.649	0.000	0.649	0.646	0.661	0.677	0.690	0.000	54.761
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**50.250**	**0.574**	**0.614**	**0.649**	**0.000**	**0.649**	**0.646**	**0.661**	**0.677**	**0.690**	**0.000**	**54.761**
(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:

Combat Systems & Interior Communication Switchboard Engineering and Modifications Upgrades to Equipment, Drawings, Technical Manuals (TMs) Allowance Parts Lists (APLs) and Allowance Equipage Lists (AELs). This line covers the costs to upgrade/modify existing equipment and associated technical documentation to implement and validate upgraded switching configurations essential for the ships' switchboards to properly integrate all elements of the Combat System and Interior Communication interfaces. The upgraded engineering modification drives the procurement of hardware modification kits (i.e., ORDALTs & Field Changes). These engineering modifications are essential to the functional deployment of Battle Force Interoperability.

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0925 / Command and Control Switchboard	**Modification Number / Title:** 1 / COMMAND AND CONTROL ORDALT/FIELD CHANGE KITS
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	
Models of Systems Affected: [No Model Specified]	**Modification Type:** TBD	**Related RDT&E PEs:**

Financial Plan	Prior Years	FY 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: COMMAND AND CONTROL ORDALT/FIELD CHANGE KITS												
B Kits												
Recurring												
1.1.1) Ordalt/Field Change Kits - NonOrganic (1)	165 / 50.250	14 / 0.574	14 / 0.614	14 / 0.649	- / -	14 / 0.649	14 / 0.646	14 / 0.661	14 / 0.677	13 / 0.690	- / -	262 / 54.761
Subtotal: Recurring	*- / 50.250*	*- / 0.574*	*- / 0.614*	*- / 0.649*	*- / -*	*- / 0.649*	*- / 0.646*	*- / 0.661*	*- / 0.677*	*- / 0.690*	*- / 0.000*	*- / 54.761*
Subtotal: COMMAND AND CONTROL ORDALT/FIELD CHANGE KITS	*165 / 50.250*	*14 / 0.574*	*14 / 0.614*	*14 / 0.649*	*- / -*	*14 / 0.649*	*14 / 0.646*	*14 / 0.661*	*14 / 0.677*	*13 / 0.690*	*- / -*	*262 / 54.761*
Subtotal: Procurement, All Modification Items	*- / 50.250*	*- / 0.574*	*- / 0.614*	*- / 0.649*	*- / -*	*- / 0.649*	*- / 0.646*	*- / 0.661*	*- / 0.677*	*- / 0.690*	*- / 0.000*	*- / 54.761*
Installation												
Modification Item 1 of 1: COMMAND AND CONTROL ORDALT/FIELD CHANGE KITS	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000
Subtotal: Installation	*- / 0.000*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / 0.000*
Total												
Total Cost (Procurement + Support + Installation)	**50.250**	**0.574**	**0.614**	**0.649**	**0.000**	**0.649**	**0.646**	**0.661**	**0.677**	**0.690**	**0.000**	**54.761**

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0925 / Command and Control Switchboard	**Modification Number / Title:** 1 / COMMAND AND CONTROL ORDALT/FIELD CHANGE KITS

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

Modification Item 1 of 1: COMMAND AND CONTROL ORDALT/FIELD CHANGE KITS

Manufacturer Information

Manufacturer Name: Valkyrie | Manufacturer Location: Oxnard, CA

Administrative Leadtime *(in Months)*: 0 | Production Leadtime *(in Months)*: 1

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

Installation Information

Method of Implementation: [none specified]:: Installation Name: Ordalt/Field Change 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	165 / 0.000	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	165 / -
FY 2019	- / -	14 / 0.000	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	14 / -
FY 2020	- / -	- / -	14 / 0.000	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	14 / -
FY 2021	- / -	- / -	- / -	14 / 0.000	0 / 0.000	14 / 0.000	- / -	- / -	- / -	- / -	0 / 0.000	14 / -
FY 2022	- / -	- / -	- / -	- / -	- / -	- / -	14 / 0.000	- / -	- / -	- / -	0 / 0.000	14 / -
FY 2023	- / -	- / -	- / -	- / -	- / -	- / -	- / -	14 / 0.000	- / -	- / -	0 / 0.000	14 / -
FY 2024	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	14 / 0.000	- / -	0 / 0.000	14 / -
FY 2025	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	13 / 0.000	0 / 0.000	13 / -
To Complete	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
Total	165 / 0.000	14 / 0.000	14 / 0.000	14 / 0.000	0 / 0.000	14 / 0.000	14 / 0.000	14 / 0.000	14 / 0.000	13 / 0.000	0 / 0.000	262 / -

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	165	8	1	3	2	6	3	3	2	6	3	3	2	2	4	6	2	2	4	6	2	2	4	6	2	2	4	5	2	-	262
Out	165	8	1	3	2	6	3	3	2	6	3	3	2	2	4	6	2	2	4	6	2	2	4	6	2	2	4	5	2	-	262

Footnotes:

(1) Installation costs are included in procurement costs. FY 2021 funding is for the procurement of 14 units to be installed on the following ship classes: 4 CG-Class (4 units), 6 DDG-Class (6 units), 3 LSD-Class (3 units) and 1 LHD-Class (1 units).

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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 01: Ships Support Equipment / BSA 9: Other Shipboard Equipment	**P-1 Line Item Number / Title:** 0933 / LHA/LHD Midlife

ID Code (A=Service Ready, B=Not Service Ready): A	**Program Elements for Code B Items:** N/A	**Other Related Program Elements:** N/A
Line Item MDAP/MAIS Code: N/A		

Resource Summary	Prior Years	FY 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)*	61.568	31.453	79.563	78.265	0.000	78.265	140.262	111.118	121.292	122.295	66.373	812.189
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	61.568	31.453	79.563	78.265	0.000	78.265	140.262	111.118	121.292	122.295	66.373	812.189
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**61.568**	**31.453**	**79.563**	**78.265**	**0.000**	**78.265**	**140.262**	**111.118**	**121.292**	**122.295**	**66.373**	**812.189**
(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:

The FY 2021 funding request was reduced by $2.000 million to account for the availability of prior year execution balances.

This budget provides funding for targeted modernization of various HM&E systems on board the LHD and LHA class Amphibious Assault Ships. Some major modernization efforts include the procurement and installation of Brushless Generators for the PMP, main feed pump replacement; and Shipboard Air Traffic Control Communications (SATCC), Propulsion and Auxiliary Control System (PACS), and Ballast and DC Console.

Brushless Generator replacement will reduce down time, total ownership costs, and maintenance costs associated with antiquated brush type generators. Main feed pump procurement and install replaces obsolete main feed pumps for the main propulsion boiler. Propulsion and Auxiliary Control System (PACS) provides a network infrastructure for HM&E systems.

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

Appropriation / Budget Activity / Budget Sub Activity:
1810N: Other Procurement, Navy / BA 01: Ships Support Equipment / BSA 9: Other Shipboard Equipment

P-1 Line Item Number / Title:
0933 / LHA/LHD Midlife

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

Line Item MDAP/MAIS Code: N/A

Exhibits Schedule					Prior Years	FY 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	LHA/LHD Midlife				- / 12.887	- / 7.337	- / 7.073	- / -	- / -	- / -
P-3a	1 / LH001 - LHD Midlife, Brushless Generator for PMP (TBD)				- / 38.415	- / 0.000	- / 0.820	- / 9.321	- / 0.000	- / 9.321
P-3a	2 / LH001 - Main Feed Pump (TBD)				- / 1.643	- / 0.000	- / 2.618	- / 1.089	- / 0.000	- / 1.089
P-3a	3 / LH001-Shipboard Air Traffic Control Communication (SATCC) (TBD)				- / 1.820	- / 0.360	- / 3.150	- / 2.725	- / 0.000	- / 2.725
P-3a	4 / LH001- Navigation Critical Data Distribution (NavCrit) (TBD)				- / 6.803	- / 1.577	- / 1.772	- / 0.000	- / 0.000	- / 0.000
P-3a	5 / LH001 Propulsion and Auxiliary Control System (PACS) (TBD)				- / 0.000	- / 2.708	- / 21.199	- / 15.467	- / 0.000	- / 15.467
P-3a	6 / LH001 - Power Management Platform (Electric Plant Control) (TBD)				- / 0.000	- / 0.000	- / 10.710	- / 1.615	- / 0.000	- / 1.615
P-3a	7 / LH001 - HYDRA (TBD)				- / 0.000	- / 3.217	- / 7.777	- / 9.973	- / 0.000	- / 9.973
P-3a	8 / LH001 - BALLAST AND DC CONSOLE (TBD)				- / 0.000	- / 2.632	- / 4.952	- / 5.472	- / 0.000	- / 5.472
P-3a	9 / LH001 - SCS- GOV (TBD)				- / 0.000	- / 1.770	- / 5.497	- / 10.717	- / 0.000	- / 10.717
P-3a	10 / LH001 - AMPLIFIED ANNOUNCING SYSTEM (TBD)				- / 0.000	- / 2.755	- / 6.044	- / 5.024	- / 0.000	- / 5.024
P-3a	11 / LH001 - DCSS UPGRADE (TBD)				- / 0.000	- / 1.092	- / 0.242	- / 2.225	- / 0.000	- / 2.225
P-3a	12 / LH001 - ICT UPGRADE (TBD)				- / 0.000	- / 3.061	- / 3.340	- / 4.166	- / 0.000	- / 4.166
P-3a	13 / LH001 - IVN UPGRADE (TBD)				- / 0.000	- / 0.000	- / 4.127	- / 0.360	- / 0.000	- / 0.360
P-3a	14 / LH001 - IVCN Tech Refresh (TBD)				- / 0.000	- / 4.944	- / 0.242	- / 7.054	- / 0.000	- / 7.054
P-3a	15 / LH001 - MACHINERY CONTROL SYSTEM (MCS) (TBD)				- / 0.000	- / 0.000	- / 0.000	- / 3.057	- / 0.000	- / 3.057
P-40	**Total Gross/Weapon System Cost**				**- / 61.568**	**- / 31.453**	**- / 79.563**	**- / 78.265**	**- / 0.000**	**- / 78.265**

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	LHA/LHD Midlife				- / -	- / -	- / -	- / -	- / -	- / -
P-3a	1 / LH001 - LHD Midlife, Brushless Generator for PMP (TBD)				- / 19.446	- / 21.294	- / 19.352	- / 12.860	- / 12.089	- / 133.597
P-3a	2 / LH001 - Main Feed Pump (TBD)				- / 3.949	- / 1.103	- / 4.104	- / 4.043	- / 3.911	- / 22.460
P-3a	3 / LH001-Shipboard Air Traffic Control Communication (SATCC) (TBD)				- / 1.593	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 9.648
P-3a	4 / LH001- Navigation Critical Data Distribution (NavCrit) (TBD)				- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 10.152
P-3a	5 / LH001 Propulsion and Auxiliary Control System (PACS) (TBD)				- / 35.534	- / 24.805	- / 25.377	- / 14.123	- / 19.064	- / 158.277
P-3a	6 / LH001 - Power Management Platform (Electric Plant Control) (TBD)				- / 33.938	- / 12.985	- / 24.010	- / 24.137	- / 0.000	- / 107.395
P-3a	7 / LH001 - HYDRA (TBD)				- / 11.923	- / 5.926	- / 7.612	- / 1.807	- / 11.910	- / 60.145
P-3a	8 / LH001 - BALLAST AND DC CONSOLE (TBD)				- / 8.550	- / 6.401	- / 6.550	- / 3.927	- / 2.391	- / 40.875
P-3a	9 / LH001 - SCS- GOV (TBD)				- / 8.965	- / 8.532	- / 3.906	- / 4.575	- / 3.043	- / 47.005

Exhibit P-40, Budget Line Item Justification: PB 2021 Navy	**Date:** February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 01: Ships Support Equipment / BSA 9: Other Shipboard Equipment	**P-1 Line Item Number / Title:** 0933 / LHA/LHD Midlife

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

Line Item MDAP/MAIS Code: N/A

Exhibits Schedule					FY 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-3a	10 / LH001 - AMPLIFIED ANNOUNCING SYSTEM (TBD)				- / 4.423	- / 2.192	- / 6.304	- / 0.269	- / 4.633	- / 31.644
P-3a	11 / LH001 - DCSS UPGRADE (TBD)				- / 0.252	- / 1.135	- / 0.000	- / 1.229	- / 1.492	- / 7.667
P-3a	12 / LH001 - ICT UPGRADE (TBD)				- / 1.166	- / 4.486	- / 7.128	- / 1.369	- / 2.237	- / 26.953
P-3a	13 / LH001 - IVN UPGRADE (TBD)				- / 2.597	- / 3.477	- / 7.473	- / 3.512	- / 5.603	- / 27.149
P-3a	14 / LH001 - IVCN Tech Refresh (TBD)				- / 0.252	- / 2.369	- / 0.000	- / 0.000	- / 0.000	- / 14.861
P-3a	15 / LH001 - MACHINERY CONTROL SYSTEM (MCS) (TBD)				- / 1.573	- / 11.885	- / 4.184	- / 5.369	- / 0.000	- / 26.068
P-40	**Total Gross/Weapon System Cost**				**- / 140.262**	**- / 111.118**	**- / 121.292**	**- / 122.295**	**- / 66.373**	**- / 812.189**

*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:
Funds provide for the modernization of Amphibious Assault Ships.

Exhibit P-40a, Budget Item Justification For Aggregated Items: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0933 / LHA/LHD Midlife	**Aggregated Items Title:** LHA/LHD Midlife

Item Number / Title [DODIC]	ID CD	MDAP/ MAIS Code	Prior Years			FY 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) LH002 Conjunctive Alterations																				
1.1) Conjunctive Alterations	A		-	-	9.688	-	-	6.754	-	-	6.374	-	-	-	-	-	-	-	-	-
1.2) HM&E CONDITION SYSTEM (1)	A		-	-	-	-	-	0.583	-	-	0.699	-	-	-	-	-	-	-	-	-
Subtotal: 1) LH002 Conjunctive Alterations			**-**	**-**	***9.688***	**-**	**-**	***7.337***	**-**	**-**	***7.073***	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
2) LHD Midlife HVAC improvements (HESC)																				
2.1) HESC	A		-	-	3.199	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: 2) LHD Midlife HVAC improvements (HESC)			**-**	**-**	***3.199***	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Total			**-**	**-**	**12.887**	**-**	**-**	**7.337**	**-**	**-**	**7.073**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**

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

Footnotes:

(1) This solution proposed would implement HM&E principles, it would implement a Defense-in-Depth Functional Implementation Architecture (DFIA) and meet the requirements of the standards released by the Information Assurance Technical Authority Board (IA TAB) across all the H,M&E systems deploying the ability to protect, detect, react, and restore in a contested environment. The HM&E Condition System will monitor the signals on the HM&E network, both between HM&E systems and also those coming from other functional domains.

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0933 / LHA/LHD Midlife	**Modification Number / Title:** 1 / LH001 - LHD Midlife, Brushless Generator for PMP
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

Resource Summary	Prior Years	FY 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)*	38.415	0.000	0.820	9.321	0.000	9.321	19.446	21.294	19.352	12.860	12.089	133.597
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	38.415	0.000	0.820	9.321	0.000	9.321	19.446	21.294	19.352	12.860	12.089	133.597
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**38.415**	**0.000**	**0.820**	**9.321**	**0.000**	**9.321**	**19.446**	**21.294**	**19.352**	**12.860**	**12.089**	**133.597**
(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 Brushless Generator replacement will reduce down time, total ownership costs, and maintenance costs associated with antiquated brush type generators.

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

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0933 / LHA/LHD Midlife	**Modification Number / Title:** 1 / LH001 - LHD Midlife, Brushless Generator for PMP
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	
Models of Systems Affected: LHD Midlife PMP	**Modification Type:** TBD	**Related RDT&E PEs:**

Financial Plan	Prior Years	FY 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: LH001 - LHD Midlife, Brushless Generator for PMP												
B Kits												
Recurring												
1.1.1) Brushless Generator for PMP - NonOrganic (2)	2 / 13.199	- / -	- / -	1 / 6.322	- / -	1 / 6.322	1 / 6.454	1 / 6.590	1 / 6.728	- / -	- / -	6 / 39.293
Subtotal: Recurring	*- / 13.199*	*- / -*	*- / -*	*- / 6.322*	*- / -*	*- / 6.322*	*- / 6.454*	*- / 6.590*	*- / 6.728*	*- / -*	*- / 0.000*	*- / 39.293*
Subtotal: LH001 - LHD Midlife, Brushless Generator for PMP	*2 / 13.199*	*- / -*	*- / -*	*1 / 6.322*	*- / -*	*1 / 6.322*	*1 / 6.454*	*1 / 6.590*	*1 / 6.728*	*- / -*	*- / -*	*6 / 39.293*
Subtotal: Procurement, All Modification Items	*- / 13.199*	*- / -*	*- / -*	*- / 6.322*	*- / -*	*- / 6.322*	*- / 6.454*	*- / 6.590*	*- / 6.728*	*- / -*	*- / 0.000*	*- / 39.293*
Support *(All Modification Items)*												
2.1) Non-Recurring Engineering	- / 10.197	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / 10.197
2.2) Engineering Services	- / -	- / -	- / 0.260	- / 0.464	- / -	- / 0.464	- / 0.677	- / 0.691	- / 0.706	- / 0.431	- / -	- / 3.229
Subtotal: Support	*- / 10.197*	*- / -*	*- / 0.260*	*- / 0.464*	*- / -*	*- / 0.464*	*- / 0.677*	*- / 0.691*	*- / 0.706*	*- / 0.431*	*- / 0.000*	*- / 13.426*
Installation												
Modification Item 1 of 1: LH001 - LHD Midlife, Brushless Generator for PMP	- / 15.019	- / 0.000	- / 0.560	- / 2.535	- / 0.000	- / 2.535	- / 12.315	- / 14.013	- / 11.918	- / 12.429	- / 12.089	- / 80.878
Subtotal: Installation	*- / 15.019*	*- / -*	*- / 0.560*	*- / 2.535*	*- / -*	*- / 2.535*	*- / 12.315*	*- / 14.013*	*- / 11.918*	*- / 12.429*	*- / 12.089*	*- / 80.878*
Total												
Total Cost (Procurement + Support + Installation)	**38.415**	**0.000**	**0.820**	**9.321**	**0.000**	**9.321**	**19.446**	**21.294**	**19.352**	**12.860**	**12.089**	**133.597**

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0933 / LHA/LHD Midlife	**Modification Number / Title:** 1 / LH001 - LHD Midlife, Brushless Generator for PMP

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

Modification Item 1 of 1: LH001 - LHD Midlife, Brushless Generator for PMP

Manufacturer Information

Manufacturer Name: KATO ENGINEERING | Manufacturer Location: MN

Administrative Leadtime *(in Months)*: 0 | Production Leadtime *(in Months)*: 24

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

Installation Information

Method of Implementation: AIT/Industrial:: Installation Name: Brushless Generator for PMP

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	1 / 15.019	- / -	0 / 0.560	0 / 1.963	0 / 0.000	0 / 1.963	1 / 9.630	- / -	- / -	- / -	0 / 0.000	2 / 27.172
FY 2019	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2020	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2021	- / -	- / -	- / -	0 / 0.572	0 / 0.000	0 / 0.572	0 / 2.101	1 / 11.420	- / -	- / -	0 / 0.000	1 / 14.093
FY 2022	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.584	0 / 1.997	1 / 9.221	- / -	0 / 0.000	1 / 11.802
FY 2023	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.596	0 / 2.088	1 / 10.199	0 / 0.000	1 / 12.883
FY 2024	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.609	0 / 2.230	1 / 12.089	1 / 14.928
FY 2025	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
To Complete	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
Total	1 / 15.019	- / -	0 / 0.560	0 / 2.535	0 / 0.000	0 / 2.535	1 / 12.315	1 / 14.013	1 / 11.918	1 / 12.429	1 / 12.089	6 / 80.878

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	-	-	-	-	-	1	-	-	-	-	1	1	6
Out	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	1	-	1	-	-	2	6

Footnotes:

(2) Installation funding for a ship is divided over a three-year period. Installation execution funding in the year of availability, and Design Service Allocation (DSA) two years prior to availability, and DSA in the year prior to the availability. This includes ship checks, ship installation drawing (SID) development, logistic document development and long lead time material procurements (LLTM). Installation costs across the FYDP may vary depending on current port rates. Port rates are updated every year by a CNRMC letter based on the forecasted port loading model. Port loading rate forecasts are the rates recommended for

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0933 / LHA/LHD Midlife	**Modification Number / Title:** 1 / LH001 - LHD Midlife, Brushless Generator for PMP
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

all budgeted maintenance and organic modernization within a specific port. Individual ship's availability durations vary dependent upon the integration of ship's maintenance and modernization work packages. The Brushless Generator procurement made in FY17 was planned for installation during LHD 2s FY19 PMA. The installation during the FY19 PMA was deferred, as the availability length could not support the duration of the installation. The installation of this unit is now planned for LHD 2s FY22 DPMA.

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0933 / LHA/LHD Midlife	**Modification Number / Title:** 2 / LH001 - Main Feed Pump
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

Resource Summary	Prior Years	FY 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)*	1.643	0.000	2.618	1.089	0.000	1.089	3.949	1.103	4.104	4.043	3.911	22.460
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	1.643	0.000	2.618	1.089	0.000	1.089	3.949	1.103	4.104	4.043	3.911	22.460
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**1.643**	**0.000**	**2.618**	**1.089**	**0.000**	**1.089**	**3.949**	**1.103**	**4.104**	**4.043**	**3.911**	**22.460**
(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:

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

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0933 / LHA/LHD Midlife	**Modification Number / Title:** 2 / LH001 - Main Feed Pump
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	
Models of Systems Affected: [No Model Specified]	**Modification Type:** TBD	**Related RDT&E PEs:**

Financial Plan	Prior Years	FY 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: LH001 - Main Feed Pump												
B Kits												
Recurring												
1.1.1) Main Feed Pump - NonOrganic (3)	- / -	- / -	1 / 2.300	- / -	- / -	- / -	1 / 2.398	- / -	1 / 2.500	1 / 2.545	- / -	4 / 9.743
Subtotal: Recurring	*- / 0.000*	*- / -*	*- / 2.300*	*- / -*	*- / -*	*- / -*	*- / 2.398*	*- / -*	*- / 2.500*	*- / 2.545*	*- / 0.000*	*- / 9.743*
Subtotal: LH001 - Main Feed Pump	*- / -*	*- / -*	*1 / 2.300*	*- / -*	*- / -*	*- / -*	*1 / 2.398*	*- / -*	*1 / 2.500*	*1 / 2.545*	*- / -*	*4 / 9.743*
Subtotal: Procurement, All Modification Items	*- / 0.000*	*- / -*	*- / 2.300*	*- / -*	*- / -*	*- / -*	*- / 2.398*	*- / -*	*- / 2.500*	*- / 2.545*	*- / 0.000*	*- / 9.743*
Support *(All Modification Items)*												
2.1) Non-Recurring Engineering	- / 1.643	- / -	- / -	- / 0.166	- / -	- / 0.166	- / -	- / 0.173	- / -	- / 0.180	- / -	- / 2.162
Subtotal: Support	*- / 1.643*	*- / -*	*- / -*	*- / 0.166*	*- / -*	*- / 0.166*	*- / -*	*- / 0.173*	*- / -*	*- / 0.180*	*- / 0.000*	*- / 2.162*
Installation												
Modification Item 1 of 1: LH001 - Main Feed Pump	- / 0.000	- / 0.000	- / 0.318	- / 0.923	- / 0.000	- / 0.923	- / 1.551	- / 0.930	- / 1.604	- / 1.318	- / 3.911	- / 10.555
Subtotal: Installation	*- / 0.000*	*- / -*	*- / 0.318*	*- / 0.923*	*- / -*	*- / 0.923*	*- / 1.551*	*- / 0.930*	*- / 1.604*	*- / 1.318*	*- / 3.911*	*- / 10.555*
Total												
Total Cost (Procurement + Support + Installation)	**1.643**	**0.000**	**2.618**	**1.089**	**0.000**	**1.089**	**3.949**	**1.103**	**4.104**	**4.043**	**3.911**	**22.460**

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0933 / LHA/LHD Midlife	**Modification Number / Title:** 2 / LH001 - Main Feed Pump
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

Modification Item 1 of 1: LH001 - Main Feed Pump

Manufacturer Information

Manufacturer Name: TBD	Manufacturer Location: TBD
Administrative Leadtime *(in Months)*: 0	Production Leadtime *(in Months)*: 22

Dates	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025
Contract Dates		Nov 2019		Jun 2022		May 2024	Dec 2024
Delivery Dates		Sep 2021		Apr 2024		Mar 2026	Oct 2026

Installation Information

Method of Implementation: Industrial:: Installation Name: Main Feed Pump

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	- / -	- / -	0 / 0.318	0 / 0.923	0 / 0.000	0 / 0.923	1 / 1.220	- / -	- / -	- / -	0 / 0.000	1 / 2.461
FY 2021	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2022	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.331	0 / 0.930	1 / 1.259	- / -	0 / 0.000	1 / 2.520
FY 2023	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2024	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.345	0 / 0.967	1 / 1.294	1 / 2.606
FY 2025	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.351	1 / 2.617	1 / 2.968
To Complete	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
Total	- / -	- / -	0 / 0.318	0 / 0.923	0 / 0.000	0 / 0.923	1 / 1.551	0 / 0.930	1 / 1.604	0 / 1.318	2 / 3.911	4 / 10.555

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	4
Out	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	1	-	-	2	4

Footnotes:

(3) Funding is for procurement and installation of MFP equipment to address system obsolescence by installing an industry supported, steam driven pump with a new electronic automatic boiler control that will prevent over-speed conditions, which is a major cause of MFP failures. The new pump will improve reliability, operational availability and bring commonality with other ship classes. Installation funding for a ship is divided over a three-year period. Installation execution funding in the year of availability, and Design Service Allocation (DSA) two years prior to availability, and DSA in the year prior to the availability. This includes ship checks, ship installation drawing (SID) development, logistic document development and long lead time material procurements (LLTM). Installation costs across the FYDP may vary depending on

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0933 / LHA/LHD Midlife	**Modification Number / Title:** 2 / LH001 - Main Feed Pump
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

current port rates. Port rates are updated every year by a CNRMC letter based on the forecasted port loading model. Port loading rate forecasts are the rates recommended for all budgeted maintenance and organic modernization within a specific port. Individual ship's availability durations vary dependent upon the integration of ship's maintenance and modernization work packages.

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0933 / LHA/LHD Midlife	**Modification Number / Title:** 3 / LH001-Shipboard Air Traffic Control Communication (SATCC)
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

Resource Summary	Prior Years	FY 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)*	1.820	0.360	3.150	2.725	0.000	2.725	1.593	0.000	0.000	0.000	0.000	9.648
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	1.820	0.360	3.150	2.725	0.000	2.725	1.593	0.000	0.000	0.000	0.000	9.648
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**1.820**	**0.360**	**3.150**	**2.725**	**0.000**	**2.725**	**1.593**	**0.000**	**0.000**	**0.000**	**0.000**	**9.648**
(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:

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

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0933 / LHA/LHD Midlife	**Modification Number / Title:** 3 / LH001-Shipboard Air Traffic Control Communication (SATCC)
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	
Models of Systems Affected: [No Model Specified]	**Modification Type:** TBD	**Related RDT&E PEs:**

Financial Plan	Prior Years	FY 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: LH001-Shipboard Air Traffic Control Communication (SATCC)												
B Kits												
Recurring												
1.1.1) Shipboard Air Traffic Control Communication (SATCC) - NonOrganic [4]	1 / 1.820	- / -	1 / 0.946	1 / 0.966	- / -	1 / 0.966	- / -	- / -	- / -	- / -	- / -	3 / 3.732
Subtotal: Recurring	*- / 1.820*	*- / -*	*- / 0.946*	*- / 0.966*	*- / -*	*- / 0.966*	*- / -*	*- / -*	*- / -*	*- / -*	*- / 0.000*	*- / 3.732*
Subtotal: LH001-Shipboard Air Traffic Control Communication (SATCC)	*1 / 1.820*	*- / -*	*1 / 0.946*	*1 / 0.966*	*- / -*	*1 / 0.966*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*3 / 3.732*
Subtotal: Procurement, All Modification Items	*- / 1.820*	*- / -*	*- / 0.946*	*- / 0.966*	*- / -*	*- / 0.966*	*- / -*	*- / -*	*- / -*	*- / -*	*- / 0.000*	*- / 3.732*
Installation												
Modification Item 1 of 1: LH001-Shipboard Air Traffic Control Communication (SATCC)	- / 0.000	- / 0.360	- / 2.204	- / 1.759	- / 0.000	- / 1.759	- / 1.593	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 5.916
Subtotal: Installation	*- / 0.000*	*- / 0.360*	*- / 2.204*	*- / 1.759*	*- / -*	*- / 1.759*	*- / 1.593*	*- / -*	*- / -*	*- / -*	*- / 0.000*	*- / 5.916*
Total												
Total Cost (Procurement + Support + Installation)	**1.820**	**0.360**	**3.150**	**2.725**	**0.000**	**2.725**	**1.593**	**0.000**	**0.000**	**0.000**	**0.000**	**9.648**

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0933 / LHA/LHD Midlife	**Modification Number / Title:** 3 / LH001-Shipboard Air Traffic Control Communication (SATCC)

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

Modification Item 1 of 1: LH001-Shipboard Air Traffic Control Communication (SATCC)

Manufacturer Information

Manufacturer Name: VARIOUS | Manufacturer Location: TBD

Administrative Leadtime *(in Months)*: 0 | Production Leadtime *(in Months)*: 12

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

Installation Information

Method of Implementation: [none specified]:: Installation Name: Shipboard Air Traffic Control Communication (SATCC)

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	- / -	0 / 0.360	1 / 1.862	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	1 / 2.222
FY 2019	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2020	- / -	- / -	0 / 0.342	1 / 1.406	0 / 0.000	1 / 1.406	- / -	- / -	- / -	- / -	0 / 0.000	1 / 1.748
FY 2021	- / -	- / -	- / -	0 / 0.353	0 / 0.000	0 / 0.353	1 / 1.593	- / -	- / -	- / -	0 / 0.000	1 / 1.946
FY 2022	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2023	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2024	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2025	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
To Complete	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
Total	- / -	0 / 0.360	1 / 2.204	1 / 1.759	0 / 0.000	1 / 1.759	1 / 1.593	- / -	- / -	- / -	0 / 0.000	3 / 5.916

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

Footnotes:

(4) The installation costs are higher for the PY procurement in comparison to future procurements due to port manday rates being different. Funding is for procurement and installation of SATCC to provide highly reliable Air Traffic Control (ATC) voice communications between pilots and ATC team, command and control, and connection to administrative jdial services throughout the ship. This installs a ruggedized, Commercial off the Shelf (COTS) system that addresses Safety of Flight concerns due to cumbersome communication controls that degrades ATC's situational awareness during flight operations. Installation

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0933 / LHA/LHD Midlife	**Modification Number / Title:** 3 / LH001-Shipboard Air Traffic Control Communication (SATCC)
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

costs across the FYDP may vary depending on current port rates. Port rates are updated every year by a CNRMC letter based on the forecasted port loading model. Port loading rate forecasts are the rates recommended for all budgeted maintenance and organic modernization within a specific port. Individual ship's availability durations vary dependent upon the integration of ship's maintenance and modernization work packages.

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0933 / LHA/LHD Midlife	**Modification Number / Title:** 4 / LH001- Navigation Critical Data Distribution (NavCrit)
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

Resource Summary	Prior Years	FY 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)*	6.803	1.577	1.772	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	10.152
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	6.803	1.577	1.772	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	10.152
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**6.803**	**1.577**	**1.772**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**10.152**
(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 Navigation Critical Distribution System (NCDS) procurements will be installed on LHD Class ships to replace and consolidate current analog Interior Communications (IC) data signals on the MK 70 and IC Switchboards, as well as analog indicators throughout the ships. The removal of the AN/USQ-82(V) Shipboard Data Multiplexer System (SDMS) will also be included. Network switches will be installed to provide data transmission from the NAVSSI Real Time Subsystem (RTS) to all clients and devices that require navigation data. Input Output Controllers (IOC) will be installed to convert the Navigation Sensor System Interface (NAVSSI) Standard Navigation Message from Ethernet to the required analog signal. Programmable Logic Controllers will be installed to handle all Navigation related alarms. Navigation Displays and Navigation Management Data Terminals (Alarm Panels) will be installed in various locations to provide the NAVCERT required data and alarms in the appropriate locations. A distributed IRIG-B timing architecture is also included, which includes IRIG-B clocks.

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0933 / LHA/LHD Midlife	**Modification Number / Title:** 4 / LH001- Navigation Critical Data Distribution (NavCrit)
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	
Models of Systems Affected: [No Model Specified]	**Modification Type:** TBD	**Related RDT&E PEs:**

Financial Plan	Prior Years	FY 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: LH001- Navigation Critical Data Distribution (NavCrit)												
B Kits												
Recurring												
1.1.1) Navigation Critical Data Distribution (NavCrit) - NonOrganic (5)	2 / 2.516	1 / 1.157	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	3 / 3.673
Subtotal: Recurring	*- / 2.516*	*- / 1.157*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / 0.000*	*- / 3.673*
Subtotal: LH001- Navigation Critical Data Distribution (NavCrit)	*2 / 2.516*	*1 / 1.157*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*3 / 3.673*
Subtotal: Procurement, All Modification Items	*- / 2.516*	*- / 1.157*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / 0.000*	*- / 3.673*
Installation												
Modification Item 1 of 1: LH001- Navigation Critical Data Distribution (NavCrit)	- / 4.287	- / 0.420	- / 1.772	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 6.479
Subtotal: Installation	*- / 4.287*	*- / 0.420*	*- / 1.772*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / 0.000*	*- / 6.479*
Total												
Total Cost (Procurement + Support + Installation)	**6.803**	**1.577**	**1.772**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**10.152**

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0933 / LHA/LHD Midlife	**Modification Number / Title:** 4 / LH001- Navigation Critical Data Distribution (NavCrit)

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

Modification Item 1 of 1: LH001- Navigation Critical Data Distribution (NavCrit)

Manufacturer Information

Manufacturer Name: VARIOUS | Manufacturer Location: TBD

Administrative Leadtime *(in Months)*: 0 | Production Leadtime *(in Months)*: 24

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

Installation Information

Method of Implementation: Industrial:: Installation Name: Navigation Critical Data Distribution (NavCrit)

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	1 / 4.287	- / -	1 / 1.772	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	2 / 6.059
FY 2019	- / -	0 / 0.420	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	1 / 0.000	1 / 0.420
FY 2020	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2021	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2022	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2023	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2024	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2025	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
To Complete	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
Total	1 / 4.287	0 / 0.420	1 / 1.772	- / -	- / -	- / -	- / -	- / -	- / -	- / -	1 / 0.000	3 / 6.479

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

Footnotes:

(5) NAVCRIT funding realigned to 0670 beginning in FY 2020. NAVCRIT must be installed conjunctive with both SSDS MK II and CIC Room Rearrangement SCDs. Installation funding for a ship is divided over a three-year period. Installation execution funding in the year of availability, and Design Service Allocation (DSA) two years prior to availability, and DSA in the year prior to the availability. This includes ship checks, ship installation drawing (SID) development, logistic document development and long lead time material procurements (LLTM). Installation costs across the FYDP may vary depending on current

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0933 / LHA/LHD Midlife	**Modification Number / Title:** 4 / LH001- Navigation Critical Data Distribution (NavCrit)
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

port rates. Port rates are updated every year by a CNRMC letter based on the forecasted port loading model. Port loading rate forecasts are the rates recommended for all budgeted maintenance and organic modernization within a specific port. Individual ship's availability durations vary dependent upon the integration of ship's maintenance and modernization work packages.

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0933 / LHA/LHD Midlife	**Modification Number / Title:** 5 / LH001 Propulsion and Auxiliary Control System (PACS)
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

Resource Summary	Prior Years	FY 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	2.708	21.199	15.467	0.000	15.467	35.534	24.805	25.377	14.123	19.064	158.277
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	0.000	2.708	21.199	15.467	0.000	15.467	35.534	24.805	25.377	14.123	19.064	158.277
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**0.000**	**2.708**	**21.199**	**15.467**	**0.000**	**15.467**	**35.534**	**24.805**	**25.377**	**14.123**	**19.064**	**158.277**
(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:

[Propulsion and Auxiliary Control System (PACS) procurement] Description: Propulsion and Auxiliary Control System (PACS) provides a network infrastructure for Hull, Mechanical & Electrical Systems to operate on that provides the operator necessary situational awareness of the engineering plant. It will improve functionality for Fluid Control Systems (FCS), Fire Protection Systems and Interior Communication/ System Monitoring (IC/SM) alarm switchboard, which are severely degraded or inoperable across the LHD Class due to obsolescence. PACS must be installed prior to or conjunctively with Damage Control/ Ballast Control Console Upgrade, which is a Class Safety Alteration.

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0933 / LHA/LHD Midlife	**Modification Number / Title:** 5 / LH001 Propulsion and Auxiliary Control System (PACS)
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	
Models of Systems Affected: [No Model Specified]	**Modification Type:** TBD	**Related RDT&E PEs:**

Financial Plan	Prior Years	FY 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: LH001 Propulsion and Auxiliary Control System (PACS)												
B Kits												
Recurring												
1.1.1) Propulsion and Auxiliary Control System (PACS) procurement - NonOrganic [6]	- / -	- / -	2 / 16.034	1 / 8.159	- / -	1 / 8.159	1 / 8.330	1 / 8.505	1 / 8.684	- / -	- / -	6 / 49.712
Subtotal: Recurring	*- / 0.000*	*- / -*	*- / 16.034*	*- / 8.159*	*- / -*	*- / 8.159*	*- / 8.330*	*- / 8.505*	*- / 8.684*	*- / -*	*- / 0.000*	*- / 49.712*
Subtotal: LH001 Propulsion and Auxiliary Control System (PACS)	*- / -*	*- / -*	*2 / 16.034*	*1 / 8.159*	*- / -*	*1 / 8.159*	*1 / 8.330*	*1 / 8.505*	*1 / 8.684*	*- / -*	*- / -*	*6 / 49.712*
Subtotal: Procurement, All Modification Items	*- / 0.000*	*- / -*	*- / 16.034*	*- / 8.159*	*- / -*	*- / 8.159*	*- / 8.330*	*- / 8.505*	*- / 8.684*	*- / -*	*- / 0.000*	*- / 49.712*
Support *(All Modification Items)*												
2.1) Propulsion and Auxilary Control System (PACS) Eng Services	- / -	- / 2.708	- / 4.516	- / 3.963	- / -	- / 3.963	- / 3.200	- / 3.267	- / 3.336	- / 0.898	- / 7.206	- / 29.094
Subtotal: Support	*- / 0.000*	*- / 2.708*	*- / 4.516*	*- / 3.963*	*- / -*	*- / 3.963*	*- / 3.200*	*- / 3.267*	*- / 3.336*	*- / 0.898*	*- / 7.206*	*- / 29.094*
Installation												
Modification Item 1 of 1: LH001 Propulsion and Auxiliary Control System (PACS)	- / 0.000	- / 0.000	- / 0.649	- / 3.345	- / 0.000	- / 3.345	- / 24.004	- / 13.033	- / 13.357	- / 13.225	- / 11.858	- / 79.471
Subtotal: Installation	*- / 0.000*	*- / -*	*- / 0.649*	*- / 3.345*	*- / -*	*- / 3.345*	*- / 24.004*	*- / 13.033*	*- / 13.357*	*- / 13.225*	*- / 11.858*	*- / 79.471*
Total												
Total Cost (Procurement + Support + Installation)	**0.000**	**2.708**	**21.199**	**15.467**	**0.000**	**15.467**	**35.534**	**24.805**	**25.377**	**14.123**	**19.064**	**158.277**

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0933 / LHA/LHD Midlife	**Modification Number / Title:** 5 / LH001 Propulsion and Auxiliary Control System (PACS)

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

Modification Item 1 of 1: LH001 Propulsion and Auxiliary Control System (PACS)

Manufacturer Information

Manufacturer Name: VARIOUS | Manufacturer Location: TBD

Administrative Leadtime *(in Months)*: 0 | Production Leadtime *(in Months)*: 22

Dates	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025
Contract Dates		Nov 2019	Dec 2021	Jun 2022	Aug 2023	May 2024	
Delivery Dates		Sep 2021	Oct 2023	Apr 2024	Jun 2025	Mar 2026	

Installation Information

Method of Implementation: Industrial:: Installation Name: Propulsion and Auxiliary Control System (PACS) procurement

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	- / -	- / -	0 / 0.649	0 / 3.014	0 / 0.000	0 / 3.014	2 / 22.064	- / -	- / -	- / -	0 / 0.000	2 / 25.727
FY 2021	- / -	- / -	- / -	0 / 0.331	0 / 0.000	0 / 0.331	0 / 1.602	1 / 11.247	- / -	- / -	0 / 0.000	1 / 13.180
FY 2022	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.338	0 / 1.441	1 / 11.468	- / -	0 / 0.000	1 / 13.247
FY 2023	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.345	0 / 1.536	1 / 11.661	0 / 0.000	1 / 13.542
FY 2024	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.353	0 / 1.564	1 / 11.858	1 / 13.775
FY 2025	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
To Complete	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
Total	- / -	- / -	0 / 0.649	0 / 3.345	0 / 0.000	0 / 3.345	2 / 24.004	1 / 13.033	1 / 13.357	1 / 13.225	1 / 11.858	6 / 79.471

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	-	-	-	-	-	1	-	-	-	-	1	1	6
Out	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	1	-	-	1	-	1	-	-	2	6

Footnotes:

(6) The higher engineering services costs prior to first install in FY22 are due to non-reoccurring engineering costs, which include first article environmental quality testing and engineering lab setup to support software development and Risk Management Framework Certification. Installation costs will vary because the scope of install differs between LHD 1-4 and LHD 5-7. Installation funding for a ship is divided over a three-year period. Installation execution funding in the year of availability, and Design Service Allocation (DSA) two years prior to availability, and DSA in the year prior to the availability. This includes

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0933 / LHA/LHD Midlife	**Modification Number / Title:** 5 / LH001 Propulsion and Auxiliary Control System (PACS)
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

ship checks, ship installation drawing (SID) development, logistic document development and long lead time material procurements (LLTM). Installation costs across the FYDP may vary depending on current port rates. Port rates are updated every year by a CNRMC letter based on the forecasted port loading model. Port loading rate forecasts are the rates recommended for all budgeted maintenance and organic modernization within a specific port. Individual ship's availability durations vary dependent upon the integration of ship's maintenance and modernization work packages.

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0933 / LHA/LHD Midlife	**Modification Number / Title:** 6 / LH001 - Power Management Platform (Electric Plant Control)
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

Resource Summary	Prior Years	FY 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	10.710	1.615	0.000	1.615	33.938	12.985	24.010	24.137	0.000	107.395
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	0.000	0.000	10.710	1.615	0.000	1.615	33.938	12.985	24.010	24.137	0.000	107.395
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**0.000**	**0.000**	**10.710**	**1.615**	**0.000**	**1.615**	**33.938**	**12.985**	**24.010**	**24.137**	**0.000**	**107.395**
(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:

Description: Power Management Platform (PMP) modernization converts legacy analog controls to a digital automated control system. This system gathers and combines all Electric plant data that can be monitored at different control stations throughout the engineering plant ensuring redundancy of the system. PMP simplifies multiple control sequences into single step operations, making possible new control capabilities that were too cumbersome for operators to perform. PMP implements a gradual Ship Service Turbine Generator (SSTG) turbine startup/shutdown sequence which allows the turbine to achieve stabilized temperatures more consistently, reducing operational stress on components and improves reliability and operational availability of the system. PMP automation will reduce electrical system transients and stress on breaker components by employing a Zero Power Transfer (ZPT) strategy, which limits the current flow through an individual breaker to zero during open/close evolutions. During PMP installation obsolete switchboard breakers will be replaced with Commercial Off-the-Shelf (COTS) Whipp and Bourne circuit breakers that will improve navy total ownership by increasing commonality across the fleet and reducing preventative and corrective maintenance.

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0933 / LHA/LHD Midlife	**Modification Number / Title:** 6 / LH001 - Power Management Platform (Electric Plant Control)
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	
Models of Systems Affected: [No Model Specified]	**Modification Type:** TBD	**Related RDT&E PEs:**

Financial Plan	Prior Years	FY 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: LH001 - Power Management Platform (Electric Plant Control)												
B Kits												
Recurring												
1.1.1) Power Management Platform (Electric Plant Control) - NonOrganic (7)	- / -	- / -	1 / 9.994	- / -	- / -	- / -	1 / 10.418	1 / 10.627	- / -	- / -	- / -	3 / 31.039
Subtotal: Recurring	*- / 0.000*	*- / -*	*- / 9.994*	*- / -*	*- / -*	*- / -*	*- / 10.418*	*- / 10.627*	*- / -*	*- / -*	*- / 0.000*	*- / 31.039*
Subtotal: LH001 - Power Management Platform (Electric Plant Control)	*- / -*	*- / -*	*1 / 9.994*	*- / -*	*- / -*	*- / -*	*1 / 10.418*	*1 / 10.627*	*- / -*	*- / -*	*- / -*	*3 / 31.039*
Subtotal: Procurement, All Modification Items	*- / 0.000*	*- / -*	*- / 9.994*	*- / -*	*- / -*	*- / -*	*- / 10.418*	*- / 10.627*	*- / -*	*- / -*	*- / 0.000*	*- / 31.039*
Support *(All Modification Items)*												
2.1) PMP Eng Services	- / -	- / -	- / 0.296	- / -	- / -	- / -	- / 0.308	- / 0.315	- / -	- / -	- / -	- / 0.919
Subtotal: Support	*- / 0.000*	*- / -*	*- / 0.296*	*- / -*	*- / -*	*- / -*	*- / 0.308*	*- / 0.315*	*- / -*	*- / -*	*- / 0.000*	*- / 0.919*
Installation												
Modification Item 1 of 1: LH001 - Power Management Platform (Electric Plant Control)	- / 0.000	- / 0.000	- / 0.420	- / 1.615	- / 0.000	- / 1.615	- / 23.212	- / 2.043	- / 24.010	- / 24.137	- / 0.000	- / 75.437
Subtotal: Installation	*- / 0.000*	*- / -*	*- / 0.420*	*- / 1.615*	*- / -*	*- / 1.615*	*- / 23.212*	*- / 2.043*	*- / 24.010*	*- / 24.137*	*- / 0.000*	*- / 75.437*
Total												
Total Cost (Procurement + Support + Installation)	**0.000**	**0.000**	**10.710**	**1.615**	**0.000**	**1.615**	**33.938**	**12.985**	**24.010**	**24.137**	**0.000**	**107.395**

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0933 / LHA/LHD Midlife	**Modification Number / Title:** 6 / LH001 - Power Management Platform (Electric Plant Control)

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

Modification Item 1 of 1: LH001 - Power Management Platform (Electric Plant Control)

Manufacturer Information

Manufacturer Name: TBD | Manufacturer Location: TBD

Administrative Leadtime *(in Months)*: 0 | Production Leadtime *(in Months)*: 22

Dates	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025
Contract Dates		Nov 2019		Jun 2022	Aug 2023		
Delivery Dates		Sep 2021		Apr 2024	Jun 2025		

Installation Information

Method of Implementation: [none specified]:: Installation Name: Power Management Platform (Electric Plant Control)

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	- / -	- / -	0 / 0.420	0 / 1.615	0 / 0.000	0 / 1.615	1 / 22.774	- / -	- / -	- / -	0 / 0.000	1 / 24.809
FY 2021	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2022	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.438	0 / 1.596	1 / 22.293	- / -	0 / 0.000	1 / 24.327
FY 2023	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.447	0 / 1.717	1 / 24.137	0 / 0.000	1 / 26.301
FY 2024	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2025	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
To Complete	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
Total	- / -	- / -	0 / 0.420	0 / 1.615	0 / 0.000	0 / 1.615	1 / 23.212	0 / 2.043	1 / 24.010	1 / 24.137	0 / 0.000	3 / 75.437

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

Footnotes:

(7) Installation funding for a ship is divided over a three-year period. Installation execution funding in the year of availability, and Design Service Allocation (DSA) two years prior to availability, and DSA in the year prior to the availability. This includes ship checks, ship installation drawing (SID) development, logistic document development and long lead time material procurements (LLTM). Installation costs across the

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0933 / LHA/LHD Midlife	**Modification Number / Title:** 6 / LH001 - Power Management Platform (Electric Plant Control)
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

FYDP may vary depending on current port rates. Port rates are updated every year by a CNRMC letter based on the forecasted port loading model. Port loading rate forecasts are the rates recommended for all budgeted maintenance and organic modernization within a specific port. Individual ship's availability durations vary dependent upon the integration of ship's maintenance and modernization work packages.

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0933 / LHA/LHD Midlife	**Modification Number / Title:** 7 / LH001 - HYDRA
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

Resource Summary	Prior Years	FY 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	3.217	7.777	9.973	0.000	9.973	11.923	5.926	7.612	1.807	11.910	60.145
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	0.000	3.217	7.777	9.973	0.000	9.973	11.923	5.926	7.612	1.807	11.910	60.145
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**0.000**	**3.217**	**7.777**	**9.973**	**0.000**	**9.973**	**11.923**	**5.926**	**7.612**	**1.807**	**11.910**	**60.145**
(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:

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

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0933 / LHA/LHD Midlife	**Modification Number / Title:** 7 / LH001 - HYDRA
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	
Models of Systems Affected: [No Model Specified]	**Modification Type:** TBD	**Related RDT&E PEs:**

Financial Plan	Prior Years	FY 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: LH001 - HYDRA												
B Kits												
Recurring												
1.1.1) HYDRA - NonOrganic [8]	- / -	1 / 3.065	2 / 6.695	1 / 3.286	- / -	1 / 3.286	- / -	- / -	2 / 7.275	- / -	- / -	6 / 20.321
Subtotal: Recurring	*- / 0.000*	*- / 3.065*	*- / 6.695*	*- / 3.286*	*- / -*	*- / 3.286*	*- / -*	*- / -*	*- / 7.275*	*- / -*	*- / 0.000*	*- / 20.321*
Subtotal: LH001 - HYDRA	*- / -*	*1 / 3.065*	*2 / 6.695*	*1 / 3.286*	*- / -*	*1 / 3.286*	*- / -*	*- / -*	*2 / 7.275*	*- / -*	*- / -*	*6 / 20.321*
Subtotal: Procurement, All Modification Items	*- / 0.000*	*- / 3.065*	*- / 6.695*	*- / 3.286*	*- / -*	*- / 3.286*	*- / -*	*- / -*	*- / 7.275*	*- / -*	*- / 0.000*	*- / 20.321*
Installation												
Modification Item 1 of 1: LH001 - HYDRA	- / 0.000	- / 0.152	- / 1.082	- / 6.687	- / 0.000	- / 6.687	- / 11.923	- / 5.926	- / 0.337	- / 1.807	- / 11.910	- / 39.824
Subtotal: Installation	*- / 0.000*	*- / 0.152*	*- / 1.082*	*- / 6.687*	*- / -*	*- / 6.687*	*- / 11.923*	*- / 5.926*	*- / 0.337*	*- / 1.807*	*- / 11.910*	*- / 39.824*
Total												
Total Cost (Procurement + Support + Installation)	**0.000**	**3.217**	**7.777**	**9.973**	**0.000**	**9.973**	**11.923**	**5.926**	**7.612**	**1.807**	**11.910**	**60.145**

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0933 / LHA/LHD Midlife	**Modification Number / Title:** 7 / LH001 - HYDRA
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

Modification Item 1 of 1: LH001 - HYDRA

Manufacturer Information

Manufacturer Name: Harris Corporation	Manufacturer Location: Lynchburg, VA
Administrative Leadtime *(in Months)*: 0	Production Leadtime *(in Months)*: 20

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

Installation Information

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

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	- / -	0 / 0.152	0 / 0.771	1 / 4.860	0 / 0.000	1 / 4.860	- / -	- / -	- / -	- / -	0 / 0.000	1 / 5.783
FY 2020	- / -	- / -	0 / 0.311	0 / 1.668	0 / 0.000	0 / 1.668	2 / 11.042	- / -	- / -	- / -	0 / 0.000	2 / 13.021
FY 2021	- / -	- / -	- / -	0 / 0.159	0 / 0.000	0 / 0.159	0 / 0.881	1 / 5.926	- / -	- / -	0 / 0.000	1 / 6.966
FY 2022	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2023	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2024	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.337	0 / 1.807	2 / 11.910	2 / 14.054
FY 2025	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
To Complete	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
Total	- / -	0 / 0.152	0 / 1.082	1 / 6.687	0 / 0.000	1 / 6.687	2 / 11.923	1 / 5.926	0 / 0.337	0 / 1.807	2 / 11.910	6 / 39.824

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	-	-	1	-	-	-	-	-	-	-	-	-	-	-	2	6
Out	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	2	-	-	-	-	-	-	1	-	-	-	-	2	6

Footnotes:

(8) Installation funding for a ship is divided over a three-year period. Installation execution funding in the year of availability, and Design Service Allocation (DSA) two years prior to availability, and DSA in the year prior to the availability. This includes ship checks, ship installation drawing (SID) development, logistic document development and long lead time material procurements (LLTM). Installation costs across the FYDP may vary depending on current port rates. Port rates are updated every year by a CNRMC letter based on the forecasted port loading model. Port loading rate forecasts are the rates recommended for all budgeted maintenance and organic modernization within a specific port. Individual ship's availability durations vary dependent upon the integration of ship's maintenance and modernization work packages.

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0933 / LHA/LHD Midlife	**Modification Number / Title:** 8 / LH001 - BALLAST AND DC CONSOLE
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

Resource Summary	Prior Years	FY 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	2.632	4.952	5.472	0.000	5.472	8.550	6.401	6.550	3.927	2.391	40.875
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	0.000	2.632	4.952	5.472	0.000	5.472	8.550	6.401	6.550	3.927	2.391	40.875
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**0.000**	**2.632**	**4.952**	**5.472**	**0.000**	**5.472**	**8.550**	**6.401**	**6.550**	**3.927**	**2.391**	**40.875**
(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:

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

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

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0933 / LHA/LHD Midlife	**Modification Number / Title:** 8 / LH001 - BALLAST AND DC CONSOLE
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	
Models of Systems Affected: [No Model Specified]	**Modification Type:** TBD	**Related RDT&E PEs:**

Financial Plan	Prior Years	FY 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: LH001 - BALLAST AND DC CONSOLE												
B Kits												
Recurring												
2.1.1) BALLAST AND DC CONSOLE PROCUREMENT - NonOrganic [9]	- / -	- / -	2 / 2.913	1 / 1.487	- / -	1 / 1.487	1 / 1.518	1 / 1.550	1 / 1.583	- / -	- / -	6 / 9.051
Subtotal: Recurring	*- / 0.000*	*- / -*	*- / 2.913*	*- / 1.487*	*- / -*	*- / 1.487*	*- / 1.518*	*- / 1.550*	*- / 1.583*	*- / -*	*- / 0.000*	*- / 9.051*
Subtotal: LH001 - BALLAST AND DC CONSOLE	*- / -*	*- / -*	*2 / 2.913*	*1 / 1.487*	*- / -*	*1 / 1.487*	*1 / 1.518*	*1 / 1.550*	*1 / 1.583*	*- / -*	*- / -*	*6 / 9.051*
Subtotal: Procurement, All Modification Items	*- / 0.000*	*- / -*	*- / 2.913*	*- / 1.487*	*- / -*	*- / 1.487*	*- / 1.518*	*- / 1.550*	*- / 1.583*	*- / -*	*- / 0.000*	*- / 9.051*
Support *(All Modification Items)*												
3.1) ENGINEERING SUPPORT	- / -	- / 2.632	- / 1.624	- / 1.934	- / -	- / 1.934	- / 1.410	- / 1.440	- / 1.470	- / 0.599	- / -	- / 11.109
Subtotal: Support	*- / 0.000*	*- / 2.632*	*- / 1.624*	*- / 1.934*	*- / -*	*- / 1.934*	*- / 1.410*	*- / 1.440*	*- / 1.470*	*- / 0.599*	*- / 0.000*	*- / 11.109*
Installation												
Modification Item 1 of 1: LH001 - BALLAST AND DC CONSOLE	- / 0.000	- / 0.000	- / 0.415	- / 2.051	- / 0.000	- / 2.051	- / 5.622	- / 3.411	- / 3.497	- / 3.328	- / 2.391	- / 20.715
Subtotal: Installation	*- / 0.000*	*- / -*	*- / 0.415*	*- / 2.051*	*- / -*	*- / 2.051*	*- / 5.622*	*- / 3.411*	*- / 3.497*	*- / 3.328*	*- / 2.391*	*- / 20.715*
Total												
Total Cost (Procurement + Support + Installation)	**0.000**	**2.632**	**4.952**	**5.472**	**0.000**	**5.472**	**8.550**	**6.401**	**6.550**	**3.927**	**2.391**	**40.875**

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0933 / LHA/LHD Midlife	**Modification Number / Title:** 8 / LH001 - BALLAST AND DC CONSOLE

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

Modification Item 1 of 1: LH001 - BALLAST AND DC CONSOLE

Manufacturer Information

Manufacturer Name: TBD | Manufacturer Location: TBD

Administrative Leadtime *(in Months)*: 0 | Production Leadtime *(in Months)*: 22

Dates	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025
Contract Dates		Nov 2019	Dec 2020	Jun 2022	Aug 2023	May 2024	
Delivery Dates		Sep 2021	Oct 2022	Apr 2024	Jun 2025	Mar 2026	

Installation Information

Method of Implementation: [none specified]:: Installation Name: BALLAST AND DC CONSOLE PROCUREMENT

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	- / -	- / -	0 / 0.415	0 / 1.839	0 / 0.000	0 / 1.839	2 / 4.449	- / -	- / -	- / -	0 / 0.000	2 / 6.703
FY 2021	- / -	- / -	- / -	0 / 0.212	0 / 0.000	0 / 0.212	0 / 0.957	1 / 2.268	- / -	- / -	0 / 0.000	1 / 3.437
FY 2022	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.216	0 / 0.922	1 / 2.312	- / -	0 / 0.000	1 / 3.450
FY 2023	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.221	0 / 0.960	1 / 2.351	0 / 0.000	1 / 3.532
FY 2024	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.225	0 / 0.977	1 / 2.391	1 / 3.593
FY 2025	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
To Complete	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
Total	- / -	- / -	0 / 0.415	0 / 2.051	0 / 0.000	0 / 2.051	2 / 5.622	1 / 3.411	1 / 3.497	1 / 3.328	1 / 2.391	6 / 20.715

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	-	-	-	-	-	1	-	-	-	1	-	1	6
Out	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	1	-	-	1	-	1	-	-	2	6

Footnotes:

(9) FY21 higher engineering services costs prior to first install in FY22 are due to non-reoccurring engineering costs, which include first article environmental quality testing and engineering lab setup to support software development and Risk Management Framework Certification. Installation funding for a ship is divided over a three-year period. Installation execution funding in the year of availability, and Design Service Allocation (DSA) two years prior to availability, and DSA in the year prior to the availability. This includes ship checks, ship installation drawing (SID) development, logistic document development and

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0933 / LHA/LHD Midlife	**Modification Number / Title:** 8 / LH001 - BALLAST AND DC CONSOLE
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

long lead time material procurements (LLTM). Installation costs across the FYDP may vary depending on current port rates. Port rates are updated every year by a CNRMC letter based on the forecasted port loading model. Port loading rate forecasts are the rates recommended for all budgeted maintenance and organic modernization within a specific port. Individual ship's availability durations vary dependent upon the integration of ship's maintenance and modernization work packages.

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0933 / LHA/LHD Midlife	**Modification Number / Title:** 9 / LH001 - SCS- GOV
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

Resource Summary	Prior Years	FY 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	1.770	5.497	10.717	0.000	10.717	8.965	8.532	3.906	4.575	3.043	47.005
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	0.000	1.770	5.497	10.717	0.000	10.717	8.965	8.532	3.906	4.575	3.043	47.005
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**0.000**	**1.770**	**5.497**	**10.717**	**0.000**	**10.717**	**8.965**	**8.532**	**3.906**	**4.575**	**3.043**	**47.005**
(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:

(P40A) SCS-GOV (LHD7/8, LHA 6/7): The Ship Control System-Government (SCS-GOV) supports the standardization of hardware, software and design of the surface ship Ship Control Systems (SCS) to address hardware and software obsolescence issues. The installation will bring commonality across the LHD 1-8 and LHA-6 hulls. SCS-GOV replaces the analog Ship Control System (SCS) with a digital SCS. Analog systems are very maintenance intensive constantly requiring alignment of the amplifiers, indicators, and other transmitting devices. The existing system is also largely obsolete requiring cannibalization from decommissioned ships.

[SCS- GOV PROCUREMENT]

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0933 / LHA/LHD Midlife	**Modification Number / Title:** 9 / LH001 - SCS- GOV
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	
Models of Systems Affected: [No Model Specified]	**Modification Type:** TBD	**Related RDT&E PEs:**

Financial Plan	Prior Years	FY 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: LH001 - SCS- GOV												
B Kits												
Recurring												
2.1.1) SCS- GOV PROCUREMENT - NonOrganic (10)	- / -	1 / 1.451	2 / 2.893	2 / 2.753	- / -	2 / 2.753	- / -	1 / 1.539	1 / 1.572	- / -	- / -	7 / 10.208
Subtotal: Recurring	*- / 0.000*	*- / 1.451*	*- / 2.893*	*- / 2.753*	*- / -*	*- / 2.753*	*- / -*	*- / 1.539*	*- / 1.572*	*- / -*	*- / 0.000*	*- / 10.208*
Subtotal: LH001 - SCS- GOV	*- / -*	*1 / 1.451*	*2 / 2.893*	*2 / 2.753*	*- / -*	*2 / 2.753*	*- / -*	*1 / 1.539*	*1 / 1.572*	*- / -*	*- / -*	*7 / 10.208*
Subtotal: Procurement, All Modification Items	*- / 0.000*	*- / 1.451*	*- / 2.893*	*- / 2.753*	*- / -*	*- / 2.753*	*- / -*	*- / 1.539*	*- / 1.572*	*- / -*	*- / 0.000*	*- / 10.208*
Support *(All Modification Items)*												
3.1) ENGINEERING SERVICES	- / -	- / -	- / 1.088	- / 1.111	- / -	- / 1.111	- / -	- / 0.579	- / 0.591	- / -	- / -	- / 3.369
3.2) Alteration NRE (11)	- / -	- / -	- / -	- / -	- / -	- / -	- / 0.387	- / -	- / -	- / -	- / -	- / 0.387
Subtotal: Support	*- / 0.000*	*- / -*	*- / 1.088*	*- / 1.111*	*- / -*	*- / 1.111*	*- / 0.387*	*- / 0.579*	*- / 0.591*	*- / -*	*- / 0.000*	*- / 3.756*
Installation												
Modification Item 1 of 1: LH001 - SCS- GOV	- / 0.000	- / 0.319	- / 1.516	- / 6.853	- / 0.000	- / 6.853	- / 8.578	- / 6.414	- / 1.743	- / 4.575	- / 3.043	- / 33.041
Subtotal: Installation	*- / 0.000*	*- / 0.319*	*- / 1.516*	*- / 6.853*	*- / -*	*- / 6.853*	*- / 8.578*	*- / 6.414*	*- / 1.743*	*- / 4.575*	*- / 3.043*	*- / 33.041*
Total												
Total Cost (Procurement + Support + Installation)	**0.000**	**1.770**	**5.497**	**10.717**	**0.000**	**10.717**	**8.965**	**8.532**	**3.906**	**4.575**	**3.043**	**47.005**

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0933 / LHA/LHD Midlife	**Modification Number / Title:** 9 / LH001 - SCS- GOV
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

Modification Item 1 of 1: LH001 - SCS- GOV

Manufacturer Information

Manufacturer Name: L3	Manufacturer Location: New York, New York
Administrative Leadtime *(in Months)*: 0	Production Leadtime *(in Months)*: 22

Dates	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025
Contract Dates	Mar 2019	Nov 2019	Dec 2021		Aug 2023	May 2024	
Delivery Dates	Jan 2021	Sep 2021	Oct 2023		Jun 2025	Mar 2026	

Installation Information

Method of Implementation: [none specified]:: Installation Name: SCS- GOV PROCUREMENT

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	- / -	0 / 0.319	0 / 1.169	1 / 3.215	0 / 0.000	1 / 3.215	- / -	- / -	- / -	- / -	0 / 0.000	1 / 4.703
FY 2020	- / -	- / -	0 / 0.347	0 / 3.128	0 / 0.000	0 / 3.128	2 / 5.659	- / -	- / -	- / -	0 / 0.000	2 / 9.134
FY 2021	- / -	- / -	- / -	0 / 0.510	0 / 0.000	0 / 0.510	0 / 2.919	2 / 6.229	- / -	- / -	0 / 0.000	2 / 9.658
FY 2022	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2023	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.185	0 / 1.554	1 / 2.992	0 / 0.000	1 / 4.731
FY 2024	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.189	0 / 1.583	1 / 3.043	1 / 4.815
FY 2025	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
To Complete	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
Total	- / -	0 / 0.319	0 / 1.516	1 / 6.853	0 / 0.000	1 / 6.853	2 / 8.578	2 / 6.414	0 / 1.743	1 / 4.575	1 / 3.043	7 / 33.041

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	2	-	-	-	-	-	-	-	-	-	-	1	1	7
Out	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	1	-	-	1	1	-	-	1	-	-	-	-	2	7

Footnotes:

(10) Installation/procurement costs vary because the scope of work on LHD8, LHA 6-7 varies from LHD 1-7. Installation funding for a ship is divided over a three-year period. Installation execution funding in the year of availability, and Design Service Allocation (DSA) two years prior to availability, and DSA in the year prior to the availability. This includes ship checks, ship installation drawing (SID) development, logistic document development and long lead time material procurements (LLTM). Installation costs across the FYDP may vary depending on current port rates. Port rates are updated every year by a CNRMC letter

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0933 / LHA/LHD Midlife	**Modification Number / Title:** 9 / LH001 - SCS- GOV
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

based on the forecasted port loading model. Port loading rate forecasts are the rates recommended for all budgeted maintenance and organic modernization within a specific port. Individual ship's availability durations vary dependent upon the integration of ship's maintenance and modernization work packages.

(11) Alteration NRE required to support first in class install.

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0933 / LHA/LHD Midlife	**Modification Number / Title:** 10 / LH001 - AMPLIFIED ANNOUNCING SYSTEM
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

Resource Summary	Prior Years	FY 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	2.755	6.044	5.024	0.000	5.024	4.423	2.192	6.304	0.269	4.633	31.644
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	0.000	2.755	6.044	5.024	0.000	5.024	4.423	2.192	6.304	0.269	4.633	31.644
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**0.000**	**2.755**	**6.044**	**5.024**	**0.000**	**5.024**	**4.423**	**2.192**	**6.304**	**0.269**	**4.633**	**31.644**
(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:

General Announcing upgrade replaces the obsolete 1/2/3/5/6/10MC Announcing Systems with a common, survival Digital Integrated Announcing System (DIAS), which has been installed on the DDG and CG Classes during midlife modernization. Existing announcing systems are riddled with obsolescence that degrades performance and presents a safety concern, during shipboard operations and casualties. This is a capability required in the LHD Required Operational Capabilities (ROC) document.

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0933 / LHA/LHD Midlife	**Modification Number / Title:** 10 / LH001 - AMPLIFIED ANNOUNCING SYSTEM
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	
Models of Systems Affected: [No Model Specified]	**Modification Type:** TBD	**Related RDT&E PEs:**

Financial Plan	Prior Years	FY 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: LH001 - AMPLIFIED ANNOUNCING SYSTEM												
B Kits												
Non-Recurring												
2.2.1) AMLIFIED ANNOUNCING SYSTEM PROCUREMENTS - NonOrganic (12)	- / -	1 / 2.721	2 / 5.733	1 / 2.895	- / -	1 / 2.895	- / -	- / -	2 / 6.230	- / -	- / -	6 / 17.579
Subtotal: Non-Recurring	*- / 0.000*	*- / 2.721*	*- / 5.733*	*- / 2.895*	*- / -*	*- / 2.895*	*- / -*	*- / -*	*- / 6.230*	*- / -*	*- / 0.000*	*- / 17.579*
Subtotal: LH001 - AMPLIFIED ANNOUNCING SYSTEM	*- / -*	*1 / 2.721*	*2 / 5.733*	*1 / 2.895*	*- / -*	*1 / 2.895*	*- / -*	*- / -*	*2 / 6.230*	*- / -*	*- / -*	*6 / 17.579*
Subtotal: Procurement, All Modification Items	*- / 0.000*	*- / 2.721*	*- / 5.733*	*- / 2.895*	*- / -*	*- / 2.895*	*- / -*	*- / -*	*- / 6.230*	*- / -*	*- / 0.000*	*- / 17.579*
Installation												
Modification Item 1 of 1: LH001 - AMPLIFIED ANNOUNCING SYSTEM	- / 0.000	- / 0.034	- / 0.311	- / 2.129	- / 0.000	- / 2.129	- / 4.423	- / 2.192	- / 0.074	- / 0.269	- / 4.633	- / 14.065
Subtotal: Installation	*- / 0.000*	*- / 0.034*	*- / 0.311*	*- / 2.129*	*- / -*	*- / 2.129*	*- / 4.423*	*- / 2.192*	*- / 0.074*	*- / 0.269*	*- / 4.633*	*- / 14.065*
Total												
Total Cost (Procurement + Support + Installation)	**0.000**	**2.755**	**6.044**	**5.024**	**0.000**	**5.024**	**4.423**	**2.192**	**6.304**	**0.269**	**4.633**	**31.644**

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0933 / LHA/LHD Midlife	**Modification Number / Title:** 10 / LH001 - AMPLIFIED ANNOUNCING SYSTEM

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

Modification Item 1 of 1: LH001 - AMPLIFIED ANNOUNCING SYSTEM

Manufacturer Information

Manufacturer Name: Dynalec Corporation | Manufacturer Location: Sodus, NY

Administrative Leadtime *(in Months)*: 0 | Production Leadtime *(in Months)*: 20

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

Installation Information

Method of Implementation: [none specified]:: Installation Name: AMLIFIED ANNOUNCING SYSTEM PROCUREMENTS

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	- / -	0 / 0.034	0 / 0.243	1 / 1.972	0 / 0.000	1 / 1.972	- / -	- / -	- / -	- / -	0 / 0.000	1 / 2.249
FY 2020	- / -	- / -	0 / 0.068	0 / 0.122	0 / 0.000	0 / 0.122	2 / 4.296	- / -	- / -	- / -	0 / 0.000	2 / 4.486
FY 2021	- / -	- / -	- / -	0 / 0.035	0 / 0.000	0 / 0.035	0 / 0.127	1 / 2.192	- / -	- / -	0 / 0.000	1 / 2.354
FY 2022	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2023	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2024	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.074	0 / 0.269	2 / 4.633	2 / 4.976
FY 2025	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
To Complete	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
Total	- / -	0 / 0.034	0 / 0.311	1 / 2.129	0 / 0.000	1 / 2.129	2 / 4.423	1 / 2.192	0 / 0.074	0 / 0.269	2 / 4.633	6 / 14.065

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	-	-	1	-	-	-	-	-	-	-	-	-	-	-	2	6
Out	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	2	-	-	-	-	-	-	1	-	-	-	-	2	6

Footnotes:

(12) Installation funding for a ship is divided over a three-year period. Installation execution funding in the year of availability, and Design Service Allocation (DSA) two years prior to availability, and DSA in the year prior to the availability. This includes ship checks, ship installation drawing (SID) development, logistic document development and long lead time material procurements (LLTM). Installation costs across

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0933 / LHA/LHD Midlife	**Modification Number / Title:** 10 / LH001 - AMPLIFIED ANNOUNCING SYSTEM
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

the FYDP may vary depending on current port rates. Port rates are updated every year by a CNRMC letter based on the forecasted port loading model. Port loading rate forecasts are the rates recommended for all budgeted maintenance and organic modernization within a specific port. Individual ship's availability durations vary dependent upon the integration of ship's maintenance and modernization work packages.

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0933 / LHA/LHD Midlife	**Modification Number / Title:** 11 / LH001 - DCSS UPGRADE
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

Resource Summary	Prior Years	FY 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	1.092	0.242	2.225	0.000	2.225	0.252	1.135	0.000	1.229	1.492	7.667
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	0.000	1.092	0.242	2.225	0.000	2.225	0.252	1.135	0.000	1.229	1.492	7.667
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**0.000**	**1.092**	**0.242**	**2.225**	**0.000**	**2.225**	**0.252**	**1.135**	**0.000**	**1.229**	**1.492**	**7.667**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)												
Initial Spares *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Dollars)*	-	-	-	-	-	-	-	-	-	-	-	-

Description:

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

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	P-1 Line Item Number / Title: 0933 / LHA/LHD Midlife	Modification Number / Title: 11 / LH001 - DCSS UPGRADE
ID Code (A=Service Ready, B=Not Service Ready) :	MDAP/MAIS Code:	
Models of Systems Affected: [No Model Specified]	Modification Type: TBD	Related RDT&E PEs:

Financial Plan	Prior Years	FY 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: LH001 - DCSS UPGRADE												
B Kits												
Non-Recurring												
2.2.1) DIGITAL DCSS UPDRADE PROCUREMENT - NonOrganic (13)	- / -	1 / 1.025	- / -	1 / 1.065	- / -	1 / 1.065	- / -	- / -	- / -	1 / 1.154	- / -	3 / 3.244
Subtotal: Non-Recurring	*- / 0.000*	*- / 1.025*	*- / -*	*- / 1.065*	*- / -*	*- / 1.065*	*- / -*	*- / -*	*- / -*	*- / 1.154*	*- / 0.000*	*- / 3.244*
Subtotal: LH001 - DCSS UPGRADE	*- / -*	*1 / 1.025*	*- / -*	*1 / 1.065*	*- / -*	*1 / 1.065*	*- / -*	*- / -*	*- / -*	*1 / 1.154*	*- / -*	*3 / 3.244*
Subtotal: Procurement, All Modification Items	*- / 0.000*	*- / 1.025*	*- / -*	*- / 1.065*	*- / -*	*- / 1.065*	*- / -*	*- / -*	*- / -*	*- / 1.154*	*- / 0.000*	*- / 3.244*
Installation												
Modification Item 1 of 1: LH001 - DCSS UPGRADE	- / 0.000	- / 0.067	- / 0.242	- / 1.160	- / 0.000	- / 1.160	- / 0.252	- / 1.135	- / 0.000	- / 0.075	- / 1.492	- / 4.423
Subtotal: Installation	*- / 0.000*	*- / 0.067*	*- / 0.242*	*- / 1.160*	*- / -*	*- / 1.160*	*- / 0.252*	*- / 1.135*	*- / -*	*- / 0.075*	*- / 1.492*	*- / 4.423*
Total												
Total Cost (Procurement + Support + Installation)	**0.000**	**1.092**	**0.242**	**2.225**	**0.000**	**2.225**	**0.252**	**1.135**	**0.000**	**1.229**	**1.492**	**7.667**

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0933 / LHA/LHD Midlife	**Modification Number / Title:** 11 / LH001 - DCSS UPGRADE
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

Modification Item 1 of 1: LH001 - DCSS UPGRADE

Manufacturer Information

Manufacturer Name: AVAYA Federal Solutions, INC.	Manufacturer Location: Fairfax, VA
Administrative Leadtime *(in Months)*: 0	Production Leadtime *(in Months)*: 22

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

Installation Information

Method of Implementation: [none specified]:: Installation Name: DIGITAL DCSS UPDRADE PROCUREMENT

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	- / -	0 / 0.067	0 / 0.242	1 / 1.091	0 / 0.000	1 / 1.091	- / -	- / -	- / -	- / -	0 / 0.000	1 / 1.400
FY 2020	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2021	- / -	- / -	- / -	0 / 0.069	0 / 0.000	0 / 0.069	0 / 0.252	1 / 1.135	- / -	- / -	0 / 0.000	1 / 1.456
FY 2022	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2023	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2024	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2025	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.075	1 / 1.492	1 / 1.567
To Complete	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
Total	- / -	0 / 0.067	0 / 0.242	1 / 1.160	0 / 0.000	1 / 1.160	0 / 0.252	1 / 1.135	- / -	0 / 0.075	1 / 1.492	3 / 4.423

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

Footnotes:

(13) Installation funding for a ship is divided over a three-year period. Installation execution funding in the year of availability, and Design Service Allocation (DSA) two years prior to availability, and DSA in the year prior to the availability. This includes ship checks, ship installation drawing (SID) development, logistic document development and long lead time material procurements (LLTM). Installation costs across the FYDP may vary depending on current port rates. Port rates are updated every year by a CNRMC letter based on the forecasted port loading model. Port loading rate forecasts are the rates recommended for all budgeted maintenance and organic modernization within a specific port. Individual ship's availability durations vary dependent upon the integration of ship's maintenance and modernization work packages.

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0933 / LHA/LHD Midlife	**Modification Number / Title:** 12 / LH001 - ICT UPGRADE
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

Resource Summary	Prior Years	FY 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	3.061	3.340	4.166	0.000	4.166	1.166	4.486	7.128	1.369	2.237	26.953
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	0.000	3.061	3.340	4.166	0.000	4.166	1.166	4.486	7.128	1.369	2.237	26.953
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**0.000**	**3.061**	**3.340**	**4.166**	**0.000**	**4.166**	**1.166**	**4.486**	**7.128**	**1.369**	**2.237**	**26.953**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)												
Initial Spares *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Dollars)*	-	-	-	-	-	-	-	-	-	-	-	-

Description:

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

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	P-1 Line Item Number / Title: 0933 / LHA/LHD Midlife	Modification Number / Title: 12 / LH001 - ICT UPGRADE
ID Code (A=Service Ready, B=Not Service Ready) :	MDAP/MAIS Code:	
Models of Systems Affected: [No Model Specified]	Modification Type: TBD	Related RDT&E PEs:

Financial Plan	Prior Years	FY 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: LH001 - ICT UPGRADE												
B Kits												
Non-Recurring												
2.2.1) ICT UPGRADE (SCD14785) PROCUREMENT - NonOrganic (14)	- / -	1 / 3.028	1 / 3.185	1 / 3.120	- / -	1 / 3.120	- / -	1 / 3.390	2 / 6.922	- / -	- / -	6 / 19.645
Subtotal: Non-Recurring	*- / 0.000*	*- / 3.028*	*- / 3.185*	*- / 3.120*	*- / -*	*- / 3.120*	*- / -*	*- / 3.390*	*- / 6.922*	*- / -*	*- / 0.000*	*- / 19.645*
Subtotal: LH001 - ICT UPGRADE	*- / -*	*1 / 3.028*	*1 / 3.185*	*1 / 3.120*	*- / -*	*1 / 3.120*	*- / -*	*1 / 3.390*	*2 / 6.922*	*- / -*	*- / -*	*6 / 19.645*
Subtotal: Procurement, All Modification Items	*- / 0.000*	*- / 3.028*	*- / 3.185*	*- / 3.120*	*- / -*	*- / 3.120*	*- / -*	*- / 3.390*	*- / 6.922*	*- / -*	*- / 0.000*	*- / 19.645*
Installation												
Modification Item 1 of 1: LH001 - ICT UPGRADE	- / 0.000	- / 0.033	- / 0.155	- / 1.046	- / 0.000	- / 1.046	- / 1.166	- / 1.096	- / 0.206	- / 1.369	- / 2.237	- / 7.308
Subtotal: Installation	*- / 0.000*	*- / 0.033*	*- / 0.155*	*- / 1.046*	*- / -*	*- / 1.046*	*- / 1.166*	*- / 1.096*	*- / 0.206*	*- / 1.369*	*- / 2.237*	*- / 7.308*
Total												
Total Cost (Procurement + Support + Installation)	**0.000**	**3.061**	**3.340**	**4.166**	**0.000**	**4.166**	**1.166**	**4.486**	**7.128**	**1.369**	**2.237**	**26.953**

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0933 / LHA/LHD Midlife	**Modification Number / Title:** 12 / LH001 - ICT UPGRADE
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

Modification Item 1 of 1: LH001 - ICT UPGRADE

Manufacturer Information

Manufacturer Name: Dynalec Corporation	Manufacturer Location: Sodus, NY
Administrative Leadtime *(in Months)*: 0	Production Leadtime *(in Months)*: 20

Dates	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025
Contract Dates	Jun 2019	Jan 2020	Feb 2021		Apr 2023	Feb 2024	
Delivery Dates	Feb 2021	Sep 2021	Oct 2022		Dec 2024	Oct 2025	

Installation Information

Method of Implementation: [none specified]:: Installation Name: ICT UPGRADE (SCD14785) PROCUREMENT

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	- / -	0 / 0.033	0 / 0.121	1 / 0.887	0 / 0.000	1 / 0.887	- / -	- / -	- / -	- / -	0 / 0.000	1 / 1.041
FY 2020	- / -	- / -	0 / 0.034	0 / 0.124	0 / 0.000	0 / 0.124	1 / 1.039	- / -	- / -	- / -	0 / 0.000	1 / 1.197
FY 2021	- / -	- / -	- / -	0 / 0.035	0 / 0.000	0 / 0.035	0 / 0.127	1 / 1.060	- / -	- / -	0 / 0.000	1 / 1.222
FY 2022	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2023	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.036	0 / 0.132	1 / 1.100	0 / 0.000	1 / 1.268
FY 2024	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.074	0 / 0.269	2 / 2.237	2 / 2.580
FY 2025	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
To Complete	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
Total	- / -	0 / 0.033	0 / 0.155	1 / 1.046	0 / 0.000	1 / 1.046	1 / 1.166	1 / 1.096	0 / 0.206	1 / 1.369	2 / 2.237	6 / 7.308

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	-	-	-	-	-	-	-	-	1	-	-	2	6
Out	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	1	-	-	-	-	-	-	1	-	-	-	1	2	6

Footnotes:

(14) Installation funding for a ship is divided over a three-year period. Installation execution funding in the year of availability, and Design Service Allocation (DSA) two years prior to availability, and DSA in the year prior to the availability. This includes ship checks, ship installation drawing (SID) development, logistic document development and long lead time material procurements (LLTM). Installation costs across the FYDP may vary depending on current port rates. Port rates are updated every year by a CNRMC letter based on the forecasted port loading model. Port loading rate forecasts are the rates recommended for all budgeted maintenance and organic modernization within a specific port. Individual ship's availability durations vary dependent upon the integration of ship's maintenance and modernization work packages.

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0933 / LHA/LHD Midlife	**Modification Number / Title:** 13 / LH001 - IVN UPGRADE
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

Resource Summary	Prior Years	FY 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	4.127	0.360	0.000	0.360	2.597	3.477	7.473	3.512	5.603	27.149
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	0.000	0.000	4.127	0.360	0.000	0.360	2.597	3.477	7.473	3.512	5.603	27.149
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**0.000**	**0.000**	**4.127**	**0.360**	**0.000**	**0.360**	**2.597**	**3.477**	**7.473**	**3.512**	**5.603**	**27.149**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)												
Initial Spares *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Dollars)*	-	-	-	-	-	-	-	-	-	-	-	-

Description:

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

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0933 / LHA/LHD Midlife	**Modification Number / Title:** 13 / LH001 - IVN UPGRADE
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	
Models of Systems Affected: [No Model Specified]	**Modification Type:** TBD	**Related RDT&E PEs:**

Financial Plan	Prior Years	FY 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: LH001 - IVN UPGRADE												
B Kits												
Non-Recurring												
2.2.1) IVN UPGRADE - NonOrganic (15)	- / -	- / -	1 / 3.171	- / -	- / -	- / -	- / -	1 / 3.375	2 / 6.892	- / -	- / -	4 / 13.438
Subtotal: Non-Recurring	*- / 0.000*	*- / -*	*- / 3.171*	*- / -*	*- / -*	*- / -*	*- / -*	*- / 3.375*	*- / 6.892*	*- / -*	*- / 0.000*	*- / 13.438*
Subtotal: LH001 - IVN UPGRADE	*- / -*	*- / -*	*1 / 3.171*	*- / -*	*- / -*	*- / -*	*- / -*	*1 / 3.375*	*2 / 6.892*	*- / -*	*- / -*	*4 / 13.438*
Subtotal: Procurement, All Modification Items	*- / 0.000*	*- / -*	*- / 3.171*	*- / -*	*- / -*	*- / -*	*- / -*	*- / 3.375*	*- / 6.892*	*- / -*	*- / 0.000*	*- / 13.438*
Installation												
Modification Item 1 of 1: LH001 - IVN UPGRADE	- / 0.000	- / 0.000	- / 0.956	- / 0.360	- / 0.000	- / 0.360	- / 2.597	- / 0.102	- / 0.581	- / 3.512	- / 5.603	- / 13.711
Subtotal: Installation	*- / 0.000*	*- / -*	*- / 0.956*	*- / 0.360*	*- / -*	*- / 0.360*	*- / 2.597*	*- / 0.102*	*- / 0.581*	*- / 3.512*	*- / 5.603*	*- / 13.711*
Total												
Total Cost (Procurement + Support + Installation)	**0.000**	**0.000**	**4.127**	**0.360**	**0.000**	**0.360**	**2.597**	**3.477**	**7.473**	**3.512**	**5.603**	**27.149**

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0933 / LHA/LHD Midlife	**Modification Number / Title:** 13 / LH001 - IVN UPGRADE
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

Modification Item 1 of 1: LH001 - IVN UPGRADE

Manufacturer Information

Manufacturer Name: TBD	Manufacturer Location: TBD
Administrative Leadtime *(in Months)*: 0	Production Leadtime *(in Months)*: 20

Dates	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025
Contract Dates		Jan 2020			Apr 2023	Feb 2024	
Delivery Dates		Sep 2021			Dec 2024	Oct 2025	

Installation Information

Method of Implementation: [none specified]:: Installation Name: IVN 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	- / -	- / -	0 / 0.956	0 / 0.360	0 / 0.000	0 / 0.360	1 / 2.597	- / -	- / -	- / -	0 / 0.000	1 / 3.913
FY 2021	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2022	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2023	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.102	0 / 0.373	1 / 2.753	0 / 0.000	1 / 3.228
FY 2024	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.208	0 / 0.759	2 / 5.603	2 / 6.570
FY 2025	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
To Complete	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
Total	- / -	- / -	0 / 0.956	0 / 0.360	0 / 0.000	0 / 0.360	1 / 2.597	0 / 0.102	0 / 0.581	1 / 3.512	2 / 5.603	4 / 13.711

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	4
Out	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	1	2	4

Footnotes:

(15) Installation funding for a ship is divided over a three-year period. Installation execution funding in the year of availability, and Design Service Allocation (DSA) two years prior to availability, and DSA in the year prior to the availability. This includes ship checks, ship installation drawing (SID) development, logistic document development and long lead time material procurements (LLTM). Installation costs across the FYDP may vary depending on current port rates. Port rates are updated every year by a CNRMC letter based on the forecasted port loading model. Port loading rate forecasts are the rates recommended for all budgeted maintenance and organic modernization within a specific port. Individual ship's availability durations vary dependent upon the integration of ship's maintenance and modernization work packages.

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0933 / LHA/LHD Midlife	**Modification Number / Title:** 14 / LH001 - IVCN Tech Refresh
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

Resource Summary	Prior Years	FY 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	4.944	0.242	7.054	0.000	7.054	0.252	2.369	0.000	0.000	0.000	14.861
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	0.000	4.944	0.242	7.054	0.000	7.054	0.252	2.369	0.000	0.000	0.000	14.861
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**0.000**	**4.944**	**0.242**	**7.054**	**0.000**	**7.054**	**0.252**	**2.369**	**0.000**	**0.000**	**0.000**	**14.861**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)												
Initial Spares *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Dollars)*	-	-	-	-	-	-	-	-	-	-	-	-

Description:

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

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0933 / LHA/LHD Midlife	**Modification Number / Title:** 14 / LH001 - IVCN Tech Refresh
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	
Models of Systems Affected: [No Model Specified]	**Modification Type:** TBD	**Related RDT&E PEs:**

Financial Plan	Prior Years	FY 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: LH001 - IVCN Tech Refresh												
B Kits												
Non-Recurring												
2.2.1) IVCN Tech Refresh - NonOrganic (16)	- / -	1 / 4.877	- / -	1 / 4.842	- / -	1 / 4.842	- / -	- / -	- / -	- / -	- / -	2 / 9.719
Subtotal: Non-Recurring	*- / 0.000*	*- / 4.877*	*- / -*	*- / 4.842*	*- / -*	*- / 4.842*	*- / -*	*- / -*	*- / -*	*- / -*	*- / 0.000*	*- / 9.719*
Subtotal: LH001 - IVCN Tech Refresh	*- / -*	*1 / 4.877*	*- / -*	*1 / 4.842*	*- / -*	*1 / 4.842*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*2 / 9.719*
Subtotal: Procurement, All Modification Items	*- / 0.000*	*- / 4.877*	*- / -*	*- / 4.842*	*- / -*	*- / 4.842*	*- / -*	*- / -*	*- / -*	*- / -*	*- / 0.000*	*- / 9.719*
Installation												
Modification Item 1 of 1: LH001 - IVCN Tech Refresh	- / 0.000	- / 0.067	- / 0.242	- / 2.212	- / 0.000	- / 2.212	- / 0.252	- / 2.369	- / 0.000	- / 0.000	- / 0.000	- / 5.142
Subtotal: Installation	*- / 0.000*	*- / 0.067*	*- / 0.242*	*- / 2.212*	*- / -*	*- / 2.212*	*- / 0.252*	*- / 2.369*	*- / -*	*- / -*	*- / 0.000*	*- / 5.142*
Total												
Total Cost (Procurement + Support + Installation)	**0.000**	**4.944**	**0.242**	**7.054**	**0.000**	**7.054**	**0.252**	**2.369**	**0.000**	**0.000**	**0.000**	**14.861**

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0933 / LHA/LHD Midlife	**Modification Number / Title:** 14 / LH001 - IVCN Tech Refresh
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

Modification Item 1 of 1: LH001 - IVCN Tech Refresh

Manufacturer Information

Manufacturer Name: AVAYA Federal Solutions, INC.	Manufacturer Location: Fairfax, VA
Administrative Leadtime *(in Months)*: 0	Production Leadtime *(in Months)*: 20

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

Installation Information

Method of Implementation: [none specified]:: Installation Name: IVCN Tech Refresh

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	- / -	0 / 0.067	0 / 0.242	1 / 2.143	0 / 0.000	1 / 2.143	- / -	- / -	- / -	- / -	0 / 0.000	1 / 2.452
FY 2020	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2021	- / -	- / -	- / -	0 / 0.069	0 / 0.000	0 / 0.069	0 / 0.252	1 / 2.369	- / -	- / -	0 / 0.000	1 / 2.690
FY 2022	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2023	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2024	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2025	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
To Complete	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
Total	- / -	0 / 0.067	0 / 0.242	1 / 2.212	0 / 0.000	1 / 2.212	0 / 0.252	1 / 2.369	- / -	- / -	0 / 0.000	2 / 5.142

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

Footnotes:

(16) Installation funding for a ship is divided over a three-year period. Installation execution funding in the year of availability, and Design Service Allocation (DSA) two years prior to availability, and DSA in the year prior to the availability. This includes ship checks, ship installation drawing (SID) development, logistic document development and long lead time material procurements (LLTM). Installation costs across the FYDP may vary depending on current port rates. Port rates are updated every year by a CNRMC letter based on the forecasted port loading model. Port loading rate forecasts are the rates recommended for all budgeted maintenance and organic modernization within a specific port. Individual ship's availability durations vary dependent upon the integration of ship's maintenance and modernization work packages.

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0933 / LHA/LHD Midlife	**Modification Number / Title:** 15 / LH001 - MACHINERY CONTROL SYSTEM (MCS)
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

Resource Summary	Prior Years	FY 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	0.000	3.057	0.000	3.057	1.573	11.885	4.184	5.369	0.000	26.068
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	0.000	0.000	0.000	3.057	0.000	3.057	1.573	11.885	4.184	5.369	0.000	26.068
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**0.000**	**0.000**	**0.000**	**3.057**	**0.000**	**3.057**	**1.573**	**11.885**	**4.184**	**5.369**	**0.000**	**26.068**
(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:

Machinery Control System (MCS) will replace the existing obsolete Versa Module Europa (VME) server with Windows XP operating system (O/S) that was purchased in the mid-2000s as part of the ship construction award for LHD8 and LHA6. Both the hardware and software are no longer supported by industry and require a complete replacement. MCS will leverage existing infrastructure replacing internal hardware to the existing system's severs. LHD8, LHA 6-7 will receive a Versatile Performance Switching (VPX) server with Windows 10, or future O/S that provides improved bandwidth for control of the ship's 37 vital engineering systems, while maintain margin for new capabilities to be introduced. The new system provides room for growth and flexibility to easily incorporate emerging cyber security requirements that will help prevent adversarial threats.

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0933 / LHA/LHD Midlife	**Modification Number / Title:** 15 / LH001 - MACHINERY CONTROL SYSTEM (MCS)
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	
Models of Systems Affected: [No Model Specified]	**Modification Type:** TBD	**Related RDT&E PEs:**

Financial Plan	Prior Years	FY 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: LH001 - MACHINERY CONTROL SYSTEM (MCS)												
B Kits												
Non-Recurring												
2.2.1) MCS PROCUREMENT - NonOrganic (17)	- / -	- / -	- / -	- / -	- / -	- / -	- / -	1 / 9.662	- / -	- / -	- / -	1 / 9.662
Subtotal: Non-Recurring	*- / 0.000*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / 9.662*	*- / -*	*- / -*	*- / 0.000*	*- / 9.662*
Subtotal: LH001 - MACHINERY CONTROL SYSTEM (MCS)	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*1 / 9.662*	*- / -*	*- / -*	*- / -*	*1 / 9.662*
Subtotal: Procurement, All Modification Items	*- / 0.000*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / 9.662*	*- / -*	*- / -*	*- / 0.000*	*- / 9.662*
Support *(All Modification Items)*												
3.1) ENGINEERING SERVICES	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / 2.016	- / 2.058	- / -	- / -	- / 4.074
3.2) Alteration NRE	- / -	- / -	- / -	- / 3.057	- / -	- / 3.057	- / 1.573	- / -	- / 1.200	- / -	- / -	- / 5.830
Subtotal: Support	*- / 0.000*	*- / -*	*- / -*	*- / 3.057*	*- / -*	*- / 3.057*	*- / 1.573*	*- / 2.016*	*- / 3.258*	*- / -*	*- / 0.000*	*- / 9.904*
Installation												
Modification Item 1 of 1: LH001 - MACHINERY CONTROL SYSTEM (MCS)	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.207	- / 0.926	- / 5.369	- / 0.000	- / 6.502
Subtotal: Installation	*- / 0.000*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / 0.207*	*- / 0.926*	*- / 5.369*	*- / 0.000*	*- / 6.502*
Total												
Total Cost (Procurement + Support + Installation)	**0.000**	**0.000**	**0.000**	**3.057**	**0.000**	**3.057**	**1.573**	**11.885**	**4.184**	**5.369**	**0.000**	**26.068**

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0933 / LHA/LHD Midlife	**Modification Number / Title:** 15 / LH001 - MACHINERY CONTROL SYSTEM (MCS)

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

Modification Item 1 of 1: LH001 - MACHINERY CONTROL SYSTEM (MCS)

Manufacturer Information

Manufacturer Name: TBD	Manufacturer Location: TBD
Administrative Leadtime *(in Months)*: 0	Production Leadtime *(in Months)*: 24

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

Installation Information

Method of Implementation: [none specified]:: Installation Name: MCS PROCUREMENT

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	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.207	0 / 0.926	1 / 5.369	0 / 0.000	1 / 6.502
FY 2024	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2025	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
To Complete	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
Total	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.207	0 / 0.926	1 / 5.369	0 / 0.000	1 / 6.502

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
Out	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1

Footnotes:

(17) MCS requires sufficient upfront cost for non-reoccurring engineering services because of the significant amount of control the system provides to 37-subsystems throughout the ship via 10,000 different signals. The NRE will be utilized for first article environmental quality testing of 12 different components and establishment of an MCS Land Based Test Facility that will be required for software development for future availabilities and be leveraged for system engineering for milestone review and Cyber Security hardening under the Risk Management Framework. Installation funding for a ship is divided over a three-

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0933 / LHA/LHD Midlife	**Modification Number / Title:** 15 / LH001 - MACHINERY CONTROL SYSTEM (MCS)
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

year period. Installation execution funding in the year of availability, and Design Service Allocation (DSA) two years prior to availability, and DSA in the year prior to the availability. This includes ship checks, ship installation drawing (SID) development, logistic document development and long lead time material procurements (LLTM). Installation costs across the FYDP may vary depending on current port rates. Port rates are updated every year by a CNRMC letter based on the forecasted port loading model. Port loading rate forecasts are the rates recommended for all budgeted maintenance and organic modernization within a specific port. Individual ship's availability durations vary dependent upon the integration of ship's maintenance and modernization work packages. .

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Exhibit P-40, Budget Line Item Justification: PB 2021 Navy	Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 01: Ships Support Equipment / BSA 9: Other Shipboard Equipment	**P-1 Line Item Number / Title:** 0935 / Pollution Control Equipment

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

Line Item MDAP/MAIS Code: N/A

Resource Summary	Prior Years	FY 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)*	417.572	20.883	21.820	23.035	0.000	23.035	23.579	24.069	24.223	24.825	Continuing	Continuing
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	417.572	20.883	21.820	23.035	0.000	23.035	23.579	24.069	24.223	24.825	Continuing	Continuing
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**417.572**	**20.883**	**21.820**	**23.035**	**0.000**	**23.035**	**23.579**	**24.069**	**24.223**	**24.825**	**Continuing**	**Continuing**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)												
Initial Spares *($ in Millions)*	-	0.044	0.088	0.021	-	0.021	-	-	-	-	-	0.153
Flyaway Unit Cost *($ in Dollars)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Dollars)*	-	-	-	-	-	-	-	-	-	-	-	-

Description:

POLLUTION CONTROL SYSTEMS/EQUIPMENT: This item provides funds for the procurement of pollution control systems and equipment that are required by Navy ships in order for them to comply with international regulations, federal laws, DOD Directives and Navy environmental protection regulations. These regulations, laws and directives restrict the discharge of oily waste, sewage, solid waste, plastic waste, medical waste and hazardous waste. Most of these applicable regulations require Navy ships to comply by fixed deadlines. Failure to comply carries potential personal, civil, and criminal liability, and significantly imposes constraints on the operational capabilities of Navy ships. In some instances, the compliance schedule has required an acceleration of the normal schedules in the procurement process.

SHORE BASED POLLUTION EQUIPMENT - (Logistics)
The shore based funds provide for equipment required to clean up Navy oil spills on the open sea as required by the Federal Water Pollution Control Act - Public Law 92-500. The law created a National Oil and Hazardous Substance Pollution Contingency Plan, and designates the Department of Defense as one of the primary agencies responsible for promotion of effective operation of the plan. The Supervisor of Salvage is assigned the responsibility to provide technical expertise, resources, and equipment for cleaning Navy-originated spills of oil and other hazardous material in coastal waters or the open sea. Major items of procurement are:

[P40A / HF040 FIELD SUPPORT SYSTEMS]: These systems provide the auxiliary support required to keep Navy oil spill responders operating in the field without significant lapse of response time in all Navy Areas of Responsibility (AoR) according to Federal Law 33 CFR 155 and 154 and implemented by OPNAV5090.1D. As such, many Navy areas of operation are in remote and austere parts of the world with little to no operational support available, therefore the inventory objectives of equipment procured under this cost code are set to support emergency personnel in responding to the Navy's worst case oil or hazardous substance (OHS) discharge scenario in all AoR's and to be pre-positioned in the Emergency Ship Salvage Material (ESSM) Bases world-wide. Systems include Boom Handling Boats, Boom Tending Boats, Personnel Transfer Boats, Field Command & Control Centers, Field Conference Centers, Field Rigging Lockers, Field Repair Workshops, Personnel Berthing Modules, Field-grade Satellite Communications Systems, and Oil Spill Aerial Surveillance Systems. Unit cost varies greatly between systems.

[P40A / HF056 EQUIPMENT CLEAN-UP SYSTEMS]: These systems provide a full array of tools and materials required to perform the extensive decontamination needed for oil spill and hazardous chemical response equipment and personnel during an operation and prior to demobilization once a spill has been contained and recovered.

[P40A / HF057 OIL HANDLING SYSTEMS]: Oil handling systems provide the capability to recover and dispose of oil and debris during emergency oil spill response operations including temporary oil storage as required by 33 CFR 155 and 154. Equipment missions additionally include moving heavy oil or oil in cold conditions that exceed the capability of conventional skimmer systems and providing means of

Exhibit P-40, Budget Line Item Justification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 01: Ships Support Equipment / BSA 9: Other Shipboard Equipment	**P-1 Line Item Number / Title:** 0935 / Pollution Control Equipment	
ID Code (A=Service Ready, B=Not Service Ready): A	**Program Elements for Code B Items:** N/A	**Other Related Program Elements:** N/A
Line Item MDAP/MAIS Code: N/A		

transferring oil from skimmers to temporary oil storage. Systems include Vacuum Pump Systems, Oil Bladder Transfer Systems, Annular Water Injection Systems, At-Sea Bladder Pumping Systems, and Temporary Oil Storage Systems (Bladders, Tanks, etc.)These different systems can range greatly in individual unit cost.

[P40A / HF060 HOT TAP TRAINING SYSTEMS]: These systems are designed to train Fleet divers on the tools and techniques for penetrating into vessel oil tanks below the waterline. The hot tap training kit is a system that contains a cutting device, an underwater hydraulic drill to drive the cutting mechanism and all necessary flanges, fasteners, valves, pumps and ancillaries to use when tapping through shell plating into laden tanks to remove the contents. This training is required as a part of pre-deployment salvage preparations for Mobile Diving and Salvage Unit (MDSU) Companies to train for lightering or removal of oil from a vessel in distress.

[P40A / HF063 VESSEL OF OPPORTUNITY SKIMMER SYSTEMS]: The Vessel of Opportunity Skimmer Systems are oil skimmers designed and packaged to be deployed aboard any vessel that is available during an emergency oil spill response operation with enough deck space to support the operating equipment. These systems allow for mechanical recovery of oil on the water in situations where traditional skimmers may not be practical, such as far offshore or in inclement weather or high currents. These systems include all the ancillary support equipment required to maintain oil spill recovery operations onboard a vessel for an extended period of time. These systems are packaged in an 8 foot x 8 foot x 20 foot standard shipping container with an 8 foot x 8 foot x 8 foot support container.

[P40A / HF067 VESSEL SKIMMER SYSTEMS]: These systems are self-propelled skimmers designed for near-shore and low sea-state open ocean environments and are used in conjunction with oil containment boom for mechanical recovery of oil on the water. They are designed to be rapidly transportable to the scene of an oil spill.

[P40A / HF068 UNDERWATER OIL RECOVERY SYSTEM]: A rapidly deployable system that provides grinders, sampling tools, sensors, cutters, connections, pumps, hoses, and hydraulic tools to locate, sample, penetrate, and offload tanks below the water.

[P40A / HF069 42" BOOM REPLACEMENT SECTIONS]: Ocean Booming Systems (2000 FT each) and Marco self-propelled skimming systems (600FT each) use standardized high buoyancy, high flexibility NAVY 42HB inflatable boom purchased in 55 foot sections to provide phased replacement of rubber boom damaged or worn beyond economical repair. The other components of these systems has a longer useful life and need replacement at much longer intervals.

[P40A / HF830 PRODUCTION ENGINEERING]: HF830 PRODUCTION ENGINEERING: Air conditioning plant kit and software quality control, technical manual and complete conversion instruction revisions, technical reports based on investigative efforts of OEM quality assurance or obsolescence issues, and support equipment removal from inactive ships or other Navy assets. Development of technical manuals, Planned Maintenance System (PMS), Provisioning Technical Documentation (PTD), Program Support Data (PSD) and allowance Parts List (APLs), engineering to manage procurement and material, and in support of design reviews.

[P3A / HF024 CFC-114 (R-114) AC CONVERSION]: HF024 - CFC CONVERSION PROGRAM The production of chlorofluorocarbon(CFC)-based refrigerants (including CFC-12 and CFC R-114) was prohibited after 31 DEC 95 by the Clean Air Act of 1990. Presidential Executive Order 13693 calls for federal agencies to " promote sustainable acquisition and procurement by ensuring that each of the following environmental performance and sustainability factors are included ... alternatives to ozone-depleting substances". The Navy is currently dependent on CFC-based refrigerants for the mission-critical cooling of (1) vital electronics and weapon systems, (2) food and medical stowage, and (3) inhabited spaces aboard surface ships and submarines. To counter the immediate threat of production cessation on uninterrupted Fleet operations, DoD directed the Defense Logistics Agency to establish a stockpile of CFC-based refrigerants. The stockpile was sized to support Fleet operations until the last CFC-based systems are retired or converted to ozone-friendly refrigerants. This program procures and installs conversion kits on existing CFC R-114 Air-Conditioning (A/C) plants onboard surface ships. The inventory objective for CFC R-114 is 402 converted units.

[P3A / HF024 CFC-114 (R-114) AC CONVERSION]: HF5IN - INSTALLATION OF EQUIPMENT - EXPEDITIONARY WARFARE
Funding is for installation of equipment for the Fleet Modernization Program installations.

HF6IN - INSTALLATION OF EQUIPMENT - SURFACE WARFARE
Funding is for installation of equipment for the Fleet Modernization Program installations.

Exhibit P-40, Budget Line Item Justification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 01: Ships Support Equipment / BSA 9: Other Shipboard Equipment	**P-1 Line Item Number / Title:** 0935 / Pollution Control Equipment	
ID Code (A=Service Ready, B=Not Service Ready): A	**Program Elements for Code B Items:** N/A	**Other Related Program Elements:** N/A
Line Item MDAP/MAIS Code: N/A		

[P3A - 2 / HF031 OPA IMPROVEMENTS]: Oil Pollution Abatement (OPA) Systems Improvements: Existing OPA systems have demonstrated poor operational availability, maintainability, and reliability. This comprehensive effort addresses the entire OPA system, from holding tanks to overboard discharge, leveraging recommended improvements new to the Fleet and approved, partially completed alterations. The alterations needed to correct design deficiencies are ship specific and require ship checks to confirm the current configuration as prior alterations may have completed one or several of the recommended improvements. The alterations may include, but are not limited to: installation of new tank level sensors; upgrades to the Oily Water Separator (OWS) and the Oil Content Monitor (OCM), correction of OWS suction problems, correction of OCM inlet & outlet piping including related of flush water piping configuration problems, and upgrade of oily waste transfer pump relief valve. Extensive work will occur with LHD-1 Class upgrades to convert the existing OWS to the VS-50 OWS and DDG-51 through DDG-88 ships will receive the Oily Waste Membrane System to produce an effluent that meets the 15 ppm maximum oil discharge requirement.

[P3A - 2 / HF031 OPA Improvements]: HF5IN - INSTALLATION OF EQUIPMENT - EXPEDITIONARY WARFARE
Funding is for installation of equipment for the Fleet Modernization Program installations.

HF6IN - INSTALLATION OF EQUIPMENT - SURFACE WARFARE
Funding is for installation of equipment for the Fleet Modernization Program installations.

[P3A - 3 / HF031 DRY WASTE PROCESSING SUITE IMPROVEMENTS]: Dry Waste Processing Suite Improvements: The Fleet's challenged to keep solid waste equipment operating and sanitary while maintaining compliance with the Act to Prevent Pollution from Ships (APPS). The root cause of this is: 1) workload; 2) reliability; 3) the maintainability (parts availability); and 4) obsolescence. The improvement and application of current and new processing tools will ensure the safe and efficient management of these materials. The goal is to decrease labor-hours by improving operation and maintenance, increase system availability and address all current and projected obsolescence issues and reducing parts failures by redesign. Impacted equipment includes Compress Melt Units (CMUs), pulpers, shredders, incinerators, and compactors.

[P3A - 3 / Dry Waste Processing Suite Improvements]: HF5IN - INSTALLATION OF EQUIPMENT - EXPEDITIONARY WARFARE
Funding is for installation of equipment for the Fleet Modernization Program installations.

HF6IN - INSTALLATION OF EQUIPMENT - SURFACE WARFARE
Funding is for installation of equipment for the Fleet Modernization Program installations.

HF8IN - INSTALLATION OF EQUIPMENT - AIR WARFARE
Funding is for installation of equipment for the Fleet Modernization Program installations.

Exhibit P-40, Budget Line Item Justification: PB 2021 Navy	**Date:** February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 01: Ships Support Equipment / BSA 9: Other Shipboard Equipment	**P-1 Line Item Number / Title:** 0935 / Pollution Control Equipment

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

Line Item MDAP/MAIS Code: N/A

Exhibits Schedule					Prior Years	FY 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	Pollution Control Equipment	P-5a			- / 47.326	- / 3.604	- / 3.166	- / 3.200	- / -	- / 3.200
P-3a	1 / HF024 CFC-114 (R-114) AC CONVERSION (AIT)				- / 351.420	- / 7.457	- / 7.517	- / 2.031	- / 0.000	- / 2.031
P-3a	2 / HF031 OPA IMPROVEMENTS (AIT)				- / 18.826	- / 9.822	- / 11.137	- / 17.804	- / 0.000	- / 17.804
P-3a	3 / HF031 DRY WASTE PROCESSING SUITE IMPROVEMENTS (AIT)				- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000
P-40	**Total Gross/Weapon System Cost**				**- / 417.572**	**- / 20.883**	**- / 21.820**	**- / 23.035**	**- / 0.000**	**- / 23.035**

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	Pollution Control Equipment	P-5a			- / -	- / -	- / -	- / -	- / -	- / -
P-3a	1 / HF024 CFC-114 (R-114) AC CONVERSION (AIT)				- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 368.425
P-3a	2 / HF031 OPA IMPROVEMENTS (AIT)				- / 20.499	- / 20.575	- / 17.620	- / 14.109	- / 43.801	- / 174.193
P-3a	3 / HF031 DRY WASTE PROCESSING SUITE IMPROVEMENTS (AIT)				- / 0.000	- / 1.416	- / 4.483	- / 8.553	- / 212.527	- / 226.979
P-40	**Total Gross/Weapon System Cost**				**- / 23.579**	**- / 24.069**	**- / 24.223**	**- / 24.825**	**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.

Exhibit P-40a, Budget Item Justification For Aggregated Items: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0935 / Pollution Control Equipment	**Aggregated Items Title:** Pollution Control Equipment

Item Number / Title [DODIC]	ID CD	MDAP/ MAIS Code	Prior Years			FY 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) LOGISTICS																				
1.1) HF040 FIELD SUPPORT SYSTEMS (1)(†)	A		301,985.07	67	20.233	355,000.00	1	0.355	358,000.00	2	0.716	357,325.00	3	1.072	-	-	-	357,325.00	3	1.072
1.2) HF056 EQUIPMENT CLEAN-UP SYSTEMS(†)	A		-	-	-	310,000.00	1	0.310	-	-	-	-	-	-	-	-	-	-	-	-
1.3) HF057 OIL HANDLING SYSTEMS(†)	A		225,769.23	13	2.935	150,000.00	1	0.150	-	-	-	-	-	-	-	-	-	-	-	-
1.4) HF060 HOT TAP TRAINING SYSTEMS(†)	A		-	-	-	23,000.00	5	0.115	-	-	-	-	-	-	-	-	-	-	-	-
1.5) HF063 VESSEL OF OPPORTUNITY SKIMMER SYSTEMS (2)(†)	A		198,600.00	20	3.972	-	-	-	198,000.00	1	0.198	-	-	-	-	-	-	-	-	-
1.6) HF067 VESSEL SKIMMER SYSTEMS(†)	A		-	-	-	150,000.00	6	0.900	152,250.00	4	0.609	155,295.00	4	0.621	-	-	-	155,295.00	4	0.621
1.7) HF068 UNDERWATER OIL RECOVERY SYSTEM(†)	A		-	-	-	-	-	-	301,000.00	1	0.301	307,025.00	1	0.307	-	-	-	307,025.00	1	0.307
Subtotal: 1) LOGISTICS			**-**	**-**	***27.140***	**-**	**-**	***1.830***	**-**	**-**	***1.824***	**-**	**-**	***2.000***	**-**	**-**	**-**	**-**	**-**	***2.000***
2) EXPEDITIONARY WARFARE																				
2.1) HF830 PRODUCTION ENGINEERING	A		-	-	3.711	-	-	0.185	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: 2) EXPEDITIONARY WARFARE			**-**	**-**	***3.711***	**-**	**-**	***0.185***	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
3) SURFACE WARFARE																				
3.1) HF830 PRODUCTION ENGINEERING	A		-	-	8.143	-	-	0.452	-	-	0.423	-	-	-	-	-	-	-	-	-
Subtotal: 3) SURFACE WARFARE			**-**	**-**	***8.143***	**-**	**-**	***0.452***	**-**	**-**	***0.423***	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
4) AIR WARFARE																				
4.1) HF031 POLLUTION CONTROL EQUIPMENT FIELD CHANGES	A		-	-	8.332	-	-	1.137	-	-	0.919	-	-	1.200	-	-	-	-	-	1.200
Subtotal: 4) AIR WARFARE			**-**	**-**	***8.332***	**-**	**-**	***1.137***	**-**	**-**	***0.919***	**-**	**-**	***1.200***	**-**	**-**	**-**	**-**	**-**	***1.200***
Total			**-**	**-**	**47.326**	**-**	**-**	**3.604**	**-**	**-**	**3.166**	**-**	**-**	**3.200**	**-**	**-**	**-**	**-**	**-**	**3.200**

Exhibit P-40a, Budget Item Justification For Aggregated Items: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0935 / Pollution Control Equipment	**Aggregated Items Title:** Pollution Control Equipment

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) HF040: Unit costs vary greatly between various field support systems. Systems include containerized Field Command Centers, Field Repair Workshops, Field Rigging Lockers, Personnel Berthing Modules, Satellite Communication Systems, and Aerial Oil Surveillance Systems. Unit costs vary greatly between various field support systems used to sustain oil spill response operations in remote and austere environments because these systems are all purpose-built and range from satellite communications equipment to Field Command & Control Centers, Field Repair Workshops, Field Rigging Lockers, Personnel Berthing Modules and Aerial Oil Surveillance Systems.

(2) HF063: Procurement of next generation Vessel of Opportunity Skimmer system with increased unit cost due to technology advancements commences in FY24.

Exhibit P-5a, Procurement History and Planning: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	P-1 Line Item Number / Title: 0935 / Pollution Control Equipment	Aggregated Items: Pollution Control Equipment

Item Number / Title [DODIC]	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) LOGISTICS												
1.1) HF040 FIELD SUPPORT SYSTEMS (1)		2019	GPC / VA	C / CPFF	WASHINGTON, DC	Apr 2019	Dec 2019	1	355,000.00	Y		
1.1) HF040 FIELD SUPPORT SYSTEMS (1)		2020	GPC / VA	TBD	WASHINGTON, DC	Oct 2019	Jun 2020	2	358,000.00	Y		
1.1) HF040 FIELD SUPPORT SYSTEMS (1)		2021	GPC / VA	TBD	WASHINGTON, DC	Oct 2020	Jun 2021	3	357,325.00	Y		
1.2) HF056 EQUIPMENT CLEAN-UP SYSTEMS		2019	GPC / VA	C / CPFF	WASHINGTON, DC	Apr 2019	Apr 2020	1	310,000.00	Y		
1.3) HF057 OIL HANDLING SYSTEMS		2019	GPC / VA	C / CPFF	WASHINGTON, DC	Apr 2019	Apr 2020	1	150,000.00	Y		
1.4) HF060 HOT TAP TRAINING SYSTEMS		2019	GPC / VA	C / CPFF	WASHINGTON, DC	Apr 2019	Apr 2020	5	23,000.00	Y		
1.5) HF063 VESSEL OF OPPORTUNITY SKIMMER SYSTEMS (2)		2020	GPC / VA	TBD	WASHINGTON, DC	Oct 2019	Oct 2020	1	198,000.00	Y		
1.6) HF067 VESSEL SKIMMER SYSTEMS		2019	GPC / VA	C / CPAF	WASHINGTON, DC	Apr 2019	Apr 2020	6	150,000.00	Y		
1.6) HF067 VESSEL SKIMMER SYSTEMS		2020	GPC / VA	TBD	WASHINGTON, DC	Oct 2019	Oct 2020	4	152,250.00	Y		
1.6) HF067 VESSEL SKIMMER SYSTEMS		2021	GPC / VA	TBD	WASHINGTON,DC	Oct 2020	Oct 2021	4	155,295.00	Y		
1.7) HF068 UNDERWATER OIL RECOVERY SYSTEM		2020	TBD / TBD	TBD	WASHINGTON, DC	Oct 2019	Oct 2020	1	301,000.00	Y		
1.7) HF068 UNDERWATER OIL RECOVERY SYSTEM		2021	TBD / TBD	TBD	WASHINGTON,DC	Oct 2020	Oct 2021	1	307,025.00	Y		

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0935 / Pollution Control Equipment	**Modification Number / Title:** 1 / HF024 CFC-114 (R-114) AC CONVERSION
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

Resource Summary	Prior Years	FY 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)*	351.420	7.457	7.517	2.031	0.000	2.031	0.000	0.000	0.000	0.000	0.000	368.425
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	351.420	7.457	7.517	2.031	0.000	2.031	0.000	0.000	0.000	0.000	0.000	368.425
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**351.420**	**7.457**	**7.517**	**2.031**	**0.000**	**2.031**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**368.425**
(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 Navy is currently dependent on CFC-based refrigerants for the mission-critical cooling of (1) vital electronics and weapon systems, (2) food and medical stowage, and (3) inhabited spaces aboard surface ships and submarines. To counter the immediate threat of production cessation on uninterrupted Fleet operations, DoD directed the Defense Logistics Agency to establish a stockpile of CFC-based refrigerants. The stockpile was sized to support Fleet operations until the last CFC-based systems are retired or converted to ozone-friendly refrigerants. This program procures and installs conversion kits on existing CFC R-114 Air-Conditioning (A/C) plants onboard surface ships. The inventory objective for CFC R-114 is 402 converted units.

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0935 / Pollution Control Equipment	**Modification Number / Title:** 1 / HF024 CFC-114 (R-114) AC CONVERSION
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	
Models of Systems Affected: CFC R-114 Air-Conditioning (A/C) plants	**Modification Type:** AIT	**Related RDT&E PEs:**

Financial Plan	Prior Years	FY 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: HF024 CFC-114 (R-114) AC CONVERSION												
B Kits												
Recurring												
1.1.1) HF024 CFC-114 (R-114) AC CONVERSION - NonOrganic (3)	392 / 157.709	6 / 5.892	4 / 4.232	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	402 / 167.833
Subtotal: Recurring	*- / 157.709*	*- / 5.892*	*- / 4.232*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / 0.000*	*- / 167.833*
Subtotal: HF024 CFC-114 (R-114) AC CONVERSION	*392 / 157.709*	*6 / 5.892*	*4 / 4.232*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*402 / 167.833*
Subtotal: Procurement, All Modification Items	*- / 157.709*	*- / 5.892*	*- / 4.232*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / 0.000*	*- / 167.833*
Installation												
Modification Item 1 of 1: HF024 CFC-114 (R-114) AC CONVERSION	- / 193.711	- / 1.565	- / 3.285	- / 2.031	- / 0.000	- / 2.031	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 200.592
Subtotal: Installation	*- / 193.711*	*- / 1.565*	*- / 3.285*	*- / 2.031*	*- / -*	*- / 2.031*	*- / -*	*- / -*	*- / -*	*- / -*	*- / 0.000*	*- / 200.592*
Total												
Total Cost (Procurement + Support + Installation)	**351.420**	**7.457**	**7.517**	**2.031**	**0.000**	**2.031**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**368.425**

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0935 / Pollution Control Equipment	**Modification Number / Title:** 1 / HF024 CFC-114 (R-114) AC CONVERSION

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

Modification Item 1 of 1: HF024 CFC-114 (R-114) AC CONVERSION

Manufacturer Information

Manufacturer Name: YORK INTERNATIONAL | Manufacturer Location: PA

Administrative Leadtime *(in Months)*: 2 | Production Leadtime *(in Months)*: 12

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

Installation Information

Method of Implementation: AIT:: Installation Name: HF024 CFC-114 (R-114) AC CONVERSION

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	390 / 193.711	2 / 1.565	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	392 / 195.276
FY 2019	- / -	- / -	6 / 3.285	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	6 / 3.285
FY 2020	- / -	- / -	- / -	4 / 2.031	0 / 0.000	4 / 2.031	- / -	- / -	- / -	- / -	0 / 0.000	4 / 2.031
FY 2021	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2022	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2023	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2024	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2025	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
To Complete	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
Total	390 / 193.711	2 / 1.565	6 / 3.285	4 / 2.031	0 / 0.000	4 / 2.031	- / -	- / -	- / -	- / -	0 / 0.000	402 / 200.592

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	390	-	2	-	-	-	-	2	4	-	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	402
Out	386	4	-	2	-	-	-	-	-	-	2	4	-	2	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	402

Footnotes:

(3) Installation cost per unit varies as a result of installation location (East versus West Coast), the type of Ship being converted (Expeditionary Warfare versus Surface Warfare), and number of units being converted (2-4 units per ship). Installation costs also include Design Services Allocations (DSA) and Advanced Planning (AP) efforts which are funded one year prior to installation. In FY20, the cost includes DSA and AP efforts at $433K for four (4) units.

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0935 / Pollution Control Equipment	**Modification Number / Title:** 2 / HF031 OPA IMPROVEMENTS
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

Resource Summary	Prior Years	FY 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)*	18.826	9.822	11.137	17.804	0.000	17.804	20.499	20.575	17.620	14.109	43.801	174.193
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	18.826	9.822	11.137	17.804	0.000	17.804	20.499	20.575	17.620	14.109	43.801	174.193
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**18.826**	**9.822**	**11.137**	**17.804**	**0.000**	**17.804**	**20.499**	**20.575**	**17.620**	**14.109**	**43.801**	**174.193**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)												
Initial Spares *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Dollars)*	-	-	-	-	-	-	-	-	-	-	-	-

Description:

HF031 Expeditionary Warfare: OPA Systems Improvements: These installations resolve issues with existing OPA systems including poor operational availability, maintainability, and reliability. Variations in costs are subject to specific ship needs and are confirmed based upon ship checks. Shipset install/hardware buys may include: VS-50 oily water separators, secondary membrane treatment system, oil content monitor datalogger(s), multiple pumps, valves, valve actuators, sensors, switches, placards, and hoses.

HF031 Surface Warfare: OPA Systems Improvements: These installations resolve issues with existing OPA systems including poor operational availability, maintainability, and reliability. Variations in costs are subject to specific ship needs and are confirmed based upon ship checks. Shipset install/hardware buys may include: oily water transfer systems, secondary membrane treatment system, oil content monitor datalogger(s), multiple pumps, valves, valve actuators, sensors, switches, placards, and hoses.

[HF031 OPA Improvements] Hardware funding includes Production Engineering (PE) efforts. Significant hardware suite cost variance is due to specific ship requirements. Each ship may require one or more of these improvements: datalogger, upgrades to oily waste transfer system, upgrades to primary treatment system, and upgrades to secondary treatment system.

FY20 hardware funding supports: one (1) LHD-1 Class (SCD 13325) (in San Diego) at $1,721K, three (3) LPD-17 class (SCD 13326) (in Norfolk, Norfolk and Japan) at $128K, $128K and $145K respectively, two (2) LSD-41 class (SCD 13336) (in San Diego and Japan) at $335K and 345K respectively.

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0935 / Pollution Control Equipment	**Modification Number / Title:** 2 / HF031 OPA IMPROVEMENTS
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	
Models of Systems Affected: Oil Pollution Abatement System	**Modification Type:** AIT	**Related RDT&E PEs:**

Financial Plan	Prior Years	FY 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: HF031 OPA IMPROVEMENTS												
B Kits												
Recurring												
1.1.1) HF031 OPA Improvements - NonOrganic (4)	39 / 8.450	3 / 2.197	17 / 2.808	13 / 3.849	- / -	13 / 3.849	20 / 6.828	9 / 5.340	10 / 6.447	12 / 7.260	25 / 11.945	148 / 55.124
Subtotal: Recurring	*- / 8.450*	*- / 2.197*	*- / 2.808*	*- / 3.849*	*- / -*	*- / 3.849*	*- / 6.828*	*- / 5.340*	*- / 6.447*	*- / 7.260*	*- / 11.945*	*- / 55.124*
Subtotal: HF031 OPA IMPROVEMENTS	*39 / 8.450*	*3 / 2.197*	*17 / 2.808*	*13 / 3.849*	*- / -*	*13 / 3.849*	*20 / 6.828*	*9 / 5.340*	*10 / 6.447*	*12 / 7.260*	*25 / 11.945*	*148 / 55.124*
Subtotal: Procurement, All Modification Items	*- / 8.450*	*- / 2.197*	*- / 2.808*	*- / 3.849*	*- / -*	*- / 3.849*	*- / 6.828*	*- / 5.340*	*- / 6.447*	*- / 7.260*	*- / 11.945*	*- / 55.124*
Installation												
Modification Item 1 of 1: HF031 OPA IMPROVEMENTS	- / 10.376	- / 7.625	- / 8.329	- / 13.955	- / 0.000	- / 13.955	- / 13.671	- / 15.235	- / 11.173	- / 6.849	- / 31.856	- / 119.069
Subtotal: Installation	*- / 10.376*	*- / 7.625*	*- / 8.329*	*- / 13.955*	*- / -*	*- / 13.955*	*- / 13.671*	*- / 15.235*	*- / 11.173*	*- / 6.849*	*- / 31.856*	*- / 119.069*
Total												
Total Cost (Procurement + Support + Installation)	**18.826**	**9.822**	**11.137**	**17.804**	**0.000**	**17.804**	**20.499**	**20.575**	**17.620**	**14.109**	**43.801**	**174.193**

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0935 / Pollution Control Equipment	**Modification Number / Title:** 2 / HF031 OPA IMPROVEMENTS
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

Modification Item 1 of 1: HF031 OPA IMPROVEMENTS

Manufacturer Information

Manufacturer Name: Various [5]	Manufacturer Location: Various
Administrative Leadtime *(in Months)*: 2	Production Leadtime *(in Months)*: 12

Dates	FY 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	
Delivery Dates	Dec 2019	Dec 2020	Dec 2021	Dec 2022	Dec 2023	Dec 2024	

Installation Information

Method of Implementation: AIT:: Installation Name: HF031 OPA Improvements

Installation Cost	Prior Years	FY 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	33 / 10.376	4 / 7.625	2 / 1.310	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	39 / 19.311
FY 2019	- / -	- / -	3 / 7.019	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	3 / 7.019
FY 2020	- / -	- / -	- / -	17 / 13.955	0 / 0.000	17 / 13.955	- / -	- / -	- / -	- / -	0 / 0.000	17 / 13.955
FY 2021	- / -	- / -	- / -	- / -	- / -	- / -	13 / 13.671	- / -	- / -	- / -	0 / 0.000	13 / 13.671
FY 2022	- / -	- / -	- / -	- / -	- / -	- / -	- / -	20 / 15.235	- / -	- / -	0 / 0.000	20 / 15.235
FY 2023	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	9 / 11.173	- / -	0 / 0.000	9 / 11.173
FY 2024	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	10 / 6.849	0 / 0.000	10 / 6.849
FY 2025	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	12 / 12.560	12 / 12.560
To Complete	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	25 / 19.296	25 / 19.296
Total	33 / 10.376	4 / 7.625	5 / 8.329	17 / 13.955	0 / 0.000	17 / 13.955	13 / 13.671	20 / 15.235	9 / 11.173	10 / 6.849	37 / 31.856	148 / 119.069

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	33	-	-	1	3	1	1	2	1	-	5	6	6	2	7	1	3	5	5	5	5	-	1	5	3	-	-	5	5	37	148
Out	28	1	1	3	-	-	-	4	-	4	3	3	9	1	-	5	1	6	4	4	3	4	3	3	3	5	3	-	-	47	148

Footnotes:

[4] Installation cost variance is due to the scope of the hardware suite and the installation location. Installation costs include Design Services Allocations (DSA) and Advanced Planning (AP) efforts which are funded one year prior to installation. FY20 installation funding supports: two (2) CG-47 class (SCD 13323) installations (one in San Diego and one in Norfolk) at $1,056K per installation, one (1) LHD-1 Class (SCD 13325) installation (in San Diego) at $3,386K, one LPD-17 Class (SCD 13326)installation (in Norfolk) at $278K, one LPD-21 Class (SCD 83465) installation (in Norfolk) at $39K; and seventeen (17) ship DSA and AP efforts at $2,514K (DSA and AP costs in FY20 will range from $31K for a LPD-17 class (SCD 13326) to $530K for a LHD-1 class (SCD 13325)).

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0935 / Pollution Control Equipment	**Modification Number / Title:** 2 / HF031 OPA IMPROVEMENTS
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

(5) HF031 OPA Improvements Manufacturer Identification is a hardware suite and includes various part pieces and equipment procurements from multiple vendors per specific ship requirements.

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0935 / Pollution Control Equipment	**Modification Number / Title:** 3 / HF031 DRY WASTE PROCESSING SUITE IMPROVEMENTS
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

Resource Summary	Prior Years	FY 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	0.000	0.000	0.000	0.000	0.000	1.416	4.483	8.553	212.527	226.979
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.416	4.483	8.553	212.527	226.979
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**1.416**	**4.483**	**8.553**	**212.527**	**226.979**
(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:

Dry Waste Processing Suite Improvements: Expeditionary Warfare: Funding provided to support dry waste handling equipment improvements on LHA, LHD, LPD and LSD platforms including compressed melt units, pulpers, shredders, and compactors.

Dry Waste Processing Suite Improvements: Surface Warfare: Funding provided to support dry waste handling equipment improvements on CG, LCS and DDG platforms including compressed melt units, pulpers, shredders, and compactors.

Dry Waste Processing Suite Improvements: Air Warfare: Funding provided to support dry waste handling equipment improvements on CVN platforms including compressed melt units, pulpers, shredders, incinerators, and compactors.

[Dry Waste Processing Suite Improvements] Hardware funding includes Production Engineering (PE) efforts. Hardware suite cost variance is due to specific ship requirements.

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0935 / Pollution Control Equipment	**Modification Number / Title:** 3 / HF031 DRY WASTE PROCESSING SUITE IMPROVEMENTS
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	
Models of Systems Affected: Dry Waste Processing Equipment	**Modification Type:** AIT	**Related RDT&E PEs:**

Financial Plan	Prior Years	FY 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: HF031 DRY WASTE PROCESSING SUITE IMPROVEMENTS												
B Kits												
Recurring												
1.1.1) Dry Waste Processing Suite Improvements - NonOrganic (6)	- / -	- / -	- / -	- / -	- / -	- / -	- / -	1 / 1.416	3 / 3.014	6 / 6.641	147 / 129.632	157 / 140.703
Subtotal: Recurring	*- / 0.000*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / 1.416*	*- / 3.014*	*- / 6.641*	*- / 129.632*	*- / 140.703*
Subtotal: HF031 DRY WASTE PROCESSING SUITE IMPROVEMENTS	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*1 / 1.416*	*3 / 3.014*	*6 / 6.641*	*147 / 129.632*	*157 / 140.703*
Subtotal: Procurement, All Modification Items	*- / 0.000*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / 1.416*	*- / 3.014*	*- / 6.641*	*- / 129.632*	*- / 140.703*
Installation												
Modification Item 1 of 1: HF031 DRY WASTE PROCESSING SUITE IMPROVEMENTS	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 1.469	- / 1.912	- / 82.895	- / 86.276
Subtotal: Installation	*- / 0.000*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / 1.469*	*- / 1.912*	*- / 82.895*	*- / 86.276*
Total												
Total Cost (Procurement + Support + Installation)	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**1.416**	**4.483**	**8.553**	**212.527**	**226.979**

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0935 / Pollution Control Equipment	**Modification Number / Title:** 3 / HF031 DRY WASTE PROCESSING SUITE IMPROVEMENTS

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

Modification Item 1 of 1: HF031 DRY WASTE PROCESSING SUITE IMPROVEMENTS

Manufacturer Information

Manufacturer Name: Various [7] | Manufacturer Location: Various

Administrative Leadtime *(in Months)*: 2 | Production Leadtime *(in Months)*: 12

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

Installation Information

Method of Implementation: AIT:: Installation Name: Dry Waste Processing Suite Improvements

Installation Cost	Prior Years	FY 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 / 1.469	- / -	0 / 0.000	1 / 1.469
FY 2024	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	3 / 1.912	0 / 0.000	3 / 1.912
FY 2025	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	6 / 2.851	6 / 2.851
To Complete	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	147 / 80.044	147 / 80.044
Total	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	1 / 1.469	3 / 1.912	153 / 82.895	157 / 86.276

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	153	157
Out	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	157	157

Footnotes:

[6] Total quantity and price changed to reflect updated costs of Air Warfare, Surface Warfare, and Expeditionary Warfare procurements and installations.

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0935 / Pollution Control Equipment	**Modification Number / Title:** 3 / HF031 DRY WASTE PROCESSING SUITE IMPROVEMENTS
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

(7) HF031 Dry Waste Processing Improvements Manufacturer Identification is a hardware suite and includes various part pieces and equipment procurements from mulitple vendors per specific ship requirements.

Exhibit P-40, Budget Line Item Justification: PB 2021 Navy	Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 01: Ships Support Equipment / BSA 9: Other Shipboard Equipment	**P-1 Line Item Number / Title:** 0941 / Submarine Support Equipment

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

Line Item MDAP/MAIS Code: N/A

Resource Summary	Prior Years	FY 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)*	101.942	37.155	44.895	64.632	0.000	64.632	104.524	106.287	100.779	102.757	Continuing	Continuing
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	101.942	37.155	44.895	64.632	0.000	64.632	104.524	106.287	100.779	102.757	Continuing	Continuing
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**101.942**	**37.155**	**44.895**	**64.632**	**0.000**	**64.632**	**104.524**	**106.287**	**100.779**	**102.757**	**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:

FY21 funding increase is due to Virginia Class Acoustic Superiority hull cladding funds provided to Naval Shipyards for design and procurement of an environmental enclosure with integrated gantry crane (~ $18.2M) appropriate for NSY drydocks; procurement of additional handling equipment, lifting fixtures, & acoustic adhesive processing equipment; and installation planning, sequencing & scheduling (~$5.7M). The $23.9M increase is offset by a 1.85M decrease in non-recurring engineering expenses for a net increase of $22M. See [P3A / PB002 VA Acoustic Superiority] Footnote (16) for further detail.

The Submarine Support Equipment budget provides for equipment technical refresh and upgrades that consist of hardware, software, system engineering, integrated logistics support, system test and evaluation, training, data, alteration installation teams and program management. This funding also procures equipment and material used to implement the military high priority Submarine Silencing Program for operating nuclear submarines. These silencing program equipment technical refreshes and upgrades are not supported by other NAVSEA program offices and support SSN/SSBN/SSGN Class submarines and land based laboratories/facilities. As the VIRGINIA Class submarine program matures and more submarines enter the operational and sustainment phase of the lifecycle, Navy leadership made a decision to transfer funds for modernization and maintenance upgrades and obsolete equipment replacement from new construction program to the Submarine Support Equipment account for these items to be executed on operational VA class submarines.

The installation funds are provided for the Ship Service Turbine Generator (SSTG) Governors on SSN688 and SSN21 Class submarines, acoustic range array replacement, Ship Control System Processors for SEAWOLF Class submarines, and SSN Class Component Upgrades.

Funding for modifications and improvements to SSN 688, SSBN 726 and SSN 21 classes Attack and Ballistic Missile Submarine weapons launching, stowage and shipping systems, torpedo tube system components and torpedo tube test equipment. These requirements arise as a result of the introduction of new or modified weapons, devices, and sensors and their subsequent evaluation test and operational use. Also procured are reliability, maintainability, functional and safety modifications and tactical improvements resulting from operational use experience. This funding also provides management services required for installations.

[P40A / SSTG Digital Voltage]: SSTG Digital Voltage Regulator upgrade (SHIPALT 4884K) -
Existing SSTGs on early VA Class submarines have analog voltage regulators, which are obsolete and unsustainable. SSN 780 and later ships were delivered with the new design Digital Voltage Regulator. A backfit SHIPALT has been developed to replace the analog voltage regulators on SSN 774-779 with the new digital design, targeted to begin in FY18. This effort began under budget line item 0942 and has transitioned to 0941 beginning in FY18 where the remaining shipsets will be procured and installed.

Exhibit P-40, Budget Line Item Justification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 01: Ships Support Equipment / BSA 9: Other Shipboard Equipment	**P-1 Line Item Number / Title:** 0941 / Submarine Support Equipment	
ID Code (A=Service Ready, B=Not Service Ready): A	**Program Elements for Code B Items:** N/A	**Other Related Program Elements:** N/A
Line Item MDAP/MAIS Code: N/A		

[P40A / ICS Block 1 & 2 Design Change]: Integrated Communications System (ICS) Block 1 & 2 and Block 5 - The interior Integrated Communication System installation on VA Class ships Block 1 & 2 hulls is a COTS based system designed in the mid-1990s and first installed in 2002. Much of the design is now obsolete and unsupported. The ICS must be operational to meet underway requirements. To resolve current parts obsolescence, procurement and backfit of key replacement components (example, processor cards, graphics cards, Asynchronous Transfer Mode switches, Linear Displacement Transducers) on Block 1 & 2 platforms is required to ensure continued operation in the near term. This effort began in line item 0942 and transitioned to 0941 in FY18. To address continuing future obsolescence of the ICS, a system redesign and replacement via SHIPALT is required. SHIPALT development leveraging the Block 5 ICS design will commence in FY19 with procurements and installs in following years.

[P40A / Bulkhead 6 Tile Maintenance SA 4563K]: Bulkhead 6 Tile Replacement (SHIPALT 4563K) modifies the Bulkhead 6 damping tile arrangement and tile design in the Main Ballast Tank to facilitate required recurring maintenance including, ultrasonic hull inspection efforts, eliminating the need to remove/replace the attached damping tiles during scheduled availabilities, which is a significant cost and schedule savings during planned depot availabilities. This effort began under budget line item 0942 and has transitioned to 0941 beginning in FY18 where the remaining four of five shipsets will be procured and all five will be installed.

[P40A / DGIOTS Shock Modification SA 4776K]: Diesel Generator Independent Over Speed Trip System (DGIOTS) Shock Modification (SHIPALT 4778K) - The DGIOTS control panel on VA Class Blocks I/II has obsolete components and fails to meet requirements for shock and vibration. SHIPALT 4778K provides a shock/vibration-qualified control panel using current, supportable technology. Backfit installation of the SHIPALT is planned for 14 ships). Material lead time is less than 12 months.

[P40A / Fwd Automatic Bus Transfer Pwr Mod]: SSN Class Component Upgrades - Forward ABT Power Modification - The in-service VA ships in Block I/II have received the Hotel Services SHIPALT which included Static ABTs and power transformers to support increased forward electronics processing capability for continuing SWFTS sonar/fire control tech insertions. At-sea operations have since identified problems with loss of electronics processing in conjunction with a loss of power to a forward electrical bus. A new construction change for blocks III/IV platforms is in progress, but a backfit SHIPALT for a power distribution upgrade on blocks I/II must be developed and fielded on SSN 774-783. Material lead time is estimated to be less than 12 months.

[P40A / MRO Shock Mod SA 4629K]: MRO Shock Modification (SHIPALT 4620K) - Accomplishes design changes on 20 MROs per ship to meet shock qualification requirement. The MROs are for valves AHP-33, TD-138, DSW-1, DSW-2, TD-128, TD-65, TD-129, SDA-8I, PL-2, SDA-82, TD-127, TD-49, SDA-53, SDA-54, SDA-41, TD-125, PL-81, EAFW-244, EAFW-245 and EAFW-67. Backfit installation of the SHIPALT is planned for SSN 774-781 (782 - 783 received at PSA).

[P40A / Circuit D/Cath Protection Sys OER]: Circuit D /Cathodic Protection System Obsolete Equipment Replacement (OER): Circuit D supports degaussing operations. The current design on block I/II ships is 1990's COTS and is obsolete, requiring tech refresh to block III design via a backfit SHIPALT design and fielding. Additionally, future upgrade of the VA Class SWFTS sonar/fire control systems to TI-16/APB-15 or greater involve a change of middleware from CORBA to Advanced Message Queuing Protocol (AMPQ), requiring Circuit (CKT) D to also transition to AMPQ. This transition requires a CKT D redesign and upgrade by SHIPALT. The cathodic protection system on VA Class blocks I/II ships uses an Impressed Current Cathodic Protection electronics that is COTS-based. Due to continued obsolescence with in-service ships, a complete system redesign is planned in new construction block V that would require backfit on in-service ships to allow the Impressed Current Cathodic Protection (ICCP) system to continue providing hull structure corrosion protection and maintain interfaces with other systems like CKT D. The redesign effort for the two systems will result in separate SHIPALTS but are related due to system interfaces. Block I/II platforms (SSN 774-783) require upgrade. Change applicability to Block III platforms is under review.

[P40A / SSTG Reliability Upgrades]: Recent failures on in-service VA Class submarines of the SSTG bearing system design have identified the need for both short term and longer term corrective design actions. SHIPALT design development is required for several system improvements including modifications to the Bearing Thrust Housing Chamfer to increase air flow and reduce temperatures, the Bearing Thrust Moisture Sensor to seal sensor internals from moisture and reduce introduction of moisture to the thrust housing, and installation of a Flow Diverter to seal existing gaps between gland seals on the turbine and the forward end of the thrust bearing. These alt designs would be installed by fleet activities and not require headquarters procurement or install funding. Longer term corrective action for block I/II ships (SSN 774-783) involves redesign and possible replacement of bearing system, depending on results of ongoing failure analysis. Impact to Block III platforms is to be determined.

[P40A / Portable Ship Control Unit]: The current Portable Ship's Control Station on VA Class Blocks I and II is obsolete and not supported for spare parts or replacement tablets. This bridge suitcase is used to provide the officer of the deck with electronic chart navigation information and sensor contact information as well as ship's course/speed/rudder indication and related information while underway on the surface.

Exhibit P-40, Budget Line Item Justification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 01: Ships Support Equipment / BSA 9: Other Shipboard Equipment	**P-1 Line Item Number / Title:** 0941 / Submarine Support Equipment	
ID Code (A=Service Ready, B=Not Service Ready): A	**Program Elements for Code B Items:** N/A	**Other Related Program Elements:** N/A
Line Item MDAP/MAIS Code: N/A		

SHIPALT 4776 has previously been developed to install new designed Portable Ship's Control Station (PSCS) systems, and shipsets procured by the VA Class Program Office (PMS450) in BLI 0942 to support installations in FY19 and follow years. Funding in 0941 provides for installation of these units.

[P40A / High Pressure Air Dryer]: HPAD controller components are obsolete and no longer support by the original equipment manufacturer. The replacement HPAD controller is identified but requires non-recurring engineering to build and qualify prototype then develop into a refresh/upgrade alteration with logistic support. Funds procurement for controller upgrades for applicable hulls and to purchase four (4) complete HPADs with upgraded controllers in FY23 to establish an Advanced Equipment Repair Program (AERP) for HPADs for SSN 21/774 Classes.

[P40A / Dry Deck Shelter]: Procures modification efforts required to modernize two of the remaining five DDS over the FYDP per a cost share agreement between Navy and USSOCOM. Funding continues engineering design, fabrication, assembly, acceptance, and testing. Changes include extending the shelter 50 inches, replacing the Track and Cradle assembly with a higher capacity and remotely operated Payload-Launch and Recovery System (P-LARS), incorporation of remote controls for all DDS functions, and relocation of equipment inside the DDS hangar to accommodate Navy and USSOCOM payloads such as SWCS/MK-11 SDV, Large Displacement Unmanned Undersea Vehicle, and a variant of the USSOCOM Dry Combat Submersible.

[P40A / VA Class Acoustic Superiority Prog]: Funding will be utilized to execute requirements included in "PEO SUBMARINES ASW CAMPAIGN PLAN UPDATE, 9073 Ser 450W4K/S0116 of 2 Mar 2016". This letter (SECRET) provides details on the plan to backfit new design Acoustic Superiority (AS) treatment on 5 BLK III submarines during their first Extended Docking Selected Restricted Availability (EDSRA), with follow-on installs on 6 BLK IV submarines during their EDSRAs. In addition, design work for backfit SHIPALT development for selected machinery improvements is included. AS treatment installations will be based on design and material developed for installation on USS SOUTH DAKOTA (SSN 790) as part of the South Dakota Improvement Program (SDIP) during PSA. Beginning in FY18, funding is provided for development of SHIPALT products for backfit installation of the AS treatment by Naval Shipyards on VA Class hulls, as well as for SHIPALT development for backfit of AS-related machinery improvements by EDSRA Shipyards or Fleet Intermediate Maintenance Activities (IMAs). Engineering services are also funded to provide processes and procedures to the EDSRA shipyards for handling, setup and operation of staging enclosures and for the treatment handling and application equipment.

[P40A / Acoustic Range Replacement Equipment]: Procures equipment and materials required to implement and support the military high priority Submarine Silencing Program for operating nuclear submarines. TYCOMs have consistently rated the conduct of noise trials as a high priority funding requirement. The requirements for this program are identified in Chief of Naval Operations (CNO) Specific Operational Requirements 46-28 and Naval Sea Systems Instruction (NAVSEAINST) C9073.2B. This is the only program in place to procure equipment for the purpose of measuring, monitoring, assessing and improving the detection capability and reducing the detectability of deployed submarines. The equipment is used on test vessels, listening platforms and at the laboratories. This program replaces or refurbishes broken or obsolete acquisition and analysis hardware and software used to ensure ship's safety; and the execution and completion of acoustic trials objectives identified in CNO SOR 46-28 (assessment of ship's acoustic posture, etc.) and NAVSEAINST C9073.2B (Acoustic Surveys Policy). These refurbishments and replacements are especially critical in order to maintain the technological advances recently made in the area of acoustic data acquisition under the Acoustic Measurement Facilities Improvement Program and to utilize the South Tongue of the Ocean Acoustic Facility (STAFAC). Specific items include hydrophone arrays, towed arrays, ranging and tracking systems, on-board array electronics, noise sources, shore power cables, data fiber optic cables, data analysis systems, workstations, data storage and retrieval, communications systems, analyzers, tape recorders, accelerometers, monitors, etc.

[P40A / Weapon Launching Handling System]: The Submarine Torpedo Tube Support category funds in-service support and alteration procurements for all submarine Torpedo Tubes (TT), Torpedo Ejection Pumps (TEP), Internal Countermeasure Launchers (ICL), and Weapons Stowage and Handling Systems (WSHS). Development efforts under this item number include Engineering Change Proposals (ECP), ORDALTs, Type Zero (TZ) kits and Test Equipment and alteration material procurement to correct significant deficiencies in equipment affecting personnel safety, ship safety and system performance. Production engineering includes resolving Liaison Action Requests (LARs) configure/test assembly in lab prior to ship installation and in-shop engineering support of vendor testing.

[P40A / SW Class SCS Microprocessor]: SSN HM&E Threshold Modernization - Provides for replacement of SEAWOLF Class Ship Control System Microprocessing unit. The current Ship Control System microprocessors are obsolete and contain electronic components that are no longer support by industry.

[P40A / SW Class SCS Microprocessor]: SEAWOLF Class Ship Control System Microprocessing Unit - This shipalt will replace Seawolf Class submarine ship control processing unit. The ship control processors are obsolete and contain electronic components that are no longer supported by industry.

Exhibit P-40, Budget Line Item Justification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 01: Ships Support Equipment / BSA 9: Other Shipboard Equipment	**P-1 Line Item Number / Title:** 0941 / Submarine Support Equipment	
ID Code (A=Service Ready, B=Not Service Ready): A	**Program Elements for Code B Items:** N/A	**Other Related Program Elements:** N/A
Line Item MDAP/MAIS Code: N/A		

[P40A / LA/SW Class Design and Shipalt Dev. for SSTG Governors]: Provides for replacement of submarine SSTG Governors on Seawolf Class and Los Angeles Class (MOD 25). The SSTG Governors in these submarines classes are obsolete and contain electronic components that are no longer supported by industry.

[P40A / SSTG MOD 25]: SSTG Mod 25 - Provides for replacement on SSTG Mod 25 Governors on Los Angeles Class submarines. The SSTG Governors in these class of submarines are obsolete and contain electronic
components that are no longer supported by industry.

[P40A / SW Class SSTG Governor]: Provides for replacement on SSTG Governors on SEAWOLF Class submarines. The SSTG Governors in these
class of submarines are obsolete and contain electronic components that are no longer supported by industry.

[P40A / VA Class SOF Modifications]: Starting in FY22, all funding for FY22-25 transferred BLI 0950 to BLI 0941. Provides for procurement of VA Class unique system components that will be installed during planned modernization periods. Also provides funding to perform integrated testing of these unique systems to ensure satisfactory operation with other HM&E and Combat Systems. Funds are provided for procurement of Submarine Special Operations Forces (SOF) unique system components that will be installed during planned modernization periods. Funds are also provided for installation of SOF unique system components. All funding for FY21 and prior resides in BLI 0950.
[P40A / Diver Oxygen Treatment System (DOTS)/Lockout Trunk]: Funds installation of Diver Oxygen Treatment System (DOTS) and certification of Lockout Trunk (LOT) on Special Operations Forces (SOF) designated submarines SSN 777 and 778 to support NAVY SOCOM requirements. Supports the planning and procurement of long-lead time materials for installation during scheduled Depot Modernization Periods (DMPs) due to length of time required to install DOTS.

Exhibit P-40, Budget Line Item Justification: PB 2021 Navy	**Date:** February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 01: Ships Support Equipment / BSA 9: Other Shipboard Equipment	**P-1 Line Item Number / Title:** 0941 / Submarine Support Equipment

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

Line Item MDAP/MAIS Code: N/A

Exhibits Schedule					Prior Years	FY 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	Submarine Support Equipment				- / 101.942	- / 37.155	- / 33.040	- / 31.610	- / -	- / 31.610
P-3a	10 / PB002 VA Acoustic Superiority (TBD)				- / 0.000	- / 0.000	- / 11.855	- / 33.022	- / 0.000	- / 33.022
P-40	**Total Gross/Weapon System Cost**				**- / 101.942**	**- / 37.155**	**- / 44.895**	**- / 64.632**	**- / 0.000**	**- / 64.632**

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-40a	Submarine Support Equipment				- / -	- / -	- / -	- / -	- / -	- / -
P-3a	10 / PB002 VA Acoustic Superiority (TBD)				- / 62.046	- / 62.644	- / 69.374	- / 62.488	- / 341.444	- / 642.873
P-40	**Total Gross/Weapon System Cost**				**- / 104.524**	**- / 106.287**	**- / 100.779**	**- / 102.757**	**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:
Funding increase from FY20 to FY21 establishes new funding line Diver Oxygen Treatment Sys/Lockout Trunk, Sub Weapons Launch/Handling Production Engineering and funding for the Acoustic Superiority installation planning and staging.

Exhibit P-40a, Budget Item Justification For Aggregated Items: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	P-1 Line Item Number / Title: 0941 / Submarine Support Equipment	Aggregated Items Title: Submarine Support Equipment (1)

Item Number / Title [DODIC]	ID CD	MDAP/ MAIS Code	Prior Years			FY 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) PB002/PB5IN SSN Class Component Upgrades																				
1.1) Propulsor Upgrade Procurement (2)	A		-	-	2.500	-	-	0.750	-	-	0.765	-	-	-	-	-	-	-	-	-
1.2) Propulsor Upgrade Installation	A		-	-	4.400	-	-	1.800	-	-	1.836	-	-	1.873	-	-	-	-	-	1.873
1.3) SSTG Digital Voltage Procurement (3)	A		-	-	3.600	-	-	-	-	-	-	-	-	4.162	-	-	-	-	-	4.162
1.4) SSTG Digital Voltage Installation	A		-	-	0.500	-	-	-	-	-	1.040	-	-	-	-	-	-	-	-	-
1.5) ICS Block 1 & 2 Design Change Installation	A		-	-	2.500	-	-	2.550	-	-	-	-	-	-	-	-	-	-	-	-
1.6) ICS Block 5 ShipAlt Design & Dev.	A		-	-	-	-	-	4.890	-	-	1.809	-	-	-	-	-	-	-	-	-
1.7) ICS Block 5 Design Change Procurement (4)	A		-	-	-	-	-	-	-	-	5.202	-	-	5.306	-	-	-	-	-	5.306
1.8) ICS Block 5 Design Change Installation	A		-	-	-	-	-	-	-	-	-	-	-	2.122	-	-	-	-	-	2.122
1.9) Bulkhead 6 Tile Maintenance SA 4563K Procurement	A		-	-	0.060	-	-	0.122	-	-	-	-	-	0.064	-	-	-	-	-	0.064
1.10) Bulkhead 6 Tile Maint SA 4563K Installation (5)	A		-	-	0.645	-	-	0.658	-	-	1.342	-	-	-	-	-	-	-	-	-
1.11) DGIOTS Shock Modification SA 4776K Procurement (6)	A		-	-	0.300	-	-	0.306	-	-	0.312	-	-	0.478	-	-	-	-	-	0.478
1.12) DGIOTS Shock Modification SA 4776K Installation	A		-	-	0.200	-	-	0.204	-	-	0.208	-	-	0.318	-	-	-	-	-	0.318
1.13) Fwd Automatic Bus Transfer Pwr Mod Design & Dev.	A		-	-	0.039	-	-	1.800	-	-	-	-	-	-	-	-	-	-	-	-
1.14) Fwd Automatic Bus Transfer Pwr Mod Procurement (7)	A		-	-	-	-	-	-	-	-	0.816	-	-	0.832	-	-	-	-	-	0.832
1.15) Fwd Automatic Bus Transfer Pwr Mod Installation	A		-	-	-	-	-	-	-	-	3.264	-	-	3.329	-	-	-	-	-	3.329

Exhibit P-40a, Budget Item Justification For Aggregated Items: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0941 / Submarine Support Equipment	**Aggregated Items Title:** Submarine Support Equipment (1)

Item Number / Title [DODIC]	ID CD	MDAP/ MAIS Code	Prior Years			FY 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)
1.16) MRO Shock Mod SA 4629K Design & Development	A		-	-	-	-	-	1.000	-	-	-	-	-	-	-	-	-	-	-	-
1.17) MRO Shock Mod SA 4629K Procurement (8)	A		-	-	-	-	-	0.420	-	-	0.857	-	-	0.437	-	-	-	-	-	0.437
1.18) MRO Shock Mod SA 4629K Installation	A		-	-	-	-	-	-	-	-	0.112	-	-	0.228	-	-	-	-	-	0.228
1.19) Circuit Cathodic Protection Sys OER Design & Dev.	A		-	-	-	-	-	0.768	-	-	1.119	-	-	-	-	-	-	-	-	-
1.20) Circuit D/Cath Protection Sys OER Procurement (9)	A		-	-	-	-	-	1.200	-	-	1.224	-	-	1.248	-	-	-	-	-	1.248
1.21) Circuit D/Cath Protection Sys OER Installation	A		-	-	-	-	-	-	-	-	0.060	-	-	0.061	-	-	-	-	-	0.061
1.22) SSTG Reliability Upgrades Design & Dev.	A		-	-	-	-	-	0.459	-	-	0.134	-	-	0.155	-	-	-	-	-	0.155
1.25) Portable Ship Control Unit Installation (10)	A		-	-	-	-	-	1.200	-	-	1.224	-	-	-	-	-	-	-	-	-
1.26) High Pressure Air Dryer Design Development	A		-	-	-	-	-	-	-	-	0.400	-	-	0.430	-	-	-	-	-	0.430
1.27) High Pressure Air Dryer Procurement (Fleet Install) (11)	A		-	-	-	-	-	-	-	-	-	-	-	1.050	-	-	-	-	-	1.050
1.29) VA Class Acoustic Superiority Prog Design & Dev./ Tech Transfer (12)	A		-	-	2.200	-	-	8.125	-	-	5.064	-	-	-	-	-	-	-	-	-
Subtotal: 1) PB002/PB5IN SSN Class Component Upgrades			**-**	**-**	***16.944***	**-**	**-**	***26.252***	**-**	**-**	***26.788***	**-**	**-**	***22.093***	**-**	**-**	**-**	**-**	**-**	***22.093***
2) PB004/PB5IN Facilities/Lab Upgrades																				
2.1) Acoustic Range Replacement Equipment (13)	A		-	-	63.069	-	-	6.138	-	-	5.987	-	-	6.112	-	-	-	-	-	6.112
Subtotal: 2) PB004/PB5IN Facilities/ Lab Upgrades			**-**	**-**	***63.069***	**-**	**-**	***6.138***	**-**	**-**	***5.987***	**-**	**-**	***6.112***	**-**	**-**	**-**	**-**	**-**	***6.112***
3) PB005/PB5IN Weapon Launching Handling System																				

Exhibit P-40a, Budget Item Justification For Aggregated Items: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0941 / Submarine Support Equipment	**Aggregated Items Title:** Submarine Support Equipment (1)

Item Number / Title [DODIC]	ID CD	MDAP/ MAIS Code	Prior Years			FY 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) Production Engineering (14)	A		-	-	-	-	-	-	-	-	-	-	-	0.200	-	-	-	-	-	0.200
3.2) 2S Cog Material	A		-	-	-	-	-	-	-	-	-	-	-	0.061	-	-	-	-	-	0.061
3.3) TT/TEP/ICL/ WSHS	A		-	-	-	-	-	-	-	-	-	-	-	1.081	-	-	-	-	-	1.081
3.4) Misc. Test Equipment	A		-	-	-	-	-	-	-	-	-	-	-	0.166	-	-	-	-	-	0.166
3.5) Test Facility Equipment	A		-	-	-	-	-	-	-	-	-	-	-	0.134	-	-	-	-	-	0.134
3.6) ORDALT Procurement	A		-	-	-	-	-	-	-	-	-	-	-	0.050	-	-	-	-	-	0.050
3.7) ORDALT Installation	A		-	-	-	-	-	-	-	-	-	-	-	0.756	-	-	-	-	-	0.756
Subtotal: 3) PB005/PB5IN Weapon Launching Handling System			**-**	**-**	***0.000***	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	***2.448***	**-**	**-**	**-**	**-**	**-**	***2.448***
4) PB007/PB5IN SW Class HM&E Threshold Modernization																				
4.1) SW Class SCS Microprocesor Procurement	A		-	-	1.562	-	-	2.500	-	-	-	-	-	-	-	-	-	-	-	-
4.2) SW Class SCS Microprocesor Installation/DSA	A		-	-	0.191	-	-	0.305	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: 4) PB007/PB5IN SW Class HM&E Threshold Modernization			**-**	**-**	***1.753***	**-**	**-**	***2.805***	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
5) PB008/PB5IN SSTG Governors																				
5.1) LA/SW Class Design and Shipalt Dev. for SSTG Governors	A		-	-	18.176	-	-	0.421	-	-	-	-	-	-	-	-	-	-	-	-
5.2) SSTG MOD 25 Procurement	A		-	-	2.000	-	-	1.021	-	-	-	-	-	-	-	-	-	-	-	-
5.3) SSTG MOD 25 Installation/DSA	A		-	-	-	-	-	0.518	-	-	0.265	-	-	-	-	-	-	-	-	-
Subtotal: 5) PB008/PB5IN SSTG Governors			**-**	**-**	***20.176***	**-**	**-**	***1.960***	**-**	**-**	***0.265***	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
6) PB009/PB5IN VA Class SOF																				
6.3) Install Diver Oxygen Treatment System/Lockout Trunk on SSN 777 & 778 (15)	A		-	-	-	-	-	-	-	-	-	-	-	0.957	-	-	-	-	-	0.957
Subtotal: 6) PB009/PB5IN VA Class SOF			**-**	**-**	***0.000***	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	***0.957***	**-**	**-**	**-**	**-**	**-**	***0.957***
Total			**-**	**-**	**101.942**	**-**	**-**	**37.155**	**-**	**-**	**33.040**	**-**	**-**	**31.610**	**-**	**-**	**-**	**-**	**-**	**31.610**

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

Exhibit P-40a, Budget Item Justification For Aggregated Items: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0941 / Submarine Support Equipment	**Aggregated Items Title:** Submarine Support Equipment (1)

Footnotes:

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

(2) 1.1 & 1.2 Propulsor program provides upgrade to a total of 5 ships and completes in FY21.

(3) 1.3 & 1.4 SSTG Digital Voltage Regulator program upgrades a total of 6 ships. Shipset procurement lead time is two years. Funding increase from FY20 to FY21 of $4.162M is for the procurement of one (1) shipset for installation in FY23.

(4) 1.7 & 1.8 ICS Block 5 Design Change: Procurement funding begins in FY20 with installs beginning in FY21. This funding profile supports 7 procurements and 6 installs across the FYDP, with remaining procurements and installs outside the FYDP. Funding increase from FY20 to FY21 of $2.122M is for the first shipboard installation.

(5) 1.9 & 1.10 Bulkhead 6 Tile Maintenance ShipAlt 4563K: Procurements have a 1-year lead time. Program funding procures a total of 4 units (additional unit was procured separately by the VA Class program office in FY17) and installs a total of 5 units.

(6) 1.11 & 1.12 DGIOTS Shock Modification ShipAlt 4776K: Procurement and installation occurs in the same year (less than 12-month lead time) executing 2 per year in FYs 19-20, 3 per year in FYs 21-22, and 1 per year in FYs 23-24 for a total of 14 Units.

(7) 1.14 & 1.15 Forward Automatic Bus Transfer Power Mod: Procurement and installation occurs in the same year (less than 12 months lead time), executing 2 per year in FYs 20-23, and 1 per year in remaining FYs for a total of 10 Units.

(8) 1.17 & 1.18 MRO Shock Mod ShipAlt 4629K funding plan is to procure and install a total of 8 units.

(9) 1.20 & 1.21 Circuit D/Cathodic Protection Sys OER funding plan is to procure and install a total of 16 units.

(10) 1.25 Portable Ship Control Units: Starting in FY23 the plan is to procure and install 10 units.

(11) 1.26 & 1.27 High Pressure Air Dryer funds NRE Design Development in FYs 20-22 and procurement in FYs 21-23 for applicable ships and for rotatable pool.

(12) 1.29 VA Class Acoustic Superiority funding provides ShipAlt development.

(13) 2.1 Acoustic Range replacement equipment requirements have been updated to include additional maintenance deferred from previous years.

(14) 3.1 - 3.7 New Line - Sub Weapons Launch/ Handling Support funds several projects that support the modernization of the Sub Weapons Launch/ Handling Support equipment and systems.

(15) 6.3 New Line - Install Diver Oxygen Treatment System/Lockout Trunk on SSN 777 & 778 funds installation of Diver Oxygen Treatment System (DOTS) and certification of Lockout Trunk (LOT) on Special Operations Forces (SOF) designated submarines SSN 777 and 778 to support NAVY-SOCOM requirements. Funding increase from FY20 to FY21 of $0.957M is for development, planning and procurement necessary to support the shipboard installation in FY22.

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0941 / Submarine Support Equipment	**Modification Number / Title:** 10 / PB002 VA Acoustic Superiority
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

Resource Summary	Prior Years	FY 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	11.855	33.022	0.000	33.022	62.046	62.644	69.374	62.488	341.444	642.873
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	0.000	0.000	11.855	33.022	0.000	33.022	62.046	62.644	69.374	62.488	341.444	642.873
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**0.000**	**0.000**	**11.855**	**33.022**	**0.000**	**33.022**	**62.046**	**62.644**	**69.374**	**62.488**	**341.444**	**642.873**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)												
Initial Spares *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Dollars)*	-	-	-	-	-	-	-	-	-	-	-	-

Description:

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

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0941 / Submarine Support Equipment	**Modification Number / Title:** 10 / PB002 VA Acoustic Superiority
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	
Models of Systems Affected: [No Model Specified]	**Modification Type:** TBD	**Related RDT&E PEs:**

Financial Plan	Prior Years	FY 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: PB002 VA Acoustic Superiority												
B Kits												
Recurring												
1.1.1) VA Acoustic Superiority - NonOrganic	- / -	- / -	1 / 10.000	1 / 10.200	- / -	1 / 10.200	1 / 10.404	1 / 10.612	1 / 10.824	2 / 22.041	4 / 45.953	11 / 120.034
Subtotal: Recurring	*- / 0.000*	*- / -*	*- / 10.000*	*- / 10.200*	*- / -*	*- / 10.200*	*- / 10.404*	*- / 10.612*	*- / 10.824*	*- / 22.041*	*- / 45.953*	*- / 120.034*
Subtotal: PB002 VA Acoustic Superiority	*- / -*	*- / -*	*1 / 10.000*	*1 / 10.200*	*- / -*	*1 / 10.200*	*1 / 10.404*	*1 / 10.612*	*1 / 10.824*	*2 / 22.041*	*4 / 45.953*	*11 / 120.034*
Subtotal: Procurement, All Modification Items	*- / 0.000*	*- / -*	*- / 10.000*	*- / 10.200*	*- / -*	*- / 10.200*	*- / 10.404*	*- / 10.612*	*- / 10.824*	*- / 22.041*	*- / 45.953*	*- / 120.034*
Support *(All Modification Items)*												
2.1) Acoustic Superiority Planning & Staging (16)	- / -	- / -	- / 1.855	- / 22.822	- / -	- / 22.822	- / 19.342	- / 19.086	- / 24.945	- / 6.170	- / 38.779	- / 132.999
Subtotal: Support	*- / 0.000*	*- / -*	*- / 1.855*	*- / 22.822*	*- / -*	*- / 22.822*	*- / 19.342*	*- / 19.086*	*- / 24.945*	*- / 6.170*	*- / 38.779*	*- / 132.999*
Installation												
Modification Item 1 of 1: PB002 VA Acoustic Superiority	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 32.300	- / 32.946	- / 33.605	- / 34.277	- / 256.712	- / 389.840
Subtotal: Installation	*- / 0.000*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / 32.300*	*- / 32.946*	*- / 33.605*	*- / 34.277*	*- / 256.712*	*- / 389.840*
Total												
Total Cost (Procurement + Support + Installation)	**0.000**	**0.000**	**11.855**	**33.022**	**0.000**	**33.022**	**62.046**	**62.644**	**69.374**	**62.488**	**341.444**	**642.873**

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0941 / Submarine Support Equipment	**Modification Number / Title:** 10 / PB002 VA Acoustic Superiority
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

Modification Item 1 of 1: PB002 VA Acoustic Superiority

Manufacturer Information

Manufacturer Name: Electric Boat	Manufacturer Location: Groton, CT
Administrative Leadtime *(in Months)*: 3	Production Leadtime *(in Months)*: 24

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

Installation Information

Method of Implementation: [none specified]:: Installation Name: VA Acoustic Superiority

Installation Cost	Prior Years	FY 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 / 32.300	- / -	- / -	- / -	0 / 0.000	1 / 32.300
FY 2021	- / -	- / -	- / -	- / -	- / -	- / -	- / -	1 / 32.946	- / -	- / -	0 / 0.000	1 / 32.946
FY 2022	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	1 / 33.605	- / -	0 / 0.000	1 / 33.605
FY 2023	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	1 / 34.277	0 / 0.000	1 / 34.277
FY 2024	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	1 / 34.963	1 / 34.963
FY 2025	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	2 / 72.248	2 / 72.248
To Complete	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	4 / 149.501	4 / 149.501
Total	- / -	- / -	- / -	- / -	- / -	- / -	1 / 32.300	1 / 32.946	1 / 33.605	1 / 34.277	7 / 256.712	11 / 389.840

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	-	-	-	1	7	11
Out	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	1	9	11

Footnotes:

(16) FY21 funding increase is for the Naval Shipyards (NSY) to develop and procure environmental enclosures with an integrated gantry crane appropriate for NSY drydocks (~$17.1M); procurement of additional handling equipment, lifting fixtures, & acoustic adhesive processing equipment; and installation planning ($5.7M). The cost estimate for environmental enclosure procurement is based on the cost of Electric Boat Corporation's Installation & Access Structure (IAS) used for USS SOUTH DAKOTA Improvement Program (re-use of IAS is not feasible due to differences in EB and NSY drydocks). A total of three environmental enclosures are required to support simultaneous execution of up to three submarine alterations. The first enclosure is planned for procurement in FY21 to meet USS NORTH DAKOTA FY22 availability needs;

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0941 / Submarine Support Equipment	**Modification Number / Title:** 10 / PB002 VA Acoustic Superiority
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

the second enclosure is planned for FY22/23 procurement to meet USS ILLINOIS FY23 availability needs; and the third enclosure is planned for FY24 procurement to meet USS INDIANA FY25 availability needs. Funding for staging procurement is leveled over FY21-24 to support these need dates.

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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 01: Ships Support Equipment / BSA 9: Other Shipboard Equipment	**P-1 Line Item Number / Title:** 0942 / Virginia Class Support Equipment

ID Code (A=Service Ready, B=Not Service Ready): A	**Program Elements for Code B Items:** N/A	**Other Related Program Elements:** 0604558N, 0204281N
Line Item MDAP/MAIS Code: 516		

Resource Summary	Prior Years	FY 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)*	1,213.435	66.328	28.465	22.868	0.000	22.868	22.964	23.474	23.792	24.260	Continuing	Continuing
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	1,213.435	66.328	28.465	22.868	0.000	22.868	22.964	23.474	23.792	24.260	Continuing	Continuing
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**1,213.435**	**66.328**	**28.465**	**22.868**	**0.000**	**22.868**	**22.964**	**23.474**	**23.792**	**24.260**	**Continuing**	**Continuing**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)												
Initial Spares *($ in Millions)*	-	0.068	-	-	-	-	-	-	-	-	-	0.068
Flyaway Unit Cost *($ in Dollars)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Dollars)*	-	-	-	-	-	-	-	-	-	-	-	-

Description:

The VIRGINIA Class BLI 0942 provides a wide range of materials required to operate, test, support and maintain the viability of VIRGINIA SSN774 Class Submarines. There is a decrease in the request from FY20 to FY21 driven primarily by the final investment in the Naval Foundry and Propeller Center (NFPC) High speed Machine funding profile in FY20 offset by an increase in the number of VIRGINIA Payload Tubes (VPT) Platforms in FY21. VIRGINIA Class Submarines must maintain a required Platform to Submarine ratio of 0.6 through the FYDP. The increased quantity of 2 to 3 in FY21 is required to maintain this ratio. Additional details are provided below for each effort.

The "Major Shore Spares" component includes rotatable pool and insurance spares. Propulsor rotatable pool assets support planned maintenance during scheduled availabilities by decreasing equipment turn-around time/availability duration. Rotatable pool program equipment includes the high pressure air compressor, various pump/motor assemblies, radar mast, ventilation fans and thin line towed array components and other components. There is a significant increase in the profile in FY18, FY19 and FY20 in support of additional high speed machining capabilities at the NFPC in Philadelphia. This is the VIRGINIA Program Office portion of the propulsor foundry equipment as agreed to by PEO SUB, VIRGINIA Program Office, and COLUMBIA Program Office.

The Test and Evaluation (T&E) component includes upgrading the afloat acoustic system required to conduct TECHEVAL/OPEVAL satisfactorily, efficiently and with minimal risk of equipment failure. Conduct hardware and software development, procurement, maintenance, and operations as required to achieve and maintain the submarine acoustic signatures trials program. The resultant capabilities support the Submarine Acoustic Trials Enterprise, which includes the VIRGINIA Class submarine test and evaluation program.

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

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

Exhibit P-40, Budget Line Item Justification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 01: Ships Support Equipment / BSA 9: Other Shipboard Equipment	**P-1 Line Item Number / Title:** 0942 / Virginia Class Support Equipment	
ID Code (A=Service Ready, B=Not Service Ready): A	**Program Elements for Code B Items:** N/A	**Other Related Program Elements:** 0604558N, 0204281N
Line Item MDAP/MAIS Code: 516		

The Hotel Services Working Group (HSWG) cost component provides funding for procurement and installation of materials necessary to modernize VIRGINIA Class Submarine Blocks I & II (774-783) infrastructure (i.e. power, cabling, cooling and arrangements of the ship for the entire Government Furnished Equipment (GFE)/Contractor furnished Equipment (CFE) Non-Propulsion Electronic System (NPES) configuration. This combination of Hull, Mechanical and Electrical (HM&E) alterations to VIRGINIA Class submarines is collectively referred to as the "Hotel Services" modification. The last Hotel Services modernization kit procurement for SSN774 took place in FY18 and was installed during FY19 Depot Modernization Period(DMP). Block III and follow ships do not require this significant HM&E infrastructure upgrade as the baseline design for those ships accounts for the necessary power, cabling, cooling, etc. required to host upgrades to major combat systems.

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

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

[P40A / Auxiliary Equipment]: Auxiliary equipment component includes funding for ladders and ladder storage containers for Sail Racetracks, Logistics Escape Trunk/Logistics Plug Trunk (LET/LPT) and other equipment such as I&D material, support material for VPT, and storage containers for Center Cell Access Port(CCAP)/All Up Round Volumetric Shape(AURS)/All Up Round Ballast Grade B(AURBb).

[P40A / Non-Tactical Data Processing System]: Provide software and hardware updates, software licenses and technical and logistics support to the Non-Tactical Data Processing System (NTDPS).

Exhibit P-40, Budget Line Item Justification: PB 2021 Navy	Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 01: Ships Support Equipment / BSA 9: Other Shipboard Equipment	**P-1 Line Item Number / Title:** 0942 / Virginia Class Support Equipment

ID Code (A=Service Ready, B=Not Service Ready): A	Program Elements for Code B Items: N/A	Other Related Program Elements: 0604558N, 0204281N

Line Item MDAP/MAIS Code: 516

Exhibits Schedule					Prior Years	FY 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	Virginia Class Support Equipment				- / 708.284	- / 13.622	- / 14.436	- / 15.632	- / -	- / 15.632
P-3a	1 / H1RC6 - Major Shore Spares (Various)				- / 229.579	- / 25.209	- / 14.029	- / 7.236	- / 0.000	- / 7.236
P-3a	2 / HRC13 - Hotel Services (Various)				- / 275.572	- / 27.497	- / 0.000	- / 0.000	- / 0.000	- / 0.000
P-40	**Total Gross/Weapon System Cost**				**- / 1,213.435**	**- / 66.328**	**- / 28.465**	**- / 22.868**	**- / 0.000**	**- / 22.868**

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	Virginia Class Support Equipment				- / -	- / -	- / -	- / -	- / -	- / -
P-3a	1 / H1RC6 - Major Shore Spares (Various)				- / 7.494	- / 7.630	- / 7.783	- / 7.939	Continuing	Continuing
P-3a	2 / HRC13 - Hotel Services (Various)				- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 303.069
P-40	**Total Gross/Weapon System Cost**				**- / 22.964**	**- / 23.474**	**- / 23.792**	**- / 24.260**	**Continuing**	**Continuing**

*Title represents 1) the Number / Title for Items; 2) the Number / Title [DODIC] for Ammunition; and/or 3) the Number / Title (Modification Type) for Modifications. Title represents the P-40a Title when only the P-40a Summary/Total is shown.

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

Justification:
The decrease in funding from FY20 to FY21 was driven primarily by a decrease of major shore spares due to the final investment in the NFPC High Speed Machine funding profile in FY20 ($7.2M) offset by an increase in the number of VPTs Platforms under I&D equipment in FY21 of $1.7M.

Exhibit P-40a, Budget Item Justification For Aggregated Items: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0942 / Virginia Class Support Equipment	**Aggregated Items Title:** Virginia Class Support Equipment

Item Number / Title [DODIC]	ID CD	MDAP/ MAIS Code	Prior Years			FY 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) All Prior Years																				
1.1) All Prior Years (APY)	A		-	-	647.750	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: 1) All Prior Years			**-**	**-**	***647.750***	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
2) H1RC2 TEST & EVALUATION EQUIPMENT																				
2.1) Test & Evaluation Measuring Equipment	A		-	-	32.093	-	-	2.021	-	-	2.030	-	-	2.057	-	-	-	-	-	2.057
Subtotal: 2) H1RC2 TEST & EVALUATION EQUIPMENT			**-**	**-**	***32.093***	**-**	**-**	***2.021***	**-**	**-**	***2.030***	**-**	**-**	***2.057***	**-**	**-**	**-**	**-**	**-**	***2.057***
3) H1RC8 - VPT and I&D Support Equipment																				
3.1) Weapons Equipment: VPT Platform [1]	A		-	-	-	1,800K	2	3.600	1,836K	2	3.672	1,801K	3	5.403	-	-	-	1,801K	3	5.403
3.2) Industrial Equipment: Sail Racetracks	A		-	-	-	300,000.00	2	0.600	306,000.00	4	1.224	312,000.00	4	1.248	-	-	-	312,000.00	4	1.248
3.3) Auxiliary Equipment	A		-	-	-	636,000.00	1	0.636	487,000.00	1	0.487	200,000.00	1	0.200	-	-	-	200,000.00	1	0.200
Subtotal: 3) H1RC8 - VPT and I&D Support Equipment			**-**	**-**	***0.000***	**-**	**-**	***4.836***	**-**	**-**	***5.383***	**-**	**-**	***6.851***	**-**	**-**	**-**	**-**	**-**	***6.851***
4) H1RC13 TECH INSERTION TECH REFRESH & UPGRADES																				
4.1) Shipboard Mobile Computing NTDPS (ULAN + SW Enclave + PDOCS + Upgrades)	A		-	-	19.425	-	-	2.581	-	-	2.627	-	-	2.674	-	-	-	-	-	2.674
4.2) Non-Tactical Data Processing System	A		-	-	9.016	-	-	4.184	-	-	4.396	-	-	4.050	-	-	-	-	-	4.050
Subtotal: 4) H1RC13 TECH INSERTION TECH REFRESH & UPGRADES			**-**	**-**	***28.441***	**-**	**-**	***6.765***	**-**	**-**	***7.023***	**-**	**-**	***6.724***	**-**	**-**	**-**	**-**	**-**	***6.724***
Total			**-**	**-**	**708.284**	**-**	**-**	**13.622**	**-**	**-**	**14.436**	**-**	**-**	**15.632**	**-**	**-**	**-**	**-**	**-**	**15.632**

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

Footnotes:

[1] The VACL Submarines are being delivered at a rate of two per year, and must maintain a required platform to submarine ratio of 0.6 thru the FYDP. The increased quantity of 2 to 3 in FY21 is required to maintain this ratio.

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0942 / Virginia Class Support Equipment	**Modification Number / Title:** 1 / H1RC6 - Major Shore Spares
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

Resource Summary	Prior Years	FY 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)*	229.579	25.209	14.029	7.236	0.000	7.236	7.494	7.630	7.783	7.939	Continuing	Continuing
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	229.579	25.209	14.029	7.236	0.000	7.236	7.494	7.630	7.783	7.939	Continuing	Continuing
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**229.579**	**25.209**	**14.029**	**7.236**	**0.000**	**7.236**	**7.494**	**7.630**	**7.783**	**7.939**	**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:

Procure equipment and materials necessary to support the VIRGINIA Class submarine program. Materials are as large as rotors and as small as anodes and fasteners. VIRGINIA Class rotatable pool rotors are removed, refurbished, and placed into a pool. There is no set installation schedule as rotors, once available, are installed on subsequent availabilities.

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

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0942 / Virginia Class Support Equipment	**Modification Number / Title:** 1 / H1RC6 - Major Shore Spares
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	
Models of Systems Affected: VA Class Submarine	**Modification Type:** Various	**Related RDT&E PEs:**

Financial Plan	Prior Years	FY 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: H1RC6 - Major Shore Spares												
B Kits												
Non-Recurring												
1.1.1) H1RC6 Prior Years - Organic	- / 172.620	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / 172.620
1.1.2) Propulsor - Rotatable Pool - Organic (2)	6 / 41.864	1 / 6.521	1 / 6.814	1 / 7.236	- / -	1 / 7.236	1 / 7.494	1 / 7.630	1 / 7.783	1 / 7.939	Continuing	Continuing
1.1.3) NFPC High Speed Machine - Organic (3)	- / 15.095	- / 18.688	- / 7.215	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / 40.998
Subtotal: Non-Recurring	*- / 229.579*	*- / 25.209*	*- / 14.029*	*- / 7.236*	*- / -*	*- / 7.236*	*- / 7.494*	*- / 7.630*	*- / 7.783*	*- / 7.939*	*Continuing*	*Continuing*
Subtotal: H1RC6 - Major Shore Spares	*6 / 229.579*	*1 / 25.209*	*1 / 14.029*	*1 / 7.236*	*- / -*	*1 / 7.236*	*1 / 7.494*	*1 / 7.630*	*1 / 7.783*	*1 / 7.939*	*Continuing*	*Continuing*
Subtotal: Procurement, All Modification Items	*- / 229.579*	*- / 25.209*	*- / 14.029*	*- / 7.236*	*- / -*	*- / 7.236*	*- / 7.494*	*- / 7.630*	*- / 7.783*	*- / 7.939*	*Continuing*	*Continuing*
Installation												
Subtotal: Installation	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*
Total												
Total Cost (Procurement + Support + Installation)	**229.579**	**25.209**	**14.029**	**7.236**	**0.000**	**7.236**	**7.494**	**7.630**	**7.783**	**7.939**	**Continuing**	**Continuing**

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0942 / Virginia Class Support Equipment	**Modification Number / Title:** 1 / H1RC6 - Major Shore Spares
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

Modification Item 1 of 1: H1RC6 - Major Shore Spares

Manufacturer Information

Manufacturer Name: Rolls Royce Marine North America - Spare Rotor	Manufacturer Location: Pascagoula, MS
Administrative Leadtime *(in Months)*: 0	Production Leadtime *(in Months)*: 42

Dates	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025
Contract Dates	Mar 2020	Aug 2020	Aug 2021	Aug 2022	Aug 2023	Aug 2024	Aug 2025
Delivery Dates	Sep 2023	Feb 2024	Feb 2025	Feb 2026	Feb 2027	Feb 2028	Feb 2029

Manufacturer Name: Naval Foundary & Propeller Center - High Speed Machine	Manufacturer Location: Philadelphia, PA
Administrative Leadtime *(in Months)*: 0	Production Leadtime *(in Months)*: 12

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

Footnotes:

(2) Rotatable Pool increases slightly beyond inflation due to the material volatility of components. Further details can be provided at the appropriate classification level.

(3) The significant decrease in the profile from FY20 to FY21 is due to the final investment in the High Speed Machining capabilities at the Naval Foundry and Propeller Center (NFPC) in Philadelphia occurs in FY20.

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0942 / Virginia Class Support Equipment	**Modification Number / Title:** 2 / HRC13 - Hotel Services
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

Resource Summary	Prior Years	FY 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)*	275.572	27.497	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	303.069
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	275.572	27.497	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	303.069
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**275.572**	**27.497**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**303.069**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)												
Initial Spares *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Dollars)*	-	-	-	-	-	-	-	-	-	-	-	-

Description:

Provide procurement of materials necessary to modernize VIRGINIA Class Submarine Blocks I & II (774-783) infrastructure (i.e. power, cabling, cooling, and arrangements of the ship for the entire Government Furnished Equipment (GFE)/ Contractor Furnished Equipment (CFE) NPES configuration). This combination of Hull, Mechanical and Electrical (HM&E) alterations to VIRGINIA Class submarines is collectively referred to as the "Hotel Services" modification. This Hotel Service modification is necessary to accommodate modernization to major combat system alterations (i.e. A-RCI, AN/BYG-1, and ISIS) and are completed concurrently with those major combat system alterations. TI-02 baseline systems Hotel Services modernizations are completed during Post Shakedown Availability (PSA) for SSN777 and SSN779-783 and during EDSRA or TYCOM Operational Availability (TOA) for SSN774-SSN776 and SSN778. Block III and follow ships do not require this significant HM&E infrastructure upgrade as the baseline design for those ships accounts for the necessary power, cabling, cooling, etc. required to host upgrades to major combat systems.

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

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0942 / Virginia Class Support Equipment	**Modification Number / Title:** 2 / HRC13 - Hotel Services
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	
Models of Systems Affected: VA Class Submarines	**Modification Type:** Various	**Related RDT&E PEs:**

Financial Plan	Prior Years	FY 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: HRC13 - Hotel Services												
A Kits												
Non-Recurring												
1.1.1) Design - Organic	- / 34.233	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / 34.233
1.1.2) TI-02 Baseline Upgrade - NonOrganic	10 / 88.400	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	10 / 88.400
Subtotal: Non-Recurring	*- / 122.633*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / 0.000*	*- / 122.633*
Subtotal: HRC13 - Hotel Services	*10 / 122.633*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*10 / 122.633*
Subtotal: Procurement, All Modification Items	*- / 122.633*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / 0.000*	*- / 122.633*
Installation												
Modification Item 1 of 1: HRC13 - Hotel Services	- / 152.939	- / 27.497	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 180.436
Subtotal: Installation	*- / 152.939*	*- / 27.497*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / 0.000*	*- / 180.436*
Total												
Total Cost (Procurement + Support + Installation)	**275.572**	**27.497**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**303.069**

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0942 / Virginia Class Support Equipment	**Modification Number / Title:** 2 / HRC13 - Hotel Services

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

Modification Item 1 of 1: HRC13 - Hotel Services

Manufacturer Information

Manufacturer Name: Electric Boat-VA Platform Mod [4]	Manufacturer Location: Groton, CT
Administrative Leadtime *(in Months)*: 0	Production Leadtime *(in Months)*: 9

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: TI-02 Baseline 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	9 / 152.939	1 / 27.497	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	10 / 180.436
FY 2019	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2020	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2021	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2022	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2023	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2024	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2025	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
To Complete	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
Total	9 / 152.939	1 / 27.497	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	10 / 180.436

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	9	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	10
Out	9	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	10

Footnotes:

[4] VA Platform Modernization TI-02 Baseline Upgrade

Exhibit P-40, Budget Line Item Justification: PB 2021 Navy	Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 01: Ships Support Equipment / BSA 9: Other Shipboard Equipment	**P-1 Line Item Number / Title:** 0944 / LCS Class Support Equipment

ID Code (A=Service Ready, B=Not Service Ready): A	**Program Elements for Code B Items:** N/A	**Other Related Program Elements:** N/A
Line Item MDAP/MAIS Code: N/A		

Resource Summary	Prior Years	FY 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)*	202.042	38.701	23.426	3.976	0.000	3.976	9.934	24.833	69.047	70.400	-	442.359
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	202.042	38.701	23.426	3.976	0.000	3.976	9.934	24.833	69.047	70.400	-	442.359
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**202.042**	**38.701**	**23.426**	**3.976**	**0.000**	**3.976**	**9.934**	**24.833**	**69.047**	**70.400**	**-**	**442.359**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)												
Initial Spares *($ in Millions)*	-	2.754	-	-	-	-	-	-	-	-	-	2.754
Flyaway Unit Cost *($ in Dollars)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Dollars)*	-	-	-	-	-	-	-	-	-	-	-	-

Description:

The LCS Class Support Equipment line procures long-lead major end items and sub-component kits required for repairs to both variants of Littoral Combat Ships (LCS). The items procured mitigate major long-lead replacement times due to system failures and casualties and increases availability of vital Fleet assets by reducing repair part procurement and delivery times. Funding procures support equipment, required ancillary equipment, and associated engineering and technical support services for LCS.

LN001 - LCS Battle Spares
This line procures shore-based battle spares, ensuring their availability in the event of a failure or major casualty to key ship and mission package systems. Systems that require shore-based spares include gas turbines, diesel engines and generators, propulsion systems, reduction gears, Auxiliary Propulsion Units (APUs), Machinery Plant Control & Monitoring Systems (MPCMSs), Command/Control/Communications/ Computers/Collaboration/Intelligence (C5I), Combat Systems, AIS Laptops and mission package support equipment. Inventory objectives are determined by the LCS Reliability, Maintainability, and Availability (RMA) data, NAVSEA RMA guidance, the critical application of equipment, and inputs from the NAVSEA 05 technical community. The MK 110 57MM gun (BOFORS) is a multi-purpose, medium caliber gun installed on all LCS hulls. The primary mission of the MK 110 Gun Mount is to provide engagement of known surface threats during combat operations in a theater area of operation. This system is common across both variants of LCS. Automated Identification System (AIS) Laptops procurement will fit LCS platforms with additional Program of Record (PoR) AIS laptops for both the FREEDOM and INDEPENDENCE variants.

LN002 - LCS Water Jet Spares
Both LCS variants are propelled by water jets; this line procures spare water jets and water jet components. There are two LCS variants, the FREEDOM variant and the INDEPENDENCE variant, each using four water jets. The configurations vary between ships; there are five water jet configurations. The FREEDOM variant uses Rolls-Royce water jets and the INDEPENDENCE variant uses Wartsila Lips water jets. The water jet assemblies are mounted externally on the ships' transom. These items will be designated as battle spares material and support a rotatable pool for life cycle sustainment. In the event of a casualty the broken water jet is replaced with an operational asset from the water jet inventory pool and the non functional asset is sent to the depot to be repaired.

LN003 - Engineering Services
This funding provides engineering and technical support for LCS Class Support Equipment. Services include the establishment of Technical Data Packages (TDPs) and the creation of associated depot level repair parts lists/installation requirements. Funding is also provided for Non-Recurring Engineering (NRE) and Design Services Allocation (DSA) modernization efforts tied to the ship availabilities.

LN006 - LCS Ships Class Ancillary Equipment

Exhibit P-40, Budget Line Item Justification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 01: Ships Support Equipment / BSA 9: Other Shipboard Equipment	**P-1 Line Item Number / Title:** 0944 / LCS Class Support Equipment	
ID Code (A=Service Ready, B=Not Service Ready): A	**Program Elements for Code B Items:** N/A	**Other Related Program Elements:** N/A
Line Item MDAP/MAIS Code: N/A		

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

Exhibit P-40, Budget Line Item Justification: PB 2021 Navy	**Date:** February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 01: Ships Support Equipment / BSA 9: Other Shipboard Equipment	**P-1 Line Item Number / Title:** 0944 / LCS Class Support Equipment

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

Line Item MDAP/MAIS Code: N/A

Exhibits Schedule					Prior Years	FY 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	LCS Class Support Equipment	P-5a, P-21			- / 202.042	- / 38.701	- / 23.426	- / 3.976	- / -	- / 3.976
P-40	**Total Gross/Weapon System Cost**				**- / 202.042**	**- / 38.701**	**- / 23.426**	**- / 3.976**	**- / 0.000**	**- / 3.976**

*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:
(1) The prior years column reflects the $9.868M Fy 18 reduction to LCS Class Support Equipment.
(2) FY 2021 funding supports procurement of multiple LCS Battlespares:

Automated Identification System (AIS) laptops (FREEDOM and INDEPENDENCE variants) to support the Program of Record (PoR)and Command Control (C2P) Systems.

Exhibit P-40a, Budget Item Justification For Aggregated Items: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	P-1 Line Item Number / Title: 0944 / LCS Class Support Equipment	Aggregated Items Title: LCS Class Support Equipment

Item Number / Title [DODIC]	ID CD	MDAP/ MAIS Code	Prior Years			FY 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) LN001 LCS Battle Spares																				
1.1) MAIN PROPULSION DIESEL ENGINE (INDEPENDENCE VARIANT)	A		20,277K	1	20.277	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.2) MT-30 GAS TURBINE ENGINE (SUB-ASSEMBLY ENGINE FREEDOM VARIANT)	A		3,358K	3	10.073	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.3) MT-30 GAS TURBINE ENGINE (FULL ENGINE FREEDOM VARIANT)(†)	A		-	-	-	16,540K	1	16.540	-	-	-	-	-	-	-	-	-	-	-	-
1.4) SHIPS SERVICE DIESEL GENERATOR (INDEPENDENCE VARIANT)	A		3,158K	3	9.475	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.5) LAUNCH, RECOVERY, AND HANDLING SYSTEM (FREEDOM VARIANT)	A		3,700K	2	7.400	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.6) INTEGRATED BRIDGE SYSTEM	A		924,000.00	1	0.924	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.7) MT-30 GAS TURBINE ENGINE ANCILLARY EQUIPMENT (FREEDOM VARIANT)	A		8,354K	1	8.354	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.9) MAIN PROP. CONTRL. & MONITOR SYS (MPCMS) Partial kit	A		750,000.00	1	0.750	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.10) TWIN-BOOM EXTENSIBLE CRANE (INDEPENDENCE VARIANT)(†)	A		3,700K	1	3.700	-	-	-	4,139K	1	4.139	-	-	-	-	-	-	-	-	-
1.11) TRS-3D RADAR (FREEDOM VARIANT)	A		1,189K	3	3.566	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.12) SEA GIRAFFE 3D RADAR (INDEPENDENCE VARIANT)	A		1,856K	2	3.713	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Exhibit P-40a, Budget Item Justification For Aggregated Items: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	P-1 Line Item Number / Title: 0944 / LCS Class Support Equipment	Aggregated Items Title: LCS Class Support Equipment

Item Number / Title [DODIC]	ID CD	MDAP/ MAIS Code	Prior Years			FY 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)
1.13) MULT. AIRCRAFT NOSE & TAILGEAR INTEGRATED SYS (INDEPENDENCE VARIANT)	A		450,000.00	2	0.900	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.14) REDUCTION GEAR (FREEDOM VARIANT)	A		13,614K	1	13.614	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.15) REDUCTION GEAR (INDEPENDENCE VARIANT)	A		6,449K	1	6.449	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.16) ELECTRONIC SUPPORT MEASURES	A		725,000.00	2	1.450	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.17) AUXILIARY PROPULSION UNIT	A		1,063K	3	3.188	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.18) MAIN PROPULSION DIESEL ENGINE (FREEDOM VARIANT)	A		5,647K	2	11.294	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.19) SHIPS SERVICE DIESEL GENERATOR (FREEDOM VARIANT)	A		812,000.00	4	3.248	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.22) Star Safire III(†)	A		-	-	-	-	-	-	1,428K	1	1.428	-	-	-	-	-	-	-	-	-
1.23) MK 110 57MM GUN(†)	A		-	-	-	-	-	-	9,606K	1	9.606	-	-	-	-	-	-	-	-	-
1.28) TRS-4D RADAR/Partial Kit (FREEDOM VARIANT)(†)	A		-	-	-	-	-	-	829,000.00	1	0.829	-	-	-	-	-	-	-	-	-
1.29) Boat Davit 5 AF(†)	A		-	-	-	-	-	-	295,000.00	1	0.295	-	-	-	-	-	-	-	-	-
1.30) Boat Davit 6 AF(†)	A		-	-	-	-	-	-	2,500K	1	2.500	-	-	-	-	-	-	-	-	-
1.31) AIS Laptops (Both Variants)	A		-	-	0.775	-	-	0.425	-	-	0.350	-	-	0.450	-	-	-	-	-	0.450
1.32) Command Control (C2P) System (AN/UYC-120 V-1)(†)	A		-	-	-	-	-	-	-	-	-	1,624K	2	3.247	-	-	-	1,624K	2	3.247

Exhibit P-40a, Budget Item Justification For Aggregated Items: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	P-1 Line Item Number / Title: 0944 / LCS Class Support Equipment	Aggregated Items Title: LCS Class Support Equipment

Item Number / Title [DODIC]	ID CD	MDAP/ MAIS Code	Prior Years			FY 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)
1.33) Water Purification (Congressional Add)	A		-	-	-	-	-	-	-	-	4.000	-	-	-	-	-	-	-	-	-
Subtotal: 1) LN001 LCS Battle Spares			**-**	**-**	***109.150***	**-**	**-**	***16.965***	**-**	**-**	***23.147***	**-**	**-**	***3.697***	**-**	**-**	**-**	**-**	**-**	***3.697***
2) LN002 LCS Water Jet Spares																				
2.1) WATERJET ASSEMBLY (FREEDOM VARIANT)	A		2,021K	8	16.168	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2.2) WATERJET IMPELLER (INDEPENDENCE VARIANT)	A		1,501K	7	10.507	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: 2) LN002 LCS Water Jet Spares			**-**	**-**	***26.675***	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
3) LN002 LCS 5AF Water Jet Spares																				
3.1) Steerable Jet Assembly(†)	A		-	-	-	1,720K	5	8.602	-	-	-	-	-	-	-	-	-	-	-	-
3.2) Boost Jet Assembly(†)	A		-	-	-	1,149K	6	6.896	-	-	-	-	-	-	-	-	-	-	-	-
3.3) Impeller Shaft Assembly(†)	A		-	-	-	1,020K	6	6.120	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: 3) LN002 LCS 5AF Water Jet Spares			**-**	**-**	***0.000***	**-**	**-**	***21.618***	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
4) LN002 LCS 6AF Water Jet Spares																				
4.1) WLD 1500 Water Jet Assembly(†)	A		1,197K	7	8.377	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4.2) WLD 1720 WJ Assembly(†)	A		803,285.71	7	5.623	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4.3) WLD 1500 Shaft Assembly(†)	A		430,000.00	7	3.010	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4.4) WLD 1720 Shaft Assembly(†)	A		430,000.00	7	3.010	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: 4) LN002 LCS 6AF Water Jet Spares			**-**	**-**	***20.020***	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
5) LN003 Engineering Services (TDPs & installation planning)																				
5.1) Engineering Services (TDPs & installation planning)	A		-	-	0.613	-	-	0.064	-	-	0.114	-	-	0.111	-	-	-	-	-	0.111
5.2) Modernization Design/Eng Changes for LCS 4	A		-	-	7.347	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Exhibit P-40a, Budget Item Justification For Aggregated Items: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	P-1 Line Item Number / Title: 0944 / LCS Class Support Equipment	Aggregated Items Title: LCS Class Support Equipment

Item Number / Title [DODIC]	ID CD	MDAP/ MAIS Code	Prior Years			FY 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: 5) LN003 Engineering Services (TDPs & installation planning)			**-**	**-**	***7.960***	**-**	**-**	***0.064***	**-**	**-**	***0.114***	**-**	**-**	***0.111***	**-**	**-**	**-**	**-**	**-**	***0.111***
6) LN004 Habitability Modification																				
6.1) HABITABILITY MOD (FREEDOM VARIANT)	A		3,113K	3	9.340	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6.2) HABITABILITY MOD (INDEPENDENCE VARIANT)	A		2,263K	4	9.051	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: 6) LN004 Habitability Modification			**-**	**-**	***18.391***	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
7) LN005 LCS Ship Class Safety Design Changes																				
7.1) Stern Ramp (FREEDOM VARIANT)	A		600,000.00	3	1.800	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7.2) Bridge Wings (INDEPENDENCE VARIANT)	A		2,525K	4	10.100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: 7) LN005 LCS Ship Class Safety Design Changes			**-**	**-**	***11.900***	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
8) LN006 Ancillary Equipment																				
8.1) Ancillary Equipment	A		-	-	0.640	-	-	0.054	-	-	0.165	-	-	0.168	-	-	-	-	-	0.168
Subtotal: 8) LN006 Ancillary Equipment			**-**	**-**	***0.640***	**-**	**-**	***0.054***	**-**	**-**	***0.165***	**-**	**-**	***0.168***	**-**	**-**	**-**	**-**	**-**	***0.168***
9) LN007 Afloat Forward Staging Base SOF Mods																				
9.1) AFSB SOF Mods MLP-AFSB 3 Rev	A		-	-	7.306	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: 9) LN007 Afloat Forward Staging Base SOF Mods			**-**	**-**	***7.306***	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Total			**-**	**-**	**202.042**	**-**	**-**	**38.701**	**-**	**-**	**23.426**	**-**	**-**	**3.976**	**-**	**-**	**-**	**-**	**-**	**3.976**

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

Exhibit P-5a, Procurement History and Planning: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	P-1 Line Item Number / Title: 0944 / LCS Class Support Equipment	Aggregated Items: LCS Class Support Equipment

Item Number / Title [DODIC]	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) LN001 LCS Battle Spares												
1.3) MT-30 GAS TURBINE ENGINE (FULL ENGINE FREEDOM VARIANT)		2019	ROLLS ROYCE / WALEPOLE, MA	C / FFP	NAVSEA	Mar 2019	Mar 2020	1	16,540K	Y		
1.10) TWIN-BOOM EXTENSIBLE CRANE (INDEPENDENCE VARIANT)		2020	Maritime Applied Physics Corporation / Baltimore, MD	C / FFP	NAVSEA	Jun 2020	Dec 2021	1	4,139K	Y		Nov 2019
1.22) Star Safire III		2020	KVR / Seattle, WA	C / FFP	SOSBATH	Jun 2020	Dec 2021	1	1,428K	Y		Nov 2019
1.23) MK 110 57MM GUN		2020	BAE / NASHUA NH	C / FFP	SOSBATH	Jun 2020	Jun 2022	1	9,606K	Y		Nov 2019
1.28) TRS-4D RADAR/Partial Kit (FREEDOM VARIANT)		2020	DLA / Philadelphia, PA	C / FFP	DLA	Apr 2020	Oct 2021	1	829,000.00	Y		Jun 2019
1.29) Boat Davit 5 AF		2020	DLA / Philadelphia, PA	C / FFP	DLA	Apr 2020	Apr 2020	1	295,000.00	Y		Jun 2019
1.30) Boat Davit 6 AF		2020	DLA / Philadelphia, PA	C / FFP	DLA2019-06	Apr 2020	Oct 2021	1	2,500K	Y		
1.32) Command Control (C2P) System (AN/UYC-120 V-1)		2021	Lockheed Martin / Manassas, VA	C / FFP	NAVSEA	Jun 2021	Jun 2022	2	1,624K	Y		Jun 2020
3) LN002 LCS 5AF Water Jet Spares												
3.1) Steerable Jet Assembly(†)		2019	ROLLS ROYCE / WALEPOLE, MA	C / FFP	DLA	Feb 2020	Feb 2022	5	1,720K	Y		
3.2) Boost Jet Assembly(†)		2019	Rolls Royce / MS	C / FFP	DLA	Feb 2020	Feb 2022	6	1,149K	Y		
3.3) Impeller Shaft Assembly		2019	ROLLS ROYCE / WALEPOLE, MA	C / FFP	DLA	Feb 2020	Feb 2022	6	1,020K	Y		Nov 2018
4) LN002 LCS 6AF Water Jet Spares												
4.1) WLD 1500 Water Jet Assembly		2018	GD-BIW / Bath ME	C / FFP	SOSBATH	Sep 2019	Sep 2022	7	1,197K	Y		Nov 2017
4.2) WLD 1720 WJ Assembly		2018	GD-BIW / Bath ME	C / FFP	SOSBATH	Sep 2019	Sep 2021	7	803,333.33	Y		Nov 2017
4.3) WLD 1500 Shaft Assembly		2018	GD-BIW / Bath ME	C / FFP	SOSBATH	Sep 2019	Sep 2020	7	430,000.00	Y		Nov 2017
4.4) WLD 1720 Shaft Assembly		2018	GD-BIW / Bath ME	C / FFP	SOSBATH	Sep 2019	Sep 2020	7	430,000.00	Y		Nov 2017

(†) 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 / 01 / 9

P-1 Line Item Number / Title: 0944 / LCS Class Support Equipment

Aggregated Items: LCS Class Support Equipment

Items (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	
3) LN002 LCS 5AF Water Jet Spares																															
3.1) Steerable Jet Assembly																															
	1	2019	NAVY	5	0	5																	A -	-	-	-	-	-	-	-	5
3.2) Boost Jet Assembly																															
	2	2019	NAVY	6	0	6																	A -	-	-	-	-	-	-	-	6
							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 / 01 / 9	**P-1 Line Item Number / Title:** 0944 / LCS Class Support Equipment	**Aggregated Items:** LCS Class Support Equipment

Items (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	
3) LN002 LCS 5AF Water Jet Spares																															
3.1) Steerable Jet Assembly																															
	1	2019	NAVY	5	0	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	2	1					0
3.2) Boost Jet Assembly																															
	2	2019	NAVY	6	0	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	1	1					0
							OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	

Exhibit P-21, Production Schedule: PB 2021 Navy		**Date:** February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0944 / LCS Class Support Equipment	**Aggregated Items:** LCS Class Support Equipment

MFR Ref #	Manufacturer Name - Location	Production Rates (Each / Year)			Procurement Leadtime (Months)							
					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	ROLLS ROYCE - WALEPOLE, MA			TBD	0	0	0	0	0	0	24	24
2	Rolls Royce - MS			TBD	0	0	0	0	0	0	24	24

"A" in the Delivery Schedule indicates the Contract Award Date.
Note: Due to space limitations, quantities in the Exhibit P-21 delivery calendar are truncated and rounded based on the maximum quantity in the calendar as follows. If the maximum quantity is less than or equal to than 9,999, all quantities are shown as each. If the maximum quantity is between 10,000 and 999,999 all quantities are shown in thousands. If the maximum quantity is between 1,000,000 and 999,999,999 all quantities are shown in millions (rounded to the nearest thousand).If the maximum quantity is equal or greater than 1,000,000,000 all quantities are shown in billions (rounded to the nearest million).

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Exhibit P-40, Budget Line Item Justification: PB 2021 Navy	Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 01: Ships Support Equipment / BSA 9: Other Shipboard Equipment	**P-1 Line Item Number / Title:** 0945 / Submarine Batteries

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

Line Item MDAP/MAIS Code: N/A

Resource Summary	Prior Years	FY 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)*	341.234	24.460	22.690	31.322	0.000	31.322	22.203	23.853	25.398	25.048	Continuing	Continuing
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	341.234	24.460	22.690	31.322	0.000	31.322	22.203	23.853	25.398	25.048	Continuing	Continuing
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**341.234**	**24.460**	**22.690**	**31.322**	**0.000**	**31.322**	**22.203**	**23.853**	**25.398**	**25.048**	**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:

Description:
The impact of the FY20 Congressional mark resulted in the elimination of 1 LOS ANGELES class replacement battery, elimination of the planned tray set, deferral of recapitalization efforts at the Puget Sound Naval Shipyard (PSNSY) battery shop, and reduced funding of Battery Monitoring Systems (including ABMS tech refresh).

The $8.6M increase in controls from FY20 to FY21 includes increased procurement funds for battery shipsets based on current and projected fleet needs, adjustments to annual production-engineering costs at the ISEA, recapitalization efforts at Puget Sound Naval Shipyard (PSNSY) battery shop, and sustainment of Battery Monitoring Systems (including ABMS tech refresh).

This program procures and installs initial and replacement Valve Regulated Lead Acid (VRLA) batteries for all classes of submarines (LOS ANGELES, SEAWOLF, OHIO SSBN/SSGNs and VIRGINIA). This program funds, manages and supports the VRLA In-Service Engineering Agent (ISEA) at NSWC Crane. The efforts of the ISEA are directly tied to maintaining readiness of the batteries in the fleet and testing, verification and validation of design and procedural changes to ensure battery performance meets operational needs. ISEA assessments and production engineering efforts support determinations of battery End-Of-Life (EOL) and allow proactive scheduling of battery replacements to minimize operational availability impacts (Ao) for the fleet.

Battery operation and capacity is critical to ship safety and reactor safety. Without acceptable battery capacity submarines cannot deploy, which reduces the submarine force at a time when strategic requirements, force protection and intelligence gathering capabilities are in high demand by combatant commanders.

Batteries have a finite life and are consumables; this budget procures replacement VRLA batteries throughout the submarine service life on a notional 4 to 5 year replacement cycle.

Beginning in FY19, program requirements were increased to provide funding for three specific production-engineering efforts needed to maintain, improve and sustain critical support infrastructure and materiel readiness of batteries and related components to operational submarines. These three specific production-engineering efforts are funded via HM830 and are the three 3 year efforts (FY19 - FY21) of recapitalization at Puget Sound Naval Shipyard (PSNSY) battery shop, installation of Submarine Battery Evaluation Center (SUBBEC) at the ISEA and ABMS tech refresh.

Battery Installation Test Equipment/Fixtures: Recapitalization effort at Puget Sound Naval Shipyard (PSNSY) to maintain battery shop capabilities in support of VRLA efforts. The capability and capacity of the PSNSY battery shop to support the VRLA program has proven vital to meeting fleet needs. In FY19, the Navy would have seen serious schedule impacts for multiple hulls if the PSNSY battery shop had not been available among the VRLA resources. These battery shop capabilities need recapitalization to help carry them forward in support of future VRLA needs, especially as PSNSY serves as the conduit for

Exhibit P-40, Budget Line Item Justification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 01: Ships Support Equipment / BSA 9: Other Shipboard Equipment	**P-1 Line Item Number / Title:** 0945 / Submarine Batteries	
ID Code (A=Service Ready, B=Not Service Ready): B	**Program Elements for Code B Items:** N/A	**Other Related Program Elements:** N/A
Line Item MDAP/MAIS Code: N/A		

batteries bound for every class of ship in Bangor, San Diego, Pearl Harbor and Guam. The recapitalization effort addresses battery shop building infrastructure requirements and procures battery charging and test equipment to support the testing, balancing, and charging of submarine batteries at PSNSY. This effort replaces the current PSNSY Battery Shop 1,500 Amperes (AMP) Motor Generator with a 5,000 AMP solid-state battery charger and other improvements required to conduct pre-installation battery testing and troubleshooting prior to installation on submarines.

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

Automated Battery Monitoring System (ABMS) Tech Refresh: The battery monitoring equipment sustainment effort to validate and field upgrades and replacements for legacy ABMS/BCMS units aboard operational submarines. For LOS ANGELES, SEAWOLF and OHIO SSBN/SSGNs this will be in the form of an ABMS tech refresh and long term sustainment support for ABMS/BCMS units. The currently fielded 2002 ABMS/BCMS system is suffering from continued obsolescence issues that are directly affecting fleet operations. NSWC Crane Power and Energy Division has managed legacy sustainment efforts but parts availability and maintainability have become barriers to continued support of the legacy system. Procurement of tech refresh assets is crucial for the future supportability and maintainability of the ABMS/BCMS legacy assets aboard LOS ANGELES, SEAWOLF and OHIO SSBN/SSGNs. Implementation of a BMS ShipAlt for VIRGINIA class assets will be vital for the projected future reliability and maintainability needs of the fleet.

HM002 LOS ANGELES SSN, HM008 OHIO Class SSBN/SSGN, HM009 SEAWOLF Class SSN, and HM010 VIRGINIA Class SSN: Procures replacement low maintenance sealed VRLA batteries for all submarines. This replaces flooded battery technology for which the industrial base ceased manufacture and support of in 2005. Replacement batteries that can be delivered in shipping/installation trays speeds change-out during short availability and refit periods and reduces the rigging and handling evolutions needed per cell. Battery replacement funds are provided based on a reduced 4 to 5 year planned replacement cycle. Shipping/installation trays are identified as discrete one-time buys based on funding availability and logistics needs.

HM830 Production Engineering: Naval Surface Warfare Center (NSWC) Crane, as the designated procurement activity and In-Service Engineering Agent (ISEA) monitors battery performance and schedules replacements with the fleet. NSWC Crane is tasked with leading a Government & Industry Root Cause Analysis (RCA) team to identify and address battery performance issues and provide corrective actions to operational submarines. NSWC Crane conducts qualification testing of delivered VRLA batteries and analysis of poor performing VRLA cells returned from operational submarines, proven very beneficial to the Navy in detecting battery deficiencies before installation thus alleviating critical emergent fleet impact and assisting in identifying failure modes to improve long term performance. Funding provided to Puget Sound and Portsmouth Naval Shipyards includes responsibilities for the VRLA and flooded battery inventory management, maintenance and storage, SHIPALT support, and Alteration Installation Team (AIT) management. Also, Planning Yard and Lead Yard Services are funded through this line. ***Starting in FY19 Puget Sound Naval Shipyard (PSNSY) and FY20 Portsmouth Naval Shipyard (PNSY) Battery Teams originally funded from within the battery installation costs (HM5IN) are funded in this line (HM830). This will enable the battery warehouse, battery shops and the subject matter experts to complete critical diagnostics, balancing, boosting, cabinets, shipping crates, testing and reporting, etc. ***

Exhibit P-40, Budget Line Item Justification: PB 2021 Navy	Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 01: Ships Support Equipment / BSA 9: Other Shipboard Equipment	**P-1 Line Item Number / Title:** 0945 / Submarine Batteries

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

Line Item MDAP/MAIS Code: N/A

Exhibits Schedule					Prior Years	FY 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	Equipment	P-5a			- / 341.234	- / 24.460	- / 22.690	- / 31.322	- / -	- / 31.322
P-40	**Total Gross/Weapon System Cost**				**- / 341.234**	**- / 24.460**	**- / 22.690**	**- / 31.322**	**- / 0.000**	**- / 31.322**

*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 increase in controls from FY20 to FY21 includes procurement funds for battery shipsets based on current and projected fleet needs. Number of batteries needed per class of ship changed and battery shipset costs vary by class type.

The increase in controls from FY20 to FY21 also funds the required adjustments to annual production-engineering costs at the ISEA, recapitalization efforts at Puget Sound Naval Shipyard (PSNSY) battery shop, installation of Submarine Battery Evaluation Center (SUBBEC) at the ISEA and sustainment of Battery Monitoring Systems (including ABMS tech refresh).

Beginning in FY19 - FY21, program requirements were increased to provide funding for overdue realized and required adjustments to annual production-engineering costs at the In-Service Engineering Agent (ISEA) and for three specific production-engineering efforts needed to maintain, improve and sustain critical VRLA support infrastructure and materiel readiness of batteries and related components to operational submarines. These three specific production-engineering efforts are funded via HM830 and are the three 3 year efforts (FY19 - FY21) of recapitalization at Puget Sound Naval Shipyard (PSNSY) battery shop, installation of Submarine Battery Evaluation Center (SUBBEC) at the ISEA and ABMS tech refresh.

Overdue realized and required adjustments to annual production-engineering costs: The increased annual production-engineering (HM830 Production Engineering) starting in FY19 and maintained through the FYDP provided for procurement of necessary quantities of VRLA batteries to meet operational fleet needs based on current End-Of-Life (EOL) realizations and estimations. New VRLA IDIQ contract awarded in FY18 allowed re-baselining of unit costs to lower the cost per VRLA battery. Individual battery lines in HM002, HM008, HM009 and HM010 now reflect costs related to the individual battery only. Trays are on a separate line. This was coupled with realized EOL values below estimated (decreased from 5 years to 4 years for some batteries), which increased the quantity of batteries needed per FY to maintain fleet readiness. Dedicated Root Cause Analysis (RCA) efforts were expanded with intrusive and proactive monitoring and management of batteries installed in the fleet to minimize the impact to submarine Operational Availability (Ao). The additional RCA efforts and fleet interactions yielded valuable insights and targeted areas of improvement with regard to controlling manufacturing variability and applying procedural changes. The operational tempo for maintaining fleet readiness and re-baselining of unit costs highlighted that the ISEA had been underfunded and undermanned in previous FYs. The increased annual production-engineering (HM830 Production Engineering) starting in FY19 and maintained through the FYDP provided for addressing the required funding level for currently executed ISEA operations at the appropriate manning level.

Three specific production-engineering efforts needed to maintain, improve and sustain critical VRLA support infrastructure: Starting in FY19 and going through FY21, a series of critical 3-year projects for the Submarine VRLA Battery program that includes the Battery Installation Test Equipment/Fixtures, the Submarine Battery Evaluation Center and the Automated Battery Monitoring System Tech Refresh. Details on these projects are included in the description above.

Exhibit P-40a, Budget Item Justification For Aggregated Items: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	P-1 Line Item Number / Title: 0945 / Submarine Batteries	Aggregated Items Title: Equipment

Item Number / Title [DODIC]	ID CD	MDAP/ MAIS Code	Prior Years			FY 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) HM002 - LOS ANGELES Class Main Storage Battery																				
1.1) LA VRLA Battery Storage Boosting Packaging (1)(†)	A		598,600.00	10	5.986	646,250.00	4	2.585	669,857.14	6	4.019	691,750.00	4	2.767	-	-	-	691,750.00	4	2.767
1.2) LA Class VRLA Installation Tray (2)	A		164,000.00	3	0.492	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.3) Replacement Cells	A		-	-	0.188	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.4) LA Class VRLA Installation Material	A		-	-	-	-	-	0.671	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: 1) HM002 - LOS ANGELES Class Main Storage Battery			**-**	**-**	***6.666***	**-**	**-**	***3.256***	**-**	**-**	***4.019***	**-**	**-**	***2.767***	**-**	**-**	**-**	**-**	**-**	***2.767***
2) HM008 - OHIO Class Main Storage Battery																				
2.1) OH VRLA Battery Storage Boosting Packaging (3)(†)	A		812,800.00	5	4.064	1,010K	3	3.031	1,047K	5	5.236	1,083K	5	5.417	-	-	-	1,083K	5	5.417
2.2) OH VRLA Installation Tray (4)(†)	A		-	-	-	-	-	-	-	-	-	1,349K	1	1.349	-	-	-	1,349K	1	1.349
Subtotal: 2) HM008 - OHIO Class Main Storage Battery			**-**	**-**	***4.064***	**-**	**-**	***3.031***	**-**	**-**	***5.236***	**-**	**-**	***6.766***	**-**	**-**	**-**	**-**	**-**	***6.766***
3) HM009 - SEAWOLF Class Main Storage Battery																				
3.1) SW VRLA Battery Storage Boosting Packaging (5)(†)	A		610,000.00	1	0.610	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: 3) HM009 - SEAWOLF Class Main Storage Battery			**-**	**-**	***0.610***	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
4) HM010 - VIRGINIA Class Main Storage Battery																				
4.1) VA VRLA Battery Storage Boosting Packaging (6)(†)	A		543,500.00	4	2.174	689,750.00	4	2.759	715,666.67	3	2.147	735,857.14	7	5.151	-	-	-	735,857.14	7	5.151
4.2) VA VRLA Installation Tray (7)(†)	A		806,000.00	2	1.612	-	-	-	-	-	-	824,000.00	1	0.824	-	-	-	824,000.00	1	0.824
Subtotal: 4) HM010 - VIRGINIA Class Main Storage Battery			**-**	**-**	***3.786***	**-**	**-**	***2.759***	**-**	**-**	***2.147***	**-**	**-**	***5.975***	**-**	**-**	**-**	**-**	**-**	***5.975***
5) HM830 - Production Engineering / Test Equipment/ SUBEC / ABMS Tech Refresh																				
5.1) Production Engineering (8)	A		-	-	57.348	-	-	7.108	-	-	7.470	-	-	9.544	-	-	-	-	-	9.544
5.2) Battery Installation Test Equipment/Fixtures (9)	B		-	-	-	-	-	-	-	-	-	-	-	1.101	-	-	-	-	-	1.101

Exhibit P-40a, Budget Item Justification For Aggregated Items: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	P-1 Line Item Number / Title: 0945 / Submarine Batteries	Aggregated Items Title: Equipment

Item Number / Title [DODIC]	ID CD	MDAP/ MAIS Code	Prior Years			FY 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)
5.3) Submarine Battery Evaluation Center (SUBBEC) (10)	A		-	-	-	-	-	5.669	-	-	2.116	-	-	0.850	-	-	-	-	-	0.850
5.4) Battery Monitoring Sys (ABMS /BCMS/ BMS) (11)	A		-	-	-	-	-	-	-	-	1.702	-	-	4.319	-	-	-	-	-	4.319
Subtotal: 5) HM830 - Production Engineering / Test Equipment/ SUBEC / ABMS Tech Refresh			**-**	**-**	***57.348***	**-**	**-**	***12.777***	**-**	**-**	***11.288***	**-**	**-**	***15.814***	**-**	**-**	**-**	**-**	**-**	***15.814***
6) HM5IN Procurement for Install / Installation under $10M																				
6.1) LA Class Procurement for Install/ Installation under $10M	A		-	-	150.349	-	-	2.637	-	-	-	-	-	-	-	-	-	-	-	-
6.2) OH Class Procurement for Install/Installation under $10M	A		-	-	77.746	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6.3) VA Class Procurement for Install / Installation under $10M	A		-	-	40.665	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: 6) HM5IN Procurement for Install / Installation under $10M			**-**	**-**	***268.760***	**-**	**-**	***2.637***	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Total			**-**	**-**	**341.234**	**-**	**-**	**24.460**	**-**	**-**	**22.690**	**-**	**-**	**31.322**	**-**	**-**	**-**	**-**	**-**	**31.322**

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

(†) indicates the presence of a P-5a

Footnotes:

(1) 1.1 FY19-FY24 are projected VRLA battery unit costs and reflect the costs in the existing commercial dual vendor contract. The costs vary by procurement FY, class type, vendor, procurement quantity, boosting intervals, packaging and storage duration. The Battery shipset prices are based on cell quantities and there is opportunity for price reductions per battery if purchased in bulk quantities.

(2) 1.2 Shipping/installation trays are discrete purchases on a separate line from the battery shipsets. Shipping/installation trays are required for battery installation and provide more protection and efficiency into battery shipset logistics.

(3) 2.1 Refer to footnote 1

(4) 2.2 Refer to footnote 2

(5) 3.1 Refer to footnote 1

(6) 4.1 Refer to footnote 1

(7) 4.2 Refer to footnote 2

(8) 5.1 Annual production-engineering costs identified as underfunded from previous fiscal years and having an impact on the ability to support the increasing demands on fleet readiness support and engagement with vendors to support SVRLA performance improvement efforts. Adjustments of $2.3M is required for current and projected annual production-engineering costs for the In-Service Engineering Agent (ISEA) for the VRLA support, Expanded Root Cause Analysis (RCA) efforts and increased manning required to improve VRLA performance and maintain fleet readiness.

Exhibit P-40a, Budget Item Justification For Aggregated Items: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0945 / Submarine Batteries	**Aggregated Items Title:** Equipment

(9) 5.2 Battery Installation Test Equipment/Fixtures is 3-year (FY19-FY21) recapitalization effort at Puget Sound Naval Shipyard (PSNSY) battery shop. Funding is provided for the purchase of battery charging equipment to support the testing, balancing, and charging of Submarine Batteries. This equipment will replace the PSNSY Battery Shop 1500 AMP Motor Generator with 5000A AMP solid-state battery charger in to Bldg. 978. Improvements are required to support pre-installation battery testing, battery maintenance during storage and troubleshooting.

(10) 5.3 Submarine Battery Evaluation Center (SUBBEC) is 3-year (FY19-FY21) improvement effort. Funding is provided for the full string battery test station (SUBBEC) which will support tests of multiple battery string configurations, which mirror specific submarine class installations. FY19 - FY21 funding encompasses the design phase, material procurement, performance evaluation, lab upgrades, installation and testing.

(11) 5.4 ABMS Tech Refresh is a battery monitoring system sustainment effort with funding phased over 2-year period (FY20-FY21). Battery monitoring systems are required for battery operations and data acquisition to support In-Service Engineering Agent (ISEA) analysis of battery performance critical to successful accomplishment of the mission, including deployments, operations and maintaining fleet readiness. Funds required to resolve the obsolescence issues of legacy ABMS/BCMS units aboard operational submarines and to recapitalize battery monitoring system sustainment efforts. Parts availability and maintainability have become barriers to continued support of the legacy systems prompting the FY20 effort to address short-term needs for large quantities of ABMS tech Refresh units to support current and projected fleet needs for the legacy systems. FY21 efforts intended to address future readiness, to include cost and feasibility assessments of a ShipAlt for conversion to non-legacy BMS on VIRGINIA Class Blocks I-IV.

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

Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9 | **P-1 Line Item Number / Title:** 0945 / Submarine Batteries | **Aggregated Items:** Equipment

Item Number / Title [DODIC]	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) HM002 - LOS ANGELES Class Main Storage Battery												
1.1) LA VRLA Battery Storage Boosting Packaging (1)		2019	ENERSYS & GNB (Exide) / Warrensburg, MO & Ft. Smith , AR	C / IDIQ	NSWC CRANE	Mar 2019	Mar 2020	4	646,250.00	Y		
1.1) LA VRLA Battery Storage Boosting Packaging (1)		2020	ENERSYS & GNB (Exide) / Warrensburg, MO & Ft. Smith , AR	C / IDIQ	NSWC CRANENSWC CRANENSWC CRANE	Apr 2020	Apr 2021	6	669,857.14	Y		
1.1) LA VRLA Battery Storage Boosting Packaging (1)		2021	ENERSYS & GNB (Exide) / Warrensburg, MO & Ft. Smith , AR	C / TBD	NSWC CRANE	Mar 2021	Mar 2022	4	691,750.00	Y		
2) HM008 - OHIO Class Main Storage Battery												
2.1) OH VRLA Battery Storage Boosting Packaging (3)		2019	ENERSYS & GNB (Exide) / Warrensburg, MO & Ft. Smith , AR	C / IDIQ	NSWC CRANE	Mar 2019	Mar 2020	3	1,010K	Y		
2.1) OH VRLA Battery Storage Boosting Packaging (3)		2020	ENERSYS & GNB (Exide) / Warrensburg, MO & Ft. Smith , AR	C / TBD	** NO PCO **	Apr 2020	Apr 2021	5	1,047K	Y		
2.1) OH VRLA Battery Storage Boosting Packaging (3)		2021	ENERSYS & GNB (Exide) / Warrensburg, MO & Ft. Smith , AR	C / TBD	** NO PCO **	Mar 2021	Mar 2022	5	1,083K	Y		
2.2) OH VRLA Installation Tray (4)		2021	ENERSYS & GNB (Exide) / Warrensburg, MO & Ft. Smith , AR	C / TBD	** NO PCO **	Apr 2021	Apr 2022	1	1,349K	N		
3) HM009 - SEAWOLF Class Main Storage Battery												
3.1) SW VRLA Battery Storage Boosting Packaging (5)		2018	ENERSYS & GNB (Exide) / Warrensburg, MO & Ft. Smith , AR	C / IDIQ	** NO PCO **	Aug 2018	Aug 2019	1	610,000.00	Y		
4) HM010 - VIRGINIA Class Main Storage Battery												
4.1) VA VRLA Battery Storage Boosting Packaging (6)		2019	ENERSYS & GNB (Exide) / Warrensburg, MO & Ft. Smith , AR	C / IDIQ	NSWC CRANE	Mar 2019	Mar 2021	4	689,750.00	Y		
4.1) VA VRLA Battery Storage Boosting Packaging (6)		2020	ENERSYS & GNB (Exide) / Warrensburg, MO & Ft. Smith , AR	C / IDIQ	NSWC CRANE	Apr 2020	Apr 2021	3	715,666.67	Y		
4.1) VA VRLA Battery Storage Boosting Packaging (6)		2021	ENERSYS & GNB (Exide) / Warrensburg, MO & Ft. Smith , AR	C / IDIQ	NSWC CRANE	Mar 2021	Mar 2022	7	735,857.14	N		
4.2) VA VRLA Installation Tray (7)		2021	ENERSYS & GNB (Exide) / Warrensburg, MO & Ft. Smith , AR	C / IDIQ	** NO PCO **	Apr 2021	Apr 2022	1	824,000.00	Y		

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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 01: Ships Support Equipment / BSA 9: Other Shipboard Equipment	**P-1 Line Item Number / Title:** 0946 / LPD Class Support Equipment

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

Line Item MDAP/MAIS Code: N/A

Resource Summary	Prior Years	FY 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)*	186.629	55.726	46.945	50.475	0.000	50.475	65.232	85.134	72.083	70.326	86.541	719.091
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	186.629	55.726	46.945	50.475	0.000	50.475	65.232	85.134	72.083	70.326	86.541	719.091
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**186.629**	**55.726**	**46.945**	**50.475**	**0.000**	**50.475**	**65.232**	**85.134**	**72.083**	**70.326**	**86.541**	**719.091**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)												
Initial Spares *($ in Millions)*	-	-	0.213	-	-	-	-	-	-	-	-	0.213
Flyaway Unit Cost *($ in Dollars)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Dollars)*	-	-	-	-	-	-	-	-	-	-	-	-

Description:

The FY 2021 funding request was reduced by $6.248 million to account for the availability of prior year execution balances.

This budget provides funding for the in service LPD 17 class program support equipment. Previous funding for LPD 17 class support equipment (FY12 and earlier) was provided under line item OPN 0981, Items Less Than $5 Million. Funding is required to upgrade mission critical electronics and Hull Mechanical & Engineering (HM&E) systems including the Engineering Control Systems (ECS), Ship Control Systems (SCS), Degaussing Systems, Shipboard Wide-Area Network (SWAN), commercial software products for ECS, SCS, Command, Control, Communications, Computers, Intelligence, Surveillance and Reconnaissance (C4ISR) and Administrative Communications.

[P40A / CJ010 - Schoolhouse TTE]: CJ010 - SCHOOLHOUSE TTE
Funding for Schoolhouse Technical Training Equipment (TTE) is for the infrastructure and equipment to set up the schoolhouses for multiple systems such as ECS and SCS 60Hz and Ship Service Diesel Generators (SSDG). The schoolhouses will provide critical training to sailors in operation and maintenance of those systems.

[P40A / CJ020 - Shore Based Spares]: CJ020 SHORE BASED SPARES
Shore-Based Spares are critical long lead time items that are staged shore-side in the event of a catastrophic failure on an operational ship. These spares must be periodically replenished as assets are utilized. Furthermore, as the LPD 17 Class continues to introduce new ships (additional) to the fleet, the number of spare requirements increases as additional items are added to the spares list to support newer shipboard configurations.

[P40A / CJ080 Conjunctive HM&E AIT]: CJ080 CONJUNCTIVE HM&E ALTERATIONS
Conjunctive HM&E Alterations includes design integration, equipment procurement, recurring equipment engineering, equipment integration and Integrated Logistics Services (ILS).

[P40A / CJ035 - HM&E CONDITION SYSTEM]: CJ035 HULL, MECHANICAL AND ELECTRICAL CONDITION SYSTEM
This solution proposed would implement HM&E principles, it would implement a Defense-in-Depth Functional Implementation Architecture (DFIA) and meet the requirements of the standards released by the Information Assurance Technical Authority Board (IA TAB) across all the H,M&E systems deploying the ability to protect, detect, react, and restore in a contested environment. The HM&E Condition System will monitor the signals on the HM&E network, both between HM&E systems and also those coming from other functional domains.

Exhibit P-40, Budget Line Item Justification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 01: Ships Support Equipment / BSA 9: Other Shipboard Equipment	**P-1 Line Item Number / Title:** 0946 / LPD Class Support Equipment	
ID Code (A=Service Ready, B=Not Service Ready): A	**Program Elements for Code B Items:** N/A	**Other Related Program Elements:** N/A
Line Item MDAP/MAIS Code: N/A		

[P40A / CJ090 - LPD17 Class Mid-life Modernization]: CJ090 LPD 17 CLASS MID-LIFE MODERNIZATION
Conduct Mid-Life modernization on LPD 17 Class Ships in order to ensure they are ready, relevant, and capable of reaching their 40+ year Expected Service Life.

[P3A / CJ030 - HW/SW Obsolescence]: CJ030, CJ032 LPD 17 Hardware/Software HW/SW Obsolescence effort addresses critical hardware obsolescence and technology refreshment issues and supporting class upgrades focused on increased capability and reliability. Funding will support procurement of hardware and software changes to the systems listed:
-Command Information Display System (CIDS) 23TV, Replace projectors with Light Emitting Diode (LED) Projectors
-Engineering Control Systems (ECS) - Windows 10 upgrades
-Ship Control Systems (SCS) - Windows 10 upgrades/SCS Tech Refresh, Digital Rudder Angle Display Information System (DRADIS)
-Fire Detection System Upgrade Phase 1
-Wire-free Portable Communication System (WPCS) - Uninterrupted Power Supply (UPS) Upgrade, Low Power Amplifier Upgrade, Main Site Upgrade.
-27TV - 28TV System Upgrade
-Integrated Voice Communication System (IVCS) - IVCS system upgrades (local cutout switches, AFT lookout communication mod, obsolete terminal replacement, FWD/AFT Keyswitched Integrated Terminal Equipment (KITE)), Software version 7.2.2
-1MC Announcing System - Digital Microphone Control Station
-Damage Control Action Management System (DCAMS) - Upgrade to Advanced Damage Control System (ADCS)

[P3A - 2 / CJ040 HM&E Electrical Modifications]: CJ040 HM&E ELECTRICAL MODIFICATIONS HM&E Modernization funding is provided to correct mission, safety and reliability issues on electrical systems and ultimately resolve maintenance intensive system concerns. HM&E Electrical Modifications include:
SWAN UPS- Space Based UPS Reduction

[P3A - 3 / CJ050 - HM&E Survivability Modifications]: CJ050 HM&E SURVIVABILITY MODIFICATIONS HM&E Modernization funding is provided to correct mission, safety and reliability issues on HM&E systems (impacting ship survivability) and ultimately resolve maintenance intensive system concerns. HM&E Survivability Modifications include:
-Composite Ventilation Louvers and Screens.

[P3A - 4 / CJ060 - HM&E Mechanical/Auxiliary Modifications]: CJ060, CJ061, CJ062, CJ063 HM&E MECHANICAL/AUXILIARY MODIFICATIONS HM&E Modernization funding is provided to correct mission, safety and reliability issues on mechanical and auxiliary systems and ultimately resolve maintenance intensive system concerns. HM&E Mechanical/ Auxiliary Modifications include:
-MIDE Bulkhead Shaft Seal
-Helo Hangar Door Control Modifications
-2nd Pass Reverse Osmosis (RO) Unit Upgrade, RO Unit Potable Water Electrolytic Disinfectant Generator (EDG) Recirculation Capability
-Aviation Maintenance Bridge Crane Replacement
-Knuckleboom Crane Improvements
-Scullery Improvements
-Branch Piping Modifications
-Titanium valve replacement
-Common Fuel Rail upgrades

[P3A - 5 / CJ070 SWAN-CANES Integration]: CJ070 SWAN-CANES Integration
The results of the Shipboard Wide Area Network (SWAN) / Consolidated Afloat Networks and Enterprise Services (CANES) study directed the replacement of the C4I capability of the LPD 17 Class SWAN with CANES and the conversion of the non-C4I SWAN into a new HM&E Network (mini SWAN). SWAN funding is required to field the new HM&E Network in support of the CANES installation. In addition, funding is required to sustain the legacy SWAN, while the LPD 17 Class ships await the CANES/HM&E Network back fit installation. SWAN serves as the backbone of the LPD 17 class and funding is necessary to address obsolescence, reliability issues, performance concerns, emergent Fleet requirements including enabling Cryptologic Log On (CLO), removing unsupported software, replacing aging obsolete network

Exhibit P-40, Budget Line Item Justification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 01: Ships Support Equipment / BSA 9: Other Shipboard Equipment	**P-1 Line Item Number / Title:** 0946 / LPD Class Support Equipment	
ID Code (A=Service Ready, B=Not Service Ready): A	**Program Elements for Code B Items:** N/A	**Other Related Program Elements:** N/A
Line Item MDAP/MAIS Code: N/A		

hardware (e.g., servers and core switches), and maintaining the Information Assurance posture of the Common Operating Environment (COE). This funding is vital to ensure the LPD 17 Class ships can combat the evolving cyber threat.

The originally budgeted (FY20 request) FY21 LPD 19 installations have been deferred by (1) year to FY22 due to a change in the CNO Availability schedule.

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

Appropriation / Budget Activity / Budget Sub Activity:
1810N: Other Procurement, Navy / BA 01: Ships Support Equipment / BSA 9: Other Shipboard Equipment

P-1 Line Item Number / Title:
0946 / LPD Class Support Equipment

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

Line Item MDAP/MAIS Code: N/A

Exhibits Schedule					Prior Years	FY 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	LPD Class Support Equipment				- / 24.930	- / 14.687	- / 0.928	- / 5.951	- / -	- / 5.951
P-3a	1 / CJ030 - HW/SW Obsolescence (TBD)				- / 33.954	- / 11.240	- / 8.531	- / 1.903	- / 0.000	- / 1.903
P-3a	2 / CJ040 HM&E Electrical Modifications (TBD)				- / 3.636	- / 6.824	- / 8.376	- / 4.810	- / 0.000	- / 4.810
P-3a	3 / CJ050 - HM&E Survivability Modifications (TBD)				- / 0.948	- / 1.766	- / 1.534	- / 1.127	- / 0.000	- / 1.127
P-3a	4 / CJ060 - HM&E Mechanical/Auxiliary Modifications (TBD)				- / 64.587	- / 7.314	- / 9.064	- / 3.848	- / 0.000	- / 3.848
P-3a	5 / CJ070 SWAN-CANES Integration (TBD)				- / 50.963	- / 8.129	- / 12.651	- / 7.577	- / 0.000	- / 7.577
P-3a	6 / CJ032 HW/SW Obsolescence Wireless Portable Communications Main Site Upgrades (TBD)				- / 0.000	- / 0.000	- / 0.137	- / 2.588	- / 0.000	- / 2.588
P-3a	7 / CJ061 Titanium Valve Replacement (TBD)				- / 6.291	- / 3.353	- / 4.947	- / 4.980	- / 0.000	- / 4.980
P-3a	8 / CJ062 HM&E Mechanical/Auxiliary Mods Knuckleboom Crane Improvements (TBD)				- / 1.320	- / 2.413	- / 0.777	- / 2.615	- / 0.000	- / 2.615
P-3a	9 / CJ063 HM&E Mechanical/Auxiliary Mod Common Fuel Rail (TBD)				- / 0.000	- / 0.000	- / 0.000	- / 15.076	- / 0.000	- / 15.076
P-40	**Total Gross/Weapon System Cost**				**- / 186.629**	**- / 55.726**	**- / 46.945**	**- / 50.475**	**- / 0.000**	**- / 50.475**

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	LPD Class Support Equipment				- / -	- / -	- / -	- / -	- / -	- / -
P-3a	1 / CJ030 - HW/SW Obsolescence (TBD)				- / 3.585	- / 9.084	- / 8.364	- / 0.478	- / 10.570	- / 87.709
P-3a	2 / CJ040 HM&E Electrical Modifications (TBD)				- / 5.261	- / 2.015	- / 1.347	- / 0.000	- / 3.600	- / 35.869
P-3a	3 / CJ050 - HM&E Survivability Modifications (TBD)				- / 1.235	- / 2.031	- / 0.560	- / 0.000	- / 1.163	- / 10.364
P-3a	4 / CJ060 - HM&E Mechanical/Auxiliary Modifications (TBD)				- / 4.712	- / 2.446	- / 6.521	- / 0.713	- / 6.133	- / 105.338
P-3a	5 / CJ070 SWAN-CANES Integration (TBD)				- / 13.542	- / 1.684	- / 4.705	- / 0.521	- / 1.625	- / 101.397
P-3a	6 / CJ032 HW/SW Obsolescence Wireless Portable Communications Main Site Upgrades (TBD)				- / 3.312	- / 11.585	- / 11.118	- / 7.665	- / 1.564	- / 37.969
P-3a	7 / CJ061 Titanium Valve Replacement (TBD)				- / 5.720	- / 4.512	- / 5.150	- / 0.889	- / 0.704	- / 36.546
P-3a	8 / CJ062 HM&E Mechanical/Auxiliary Mods Knuckleboom Crane Improvements (TBD)				- / 3.180	- / 2.174	- / 0.559	- / 0.723	- / 1.938	- / 15.699
P-3a	9 / CJ063 HM&E Mechanical/Auxiliary Mod Common Fuel Rail (TBD)				- / 21.433	- / 22.245	- / 6.470	- / 16.335	- / 54.244	- / 135.803
P-40	**Total Gross/Weapon System Cost**				**- / 65.232**	**- / 85.134**	**- / 72.083**	**- / 70.326**	**- / 86.541**	**- / 719.091**

*Title represents 1) the Number / Title for Items; 2) the Number / Title [DODIC] for Ammunition; and/or 3) the Number / Title (Modification Type) for Modifications. Title represents the P-40a Title when only the P-40a Summary/Total is shown.

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

Justification:
The FY 2020 Enacted amount includes congressional rescission of $9.110 million to FY 2018 funding.

Exhibit P-40, Budget Line Item Justification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 01: Ships Support Equipment / BSA 9: Other Shipboard Equipment	**P-1 Line Item Number / Title:** 0946 / LPD Class Support Equipment	
ID Code (A=Service Ready, B=Not Service Ready): A	**Program Elements for Code B Items:** N/A	**Other Related Program Elements:** N/A
Line Item MDAP/MAIS Code: N/A		

Exhibit P-40a, Budget Item Justification For Aggregated Items: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0946 / LPD Class Support Equipment	**Aggregated Items Title:** LPD Class Support Equipment

Item Number / Title [DODIC]	ID CD	MDAP/ MAIS Code	Prior Years			FY 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) CJ010 - Schoolhouse TTE																				
1.1) Schoolhouse TTE	A		-	-	1.200	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: 1) CJ010 - Schoolhouse TTE			**-**	**-**	***1.200***	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
2) CJ020 - Shore Based Spares																				
2.1) Shore Based Spares (1)	A		-	-	10.359	-	-	5.893	-	-	-	-	-	4.303	-	-	-	-	-	4.303
Subtotal: 2) CJ020 - Shore Based Spares			**-**	**-**	***10.359***	**-**	**-**	***5.893***	**-**	**-**	**-**	**-**	**-**	***4.303***	**-**	**-**	**-**	**-**	**-**	***4.303***
3) CJ080 Conjunctive HM&E AIT (2)																				
3.1) Conjunctive HM&E Alterations	A		-	-	13.371	-	-	8.794	-	-	0.928	-	-	0.016	-	-	-	-	-	0.016
Subtotal: 3) CJ080 Conjunctive HM&E AIT			**-**	**-**	***13.371***	**-**	**-**	***8.794***	**-**	**-**	***0.928***	**-**	**-**	***0.016***	**-**	**-**	**-**	**-**	**-**	***0.016***
4) CJ035 - HM&E CONDITION SYSTEM																				
4.1) HM&E CONDITION SYSTEM (3)	A		-	-	-	-	-	-	-	-	-	-	-	1.632	-	-	-	-	-	1.632
Subtotal: 4) CJ035 - HM&E CONDITION SYSTEM			**-**	**-**	***0.000***	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	***1.632***	**-**	**-**	**-**	**-**	**-**	***1.632***
Total			**-**	**-**	**24.930**	**-**	**-**	**14.687**	**-**	**-**	**0.928**	**-**	**-**	**5.951**	**-**	**-**	**-**	**-**	**-**	**5.951**

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

Footnotes:

(1) FY21: Indicates an increase from FY20 to purchase Shore Based Spares/DMS Obsolescence Equipment that were not required in FY20

(2) A quantity of (7) FY19 installations originally budgeted (FY19 request) were deferred due to the cancellation of the FY19 LPD 24 CNO Availability. Funding associated with the deferred installations has been realigned to CJ080.

(3) FY21: Indicates an increase from FY20 to purchase HM&E Condition System material that were not required in FY20.

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0946 / LPD Class Support Equipment	**Modification Number / Title:** 1 / CJ030 - HW/SW Obsolescence
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

Resource Summary	Prior Years	FY 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)*	33.954	11.240	8.531	1.903	0.000	1.903	3.585	9.084	8.364	0.478	10.570	87.709
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	33.954	11.240	8.531	1.903	0.000	1.903	3.585	9.084	8.364	0.478	10.570	87.709
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**33.954**	**11.240**	**8.531**	**1.903**	**0.000**	**1.903**	**3.585**	**9.084**	**8.364**	**0.478**	**10.570**	**87.709**
(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:

HW/SW Obsolescence (CJ030) includes funding for procurement and installation of equipment to correct critical obsolescence issues on LPD17 Class mission systems. Resolves operational and obsolescence issues. Replaces current split controllers, resolves rack cooling, modifies loud speaker cable plant, and provides commonality and system architecture and hardware.

[HW/SW Obsolescence] HW/SW Obsolescence effort addresses hardware obsolescence/technology refreshment issues, and class upgrades focused on increased capabilities, force protection, and safety. Funding will support procurement of hardware and software changes to the systems listed:
-Command Information Display System (CIDS) 23TV - HW refresh and upgrade to Windows 10
-Ship Control Systems (SCS) - Windows 10 upgrade/SCS Tech Refresh, Digital Rudder Angle Display Information System (DRADIS)
-Fire Detection System Upgrade Phase 1
-Wire-free Portable Communication System (WPCS) - Uninterruptible Power Supply (UPS) Upgrade, Low Power Amplifier Upgrade
-27TV - 28TV Low Channel Pier Cable Blockage improvement
-Integrated Voice Communication System (IVCS)- IVCS system upgrades (local cutout switches, AFT lookout communication mod, obsolete terminal replacement, FWD/AFT KITE), Software version 7.2.2.
-1MC Announcing System - Digital Microphone Control Station 1MC improvements
-Damage Control Action Management Software (DCAMS) - Upgrade to Advanced Damage Control System (ADCS)

Due to changes in CNO Availabilities, a quantity of (8) FY20 installations originally budgeted (FY19 request) have been deferred (3) years to FY23. FY19 procurements and subsequent FY20 installations originally budgeted (FY19 request) for a quantity of (8) installations have been deferred by three years. The FY19 procurements will now be installed in FY23. Additionally, a quantity of (3) FY21 installations originally budgeted (FY20 request) for LPD 19 have been deferred (1) year to FY22 due to a change in the CNO Availability schedule. A quantity of (3) FY19 installations originally budgeted (FY19 request) were deferred due to the cancellation of the FY19 LPD 24 CNO Availability. A quantity of (2) installations have been rescheduled to FY22, and (1) installation has been rescheduled in to complete.

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0946 / LPD Class Support Equipment	**Modification Number / Title:** 1 / CJ030 - HW/SW Obsolescence
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	
Models of Systems Affected: HW/SW Obsolescence	**Modification Type:** TBD	**Related RDT&E PEs:**

Financial Plan	Prior Years	FY 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: CJ030 - HW/SW Obsolescence												
B Kits												
Recurring												
1.1.1) HW/SW Obsolescence - NonOrganic (4)	84 / 18.436	23 / 5.744	7 / 1.395	3 / 0.295	- / -	3 / 0.295	3 / 0.665	8 / 2.136	- / -	1 / 0.375	2 / 0.807	131 / 29.853
Subtotal: Recurring	*- / 18.436*	*- / 5.744*	*- / 1.395*	*- / 0.295*	*- / -*	*- / 0.295*	*- / 0.665*	*- / 2.136*	*- / -*	*- / 0.375*	*- / 0.807*	*- / 29.853*
Subtotal: CJ030 - HW/SW Obsolescence	*84 / 18.436*	*23 / 5.744*	*7 / 1.395*	*3 / 0.295*	*- / -*	*3 / 0.295*	*3 / 0.665*	*8 / 2.136*	*- / -*	*1 / 0.375*	*2 / 0.807*	*131 / 29.853*
Subtotal: Procurement, All Modification Items	*- / 18.436*	*- / 5.744*	*- / 1.395*	*- / 0.295*	*- / -*	*- / 0.295*	*- / 0.665*	*- / 2.136*	*- / -*	*- / 0.375*	*- / 0.807*	*- / 29.853*
Support *(All Modification Items)*												
2.1) Non-Recurring Engineering	- / 0.330	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / 0.330
Subtotal: Support	*- / 0.330*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / 0.000*	*- / 0.330*
Installation												
Modification Item 1 of 1: CJ030 - HW/SW Obsolescence	- / 15.188	- / 5.496	- / 7.136	- / 1.608	- / 0.000	- / 1.608	- / 2.920	- / 6.948	- / 8.364	- / 0.103	- / 9.763	- / 57.526
Subtotal: Installation	*- / 15.188*	*- / 5.496*	*- / 7.136*	*- / 1.608*	*- / -*	*- / 1.608*	*- / 2.920*	*- / 6.948*	*- / 8.364*	*- / 0.103*	*- / 9.763*	*- / 57.526*
Total												
Total Cost (Procurement + Support + Installation)	**33.954**	**11.240**	**8.531**	**1.903**	**0.000**	**1.903**	**3.585**	**9.084**	**8.364**	**0.478**	**10.570**	**87.709**

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0946 / LPD Class Support Equipment	**Modification Number / Title:** 1 / CJ030 - HW/SW Obsolescence
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

Modification Item 1 of 1: CJ030 - HW/SW Obsolescence

Manufacturer Information

Manufacturer Name: Various	Manufacturer Location: Various
Administrative Leadtime *(in Months)*: 3	Production Leadtime *(in Months)*: 12

Dates	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025
Contract Dates	Dec 2018	Jun 2020	Jan 2021	Dec 2021	Jan 2023		Apr 2025
Delivery Dates	Dec 2019	Jun 2021	Jan 2022	Dec 2022	Jan 2024		Apr 2026

Installation Information

Method of Implementation: AIT:: Installation Name: HW/SW 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	71 / 15.188	10 / 4.435	- / -	- / -	- / -	- / -	2 / 1.047	- / -	- / -	- / -	1 / 3.242	84 / 23.912
FY 2019	- / -	0 / 1.061	15 / 6.727	- / -	- / -	- / -	- / -	8 / 2.750	- / -	- / -	0 / 0.000	23 / 10.538
FY 2020	- / -	- / -	0 / 0.409	4 / 1.600	0 / 0.000	4 / 1.600	3 / 1.144	- / -	- / -	- / -	0 / 0.000	7 / 3.153
FY 2021	- / -	- / -	- / -	0 / 0.008	0 / 0.000	0 / 0.008	3 / 0.588	- / -	- / -	- / -	0 / 0.000	3 / 0.596
FY 2022	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.141	3 / 3.739	- / -	- / -	0 / 2.104	3 / 5.984
FY 2023	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.459	8 / 8.364	- / -	0 / 0.000	8 / 8.823
FY 2024	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2025	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.103	1 / 0.624	1 / 0.727
To Complete	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	2 / 3.793	2 / 3.793
Total	71 / 15.188	10 / 5.496	15 / 7.136	4 / 1.608	0 / 0.000	4 / 1.608	8 / 2.920	11 / 6.948	8 / 8.364	0 / 0.103	4 / 9.763	131 / 57.526

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	71	-	-	8	2	7	6	2	-	-	-	-	4	2	5	1	-	2	4	4	1	-	4	1	3	-	-	-	-	4	131
Out	63	6	-	2	-	3	1	1	3	6	-	2	9	3	-	1	-	-	7	1	2	3	2	3	1	1	5	2	-	4	131

Footnotes:

(4) HW/SW Obsolescence (CJ030) includes funding for procurement and installation of equipment to correct critical obsolescence issues on LPD17 Class mission systems. Shipsets of equipment vary in quantities and types of components each fiscal year and within a fiscal year. Each ship requires a different number of alterations to be installed, and these alteration packages vary in scope and cost based on individual ship configurations. A quantity of "1" represents a single "kit" intended for installation in one ship, in a single Chief of Naval Operations (CNO) Availability. Ships may be receiving more than 1 kit in a single availability based upon the fielding plan for the systems being modernized. In FY20, there are (7) total kits being procured for installation during (2) FY21 CNO Availabilities on LPD 22 (3 kits), and LPD 27

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0946 / LPD Class Support Equipment	**Modification Number / Title:** 1 / CJ030 - HW/SW Obsolescence
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

(1 kit), and (1) FY22 CNO Availability on LPD 19 (3 kits), previously scheduled in FY21. In FY21, there are (3) total kits being procured for installation during (2) FY22 CNO Availabilities on LPD 21 (2 kits), and LPD 23 (1 kit). In FY22, there are (3) total kits being procured for installation during (3) FY23 CNO Availabilities on LPD 17 (1 kit), LPD 24 (1 kit), and LPD 26 (1 kit). In FY23, there are (8) total kits being procured for installation during (4) FY24 CNO Availabilities on LPD 19 (1 kit), LPD 20 (3 kits), LPD 25 (1 kit), and LPD 27 (3 kits). There are no FY25 CNO Availabilities that would support associated procurements in FY24. In FY25 there is (1) total kit being procured for installation during (1) FY26 CNO Availability on LPD 26 (1 kit). DSA costs will also vary by kit due to differences in scope and complexity, and first installation compared to follow-on installations.

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0946 / LPD Class Support Equipment	**Modification Number / Title:** 2 / CJ040 HM&E Electrical Modifications
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

Resource Summary	Prior Years	FY 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)*	3.636	6.824	8.376	4.810	0.000	4.810	5.261	2.015	1.347	0.000	3.600	35.869
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	3.636	6.824	8.376	4.810	0.000	4.810	5.261	2.015	1.347	0.000	3.600	35.869
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**3.636**	**6.824**	**8.376**	**4.810**	**0.000**	**4.810**	**5.261**	**2.015**	**1.347**	**0.000**	**3.600**	**35.869**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)												
Initial Spares *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Dollars)*	-	-	-	-	-	-	-	-	-	-	-	-

Description:

HM&E Modernization funding is provided to correct mission, safety and reliability issues on electrical systems and ultimately resolve maintenance intensive system concerns. HM&E Electrical Modifications include:
SWAN UPS - Space Based Uninterruptable Power Supply (UPS) Reduction.

The installation fielding plan for this cost code has been adjusted to align with Consolidated Afloat Networks and Enterprise Services (CANES) installations aboard LPD 17 Class ships. This alignment has been completed to reduce the operational burden on ship's force, and reduce re-work during CANES installations. Additionally, a quantity of (1) FY21 installations originally budgeted (FY20 request) for LPD 19 has been deferred (1) year to FY22 due a change in the CNO Availability schedule. A quantity of (1) FY19 installations originally budgeted (FY19 request) was deferred due to the cancellation of the FY19 LPD 24 CNO Availability, and has been rescheduled to FY22.

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0946 / LPD Class Support Equipment	**Modification Number / Title:** 2 / CJ040 HM&E Electrical Modifications
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	
Models of Systems Affected: HM&E Electrical Modifications	**Modification Type:** TBD	**Related RDT&E PEs:**

Financial Plan	Prior Years	FY 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: CJ040 HM&E Electrical Modifications												
B Kits												
Recurring												
1.1.1) HM&E Electrical Upgrades - NonOrganic (5)	2 / 2.504	3 / 3.834	3 / 3.915	1 / 1.332	- / -	1 / 1.332	- / -	1 / 1.389	- / -	- / -	1 / 1.470	11 / 14.444
Subtotal: Recurring	*- / 2.504*	*- / 3.834*	*- / 3.915*	*- / 1.332*	*- / -*	*- / 1.332*	*- / -*	*- / 1.389*	*- / -*	*- / -*	*- / 1.470*	*- / 14.444*
Subtotal: CJ040 HM&E Electrical Modifications	*2 / 2.504*	*3 / 3.834*	*3 / 3.915*	*1 / 1.332*	*- / -*	*1 / 1.332*	*- / -*	*1 / 1.389*	*- / -*	*- / -*	*1 / 1.470*	*11 / 14.444*
Subtotal: Procurement, All Modification Items	*- / 2.504*	*- / 3.834*	*- / 3.915*	*- / 1.332*	*- / -*	*- / 1.332*	*- / -*	*- / 1.389*	*- / -*	*- / -*	*- / 1.470*	*- / 14.444*
Installation												
Modification Item 1 of 1: CJ040 HM&E Electrical Modifications	- / 1.132	- / 2.990	- / 4.461	- / 3.478	- / 0.000	- / 3.478	- / 5.261	- / 0.626	- / 1.347	- / 0.000	- / 2.130	- / 21.425
Subtotal: Installation	*- / 1.132*	*- / 2.990*	*- / 4.461*	*- / 3.478*	*- / -*	*- / 3.478*	*- / 5.261*	*- / 0.626*	*- / 1.347*	*- / -*	*- / 2.130*	*- / 21.425*
Total												
Total Cost (Procurement + Support + Installation)	**3.636**	**6.824**	**8.376**	**4.810**	**0.000**	**4.810**	**5.261**	**2.015**	**1.347**	**0.000**	**3.600**	**35.869**

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0946 / LPD Class Support Equipment	**Modification Number / Title:** 2 / CJ040 HM&E Electrical Modifications
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

Modification Item 1 of 1: CJ040 HM&E Electrical Modifications

Manufacturer Information

Manufacturer Name: Various	Manufacturer Location: Various
Administrative Leadtime *(in Months)*: 3	Production Leadtime *(in Months)*: 12

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

Installation Information

Method of Implementation: AIT:: Installation Name: HM&E Electrical Upgrades

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	0 / 1.132	1 / 1.257	- / -	- / -	- / -	- / -	1 / 2.551	- / -	- / -	- / -	0 / 0.000	2 / 4.940
FY 2019	- / -	0 / 1.733	3 / 3.950	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	3 / 5.683
FY 2020	- / -	- / -	0 / 0.511	2 / 2.877	0 / 0.000	2 / 2.877	1 / 1.443	- / -	- / -	- / -	0 / 0.000	3 / 4.831
FY 2021	- / -	- / -	- / -	0 / 0.601	0 / 0.000	0 / 0.601	1 / 1.267	- / -	- / -	- / -	0 / 0.000	1 / 1.868
FY 2022	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2023	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.626	1 / 1.347	- / -	0 / 0.000	1 / 1.973
FY 2024	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2025	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
To Complete	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	1 / 2.130	1 / 2.130
Total	0 / 1.132	1 / 2.990	3 / 4.461	2 / 3.478	0 / 0.000	2 / 3.478	3 / 5.261	0 / 0.626	1 / 1.347	- / -	1 / 2.130	11 / 21.425

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	-	-	2	1	-	-	-	2	1	2	-	-	-	-	-	-	-	1	-	-	-	-	-	-	1	11
Out	-	-	-	-	-	-	-	-	1	-	2	-	1	1	-	1	-	-	3	-	-	-	-	-	-	-	1	-	-	1	11

Footnotes:

(5) HM&E Electrical Modification (CJ040) includes funding for procurement and installation of equipment to upgrade shipboard electrical systems to a more sustainable, reliable configuration on LPD17 Class ships. Shipsets of equipment vary in quantities and types of components each fiscal year and within a fiscal year. A quantity of "1" represents a single "kit" intended for installation in one ship, in a single CNO Availability. Ships may be receiving more than 1 kit in a single availability based upon the fielding plan for the systems being modernized. In FY20, there are (3) total kits being procured for installation during (2) FY21 CNO Availabilities on LPD 22 (1 kit), LPD 27 (1 kit), and (1) FY22 CNO Availability on LPD 19 (1 kit), previously scheduled in FY21. In FY21, there is (1) total kit being procured for installation during (1)

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0946 / LPD Class Support Equipment	**Modification Number / Title:** 2 / CJ040 HM&E Electrical Modifications
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

FY22 CNO Availability on LPD 21 (1 kit). There are no FY23 CNO Availabilities that would support associated procurements in FY22. In FY23, there is (1) total kit being procured for installation during (1) FY24 CNO Availability on LPD 20 (1 kit). Funding supports safety and capability improvements in the design of the Space Based UPS. This results in a more robust system configuration, requiring additional cable runs, load center tie-in, battery placements, and industrial work efforts. DSA costs will also vary by kit due to differences in scope and complexity, and first installation compared to follow-on installations.

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0946 / LPD Class Support Equipment	**Modification Number / Title:** 3 / CJ050 - HM&E Survivability Modifications
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

Resource Summary	Prior Years	FY 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)*	0.948	1.766	1.534	1.127	0.000	1.127	1.235	2.031	0.560	0.000	1.163	10.364
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	0.948	1.766	1.534	1.127	0.000	1.127	1.235	2.031	0.560	0.000	1.163	10.364
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**0.948**	**1.766**	**1.534**	**1.127**	**0.000**	**1.127**	**1.235**	**2.031**	**0.560**	**0.000**	**1.163**	**10.364**
(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:

CJ050 HM&E SURVIVABILITY MODIFICATIONS HM&E Modernization funding is provided to correct mission, safety and reliability issues on HM&E systems (impacting ship survivability) and ultimately resolve maintenance intensive system concerns. HM&E Survivability Modifications include:
-Composite Ventilation Louvers and Screens.

A quantity of (1) FY21 installations originally budgeted (FY20 request) for LPD 19 has been deferred (1) year to FY21 due a change in the CNO Availability schedule.

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

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0946 / LPD Class Support Equipment	**Modification Number / Title:** 3 / CJ050 - HM&E Survivability Modifications
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	
Models of Systems Affected: HM&E Survivability Modifications	**Modification Type:** TBD	**Related RDT&E PEs:**

Financial Plan	Prior Years	FY 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: CJ050 - HM&E Survivability Modifications												
B Kits												
Recurring												
1.1.1) HM&E Survivability Modifications - NonOrganic (6)	3 / 0.824	5 / 1.436	2 / 0.749	1 / 0.382	- / -	1 / 0.382	- / -	1 / 0.398	- / -	- / -	1 / 0.421	13 / 4.210
Subtotal: Recurring	*- / 0.824*	*- / 1.436*	*- / 0.749*	*- / 0.382*	*- / -*	*- / 0.382*	*- / -*	*- / 0.398*	*- / -*	*- / -*	*- / 0.421*	*- / 4.210*
Subtotal: CJ050 - HM&E Survivability Modifications	*3 / 0.824*	*5 / 1.436*	*2 / 0.749*	*1 / 0.382*	*- / -*	*1 / 0.382*	*- / -*	*1 / 0.398*	*- / -*	*- / -*	*1 / 0.421*	*13 / 4.210*
Subtotal: Procurement, All Modification Items	*- / 0.824*	*- / 1.436*	*- / 0.749*	*- / 0.382*	*- / -*	*- / 0.382*	*- / -*	*- / 0.398*	*- / -*	*- / -*	*- / 0.421*	*- / 4.210*
Installation												
Modification Item 1 of 1: CJ050 - HM&E Survivability Modifications	- / 0.124	- / 0.330	- / 0.785	- / 0.745	- / 0.000	- / 0.745	- / 1.235	- / 1.633	- / 0.560	- / 0.000	- / 0.742	- / 6.154
Subtotal: Installation	*- / 0.124*	*- / 0.330*	*- / 0.785*	*- / 0.745*	*- / -*	*- / 0.745*	*- / 1.235*	*- / 1.633*	*- / 0.560*	*- / -*	*- / 0.742*	*- / 6.154*
Total												
Total Cost (Procurement + Support + Installation)	**0.948**	**1.766**	**1.534**	**1.127**	**0.000**	**1.127**	**1.235**	**2.031**	**0.560**	**0.000**	**1.163**	**10.364**

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0946 / LPD Class Support Equipment	**Modification Number / Title:** 3 / CJ050 - HM&E Survivability Modifications

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

Modification Item 1 of 1: CJ050 - HM&E Survivability Modifications

Manufacturer Information

Manufacturer Name: VARIOUS | Manufacturer Location: TBD

Administrative Leadtime *(in Months)*: 4 | Production Leadtime *(in Months)*: 12

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

Installation Information

Method of Implementation: AIT:: Installation Name: HM&E Survivability Modifications

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 / 0.124	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	3 / 0.124
FY 2019	- / -	0 / 0.330	1 / 0.703	- / -	- / -	- / -	- / -	4 / 1.545	- / -	- / -	0 / 0.000	5 / 2.578
FY 2020	- / -	- / -	0 / 0.082	1 / 0.661	0 / 0.000	1 / 0.661	1 / 0.731	- / -	- / -	- / -	0 / 0.000	2 / 1.474
FY 2021	- / -	- / -	- / -	0 / 0.084	0 / 0.000	0 / 0.084	1 / 0.504	- / -	- / -	- / -	0 / 0.000	1 / 0.588
FY 2022	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2023	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.088	1 / 0.560	- / -	0 / 0.000	1 / 0.648
FY 2024	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2025	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
To Complete	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	1 / 0.742	1 / 0.742
Total	3 / 0.124	0 / 0.330	1 / 0.785	1 / 0.745	0 / 0.000	1 / 0.745	2 / 1.235	4 / 1.633	1 / 0.560	- / -	1 / 0.742	13 / 6.154

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	3	-	-	-	-	-	-	1	-	-	-	-	1	-	2	-	-	-	2	1	1	-	1	-	-	-	-	-	-	1	13
Out	3	-	-	-	-	-	-	-	-	-	-	1	-	1	-	-	-	-	2	-	-	2	-	1	1	-	1	-	-	1	13

Footnotes:

(6) Due to changes in CNO Availabilities, FY19 procurements and subsequent FY20 installations originally budgeted (FY19 request) for a quantity of (4) installations have been deferred by three years. The FY19 procurements will now be installed in FY23. HM&E Survivability Modifications (CJ050) includes funding for procurement and installation of equipment to support upgrades of shipboard survivability systems to a more sustainable, reliable configuration on LPD17 Class ships. Shipsets of equipment vary in quantities and types of components each fiscal year and within a fiscal year. Each ship requires a different number

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0946 / LPD Class Support Equipment	**Modification Number / Title:** 3 / CJ050 - HM&E Survivability Modifications
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

of alterations to be installed, and these alteration packages vary in scope and cost based on individual ship configurations. A quantity of "1" represents a single "kit" intended for installation in one ship, in a single CNO Availability. Ships may be receiving more than 1 kit in a single availability based upon the fielding plan for the systems being modernized. In FY20, there are (2) total kits being procured for installation during (1) FY21 CNO Availability on LPD 22 (1 kit), and (1) FY22 CNO Availability on LPD 19 (1 kit), previously scheduled in FY21. In FY21, there is (1) total kit being procured for installation during (1) FY22 CNO Availability on LPD 21 (1 kit). There are no FY23 CNO Availabilities that would support associated procurements in FY22. In FY23, there is (1) total kit being procured for installation during (1) FY24 CNO Availability on LPD 20 (1 kit). DSA costs will also vary by kit due to differences in scope and complexity, and first installation compared to follow-on installations.

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0946 / LPD Class Support Equipment	**Modification Number / Title:** 4 / CJ060 - HM&E Mechanical/Auxiliary Modifications
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

Resource Summary	Prior Years	FY 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)*	64.587	7.314	9.064	3.848	0.000	3.848	4.712	2.446	6.521	0.713	6.133	105.338
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	64.587	7.314	9.064	3.848	0.000	3.848	4.712	2.446	6.521	0.713	6.133	105.338
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**64.587**	**7.314**	**9.064**	**3.848**	**0.000**	**3.848**	**4.712**	**2.446**	**6.521**	**0.713**	**6.133**	**105.338**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)												
Initial Spares *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Dollars)*	-	-	-	-	-	-	-	-	-	-	-	-

Description:

HM&E Mechanical/Auxiliary Modifications (CJ060) includes funding for procurement and installation of equipment to support upgrades of shipboard mechanical/auxiliary systems to a more sustainable, reliable configuration on LPD17 Class ships. Shipsets of equipment vary in quantities and types of components each fiscal year and within a fiscal year. Each ship requires a different number of alterations to be installed, and these alteration packages vary in scope and cost based on individual ship configurations. A quantity of "1" represents a single "kit" intended for installation in one ship, in a single CNO Availability. Ships may be receiving more than 1 kit in a single availability based upon the fielding plan for the systems being modernized.

HM&E Mechanical/Auxiliary Modifications include:
-MIDE Bulkhead Shaft Seal
-Helo Hangar Door Control Modifications
-2nd Pass Reverse Osmosis (RO) Unit Upgrade, RO Unit Potable Water Electrolytic Disinfectant Generator (EDG) Recirculation Capability
-Aviation Maintenance Bridge Crane Replacement
-Scullery Improvements
-Branch Piping Modifications

A quantity of (1) FY21 installations originally budgeted (FY20 request) for LPD 19 has been deferred (1) year to FY21 due a change in the CNO Availability schedule. A quantity of (2) FY19 installations originally budgeted (FY19 request) were deferred due to the cancellation of the FY19 LPD 24 CNO Availability, and have been rescheduled to FY22.

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0946 / LPD Class Support Equipment	**Modification Number / Title:** 4 / CJ060 - HM&E Mechanical/Auxiliary Modifications
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	
Models of Systems Affected: HM&E Mechanical/ Auxiliary Modifications	**Modification Type:** TBD	**Related RDT&E PEs:**

Financial Plan	Prior Years	FY 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: CJ060 - HM&E Mechanical/ Auxiliary Modifications												
B Kits												
Recurring												
1.1.1) CJ060 HM&E Mechanical/Auxiliary Modifications - NonOrganic (7)	48 / 40.436	14 / 3.290	11 / 2.346	2 / 0.369	- / -	2 / 0.369	2 / 0.377	7 / 1.016	- / -	2 / 0.415	4 / 0.930	90 / 49.179
Subtotal: Recurring	*- / 40.436*	*- / 3.290*	*- / 2.346*	*- / 0.369*	*- / -*	*- / 0.369*	*- / 0.377*	*- / 1.016*	*- / -*	*- / 0.415*	*- / 0.930*	*- / 49.179*
Subtotal: CJ060 - HM&E Mechanical/Auxiliary Modifications	*48 / 40.436*	*14 / 3.290*	*11 / 2.346*	*2 / 0.369*	*- / -*	*2 / 0.369*	*2 / 0.377*	*7 / 1.016*	*- / -*	*2 / 0.415*	*4 / 0.930*	*90 / 49.179*
Subtotal: Procurement, All Modification Items	*- / 40.436*	*- / 3.290*	*- / 2.346*	*- / 0.369*	*- / -*	*- / 0.369*	*- / 0.377*	*- / 1.016*	*- / -*	*- / 0.415*	*- / 0.930*	*- / 49.179*
Support *(All Modification Items)*												
2.1) Non-Recurring Engineering	- / 2.667	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / 2.667
Subtotal: Support	*- / 2.667*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / 0.000*	*- / 2.667*
Installation												
Modification Item 1 of 1: CJ060 - HM&E Mechanical/ Auxiliary Modifications	- / 21.484	- / 4.024	- / 6.718	- / 3.479	- / 0.000	- / 3.479	- / 4.335	- / 1.430	- / 6.521	- / 0.298	- / 5.203	- / 53.492
Subtotal: Installation	*- / 21.484*	*- / 4.024*	*- / 6.718*	*- / 3.479*	*- / -*	*- / 3.479*	*- / 4.335*	*- / 1.430*	*- / 6.521*	*- / 0.298*	*- / 5.203*	*- / 53.492*
Total												
Total Cost (Procurement + Support + Installation)	**64.587**	**7.314**	**9.064**	**3.848**	**0.000**	**3.848**	**4.712**	**2.446**	**6.521**	**0.713**	**6.133**	**105.338**

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0946 / LPD Class Support Equipment	**Modification Number / Title:** 4 / CJ060 - HM&E Mechanical/Auxiliary Modifications

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

Modification Item 1 of 1: CJ060 - HM&E Mechanical/Auxiliary Modifications

Manufacturer Information

Manufacturer Name: Various | Manufacturer Location: Various

Administrative Leadtime *(in Months)*: 3 | Production Leadtime *(in Months)*: 12

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

Installation Information

Method of Implementation: [none specified]:: Installation Name: CJ060 HM&E Mechanical/Auxiliary Modifications

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	39 / 21.484	5 / 2.179	1 / 0.738	- / -	- / -	- / -	2 / 0.541	- / -	1 / 0.661	- / -	0 / 0.000	48 / 25.603
FY 2019	- / -	0 / 1.845	10 / 5.340	- / -	- / -	- / -	- / -	- / -	4 / 2.728	- / -	0 / 0.000	14 / 9.913
FY 2020	- / -	- / -	0 / 0.640	6 / 3.117	0 / 0.000	6 / 3.117	5 / 2.762	- / -	- / -	- / -	0 / 0.000	11 / 6.519
FY 2021	- / -	- / -	- / -	0 / 0.362	0 / 0.000	0 / 0.362	2 / 0.662	- / -	- / -	- / -	0 / 0.000	2 / 1.024
FY 2022	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.370	2 / 0.795	- / -	- / -	0 / 1.654	2 / 2.819
FY 2023	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.635	7 / 3.132	- / -	0 / 0.000	7 / 3.767
FY 2024	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2025	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.298	2 / 0.963	2 / 1.261
To Complete	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	4 / 2.586	4 / 2.586
Total	39 / 21.484	5 / 4.024	11 / 6.718	6 / 3.479	0 / 0.000	6 / 3.479	9 / 4.335	2 / 1.430	12 / 6.521	0 / 0.298	6 / 5.203	90 / 53.492

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	39	-	-	2	3	-	2	6	3	-	-	-	6	2	6	1	-	-	1	1	-	-	11	1	-	-	-	-	-	6	90
Out	33	3	-	3	-	1	2	-	2	3	-	5	3	4	-	2	-	-	8	1	-	-	2	-	-	5	6	1	-	6	90

Footnotes:

(7) Two (2) FY16 procurements originally scheduled to be installed in FY17 on LPD 17 and in FY17 on LPD 20 were deferred due to delay in delivery of material. LPD 17 (1 kit) will be installed in FY20 and LPD 20 (1 kit) will be installed in FY24. Due to changes in CNO Availabilities, FY19 procurements and subsequent FY20 installations originally budgeted (FY19 request) for a quantity of (4) installations have been deferred by four years. The FY19 procurements will now be installed in FY24. HM&E Mechanical/Auxiliary Modifications (CJ060) includes funding for procurement and installation of equipment to support

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0946 / LPD Class Support Equipment	**Modification Number / Title:** 4 / CJ060 - HM&E Mechanical/Auxiliary Modifications
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

upgrades of shipboard mechanical/auxiliary systems to a more sustainable, reliable configuration on LPD17 Class ships. Shipsets of equipment vary in quantities and types of components each fiscal year and within a fiscal year. Each ship requires a different number of alterations to be installed, and these alteration packages vary in scope and cost based on individual ship configurations. A quantity of "1" represents a single "kit" intended for installation in one ship, in a single CNO Availability. Ships may be receiving more than 1 kit in a single availability based upon the fielding plan for the systems being modernized. In FY20, there are (11) total kits being procured for installation during (2) FY21 CNO Availabilities on LPD 22 (4 kits), LPD 27 (2 kits) and (1) FY22 CNO Availability on LPD 19 (5 kits), previously scheduled in FY21. In FY21, there are (2) total kits being procured for installation during (2) FY22 CNO Availabilities on LPD 21 (1 kit), and LPD 23 (1 kit). In FY22, there are (2) total kits being procured for installation during (2) FY23 CNO Availabilities on LPD 24 (1 kit), and LPD 26 (1 kit). In FY23, there is a total of (7) kits being procured for installation during (2) FY24 CNO Availabilities on LPD 20 (6 kits), and LPD 25 (1 kit). There are no FY25 CNO Availabilities that would support associated procurements in FY24. In FY25, there is a total of (2) kits being procured for installation during (2) FY26 CNO Availabilities on LPD 20 (1 kit) and LPD 28 (1 kit). DSA costs will also vary by kit due to differences in scope and complexity, and first installation compared to follow-on installations. The program has experienced longer production lead times than previously budgeted.

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0946 / LPD Class Support Equipment	**Modification Number / Title:** 5 / CJ070 SWAN-CANES Integration
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

Resource Summary	Prior Years	FY 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)*	50.963	8.129	12.651	7.577	0.000	7.577	13.542	1.684	4.705	0.521	1.625	101.397
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	50.963	8.129	12.651	7.577	0.000	7.577	13.542	1.684	4.705	0.521	1.625	101.397
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**50.963**	**8.129**	**12.651**	**7.577**	**0.000**	**7.577**	**13.542**	**1.684**	**4.705**	**0.521**	**1.625**	**101.397**
(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:

[SWAN-CANES Integration] The results of the Shipboard Wide Area Network (SWAN) / Consolidated Afloat Networks and Enterprise Services (CANES) study directed the replacement of the C4I capability of the LPD 17 Class SWAN with CANES and the conversion of the non-C4I SWAN into a new HM&E Network (mini SWAN). SWAN funding is required to field the new HM&E Network in support of the CANES installation. In addition, funding is required to sustain the legacy SWAN, while the LPD 17 Class ships await the CANES/HM&E Network back fit installation. SWAN serves as the backbone of the LPD 17 class and funding is necessary to address obsolescence, reliability issues, performance concerns, emergent Fleet requirements including enabling Cryptologic Log On (CLO), removing unsupported software, replacing aging obsolete network hardware (e.g., servers and core switches), and maintaining the Information Assurance posture of the Common Operating Environment (COE). This funding is vital to ensure the LPD 17 Class ships can combat the evolving cyber threat.

A quantity of (2) FY19 installations originally budgeted (FY19 request) were deferred due to the cancellation of the FY19 LPD 24 CNO Availability, and have been rescheduled to FY22.

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0946 / LPD Class Support Equipment	**Modification Number / Title:** 5 / CJ070 SWAN-CANES Integration
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	
Models of Systems Affected: LPD 17 Class SWAN-CANES Integration	**Modification Type:** TBD	**Related RDT&E PEs:**

Financial Plan	Prior Years	FY 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: CJ070 SWAN-CANES Integration												
B Kits												
Recurring												
1.1.1) SWAN-CANES Integration - NonOrganic (8)	92 / 25.082	17 / 5.471	8 / 4.431	2 / 1.411	- / -	2 / 1.411	- / -	2 / 1.471	- / -	1 / 0.353	- / -	122 / 38.219
Subtotal: Recurring	*- / 25.082*	*- / 5.471*	*- / 4.431*	*- / 1.411*	*- / -*	*- / 1.411*	*- / -*	*- / 1.471*	*- / -*	*- / 0.353*	*- / 0.000*	*- / 38.219*
Non-Recurring												
1.2.1) SWAN-CANES Integration - Organic (9)	- / 8.088	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / 8.088
Subtotal: Non-Recurring	*- / 8.088*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / 0.000*	*- / 8.088*
Subtotal: CJ070 SWAN-CANES Integration	*92 / 33.170*	*17 / 5.471*	*8 / 4.431*	*2 / 1.411*	*- / -*	*2 / 1.411*	*- / -*	*2 / 1.471*	*- / -*	*1 / 0.353*	*- / -*	*122 / 46.307*
Subtotal: Procurement, All Modification Items	*- / 33.170*	*- / 5.471*	*- / 4.431*	*- / 1.411*	*- / -*	*- / 1.411*	*- / -*	*- / 1.471*	*- / -*	*- / 0.353*	*- / 0.000*	*- / 46.307*
Installation												
Modification Item 1 of 1: CJ070 SWAN-CANES Integration	- / 17.793	- / 2.658	- / 8.220	- / 6.166	- / 0.000	- / 6.166	- / 13.542	- / 0.213	- / 4.705	- / 0.168	- / 1.625	- / 55.090
Subtotal: Installation	*- / 17.793*	*- / 2.658*	*- / 8.220*	*- / 6.166*	*- / -*	*- / 6.166*	*- / 13.542*	*- / 0.213*	*- / 4.705*	*- / 0.168*	*- / 1.625*	*- / 55.090*
Total												
Total Cost (Procurement + Support + Installation)	**50.963**	**8.129**	**12.651**	**7.577**	**0.000**	**7.577**	**13.542**	**1.684**	**4.705**	**0.521**	**1.625**	**101.397**

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0946 / LPD Class Support Equipment	**Modification Number / Title:** 5 / CJ070 SWAN-CANES Integration
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

Modification Item 1 of 1: CJ070 SWAN-CANES Integration

Manufacturer Information

Manufacturer Name: Raytheon	Manufacturer Location: San Diego, CA
Administrative Leadtime *(in Months)*: 2	Production Leadtime *(in Months)*: 12

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

Installation Information

Method of Implementation: AIT:: Installation Name: SWAN-CANES Integration

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	88 / 17.793	2 / 2.658	- / -	- / -	- / -	- / -	2 / 4.621	- / -	- / -	- / -	0 / 0.000	92 / 25.072
FY 2019	- / -	- / -	17 / 8.220	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	17 / 8.220
FY 2020	- / -	- / -	- / -	6 / 5.856	0 / 0.000	6 / 5.856	2 / 4.436	- / -	- / -	- / -	0 / 0.000	8 / 10.292
FY 2021	- / -	- / -	- / -	0 / 0.310	0 / 0.000	0 / 0.310	2 / 4.485	- / -	- / -	- / -	0 / 0.000	2 / 4.795
FY 2022	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2023	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.213	2 / 4.705	- / -	0 / 0.000	2 / 4.918
FY 2024	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2025	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.168	1 / 1.625	1 / 1.793
To Complete	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
Total	88 / 17.793	2 / 2.658	17 / 8.220	6 / 6.166	0 / 0.000	6 / 6.166	6 / 13.542	0 / 0.213	2 / 4.705	0 / 0.168	1 / 1.625	122 / 55.090

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	88	-	-	2	-	-	5	3	9	-	-	-	6	2	2	2	-	-	-	-	-	-	2	-	-	-	-	-	-	1	122
Out	72	9	-	-	7	-	-	2	-	-	5	3	9	-	-	-	6	-	6	-	-	-	-	-	-	-	-	2	-	1	122

Footnotes:

(8) This mod has sharp fluctuations in procurement and installation unit cost due to the variations in equipment quantities and types of components that make up a shipset. Each ship requires a different number of alterations to be installed, and these alteration packages vary in scope and cost based on individual ship configurations. Due to Type Commander (TYCOM) Integrated Class Maintenance Plan (ICMP) scheduling adjustments, CNO availabilities for LPD 17 Class have increased from once every 2 years to once every 3 years. This has caused CANES and HM&E Network schedules to slip and SWAN sustainment modification quantities to increase.

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0946 / LPD Class Support Equipment	**Modification Number / Title:** 5 / CJ070 SWAN-CANES Integration
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

(9) Due to the acceleration of Consolidated Afloat Network Enterprise Services (CANES) installations on LPD 25 and LPD 26 originally budgeted (FY19 request) FY20 LPD 25 and FY22 LPD 26 procurements and subsequent FY21 LPD 25 and FY23 LPD 26 installations have been accelerated to FY19 procurements and to FY20 installations respectively. These installations are conjunctive to the CANES installation. Accelerated installations include: LPD 25 - SWAN Removal, HM&E Network Conversion Mesh, SCDN Out of Band Management, SCDN Cybersecurity Enhancements; LPD 26 - SWAN Removal, HM&E Network Conversion Ring. FY21 Availabilities: LPD 22 - SWAN Removal, HM&E Network Conversion Mesh, SCDN Out of Band Management, SCDN Cybersecurity Enhancements; LPD 27 - SWAN Removal, HM&E Network Conversion Ring. FY22 Availabilities: : LPD 19 - SWAN Removal, HM&E Network Conversion Ring; LPD 21 - SWAN Removal, HM&E Network Conversion Ring. There are no FY23 CNO Availabilities that would support associated installations. FY24 Availabilities: LPD 20 - SWAN Removal, HM&E Network Conversion Ring.

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0946 / LPD Class Support Equipment	**Modification Number / Title:** 6 / CJ032 HW/SW Obsolescence Wireless Portable Communications Main Site Upgrades

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

Resource Summary	Prior Years	FY 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	0.137	2.588	0.000	2.588	3.312	11.585	11.118	7.665	1.564	37.969
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	0.000	0.000	0.137	2.588	0.000	2.588	3.312	11.585	11.118	7.665	1.564	37.969
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**0.000**	**0.000**	**0.137**	**2.588**	**0.000**	**2.588**	**3.312**	**11.585**	**11.118**	**7.665**	**1.564**	**37.969**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)												
Initial Spares *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Dollars)*	-	-	-	-	-	-	-	-	-	-	-	-

Description:

NRE includes the following efforts:
FY20: Wireless Portable Communications System (WPCS) non-recurring engineering in support of hardware obsolescence, software upgrade to Microsoft Windows 10, and upgrades to the e-stop and fall protection of the main site.

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

[Non-Recurring Engineering] NRE includes the following efforts:
FY20: Wireless Portable Communications System (WPCS) non-recurring engineering in support of hardware obsolescence, software upgrade to Microsoft Windows 10, and upgrades to the e-stop and fall protection of the main site.

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0946 / LPD Class Support Equipment	**Modification Number / Title:** 6 / CJ032 HW/SW Obsolescence Wireless Portable Communications Main Site Upgrades

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

Models of Systems Affected: [No Model Specified] **Modification Type:** TBD **Related RDT&E PEs:**

Financial Plan	Prior Years	FY 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: CJ032 HW/SW Obsolescence Wireless Portable Communications Main Site Upgrades												
B Kits												
Recurring												
1.1.1) WPCS Main Site Upgrades - NonOrganic (10)	- / -	- / -	- / -	1 / 2.477	- / -	1 / 2.477	1 / 2.529	4 / 10.328	3 / 7.908	2 / 5.367	- / -	11 / 28.609
Subtotal: Recurring	*- / 0.000*	*- / -*	*- / -*	*- / 2.477*	*- / -*	*- / 2.477*	*- / 2.529*	*- / 10.328*	*- / 7.908*	*- / 5.367*	*- / 0.000*	*- / 28.609*
Subtotal: CJ032 HW/SW Obsolescence Wireless Portable Communications Main Site Upgrades	*- / -*	*- / -*	*- / -*	*1 / 2.477*	*- / -*	*1 / 2.477*	*1 / 2.529*	*4 / 10.328*	*3 / 7.908*	*2 / 5.367*	*- / -*	*11 / 28.609*
Subtotal: Procurement, All Modification Items	*- / 0.000*	*- / -*	*- / -*	*- / 2.477*	*- / -*	*- / 2.477*	*- / 2.529*	*- / 10.328*	*- / 7.908*	*- / 5.367*	*- / 0.000*	*- / 28.609*
Support *(All Modification Items)*												
2.1) Non-Recurring Engineering	- / -	- / -	- / 0.137	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / 0.137
Subtotal: Support	*- / 0.000*	*- / -*	*- / 0.137*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / 0.000*	*- / 0.137*
Installation												
Modification Item 1 of 1: CJ032 HW/SW Obsolescence Wireless Portable Communications Main Site Upgrades	- / 0.000	- / 0.000	- / 0.000	- / 0.111	- / 0.000	- / 0.111	- / 0.783	- / 1.257	- / 3.210	- / 2.298	- / 1.564	- / 9.223
Subtotal: Installation	*- / 0.000*	*- / -*	*- / -*	*- / 0.111*	*- / -*	*- / 0.111*	*- / 0.783*	*- / 1.257*	*- / 3.210*	*- / 2.298*	*- / 1.564*	*- / 9.223*
Total												
Total Cost (Procurement + Support + Installation)	**0.000**	**0.000**	**0.137**	**2.588**	**0.000**	**2.588**	**3.312**	**11.585**	**11.118**	**7.665**	**1.564**	**37.969**

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0946 / LPD Class Support Equipment	**Modification Number / Title:** 6 / CJ032 HW/SW Obsolescence Wireless Portable Communications Main Site Upgrades

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

Modification Item 1 of 1: CJ032 HW/SW Obsolescence Wireless Portable Communications Main Site Upgrades

Manufacturer Information

Manufacturer Name: TBD | Manufacturer Location: TBD

Administrative Leadtime *(in Months)*: 3 | Production Leadtime *(in Months)*: 12

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

Installation Information

Method of Implementation: [none specified]:: Installation Name: WPCS Main Site Upgrades

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	- / -	- / -	- / -	0 / 0.111	0 / 0.000	0 / 0.111	1 / 0.669	- / -	- / -	- / -	0 / 0.000	1 / 0.780
FY 2022	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.114	1 / 0.793	- / -	- / -	0 / 0.000	1 / 0.907
FY 2023	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.464	4 / 2.855	- / -	0 / 0.000	4 / 3.319
FY 2024	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.355	3 / 2.057	0 / 0.000	3 / 2.412
FY 2025	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.241	2 / 1.564	2 / 1.805
To Complete	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
Total	- / -	- / -	- / -	0 / 0.111	0 / 0.000	0 / 0.111	1 / 0.783	1 / 1.257	4 / 3.210	3 / 2.298	2 / 1.564	11 / 9.223

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	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	1	-	2	1	1	-	2	1	-	2	11
Out	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	2	-	2	2	-	4	11

Footnotes:

(10) HW/SW Obsolescence WPCS Main Site Upgrades includes funding for procurement and installation of equipment to correct critical obsolescence issues on LPD17 Class mission systems. Shipsets of equipment vary in quantities and types of components each fiscal year and within a fiscal year. Each ship requires a different number of alterations to be installed, and these alteration packages vary in scope and

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0946 / LPD Class Support Equipment	**Modification Number / Title:** 6 / CJ032 HW/SW Obsolescence Wireless Portable Communications Main Site Upgrades
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

cost based on individual ship configurations. A quantity of "1" represents a single "kit" intended for installation in one ship, in a single Chief of Naval Operations (CNO) Availability. Ships may be receiving more than 1 kit in a single availability based upon the fielding plan for the systems being modernized. In FY21, there is (1) total kit being procured for installation during (1) FY22 CNO Availability on LPD 23 (1 kit). In FY22, there is (1) total kit being procured for installation during (1) FY23 CNO Availability on LPD 17 (1 kit). In FY23, there are (4) total kits being procured for installation during (4) FY24 CNO Availabilities on LPD 19 (1 kit), LPD 20 (1 kit), LPD 25 (1 kit), and LPD 27 (1 kit). In FY24 there are (3) total kits being procured for installation during (3) FY25 CNO Availabilities on LPD 18 (1 kit), LPD 21 (1 kit) and LPD 22 (1 kit). In FY25 there are (2) total kits being procured for installation during (2) FY26 CNO Availabilities on LPD 24 (1 kit) and LPD 26 (1 kit). DSA costs will also vary by kit due to differences in scope and complexity, and first installation compared to follow-on installations.

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0946 / LPD Class Support Equipment	**Modification Number / Title:** 7 / CJ061 Titanium Valve Replacement
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

Resource Summary	Prior Years	FY 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)*	6.291	3.353	4.947	4.980	0.000	4.980	5.720	4.512	5.150	0.889	0.704	36.546
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	6.291	3.353	4.947	4.980	0.000	4.980	5.720	4.512	5.150	0.889	0.704	36.546
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**6.291**	**3.353**	**4.947**	**4.980**	**0.000**	**4.980**	**5.720**	**4.512**	**5.150**	**0.889**	**0.704**	**36.546**
(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:

[Titanium Valve Replacement Phase 1] TITANIUM VALVE REPLACEMENT (CJ061) Titanium Valve Replacement Phase I: Modernization funding is provided to correct mission, safety and reliability issues on mechanical and auxiliary systems and ultimately resolve maintenance intensive system concerns. Funding will support Phase I of the Titanium valve replacement.

A quantity of (1) FY21 installations originally budgeted (FY20 request) for LPD 19 has been deferred (1) year to FY21 due a change in the CNO Availability schedule.

[Titanium Valve Replacement Phase 2]] TITANIUM VALVE REPLACEMENT (CJ061) Titanium Valve Replacement Phase II: Modernization funding is provided to correct mission, safety and reliability issues on mechanical and auxiliary systems and ultimately resolve maintenance intensive system concerns. Funding will support Phase II of the Titanium valve replacement.

A quantity of (1) FY21 installations originally budgeted (FY20 request) for LPD 19 has been deferred (1) year to FY21 due a change in the CNO Availability schedule.

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

[Titanium Valves Replacement Phase 3] TITANIUM VALVE REPLACEMENT (CJ061) Titanium Valve Replacement Phase III: Modernization funding is provided to correct mission, safety and reliability issues on mechanical and auxiliary systems and ultimately resolve maintenance intensive system concerns. Funding will support Phase III of the Titanium valve replacement.

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

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0946 / LPD Class Support Equipment	**Modification Number / Title:** 7 / CJ061 Titanium Valve Replacement
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	
Models of Systems Affected: [No Model Specified]	**Modification Type:** TBD	**Related RDT&E PEs:**

Financial Plan	Prior Years	FY 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 3: Titanium Valve Replacement Phase 1												
B Kits												
Recurring												
1.1.1) Titanium Valve Replacement Phase 1 - NonOrganic (11)	2 / 3.728	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	2 / 3.728
Subtotal: Recurring	*- / 3.728*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / 0.000*	*- / 3.728*
Subtotal: Titanium Valve Replacement Phase 1	*2 / 3.728*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*2 / 3.728*
Modification Item 2 of 3: Titanium Valve Replacement Phase 2												
B Kits												
Recurring												
2.1.1) Titanium Valve Replacement Phase 2 - NonOrganic (12)	3 / 2.448	3 / 2.499	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	6 / 4.947
Subtotal: Recurring	*- / 2.448*	*- / 2.499*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / 0.000*	*- / 4.947*
Subtotal: Titanium Valve Replacement Phase 2	*3 / 2.448*	*3 / 2.499*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*6 / 4.947*
Modification Item 3 of 3: Titanium Valve Replacement Phase 3												
B Kits												
Recurring												
3.1.1) Titanium Valves Replacement Phase 3 - NonOrganic (13)	- / -	- / -	1 / 3.190	1 / 3.257	- / -	1 / 3.257	1 / 3.325	1 / 3.395	1 / 3.466	- / -	- / -	5 / 16.633
Subtotal: Recurring	*- / 0.000*	*- / -*	*- / 3.190*	*- / 3.257*	*- / -*	*- / 3.257*	*- / 3.325*	*- / 3.395*	*- / 3.466*	*- / -*	*- / 0.000*	*- / 16.633*
Subtotal: Titanium Valve Replacement Phase 3	*- / -*	*- / -*	*1 / 3.190*	*1 / 3.257*	*- / -*	*1 / 3.257*	*1 / 3.325*	*1 / 3.395*	*1 / 3.466*	*- / -*	*- / -*	*5 / 16.633*
Subtotal: Procurement, All Modification Items	*- / 6.176*	*- / 2.499*	*- / 3.190*	*- / 3.257*	*- / -*	*- / 3.257*	*- / 3.325*	*- / 3.395*	*- / 3.466*	*- / -*	*- / 0.000*	*- / 25.308*
Installation												
Modification Item 1 of 3: Titanium Valve Replacement Phase 1	- / 0.000	- / 0.000	- / 0.105	- / 0.748	- / 0.000	- / 0.748	- / 0.762	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 1.615
Modification Item 2 of 3: Titanium Valve Replacement Phase 2	- / 0.115	- / 0.854	- / 1.652	- / 0.838	- / 0.000	- / 0.838	- / 0.856	- / 0.137	- / 0.688	- / 0.000	- / 0.000	- / 5.140
Modification Item 3 of 3: Titanium Valve Replacement Phase 3	- / 0.000	- / 0.000	- / 0.000	- / 0.137	- / 0.000	- / 0.137	- / 0.777	- / 0.980	- / 0.996	- / 0.889	- / 0.704	- / 4.483

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0946 / LPD Class Support Equipment	**Modification Number / Title:** 7 / CJ061 Titanium Valve Replacement
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	
Models of Systems Affected: [No Model Specified]	**Modification Type:** TBD	**Related RDT&E PEs:**

Financial Plan	Prior Years	FY 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)*
Subtotal: Installation	- / 0.115	- / 0.854	- / 1.757	- / 1.723	- / -	- / 1.723	- / 2.395	- / 1.117	- / 1.684	- / 0.889	- / 0.704	- / 11.238
Total												
Total Cost (Procurement + Support + Installation)	**6.291**	**3.353**	**4.947**	**4.980**	**0.000**	**4.980**	**5.720**	**4.512**	**5.150**	**0.889**	**0.704**	**36.546**

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0946 / LPD Class Support Equipment	**Modification Number / Title:** 7 / CJ061 Titanium Valve Replacement

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

Modification Item 1 of 3: Titanium Valve Replacement Phase 1

Manufacturer Information

Manufacturer Name: TBD | Manufacturer Location: TBD

Administrative Leadtime *(in Months)*: 0 | Production Leadtime *(in Months)*: 12

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

Installation Information

Method of Implementation: [none specified]:: Installation Name: Titanium Valve Replacement Phase 1

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	- / -	- / -	0 / 0.105	1 / 0.748	0 / 0.000	1 / 0.748	1 / 0.762	- / -	- / -	- / -	0 / 0.000	2 / 1.615
FY 2019	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2020	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2021	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2022	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2023	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2024	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2025	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
To Complete	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
Total	- / -	- / -	0 / 0.105	1 / 0.748	0 / 0.000	1 / 0.748	1 / 0.762	- / -	- / -	- / -	0 / 0.000	2 / 1.615

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 / 01 / 9	**P-1 Line Item Number / Title:** 0946 / LPD Class Support Equipment	**Modification Number / Title:** 7 / CJ061 Titanium Valve Replacement

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

Modification Item 2 of 3: Titanium Valve Replacement Phase 2

Manufacturer Information

Manufacturer Name: TBD | Manufacturer Location: TBD

Administrative Leadtime *(in Months)*: 0 | Production Leadtime *(in Months)*: 18

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

Installation Information

Method of Implementation: [none specified]:: Installation Name: Titanium Valve Replacement Phase 2

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	0 / 0.115	1 / 0.854	2 / 1.523	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	3 / 2.492
FY 2019	- / -	- / -	0 / 0.129	1 / 0.838	0 / 0.000	1 / 0.838	1 / 0.856	0 / 0.137	1 / 0.688	- / -	0 / 0.000	3 / 2.648
FY 2020	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2021	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2022	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2023	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2024	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2025	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
To Complete	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
Total	0 / 0.115	1 / 0.854	2 / 1.652	1 / 0.838	0 / 0.000	1 / 0.838	1 / 0.856	0 / 0.137	1 / 0.688	- / -	0 / 0.000	6 / 5.140

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	-	-	-	-	1	-	1	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	6
Out	-	-	-	-	-	-	1	-	-	1	-	1	-	1	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	1	6

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0946 / LPD Class Support Equipment	**Modification Number / Title:** 7 / CJ061 Titanium Valve Replacement

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

Modification Item 3 of 3: Titanium Valve Replacement Phase 3

Manufacturer Information

Manufacturer Name: TBD | Manufacturer Location: TBD

Administrative Leadtime *(in Months)*: 0 | Production Leadtime *(in Months)*: 18

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

Installation Information

Method of Implementation: [none specified]:: Installation Name: Titanium Valves Replacement Phase 3

Installation Cost	Prior Years	FY 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	- / -	- / -	- / -	0 / 0.137	0 / 0.000	0 / 0.137	1 / 0.637	- / -	- / -	- / -	0 / 0.000	1 / 0.774
FY 2021	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.140	1 / 0.838	- / -	- / -	0 / 0.000	1 / 0.978
FY 2022	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.142	1 / 0.851	- / -	0 / 0.000	1 / 0.993
FY 2023	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.145	1 / 0.741	0 / 0.000	1 / 0.886
FY 2024	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.148	1 / 0.704	1 / 0.852
FY 2025	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
To Complete	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
Total	- / -	- / -	- / -	0 / 0.137	0 / 0.000	0 / 0.137	1 / 0.777	1 / 0.980	1 / 0.996	1 / 0.889	1 / 0.704	5 / 4.483

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	-	-	-	1	-	1	5
Out	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	1	-	-	1	1	1	5

Footnotes:

(11) CJ061 HM&E MECHANICAL/AUXILIARY MODIFICATIONS HM&E Modernization Titanium Valve Replacement Phase I funding is provided to correct mission, safety and reliability issues on mechanical and auxiliary systems and ultimately resolve maintenance intensive system concerns. Shipsets of equipment vary in quantities and types of components each fiscal year and within a fiscal year. Each ship requires a different number of alterations to be installed, and these alteration packages vary in scope and cost based on individual ship configurations. A quantity of "1" represents a single "kit" intended for installation in one ship, in a single Chief of Naval Operations (CNO) Availability. Ships may be receiving more than 1 kit in a single availability based upon the fielding plan for the systems being modernized. In FY17, there

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0946 / LPD Class Support Equipment	**Modification Number / Title:** 7 / CJ061 Titanium Valve Replacement
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

were a total of (2) kits procured in support of (2) FY18 CNO Availabilities on LPD 19 (1 kit) and LPD 22 (1 kit). The material was delayed due to the manufacturer failing required shock and vibration testing, and therefore these installations were deferred. Installation will occur in FY21 for LPD 22 (1 kit) and FY22 for LPD 19 (1 kit), previously scheduled in FY21. DSA costs will also vary by kit due to differences in scope and complexity, and first installation compared to follow-on installations.

(12) HM&E MECHANICAL/AUXILIARY MODIFICATIONS HM&E Modernization, Titanium Valve Replacement Phase II funding is provided to correct mission, safety and reliability issues on mechanical and auxiliary systems and ultimately resolve maintenance intensive system concerns. Shipsets of equipment vary in quantities and types of components each fiscal year and within a fiscal year. Each ship requires a different number of alterations to be installed, and these alteration packages vary in scope and cost based on individual ship configurations. A quantity of "1" represents a single "kit" intended for installation in one ship, in a single Chief of Naval Operations (CNO) Availability. Ships may be receiving more than 1 kit in a single availability based upon the fielding plan for the systems being modernized. In FY18, there were (3) total kits being procured for installation during (1) FY19 CNO Availability, (1) FY20 CNO Availability and (1) FY27 CNO availability on; LPD 21 (1 kit for FY19), LPD 17 (1 kit for FY20), and LPD 18 (1 kit for FY27). In FY19, there are (2) total kits being procured for installation during (1) FY21 CNO Availability on LPD 22 (1 kit) and (1) FY22 CNO Availability on LPD 19 (1 kit), previously scheduled in FY21. Due to LPD 20 operational commitments resulting in a reduction to the FY21 CNO Availability duration, an FY19 procurement has had the subsequent originally budgeted (FY19 request) FY21 installation for (1) kit deferred to FY24. The (1) kit for LPD 20 will now be installed in FY23 in a CNO Availability that has sufficient duration to support the installation. DSA costs will also vary by kit due to differences in scope and complexity, and first installation compared to follow-on installations. All Phase II procurements have been moved to A-2 years prior to installation, vice A-1 year prior to installation, due to actual lead times encountered on previously procured ship sets.

(13) HM&E MECHANICAL/AUXILIARY MODIFICATIONS HM&E Modernization Titanium Valve Replacement Phase III funding is provided to correct mission, safety and reliability issues on mechanical and auxiliary systems and ultimately resolve maintenance intensive system concerns. Shipsets of equipment vary in quantities and types of components each fiscal year and within a fiscal year. Each ship requires a different number of alterations to be installed, and these alteration packages vary in scope and cost based on individual ship configurations. A quantity of "1" represents a single "kit" intended for installation in one ship, in a single Chief of Naval Operations (CNO) Availability. Ships may be receiving more than 1 kit in a single availability based upon the fielding plan for the systems being modernized. In FY20, there is (1) total kit being procured for installation during (1) FY22 CNO Availability on LPD 21 (1 kit). In FY21, there is (1) total kit being procured for installation during (1) FY23 CNO Availability on LPD 17 (1 kit). In FY22, there is (1) total kit being procured for installation during (1) FY24 CNO Availabilities on LPD 19 (1 kit). In FY23, there is (1) total kit being procured for installation during (1) FY25 CNO Availability on LPD 22 (1 kit). In FY24, there is (1) total kits being procured for installation during (1) FY26 CNO Availabilities on LPD 20 (1 kit). In FY25, there is (1) total kit being procured for installation during (1) FY27 CNO Availability on LPD 18 (1 kit). DSA costs will also vary by kit due to differences in scope and complexity, and first installation compared to follow-on installations. All Phase III procurements have been moved to A-2 years prior to installation, vice A-1 year prior to installation, due to actual lead times encountered on previously procured ship sets.

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0946 / LPD Class Support Equipment	**Modification Number / Title:** 8 / CJ062 HM&E Mechanical/Auxiliary Mods Knuckleboom Crane Improvements
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

Resource Summary	Prior Years	FY 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)*	1.320	2.413	0.777	2.615	0.000	2.615	3.180	2.174	0.559	0.723	1.938	15.699
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	1.320	2.413	0.777	2.615	0.000	2.615	3.180	2.174	0.559	0.723	1.938	15.699
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**1.320**	**2.413**	**0.777**	**2.615**	**0.000**	**2.615**	**3.180**	**2.174**	**0.559**	**0.723**	**1.938**	**15.699**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)												
Initial Spares *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Dollars)*	-	-	-	-	-	-	-	-	-	-	-	-

Description:

[Knuckleboom Crane Improvement] KNUCKLEBOOM CRANE IMPROVEMENTS Modernization funding is provided to correct mission, safety and reliability issues on mechanical and auxiliary systems and ultimately resolve maintenance intensive system concerns. Funding will support boat and cargo crane safety upgrades.

A quantity of (1) FY21 installations originally budgeted (FY20 request) for LPD 19 has been deferred (1) year to FY22 due a change in the CNO Availability schedule.

[Non-Recurring Engineering]

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0946 / LPD Class Support Equipment	**Modification Number / Title:** 8 / CJ062 HM&E Mechanical/Auxiliary Mods Knuckleboom Crane Improvements
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	
Models of Systems Affected: [No Model Specified]	**Modification Type:** TBD	**Related RDT&E PEs:**

Financial Plan	Prior Years	FY 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: CJ062 HM&E Mechanical/ Auxiliary Mods Knuckleboom Crane Improvements												
B Kits												
Recurring												
1.1.1) Knuckleboom Crane Improvement - NonOrganic (14)	2 / 1.020	2 / 1.041	1 / 0.532	2 / 1.086	- / -	2 / 1.086	2 / 1.108	1 / 0.566	- / -	1 / 0.588	1 / 0.650	12 / 6.591
Subtotal: Recurring	*- / 1.020*	*- / 1.041*	*- / 0.532*	*- / 1.086*	*- / -*	*- / 1.086*	*- / 1.108*	*- / 0.566*	*- / -*	*- / 0.588*	*- / 0.650*	*- / 6.591*
Subtotal: CJ062 HM&E Mechanical/Auxiliary Mods Knuckleboom Crane Improvements	*2 / 1.020*	*2 / 1.041*	*1 / 0.532*	*2 / 1.086*	*- / -*	*2 / 1.086*	*2 / 1.108*	*1 / 0.566*	*- / -*	*1 / 0.588*	*1 / 0.650*	*12 / 6.591*
Subtotal: Procurement, All Modification Items	*- / 1.020*	*- / 1.041*	*- / 0.532*	*- / 1.086*	*- / -*	*- / 1.086*	*- / 1.108*	*- / 0.566*	*- / -*	*- / 0.588*	*- / 0.650*	*- / 6.591*
Support *(All Modification Items)*												
2.1) Non-Recurring Engineering	- / 0.300	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / 0.300
Subtotal: Support	*- / 0.300*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / 0.000*	*- / 0.300*
Installation												
Modification Item 1 of 1: CJ062 HM&E Mechanical/ Auxiliary Mods Knuckleboom Crane Improvements	- / 0.000	- / 1.372	- / 0.245	- / 1.529	- / 0.000	- / 1.529	- / 2.072	- / 1.608	- / 0.559	- / 0.135	- / 1.288	- / 8.808
Subtotal: Installation	*- / 0.000*	*- / 1.372*	*- / 0.245*	*- / 1.529*	*- / -*	*- / 1.529*	*- / 2.072*	*- / 1.608*	*- / 0.559*	*- / 0.135*	*- / 1.288*	*- / 8.808*
Total												
Total Cost (Procurement + Support + Installation)	**1.320**	**2.413**	**0.777**	**2.615**	**0.000**	**2.615**	**3.180**	**2.174**	**0.559**	**0.723**	**1.938**	**15.699**

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0946 / LPD Class Support Equipment	**Modification Number / Title:** 8 / CJ062 HM&E Mechanical/Auxiliary Mods Knuckleboom Crane Improvements

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

Modification Item 1 of 1: CJ062 HM&E Mechanical/Auxiliary Mods Knuckleboom Crane Improvements

Manufacturer Information

Manufacturer Name: TBD | Manufacturer Location: TBDTBD

Administrative Leadtime *(in Months)*: 3 | Production Leadtime *(in Months)*: 12

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

Installation Information

Method of Implementation: [none specified]:: Installation Name: Knuckleboom Crane Improvement

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 / 1.132	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	2 / 1.132
FY 2019	- / -	0 / 0.240	- / -	2 / 1.279	0 / 0.000	2 / 1.279	- / -	- / -	- / -	- / -	0 / 0.000	2 / 1.519
FY 2020	- / -	- / -	0 / 0.245	- / -	- / -	- / -	1 / 0.724	- / -	- / -	- / -	0 / 0.000	1 / 0.969
FY 2021	- / -	- / -	- / -	0 / 0.250	0 / 0.000	0 / 0.250	2 / 1.093	- / -	- / -	- / -	0 / 0.000	2 / 1.343
FY 2022	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.255	2 / 1.478	- / -	- / -	0 / 0.000	2 / 1.733
FY 2023	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.130	1 / 0.559	- / -	0 / 0.000	1 / 0.689
FY 2024	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2025	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.135	1 / 0.638	1 / 0.773
To Complete	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	1 / 0.650	1 / 0.650
Total	- / -	2 / 1.372	0 / 0.245	2 / 1.529	0 / 0.000	2 / 1.529	3 / 2.072	2 / 1.608	1 / 0.559	0 / 0.135	2 / 1.288	12 / 8.808

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	-	2	1	-	-	1	-	1	-	1	-	-	-	-	-	-	2	12
Out	-	-	-	-	-	-	-	-	-	1	-	-	1	1	-	1	-	-	2	1	-	-	1	-	1	-	1	-	-	2	12

Footnotes:

(14) Due to a delay in Non-Recurring Engineering, the two (2) budgeted FY19 procurements in the FY 2019 President's Budget request will be procured in the FY 2019 President's Budget request, and installed in FY21. All other procurements and installations have been adjusted to account for the delay in NRE. HM&E MECHANICAL/AUXILIARY MODIFICATIONS HM&E Modernization Knuckleboom Crane Improvement funding is provided to correct mission, safety and reliability issues on mechanical and auxiliary systems and ultimately resolve maintenance intensive system concerns. Shipsets of equipment vary in quantities

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0946 / LPD Class Support Equipment	**Modification Number / Title:** 8 / CJ062 HM&E Mechanical/Auxiliary Mods Knuckleboom Crane Improvements
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

and types of components each fiscal year and within a fiscal year. Each ship requires a different number of alterations to be installed, and these alteration packages vary in scope and cost based on individual ship configurations. A quantity of "1" represents a single "kit" intended for installation in one ship, in a single Chief of Naval Operations (CNO) Availability. Ships may be receiving more than 1 kit in a single availability based upon the fielding plan for the systems being modernized. In FY19, there are (2) total kits procured for installation during (2) FY21 CNO Availabilities on LPD 22 (1 kit) and LPD 27 (1 kit). In FY20, there is (1) total kit being procured for installation during (1) FY22 CNO Availability on LPD 19 (1 kit), previously scheduled in FY21. In FY21, there are (2) total kits being procured for installation during (2) FY22 CNO Availabilities on LPD 21 (1 kit) and LPD 23 (1 kit). In FY22, there are (2) total kits being procured for installation during (2) FY23 CNO Availabilities on LPD 17 (1 kit) and LPD 24 (1 kit). In FY23, there is (1) total kit being procured for installation during (1) FY24 CNO Availability on LPD 20 (1 kit). There are no FY25 CNO Availabilities that would support associated procurements in FY24. In FY25, there is (1) total kit being procured for installation during (1) FY26 CNO Availability on LPD 26 (1 kit). DSA costs will also vary by kit due to differences in scope and complexity, and first installation compared to follow-on installations.

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0946 / LPD Class Support Equipment	**Modification Number / Title:** 9 / CJ063 HM&E Mechanical/Auxiliary Mod Common Fuel Rail
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

Resource Summary	Prior Years	FY 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	0.000	15.076	0.000	15.076	21.433	22.245	6.470	16.335	54.244	135.803
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	0.000	0.000	0.000	15.076	0.000	15.076	21.433	22.245	6.470	16.335	54.244	135.803
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**0.000**	**0.000**	**0.000**	**15.076**	**0.000**	**15.076**	**21.433**	**22.245**	**6.470**	**16.335**	**54.244**	**135.803**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)												
Initial Spares *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Dollars)*	-	-	-	-	-	-	-	-	-	-	-	-

Description:

[Common Fuel Rail] FUEL INJECTION COMMON RAIL Modernization funding is provided to correct mission, safety and reliability issues on Main Propulsion Diesel Engine (MPDE) systems and ultimately resolve maintenance intensive system concerns. Funding will support developing and installing a high-pressure, electronically-controlled fuel injection rail system.

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0946 / LPD Class Support Equipment	**Modification Number / Title:** 9 / CJ063 HM&E Mechanical/Auxiliary Mod Common Fuel Rail

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

Models of Systems Affected: [No Model Specified] **Modification Type:** TBD **Related RDT&E PEs:**

Financial Plan	Prior Years	FY 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: CJ063 HM&E Mechanical/ Auxiliary Mod Common Fuel Rail												
B Kits												
Recurring												
1.1.1) Common Fuel Rail - NonOrganic (15)	- / -	- / -	- / -	2 / 14.468	- / -	2 / 14.468	2 / 14.772	2 / 15.082	- / -	2 / 15.676	4 / 32.506	12 / 92.504
Subtotal: Recurring	*- / 0.000*	*- / -*	*- / -*	*- / 14.468*	*- / -*	*- / 14.468*	*- / 14.772*	*- / 15.082*	*- / -*	*- / 15.676*	*- / 32.506*	*- / 92.504*
Subtotal: CJ063 HM&E Mechanical/Auxiliary Mod Common Fuel Rail	*- / -*	*- / -*	*- / -*	*2 / 14.468*	*- / -*	*2 / 14.468*	*2 / 14.772*	*2 / 15.082*	*- / -*	*2 / 15.676*	*4 / 32.506*	*12 / 92.504*
Subtotal: Procurement, All Modification Items	*- / 0.000*	*- / -*	*- / -*	*- / 14.468*	*- / -*	*- / 14.468*	*- / 14.772*	*- / 15.082*	*- / -*	*- / 15.676*	*- / 32.506*	*- / 92.504*
Installation												
Modification Item 1 of 1: CJ063 HM&E Mechanical/ Auxiliary Mod Common Fuel Rail	- / 0.000	- / 0.000	- / 0.000	- / 0.608	- / 0.000	- / 0.608	- / 6.661	- / 7.163	- / 6.470	- / 0.659	- / 21.738	- / 43.299
Subtotal: Installation	*- / 0.000*	*- / -*	*- / -*	*- / 0.608*	*- / -*	*- / 0.608*	*- / 6.661*	*- / 7.163*	*- / 6.470*	*- / 0.659*	*- / 21.738*	*- / 43.299*
Total												
Total Cost (Procurement + Support + Installation)	**0.000**	**0.000**	**0.000**	**15.076**	**0.000**	**15.076**	**21.433**	**22.245**	**6.470**	**16.335**	**54.244**	**135.803**

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0946 / LPD Class Support Equipment	**Modification Number / Title:** 9 / CJ063 HM&E Mechanical/Auxiliary Mod Common Fuel Rail

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

Modification Item 1 of 1: CJ063 HM&E Mechanical/Auxiliary Mod Common Fuel Rail

Manufacturer Information

Manufacturer Name: TBD | Manufacturer Location: TBD

Administrative Leadtime *(in Months)*: 3 | Production Leadtime *(in Months)*: 12

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

Installation Information

Method of Implementation: [none specified]:: Installation Name: Common Fuel Rail

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	- / -	- / -	- / -	0 / 0.608	0 / 0.000	0 / 0.608	2 / 6.040	- / -	- / -	- / -	0 / 0.000	2 / 6.648
FY 2022	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.621	2 / 6.529	- / -	- / -	0 / 0.000	2 / 7.150
FY 2023	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.634	2 / 6.470	- / -	0 / 0.000	2 / 7.104
FY 2024	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2025	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.659	2 / 6.646	2 / 7.305
To Complete	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	4 / 15.092	4 / 15.092
Total	- / -	- / -	- / -	0 / 0.608	0 / 0.000	0 / 0.608	2 / 6.661	2 / 7.163	2 / 6.470	0 / 0.659	6 / 21.738	12 / 43.299

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	-	1	-	1	1	-	-	-	-	-	6	12
Out	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	-	-	1	-	1	-	1	1	-	6	12

Footnotes:

(15) HM&E MECHANICAL/AUXILIARY MODIFICATIONS HM&E Modernization Common Fuel Rail (CFR) funding is provided to correct mission, safety and reliability issues on Main Propulsion Diesel Engine (MPDE) systems and ultimately resolve maintenance intensive system concerns. FY22 Installations: LPD 21 and LPD 23. FY23 Installations: LPD 17 and LPD 24. FY24 Installations: LPD 19 and LPD 20. No FY25 installations. FY26 Installations: LPD 26 and LPD 28. Non-Recurring Engineering (NRE) for the CFR was completed in FY18.

Exhibit P-40, Budget Line Item Justification: PB 2021 Navy	Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 01: Ships Support Equipment / BSA 9: Other Shipboard Equipment	**P-1 Line Item Number / Title:** 0947 / DDG 1000 Class Support Equipment

ID Code (A=Service Ready, B=Not Service Ready): A	**Program Elements for Code B Items:** 0204202N	**Other Related Program Elements:** N/A
Line Item MDAP/MAIS Code: 197		

Resource Summary	Prior Years	FY 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)*	33.404	57.700	8.530	42.279	0.000	42.279	124.957	141.665	180.334	41.044	-	629.913
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	33.404	57.700	8.530	42.279	0.000	42.279	124.957	141.665	180.334	41.044	-	629.913
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**33.404**	**57.700**	**8.530**	**42.279**	**0.000**	**42.279**	**124.957**	**141.665**	**180.334**	**41.044**	**-**	**629.913**
(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:

The FY 2021 funding request was reduced by $7.000 million to account for the availability of prior year execution balances.

DDG 1000, a multi-mission surface combatant, will serve as a versatile asset in the context of future Naval Strategy. Armed with an array of weapons, DDG 1000 will provide the Joint Force Commander with precision strike and volume fires. Designed with sustainable payload, multi-spectral stealth and optimal manning, DDG 1000 will take the fight to the enemy with unprecedented striking power.

Program provides for DDG 1000 combat system hardware/equipment suite technology refresh to support obsolescence management and address reliability, maintainability & availability (RM&A) issues following fielding. Combat System hardware will be approaching 11 years of age at time of delivery. Active management of commercial off-the-shelf (COTS) obsolescence via hardware/equipment technology refresh will be required to ensure DDG 1000 class ships reach their design service life. Additionally, program will sustain and upgrade in-service DDG 1000 ships in order to achieve their Expected Service Life (ESL). Upgrades will be mission capable in countering current and projected threats, improve operational capabilities, and comply with requirements.

After a comprehensive review of Zumwalt class requirements, Navy decided in November 2017 to refocus the primary mission of the Zumwalt Class Destroyers from Land Attack to Offensive Surface Strike. This funding will facilitate the change in mission and add lethal, offensive fires against targets afloat and ashore. These changes include integration of SM-6 capability, Maritime Strike Tomahawk Integration, and organic cryptologic collection equipment (SPECTRAL). In order to maintain the required radar signature, an upgrade in off-board platform communications to the Network Tactical Common Data Link (NTCDL) is also required, paired with the SPECTRAL system.

[P40A / DDG 1000 Class On Board Trainer]: Funding provides for the procurement and installation of On Board Training (OBT) environment hardware for the ZUMWALT Class to include DDG 1000, 1001 and 1002. OBT allows the ship's combat system to enter into a simulated environment and stimulate the combat system with non-real training tracks, allowing the crew to exercise their system and prepare for real world scenarios. This OBT capability, as requested by the fleet, is necessary to ensure the ship is prepared for deployment.

[P40A / DDG 1000 Class Operating System Refresh]: Funding provides for the procurement and installation of critical operating systems and targeted technology refresh of the technical baseline for DDG 1000 Embedded Distributed Adaptation Processors (EDAPs), Wireless Access Points (WAPS), and Cameras. Technology refresh includes non-recurring systems engineering required to plan for and integrate the newly procured EDAPs, WAPs, and network IP video cameras. The systems engineering efforts consisted of identifying and developing design approaches for applications or hardware assemblies that required re-architecture or redesign due to changes in the COTS designs.

Exhibit P-40, Budget Line Item Justification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 01: Ships Support Equipment / BSA 9: Other Shipboard Equipment	**P-1 Line Item Number / Title:** 0947 / DDG 1000 Class Support Equipment	
ID Code (A=Service Ready, B=Not Service Ready): A	**Program Elements for Code B Items:** 0204202N	**Other Related Program Elements:** N/A
Line Item MDAP/MAIS Code: 197		

EDAPs provide the electrical and logical interfaces to Total Ship Computing Environment (TSCE) via the Total Ship Computing Environment Infrastructure (TSCEI) network. EDAP procurements necessary to support the DDG 1000 Class Operating System upgrade to ensure Information Assurance (IA) compliance. The hardware procurement will provide the DDG 1000 Class ships critical upgrades to support required integration allowing the DDG 1000 Class ships to operate as a multi-mission warfare platform.

Wireless Access Points (WAPs) provide shipboard wireless connectivity to the TSCEI throughout the ship.

Cameras (fixed and Pan Tilt Zoom (PTZ)) provide the necessary monitoring and safe operation of unmanned spaces and are integrated into the TSCE. These cameras are primarily a watch-stander situational awareness tool which augments the manning reductions on DDG 1000 class ships. This procurement replaces obsolete and unsupported legacy camera systems (including sensors, pan/tilt, unit, controllers and other HW).

[P40A / DDG 1000 Class Product Improvement]: Funding will support ship alteration (Shipalt) prioritization and planning through shipyard installations during availabilities. Other modernization efforts include but are not limited to logistics and technical documentation, engineering services and Alteration Installation Team (AITs) within the Fleet Modernization Program (FMP). Funding will procure DDG 1000 Total Ship Computing Environment (TSCE) network switches which are critical items required to support DDG 1000 Data Center technology refresh. These TSCE network switches support Integrated Ship Plan (ISP) validation, address obsolescence, and require configuration engineering prior to installation. Without a supportable ISP, the ship will be unable to validate the operation and safety of the ship's systems.

Shaft Encoder - This upgrade is to provide closed loop control of propeller shafts throughout the entire power range which will allow for improved response and greater accuracy of control at all times, thus improving the navigational safety of the platform. This increased accuracy will be particularly critical during slow speed berthing maneuvers and in other navigation constrained scenarios, such as restricted maneuvering, where accuracy of control, and speed of response, is a vital element for platform safety.

[P40A / Critical Cybersecurity Upgrades and Improvements]: The Total Ship Computing Environment (TSCE) integrates all the ship's sensors and weapons into a cohesive Combat System (CS). The TSCE is integrated with an array of sensors and weapons that exchange data across the domains with the core network using a series of buffering computers known as Distributed Adaptation Processors (DAPs). The new ZUMWALT Class ship design has reliable and effective land-attack maritime dominance capabilities that meet stringent signature goals, which are interoperable with Joint forces.

Funding required for hardware procurement and hardware engineering support to support Windows 10 Upgrade, Linux Kernel Integrity Validation tool, and Secure Data Distribution Services equipment. Windows 10 upgrade is required to support existing capabilities, prevent cyber security vulnerabilities, and is mandated by OPNAV requirements. Installation of Linux Kernel Integrity Validation tool will upgrade methods for detecting malicious activity (including "Zero-day" attacks) in order to keep pace with ongoing threats. Secure Data Distribution Services will provide comprehensive detection and countermeasure capabilities to ensure data confidentiality and integrity, and will help keep pace with ongoing threats.

[P40A / Common Display System]: The Common Display System (CDS), an integral part of the TSCE infrastructure, consists of information-display consoles/peripherals that display the integrated data required to operate the ship and its systems. There are 40 consoles on each Zumwalt Class ship and 22 consoles in the shore trainer facility. The CDS variant on Zumwalt class are unique configuration based on a 10 year old design and should be aligned with ongoing modernization efforts in the Fleet.

[P40A / TSCE Diminishing Manufacturing Sources & Material Shortages (DMSMS)]: FY21 OPN funding is required to procure ZUMWALT Class ships network and computing equipment to address obsolescence and DMS concerns to sustain the ZUMWALT Class TSCE and minimize total operation costs. Fifty percent of TSCE components are currently obsolete and obsolescence forecasts predict ninety percent obsolete by FY20. NRE is based on SD-22 solution costs adjusted for inflation for current and predicted obsolescence. Funding is required to maintain ship readiness; without funding, obsolescence in ZUMWALT Class network and computing environments will impact the ship's ability to get underway, increase cyber security vulnerabilities, and decrease capacity for sparing.

[P40A / TSCE Modernization]: Fund OPN to procure upgraded equipment to support network infrastructure and data center modernization. PEO IWS is working towards a Common Combat System hardware baseline. This procurement will allow DDG 1000 to align to the PEO IWS common hardware and integrate TSCE software onto that hardware

[P40A / HM&E Land Based Test Environment (LBTE)]: Procure material and equipment for Land Based Test Environment (LBTE) will lead to greater understanding and competency for DDG 1000 controls systems and will lead to less dependency on the Original Equipment Manufacturer (OEM) to provide life-cycle support for hardware, software and cyber security.

Exhibit P-40, Budget Line Item Justification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 01: Ships Support Equipment / BSA 9: Other Shipboard Equipment	**P-1 Line Item Number / Title:** 0947 / DDG 1000 Class Support Equipment	
ID Code (A=Service Ready, B=Not Service Ready): A	**Program Elements for Code B Items:** 0204202N	**Other Related Program Elements:** N/A
Line Item MDAP/MAIS Code: 197		

[P40A / Data Center Lab (Combat System Maintenance and Hardware)]: Data Center Lab (Combat System Maintenance and Hardware)- Funding is to populate the lab with tactical hardware. Currently the lab is utilizing DDG 1002 assets, which will be removed from the lab to support ship DDG 1002 installation during PDA. To maintain lab capability, additional hardware will need to be procured. FY21 funding supports high priority hardware purchases and NRE in support of primary FY22 hardware procurement.

[P40A / Electro-Optical / Infrared (EO/IR) Sensor]: Procure three shipsets (1 shipset = 3 sensors plus 1 spare) across FY21 thru FY23. DDG 1000 is a low RCS vessel that utilizes EO/IR tactically. In conjunction with NAVSEA 05 and the Technical Warrant Holder (TWH), conducted a study of available EO/IR sensors and have selected the compliant sensor available to meet both the RCS and EO/IR functional requirements of DDG 1000.

[P40A / C4I (Business) Network Sustainment]: Total Ship Computing Environment (TSCE) includes a C4I (business) network, which currently resides on an unsupportable Windows 7 operating system with no sustainment plan in place. Funding will upgrade the current C4I (business) network from Windows 7 to Windows 10, procure licenses, and replace laptops. Critical Cyber security Upgrades and Improvements funded the upgrade of the Total Ship Computing Environment (TSCE) to Windows 10. This did not fund upgrades to any of the applications that utilize the TSCE network such as COMPOSE 4.0.1, GCCS-M, NGC2P, etc. Since there is no program of record support for COMPOSE 4.0.1 as installed on DDG 1000, this funds an upgrade to COMPOSE 4.0.1 to Windows 10, and provides a sustainment path for this system.

[P40A / Radar Absorbing Material (RAM) and Composite Sustainment]: Recurring OPN is required to procure, install and repair RAM on board the DDG 1000 Class.

[P40A / MK 57 CEU Technical Development Package]: Funding required for engineering development efforts to prepare and approve the DDG 1000 class MK57 universal canister electrical unit (UCEU) technical data package (TDP). The TDP is necessary to issue a build-to-print request for proposal to industry, for development and test the UCEU hardware. Naval surface warfare center Dahlgren will be the primary activity developing the TDP. The procurement and testing of the UCEU will be funded from OPN LI 5231 Ship Missile Support Equipment.

[P40A / DDG 1000 Maritime Strike Tomahawk Integration]: Integration of Tomahawk Maritime capability into MK 57 VLS incorporates a high speed interface between the Weapon Control Element (WCE) and missile. Integration effort into MK 57 VLS requires CEU hardware redesign, software, and firmware upgrades. Integration effort requires canister modifications and changes to the VLS-to-WCE-to-TSCE interface, VLS-to-missile IDS, VLS software changes, and upgrades to VLS test equipment/simulators.

[P40A / DDG 1000 SM-6 Integration]: Integration of SM-6 capability. Funding required for Total Ship Computing Environment (TSCE) Integration (OPN), testing, and Live Fire Testing (RDT&E). Procure the Vertical Launch System Global Positioning System Integration (VGI) components for the necessary ephemeris data.

[P40A / DDG 1000 NTCDL Integration]: Upgrade Tactical Common Data Link (TCDL) to Network Tactical Common Data Link (NTCDL) by removing TCDL from the ship's 07-level and replacing with deckhouse mounted NTCDL. TCDL is a Commercial Off-The-Shelf (COTS) antenna which Naval Information Warfare Systems Command supports whereas NTCDL is a full program of record. Will increase capacity for Common Data Link (CDL) links, as well as freeing up 07-level space and improving Radar Cross Section (RCS) to allow for installation of other antennas. Improves signature and increases capacity of CDL links.

[P40A / DDG 1000 Spectral Integration]: Upgrade Ship's Signal Exploitation Equipment Increment F (SSEE Inc F) antennas to meet DDG 1000 RCS requirements. Utilize previous research and treatment methods to develop antenna set for SSEE INC F / Spectral that meets RCS requirements. Adds warfighting capability to the ship while not sacrificing signature of the ship.

Exhibit P-40, Budget Line Item Justification: PB 2021 Navy	Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 01: Ships Support Equipment / BSA 9: Other Shipboard Equipment	**P-1 Line Item Number / Title:** 0947 / DDG 1000 Class Support Equipment

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

Line Item MDAP/MAIS Code: 197

Exhibits Schedule					Prior Years	FY 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	DDG 1000 Class Support Equipment	P-5a, P-21			- / 33.404	- / 57.700	- / 8.530	- / 42.279	- / -	- / 42.279
P-40	**Total Gross/Weapon System Cost**				**- / 33.404**	**- / 57.700**	**- / 8.530**	**- / 42.279**	**- / 0.000**	**- / 42.279**

*Title represents 1) the Number / Title for Items; 2) the Number / Title [DODIC] for Ammunition; and/or 3) the Number / Title (Modification Type) for Modifications. Title represents the P-40a Title when only the P-40a Summary/Total is shown.

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

Justification:
Existing DDG 1000 and follow hardware is already over 11 years old. Total Ship Computing Environment (TSCE) Diminishing Manufacturing Sources & Material Shortages (DMSMS) effort includes non-recurring engineering required to identify and qualify applicable obsolete parts, prepare drawing updates (Lowest Replaceable Unit (LRU) & cabinet level), prepare Integrated Logistics Support (ILS) updates (LRU & cabinet level) and procure replacement parts. Network Tactical Common Data Link (NTCDL) Integration effort includes preparation of ship installation drawings and procurement of NCTDL components.

Exhibit P-40a, Budget Item Justification For Aggregated Items: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	P-1 Line Item Number / Title: 0947 / DDG 1000 Class Support Equipment	Aggregated Items Title: DDG 1000 Class Support Equipment

Item Number / Title [DODIC]	ID CD	MDAP/ MAIS Code	Prior Years			FY 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) DDG 1000 CLASS SUPPORT EQUIPMENT																				
1.1) DDG 1000 Class On Board Trainer(†)	A		-	-	-	10,667K	3	32.000	-	-	-	-	-	-	-	-	-	-	-	-
1.2) DDG 1000 Class Operating System Refresh(†)	A		9,912K	3	29.735	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: 1) DDG 1000 CLASS SUPPORT EQUIPMENT			**-**	**-**	***29.735***	**-**	**-**	***32.000***	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
2) DDG 1000 CLASS SUPPORT																				
2.1) Production Engineering	A		-	-	1.400	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: 2) DDG 1000 CLASS SUPPORT			**-**	**-**	***1.400***	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
3) DDG 1000 CLASS HM&E PRODUCT IMPROVEMENT																				
3.1) DDG 1000 Class Product Improvement	A		-	-	1.404	-	-	3.200	-	-	2.030	-	-	2.091	-	-	-	-	-	2.091
3.2) Critical Cybersecurity Upgrades and Improvements	A		-	-	-	-	-	9.300	-	-	-	-	-	0.400	-	-	-	-	-	0.400
3.3) Common Display System	A		-	-	0.865	-	-	4.000	-	-	-	-	-	-	-	-	-	-	-	-
3.4) TSCE Diminishing Manufacturing Sources & Material Shortages (DMSMS)	A		-	-	-	-	-	5.200	-	-	3.400	-	-	9.839	-	-	-	-	-	9.839
3.6) HM&E Land Based Test Environment (LBTE)(†)	A		-	-	-	-	-	-	-	-	-	1,529K	1	1.529	-	-	-	1,529K	1	1.529
3.7) Data Center Lab (Combat System Maintenance and Hardware)(†)	A		-	-	-	-	-	-	-	-	-	4,720K	1	4.720	-	-	-	4,720K	1	4.720
3.8) Electro-Optical / Infrared (EO/IR) Sensor(†)	A		-	-	-	-	-	-	-	-	-	4,900K	1	4.900	-	-	-	4,900K	1	4.900
3.9) C4I (Business) Network Sustainment	A		-	-	-	-	-	-	-	-	-	-	-	4.000	-	-	-	-	-	4.000
3.10) Radar Absorbing Material (RAM) and Composite Sustainment	A		-	-	-	-	-	-	-	-	-	-	-	1.300	-	-	-	-	-	1.300
3.11) MK 57 CEU Technical	A		-	-	-	-	-	4.000	-	-	-	-	-	-	-	-	-	-	-	-

Exhibit P-40a, Budget Item Justification For Aggregated Items: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0947 / DDG 1000 Class Support Equipment	**Aggregated Items Title:** DDG 1000 Class Support Equipment

Item Number / Title [DODIC]	ID CD	MDAP/ MAIS Code	Prior Years			FY 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)
Development Package																				
Subtotal: 3) DDG 1000 CLASS HM&E PRODUCT IMPROVEMENT			**-**	**-**	***2.269***	**-**	**-**	***25.700***	**-**	**-**	***5.430***	**-**	**-**	***28.779***	**-**	**-**	**-**	**-**	**-**	***28.779***
4) DDG 1000 SURFACE STRIKE																				
4.1) DDG 1000 Maritime Strike Tomahawk Integration	A		-	-	-	-	-	-	-	-	-	-	-	1.200	-	-	-	-	-	1.200
4.2) DDG 1000 SM-6 Integration	A		-	-	-	-	-	-	-	-	-	-	-	2.600	-	-	-	-	-	2.600
4.3) DDG 1000 NTCDL Integration	A		-	-	-	-	-	-	-	-	3.100	-	-	9.700	-	-	-	-	-	9.700
Subtotal: 4) DDG 1000 SURFACE STRIKE			**-**	**-**	***0.000***	**-**	**-**	**-**	**-**	**-**	***3.100***	**-**	**-**	***13.500***	**-**	**-**	**-**	**-**	**-**	***13.500***
Total			**-**	**-**	**33.404**	**-**	**-**	**57.700**	**-**	**-**	**8.530**	**-**	**-**	**42.279**	**-**	**-**	**-**	**-**	**-**	**42.279**

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

Exhibit P-5a, Procurement History and Planning: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	P-1 Line Item Number / Title: 0947 / DDG 1000 Class Support Equipment	Aggregated Items: DDG 1000 Class Support Equipment

Item Number / Title [DODIC]	OCO	FY	Contractor and Location	Method/Type or Funding Vehicle	Location of PCO	Award Date	Date of First Delivery	Qty (Each)	Unit Cost ($)	Specs Avail Now?	Date Revision Available	RFP Issue Date
1) DDG 1000 CLASS SUPPORT EQUIPMENT												
1.1) DDG 1000 Class On Board Trainer(†)		2019	Raytheon / Portsmouth, RI	SS / FP	NAVSEA	Sep 2019	Sep 2020	3	10,667K	N	Jul 2017	Aug 2018
1.2) DDG 1000 Class Operating System Refresh(†)		2017	Raytheon / Portsmouth, RI	SS / FP	NAVSEA	Feb 2018	Dec 2018	3	9,912K	Y		Aug 2017
3) DDG 1000 CLASS HM&E PRODUCT IMPROVEMENT												
3.6) HM&E Land Based Test Environment (LBTE)(†)		2021	L3 KEO / NORTHAMPTON, MA	C / FFP	NSWC PD	Dec 2020	Jun 2021	1	1,529K	Y		Jun 2020
3.7) Data Center Lab (Combat System Maintenance and Hardware)(†)		2021	Raytheon Corporation / Marlborough, MA	SS / FFP	NAVSEA	Feb 2021	Feb 2022	1	4,720K	Y		Jun 2020
3.8) Electro-Optical / Infrared (EO/IR) Sensor(†)		2021	TBD / UNKNOWN	C / TBD	NAVSEA	Oct 2020	Apr 2021	1	4,900K	Y		Jun 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 / 01 / 9

P-1 Line Item Number / Title: 0947 / DDG 1000 Class Support Equipment

Aggregated Items: DDG 1000 Class Support Equipment

Items (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) DDG 1000 CLASS SUPPORT EQUIPMENT																															
1.1) DDG 1000 Class On Board Trainer																															
	3	2019	NAVY	3	0	3																								A -	3
1.2) DDG 1000 Class Operating System Refresh																															
	4	2017	NAVY	3	0	3					A -	-	-	-	-	-	-	-	-	-	1	-	-	-	1	-	-	1			0
3) DDG 1000 CLASS HM&E PRODUCT IMPROVEMENT																															
3.6) HM&E Land Based Test Environment (LBTE)																															
	5	2021	NAVY	1	0	1																									1
3.7) Data Center Lab (Combat System Maintenance and Hardware)																															
	6	2021	NAVY	1	0	1																									1
3.8) Electro-Optical / Infrared (EO/IR) Sensor																															
	7	2021	NAVY	1	0	1																									1
							OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	

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

Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9

P-1 Line Item Number / Title: 0947 / DDG 1000 Class Support Equipment

Aggregated Items: DDG 1000 Class Support Equipment

Items (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) DDG 1000 CLASS SUPPORT EQUIPMENT																															
1.1) DDG 1000 Class On Board Trainer																															
	3	2019	NAVY	3	0	3	-	-	-	-	-	-	-	-	-	-	-	3													0
1.2) DDG 1000 Class Operating System Refresh																															
	4	2017	NAVY	3	3	0																									0
3) DDG 1000 CLASS HM&E PRODUCT IMPROVEMENT																															
3.6) HM&E Land Based Test Environment (LBTE)																															
	5	2021	NAVY	1	0	1															A -	-	-	-	-	-	1				0
3.7) Data Center Lab (Combat System Maintenance and Hardware)																															
	6	2021	NAVY	1	0	1																	A -	-	-	-	-	-	-	-	1
3.8) Electro-Optical / Infrared (EO/IR) Sensor																															
	7	2021	NAVY	1	0	1													A -	-	-	-	-	-	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 / 01 / 9

P-1 Line Item Number / Title: 0947 / DDG 1000 Class Support Equipment

Aggregated Items: DDG 1000 Class Support Equipment

Items (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) DDG 1000 CLASS SUPPORT EQUIPMENT																															
1.1) DDG 1000 Class On Board Trainer																															
	3	2019	NAVY	3	3	0																									0
1.2) DDG 1000 Class Operating System Refresh																															
	4	2017	NAVY	3	3	0																									0
3) DDG 1000 CLASS HM&E PRODUCT IMPROVEMENT																															
3.6) HM&E Land Based Test Environment (LBTE)																															
	5	2021	NAVY	1	1	0																									0
3.7) Data Center Lab (Combat System Maintenance and Hardware)																															
	6	2021	NAVY	1	0	1	-	-	-	-	1																				0
3.8) Electro-Optical / Infrared (EO/IR) Sensor																															
	7	2021	NAVY	1	1	0																									0
							OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	

Exhibit P-21, Production Schedule: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0947 / DDG 1000 Class Support Equipment	**Aggregated Items:** DDG 1000 Class Support Equipment

MFR Ref #	Manufacturer Name - Location	Production Rates (Each / Year)			Procurement Leadtime (Months)							
					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	Raytheon - Portsmouth, RI			TBD	0	0	18	18	0	0	12	12
2	Raytheon - Portsmouth, RI	3	3	3	0	16	10	26	0	0	0	0
3	L3 KEO - NORTHAMPTON, MA			TBD	0	2	6	8	0	0	0	0
4	Raytheon Corporation - Marlborough, MA			TBD	0	0	12	12	0	0	0	0
5	TBD - UNKNOWN			TBD	0	1	6	7	0	0	0	0

"A" in the Delivery Schedule indicates the Contract Award Date.
Note: Due to space limitations, quantities in the Exhibit P-21 delivery calendar are truncated and rounded based on the maximum quantity in the calendar as follows. If the maximum quantity is less than or equal to than 9,999, all quantities are shown as each. If the maximum quantity is between 10,000 and 999,999 all quantities are shown in thousands. If the maximum quantity is between 1,000,000 and 999,999,999 all quantities are shown in millions (rounded to the nearest thousand).If the maximum quantity is equal or greater than 1,000,000,000 all quantities are shown in billions (rounded to the nearest million).

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Exhibit P-40, Budget Line Item Justification: PB 2021 Navy	Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 01: Ships Support Equipment / BSA 9: Other Shipboard Equipment	**P-1 Line Item Number / Title:** 0950 / Strategic Platform Support Equip

ID Code (A=Service Ready, B=Not Service Ready): A	**Program Elements for Code B Items:** N/A	**Other Related Program Elements:** N/A
Line Item MDAP/MAIS Code: N/A		

Resource Summary	Prior Years	FY 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)*	126.538	22.254	14.331	15.429	0.000	15.429	7.936	10.238	10.417	10.621	Continuing	Continuing
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	126.538	22.254	14.331	15.429	0.000	15.429	7.936	10.238	10.417	10.621	Continuing	Continuing
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**126.538**	**22.254**	**14.331**	**15.429**	**0.000**	**15.429**	**7.936**	**10.238**	**10.417**	**10.621**	**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:

Funding in this P-1 line provides for the procurement of tactical Hull, Mechanical and Electrical (HM&E) equipment that will be installed aboard ships and in the facilities at the TRIDENT Refit Facility (TRIREFFAC), Navy Intermediate Maintenance Facility (NAVIMFAC) and TRIDENT Training Facility (TRITRAFAC). The TRIDENT Refit Facility and Navy Intermediate Maintenance Facility (NAVIMFAC) are dedicated shore support facilities providing a full range of industrial support. The TRITRAFAC provides the crews for the OHIO Class (SSBN/SSGN) Submarines with realistic training experience in operating and maintaining shipboard equipment. The growth in this line is due to procurement and installation of OHIO CLASS Ship Control Station Obsolete Equipment Replacement (SCS OER).

[P40A / HH009 EQUIPMENT HM&E & SWS/SS ALTERATION]: This provides for the replacement of obsolete equipment on board of OHIO Class Submarines and at dedicated Shore Support Facilities (TLCSF, TRITRAFAC (B), NAVIMFAC (B), TRITRAFAC (KB), TRIREFFAC (KB), Major Shore Spares (MSS)). These alterations are necessary in order to replace obsolete/outdated equipment with new equipment to maintain or increase mission capabilities, replace or modify components/systems which have proven to be unreliable, correct design and safety problems and reduce fleet maintenance burdens. Funds provide for multiple efforts to ensure that the OHIO Class Ship Control Subsystem, both hardware and software components, support the extended life of the OHIO Class submarine platforms. In FY99 and again in FY06 a NUWC KEYPORT study identified a number of obsolete electronic components in the Ship Control Station (27 out of 107) that are no longer available. The FY06 study recommended that the Ship Control ISEA develop and execute a program that would address the near term obsolescence issues and ensure the continued availability of the subsystem in the out years. Alterations and actions are done at the lowest practicable and authorized level (taking into consideration urgency, priority, capability, capacity and cost). Alterations to OHIO Class Submarines are scheduled for accomplishment at the TRIREFFAC, Kings Bay, NAVIMFAC, Bangor, and at Naval Shipyards during Depot Availabilities. This requires equipment procurement and installation, technical planning, training, and associated resources. This line provides for material procurement necessary to install the required alterations to OHIO Class Submarines. Commencing in FY19 funding is provided for upgrading Laboratory facilities at Electric Boat Corporation and Naval Undersea Warfare Center Newport Rhode Island and at the Trident Training Facilities in Kings Bay Georgia and Bangor Washington. This upgrade is required so the Ship Control Laboratory facilities and the Trident Training Facilities are current with installed Ohio Class Ship Control Systems. This upgrade completes in FY21.

Additionally, this line provides for the utilization of specially trained and dedicated installation teams to ensure accelerated and correct installation of complex and high priority alterations within specific time frames. Provided are comprehensive program management and execution, including planning, direction, control, installation, integration, and coordination of specifically selected safety related, mission enhancement or technical HM&E alterations. Starting in FY19, the SSBN Strategic Weapon Support Systems (SWSS) program includes a Sustainability effort, which maintains the SWSS surveillance, modernization and obsolescence management program. This line monitors and predicts SWSS obsolescence issues and plans for program modernization to address predicted obsolescence, reliability or maintainability issues to ensure OHIO class submarines continue to meet mission requirements to end of life until replaced by the COLUMBIA Class. Items anticipated may include; Harvesting Critical Components, Reverse Engineering, Form-Fit-Function replacements, providing lifetime buys, providing component-level SHIPALTs (reactive). Starting in FY20, funding is for replacement Trim/Drain Pump motors as the current installed motors are obsolete and not supportable to end of life for OHIO Class SSBNs and SSGNs. The manufacturer of the OHIO Class Trim and Drain pump motor closed their facility.

Exhibit P-40, Budget Line Item Justification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 01: Ships Support Equipment / BSA 9: Other Shipboard Equipment	**P-1 Line Item Number / Title:** 0950 / Strategic Platform Support Equip	
ID Code (A=Service Ready, B=Not Service Ready): A	**Program Elements for Code B Items:** N/A	**Other Related Program Elements:** N/A
Line Item MDAP/MAIS Code: N/A		

Leverages VA Class motors as replacements, but requires non-recurring engineering, qualification funding for arrangement, power connection and integrated logistics support changes and install funding as a backfit SHIPALT. Also in FY20, begin funding replacement for High Pressure Air Compressor (HPAC) programmable logic controllers (PLCs) that are obsolete, and replacements are no longer available. PLCs on OHIO Class are no longer supported by the stock system and repair parts are not available. Funds support non-recurring engineering to develop a refresh modification and ILS support for the PLC on existing HPAC TRIPER assets. Once the PLC upgrade design is qualified, kits will be procured to install on each TRIPER asset during unit overhaul to support in-service OHIO class submarines.

[P40A / HH012 EQUIPMENT HM&E TRIDENT ENGINGEERING AVAILABILITY]: TRIDENT Engineered Availability (EA) support funding is required to provide system engineering, technical, logistic and configuration management support for all accomplished modernization during the SSBN 726 Class Submarine Engineered Availabilities (EAs) commencing in FY93 and continuing through the operational life of the submarine. This program also provides funding for Quality Assurance (QA) oversight and certification by Supervisor Of Shipbuilding, Groton (SOS Groton) of SHIPALTS performed by Electric Boat Corporation (EB), provides funding to the Planning Yard for Configuration Record change and Liaison Action Request processing, and Selected Record Drawings mark ups for SHIPALT-related work, accomplishment of availability work package requirements assigned to the Planning Yard such as Design Review hanger inspections, Integrated Logistic Support product updates, and Configuration Overhaul Planning Product development and distribution for each availability. The program also provides funding for NUWC Newport system-level final end-to-end certification test development and onboard test conduct and analysis to support end of CNO availability certification of entire Command and Control system as ready for sea and strategic deployment. This system-level engineering support is provided during Engineered Refueling Overhauls (ERO), Extended Refit Periods (ERPs), and Maintenance & Modernization Periods (MMPs).

[P40A / HH0GN SSGN MODIFICATIONS]: Provides for procurement of SSGN unique system components that will be installed during planned modernization periods. Also provides funding to perform integrated testing of these unique systems to ensure satisfactory operation with other HM&E and Combat Systems. Funds are provided for procurement of Submarine Special Operations Forces (SOF) unique system components that will be installed during planned modernization periods. Starting in FY22, all funding for SOF in FY22-25 transferred to BLI 0941.

[P40A / SOF HH0GN]: Funds are provided for installation of Submarine Special Operations Forces (SOF) unique system components. Starting in FY22, all funding for SOF in FY22-25 transferred to BLI 0941.

Exhibit P-40, Budget Line Item Justification: PB 2021 Navy	Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 01: Ships Support Equipment / BSA 9: Other Shipboard Equipment	**P-1 Line Item Number / Title:** 0950 / Strategic Platform Support Equip

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

Line Item MDAP/MAIS Code: N/A

Exhibits Schedule					Prior Years	FY 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	Strategic Platform Support Equip				- / 98.946	- / 12.010	- / 11.127	- / 9.463	- / -	- / 9.463
P-3a	1 / EQUIPMENT HM&E SWS/SS ALTERATION SCS SSBN/SSGN PROC (TBD)				- / 27.592	- / 10.244	- / 3.204	- / 5.966	- / 0.000	- / 5.966
P-40	**Total Gross/Weapon System Cost**				**- / 126.538**	**- / 22.254**	**- / 14.331**	**- / 15.429**	**- / 0.000**	**- / 15.429**

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	Strategic Platform Support Equip				- / -	- / -	- / -	- / -	- / -	- / -
P-3a	1 / EQUIPMENT HM&E SWS/SS ALTERATION SCS SSBN/SSGN PROC (TBD)				- / 1.487	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 48.493
P-40	**Total Gross/Weapon System Cost**				**- / 7.936**	**- / 10.238**	**- / 10.417**	**- / 10.621**	**Continuing**	**Continuing**

*Title represents 1) the Number / Title for Items; 2) the Number / Title [DODIC] for Ammunition; and/or 3) the Number / Title (Modification Type) for Modifications. Title represents the P-40a Title when only the P-40a Summary/Total is shown.

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

Justification:

While per unit procurement and install costs remain the same across the FYDP (save for inflation) for the Ship Control Station (SCS) OER Program, FY21 reflects increased funding compared to FY20 due to the planned number of ancillary material procurement kits supporting installations. Installations are tied to support ship's maintenance availability schedules. This upgrade is delivered during scheduled ship availabilities and accomplishes three installations in FY21, as compared to only one in FY20.

Exhibit P-40a, Budget Item Justification For Aggregated Items: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0950 / Strategic Platform Support Equip	**Aggregated Items Title:** Strategic Platform Support Equip

Item Number / Title [DODIC]	ID CD	MDAP/ MAIS Code	Prior Years			FY 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) HH009 EQUIPMENT HM&E & SWS/SS ALTERATION																				
1.1) SCS PY SHIPALT DEV	A		-	-	38.854	-	-	0.820	-	-	0.221	-	-	0.277	-	-	-	-	-	0.277
1.2) SWSS SSBN/ SSGN Hovering System DP Transducers	A		-	-	1.960	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.3) SWSS MDD/ MHC Differential Pressure Transducers	A		-	-	2.000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.4) Ship Control Station OER Material (1)	A		-	-	1.630	-	-	1.567	-	-	0.532	-	-	1.627	-	-	-	-	-	1.627
1.5) SCS OER Lab/ TTF Equip Upgrade (2)	A		-	-	-	-	-	3.311	-	-	3.391	-	-	0.820	-	-	-	-	-	0.820
1.6) SWSS Sustainability	A		-	-	-	-	-	0.950	-	-	0.969	-	-	0.988	-	-	-	-	-	0.988
1.7) Ohio Class Trim/ Drain Pump Motor Replacement (3)	A		-	-	-	-	-	-	-	-	1.625	-	-	-	-	-	-	-	-	-
1.8) Ohio Class High Pressure Air Compressor Controllers (4)	A		-	-	-	-	-	-	-	-	1.412	-	-	1.050	-	-	-	-	-	1.050
Subtotal: 1) HH009 EQUIPMENT HM&E & SWS/SS ALTERATION			**-**	**-**	***44.444***	**-**	**-**	***6.648***	**-**	**-**	***8.150***	**-**	**-**	***4.762***	**-**	**-**	**-**	**-**	**-**	***4.762***
2) HH012 EQUIPMENT HM&E TRIDENT ENGINGEERING AVAILABILITY																				
2.1) SHIPALT INSTALLATION AND ENGINEERING SERVICES (5)	A		-	-	19.492	-	-	1.384	-	-	0.879	-	-	1.596	-	-	-	-	-	1.596
2.2) CCS EQUIPMENT REFURBISHMENT & SHIPBOARD TESTING (6)	A		-	-	16.456	-	-	1.121	-	-	0.711	-	-	1.292	-	-	-	-	-	1.292
2.3) HM&E EQUIPMENT REFURBISHMENT & SHIPBOARD TESTING (7)	A		-	-	10.803	-	-	0.791	-	-	0.502	-	-	0.911	-	-	-	-	-	0.911
Subtotal: 2) HH012 EQUIPMENT HM&E TRIDENT ENGINGEERING AVAILABILITY			**-**	**-**	***46.751***	**-**	**-**	***3.296***	**-**	**-**	***2.092***	**-**	**-**	***3.799***	**-**	**-**	**-**	**-**	**-**	***3.799***
3) HH0GN SSGN MODIFICATIONS																				

Exhibit P-40a, Budget Item Justification For Aggregated Items: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0950 / Strategic Platform Support Equip	**Aggregated Items Title:** Strategic Platform Support Equip

Item Number / Title [DODIC]	ID CD	MDAP/ MAIS Code	Prior Years			FY 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) SOF UPGRADES	A		-	-	4.386	-	-	0.558	-	-	0.570	-	-	0.581	-	-	-	-	-	0.581
Subtotal: 3) HH0GN SSGN MODIFICATIONS			**-**	**-**	***4.386***	**-**	**-**	***0.558***	**-**	**-**	***0.570***	**-**	**-**	***0.581***	**-**	**-**	**-**	**-**	**-**	***0.581***
4) SOF HH0GN																				
4.1) SOF ALTS	A		-	-	3.365	-	-	1.508	-	-	0.315	-	-	0.321	-	-	-	-	-	0.321
Subtotal: 4) SOF HH0GN			**-**	**-**	***3.365***	**-**	**-**	***1.508***	**-**	**-**	***0.315***	**-**	**-**	***0.321***	**-**	**-**	**-**	**-**	**-**	***0.321***
Total			**-**	**-**	**98.946**	**-**	**-**	**12.010**	**-**	**-**	**11.127**	**-**	**-**	**9.463**	**-**	**-**	**-**	**-**	**-**	**9.463**

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

Footnotes:

(1) Ship Control Station OER Material funds identified are for ancillary material kits required to set up and support shipset installations. The increase from FY20 to FY21 is due to two additional material kit procurements; FY20 has (1), and FY21 has (3).

(2) The SCS OER Lab/TTF Equip Upgrade is required to ensure shore maintenance and training facility equipment is similar to ship installation in order support operational issues and ensure training at the TTFs matches the latest installed configuration of Ship Control Systems in the fleet.

(3) Starting in FY20, funding is for replacement Trim/Drain Pump motors as the current installed motors are obsolete and not supportable to end of life for OHIO Class SSBNs and SSGNs. Leverages VA Class motors as replacements, but requires nonrecurring engineering, qualification funding for arrangement, power and foundation connection, and integrated logistics support changes and install funding as a backfit SHIPALT.

(4) Starting in FY20, funding is for replacement for High Pressure Air Compressor (HPAC) programmable logic controllers (PLCs) that are obsolete. PLCs on OHIO Class are no longer supported by the stock system and repair parts are not available. Funds support non-recurring engineering to develop a refresh modification and ILS support for the PLC. Upgrade kits will be procured to install on each TRIPER asset during scheduled HPAC overhaul.

(5) FY21 efforts continue to drive to completion necessary backlogs for Configuration Record changes, Liaison Action Request processing, Selected Record Drawings (SRD) mark ups for SHIPALT-related work, accomplishment of availability work package (AWP) requirements assigned to the Planning Yard such as Design Review hanger inspections, Integrated Logistic Support product updates, and Configuration Overhaul Planning Product development for each availability (ERP/ERO). This paperwork is vital to not only properly sustaining each Strategic boat by ensuring clear and accurate configuration control of capabilities installed in each hull, but also to execute expedient development and incorporation of new technology onboard these Strategic platforms.

(6) See footnote (5).

(7) See footnote (5).

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0950 / Strategic Platform Support Equip	**Modification Number / Title:** 1 / EQUIPMENT HM&E SWS/SS ALTERATION SCS SSBN/SSGN PROC
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

Resource Summary	Prior Years	FY 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)*	27.592	10.244	3.204	5.966	0.000	5.966	1.487	0.000	0.000	0.000	0.000	48.493
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	27.592	10.244	3.204	5.966	0.000	5.966	1.487	0.000	0.000	0.000	0.000	48.493
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**27.592**	**10.244**	**3.204**	**5.966**	**0.000**	**5.966**	**1.487**	**0.000**	**0.000**	**0.000**	**0.000**	**48.493**
(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:

SSBN Ship Control Obsolete Equipment Replacement - Perform multiple efforts to ensure that the OHIO Class Ship Control Subsystem, both hardware and software components, support the extended life of the OHIO Class submarine platforms.

Note: Production lead-time for Ship Control System OER is 17 months.

[EQUIPMENT HM&E SWS/SS ALTERATION SCS SSBN/SSGN PROC] Installations of this SHIPALT are accomplished during SSBN refits, SSBN Extended Refit Periods (ERP), SSGN Major Maintenance Periods (MMP), and SSBN Engineered Refueling Overhauls (ERO). Installations do not complete until the availability completes. Thus the installation duration ranges from 90 days for refit installations to 821 days for ERO installations. By design, Ship Control ShipAlt TRID 588B is conjunctive with SSBN Modernization ShipAlt TRID601, which upgrades SSBNs to TI-16 sonar/fire control systems. The TI-16 fielding plan was accelerated by OPNAV and sonar/fire control PARMs. This additional funding for Ship Control ShipAlt TRID 588B allows accelerating installations into FY19, FY21 & FY22 to match the current TI-16 installation scheduled for SSBNs.

Installation costs vary due to the number of installations, location and type of installation, e.g. ship or facility.

The one procurement in FY21 for SCS OER equipment supports installation in 2nd quarter of FY22.

The increase in funding budgeted from FY20 to FY21 is due to additional ship set installations being accomplished in FY21. In FY20, (1) installation is budgeted. In FY21 there are (3) installations. While the per shipset unit procurement and installation costs remain the same across the FYDP, the planned number of shipset procurements and installations is tied to support ships availability schedules.

[SCS SSBN/SSGN INSTALLATION DSA] DSA costs vary due to the number of installations, location and type of installation, e.g. ship or facility.

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0950 / Strategic Platform Support Equip	**Modification Number / Title:** 1 / EQUIPMENT HM&E SWS/SS ALTERATION SCS SSBN/SSGN PROC
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	
Models of Systems Affected: [No Model Specified]	**Modification Type:** TBD	**Related RDT&E PEs:**

Financial Plan	Prior Years	FY 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: EQUIPMENT HM&E SWS/SS ALTERATION SCS SSBN/SSGN PROC												
B Kits												
Recurring												
1.1.1) EQUIPMENT HM&E SWS/SS ALTERATION SCS SSBN/SSGN PROC - NonOrganic	13 / 15.645	3 / 4.497	1 / 1.527	1 / 1.556	- / -	1 / 1.556	- / -	- / -	- / -	- / -	- / -	18 / 23.225
1.1.2) SCS SSBN/SSGN INSTALLATION DSA - NonOrganic	- / 0.595	- / 0.317	- / 0.162	- / 0.282	- / -	- / 0.282	- / 0.083	- / -	- / -	- / -	- / -	- / 1.439
Subtotal: Recurring	*- / 16.240*	*- / 4.814*	*- / 1.689*	*- / 1.838*	*- / -*	*- / 1.838*	*- / 0.083*	*- / -*	*- / -*	*- / -*	*- / 0.000*	*- / 24.664*
Subtotal: EQUIPMENT HM&E SWS/SS ALTERATION SCS SSBN/SSGN PROC	*13 / 16.240*	*3 / 4.814*	*1 / 1.689*	*1 / 1.838*	*- / -*	*1 / 1.838*	*- / 0.083*	*- / -*	*- / -*	*- / -*	*- / -*	*18 / 24.664*
Subtotal: Procurement, All Modification Items	*- / 16.240*	*- / 4.814*	*- / 1.689*	*- / 1.838*	*- / -*	*- / 1.838*	*- / 0.083*	*- / -*	*- / -*	*- / -*	*- / 0.000*	*- / 24.664*
Installation												
Modification Item 1 of 1: EQUIPMENT HM&E SWS/SS ALTERATION SCS SSBN/SSGN PROC	- / 11.352	- / 5.430	- / 1.515	- / 4.128	- / 0.000	- / 4.128	- / 1.404	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 23.829
Subtotal: Installation	*- / 11.352*	*- / 5.430*	*- / 1.515*	*- / 4.128*	*- / -*	*- / 4.128*	*- / 1.404*	*- / -*	*- / -*	*- / -*	*- / 0.000*	*- / 23.829*
Total												
Total Cost (Procurement + Support + Installation)	**27.592**	**10.244**	**3.204**	**5.966**	**0.000**	**5.966**	**1.487**	**0.000**	**0.000**	**0.000**	**0.000**	**48.493**

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0950 / Strategic Platform Support Equip	**Modification Number / Title:** 1 / EQUIPMENT HM&E SWS/SS ALTERATION SCS SSBN/SSGN PROC

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

Modification Item 1 of 1: EQUIPMENT HM&E SWS/SS ALTERATION SCS SSBN/SSGN PROC

Manufacturer Information

Manufacturer Name: Electric Boat | Manufacturer Location: Groton, CT

Administrative Leadtime *(in Months)*: 0 | Production Leadtime *(in Months)*: 17

Dates	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025
Contract Dates	Feb 2019	Mar 2020	Oct 2020				
Delivery Dates	Jul 2020	Aug 2021	Mar 2022				

Installation Information

Method of Implementation: [none specified]:: Installation Name: EQUIPMENT HM&E SWS/SS ALTERATION SCS SSBN/SSGN PROC

Installation Cost	Prior Years	FY 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	9 / 11.352	4 / 5.430	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	13 / 16.782
FY 2019	- / -	- / -	1 / 1.515	2 / 2.752	0 / 0.000	2 / 2.752	- / -	- / -	- / -	- / -	0 / 0.000	3 / 4.267
FY 2020	- / -	- / -	- / -	1 / 1.376	0 / 0.000	1 / 1.376	- / -	- / -	- / -	- / -	0 / 0.000	1 / 1.376
FY 2021	- / -	- / -	- / -	- / -	- / -	- / -	1 / 1.404	- / -	- / -	- / -	0 / 0.000	1 / 1.404
FY 2022	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2023	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2024	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2025	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
To Complete	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
Total	9 / 11.352	4 / 5.430	1 / 1.515	3 / 4.128	0 / 0.000	3 / 4.128	1 / 1.404	- / -	- / -	- / -	0 / 0.000	18 / 23.829

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	9	1	2	-	1	-	-	-	1	-	2	-	1	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	18
Out	4	1	-	3	-	1	-	2	1	1	-	1	2	-	1	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	18

Exhibit P-40, Budget Line Item Justification: PB 2021 Navy	Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 01: Ships Support Equipment / BSA 9: Other Shipboard Equipment	**P-1 Line Item Number / Title:** 0955 / Deep Subm Sys Proj (DSSP) Equip

ID Code (A=Service Ready, B=Not Service Ready): A	**Program Elements for Code B Items:** N/A	**Other Related Program Elements:** N/A
Line Item MDAP/MAIS Code: N/A		

Resource Summary	Prior Years	FY 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)*	48.016	3.629	2.909	2.918	0.000	2.918	10.450	3.108	3.149	3.210	Continuing	Continuing
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	48.016	3.629	2.909	2.918	0.000	2.918	10.450	3.108	3.149	3.210	Continuing	Continuing
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**48.016**	**3.629**	**2.909**	**2.918**	**0.000**	**2.918**	**10.450**	**3.108**	**3.149**	**3.210**	**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:

FY2021 through FY2025 funding levels support procurement of Submarine Rescue Chambers (SRC) material and planned upgrades to Submarine Rescue Diving and Recompression System (SRDRS).

FY2022 increase includes the procurement of a shallow water transfer skirt, including long lead forging, and other assistive equipment for pressurized submarine rescue. Pressurized shallow water mating is a critical capability gap. The US submarine rescue system currently mates to US and Foreign submarines through an articulating transfer skirt. Current capability only covers 60 percent of the world's rescuable waters. Funding provides for forging and procurement of a new Transfer Skirt and assistive equipment to allow for shallower submarine mating capability and improve the ability to rescue submariners from a Distressed Submarine (DISSUB).

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

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

[P40A / HJ030 - RESCUE SUPPORT EQUIPMENT]: INTERVENTION SYSTEMS (REMOTELY OPERATED VEHICLE (ROV)/SRDRS/SUBMARINE RESCUE CHAMBER (SRC) Intervention assets (ROV) are required to support the SRDRS and SRC world-wide rescue capability mission. Intervention assets are used to clear disabled submarines seating surfaces, attach the SRC downhaul cable, attach salvage fittings, deliver emergency life support stores, and assess disabled submarines. The ROV is an unmanned system that reduces operational risk from the previous Intervention Assets that were a manned system, ATMOSPHERIC DIVING SYSTEM (ADS); full transition from ADS to ROV is pending availability of funding for a second ROV. SRC provides shallow water un-pressurized rescue capability. SRDRS is the deep water rescue ready system for the U.S. Navy. SRDRS was delivered in increments; the Submarine Rescue System-Rescue Capable System (SRS-RCS) completed OPEVAL in FY08, and the final component of SRDRS was the Transfer Under Pressure (TUP) or Submarine Rescue System-Submarine Decompression System (SRS-SDS) which completed Initial Operating Capability (IOC) in FY2019.

Exhibit P-40, Budget Line Item Justification: PB 2021 Navy	Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 01: Ships Support Equipment / BSA 9: Other Shipboard Equipment	**P-1 Line Item Number / Title:** 0955 / Deep Subm Sys Proj (DSSP) Equip

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

Line Item MDAP/MAIS Code: N/A

Exhibits Schedule					Prior Years	FY 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	Deep Subm Sys Proj (DSSP) Equip				- / 48.016	- / 3.629	- / 2.909	- / 2.918	- / -	- / 2.918
P-40	**Total Gross/Weapon System Cost**				**- / 48.016**	**- / 3.629**	**- / 2.909**	**- / 2.918**	**- / 0.000**	**- / 2.918**

*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 funding request was reduced by $0.046 million to reflect the Department of Navy's effort to support the Office of Management and Budget directed reforms for Efficiency and Effectiveness that include a lean, accountable, more efficient government.

FY2021 through FY2025 funding levels support procurement of Submarine Rescue Chambers material and planned upgrades to Submarine Rescue Diving and Recompression System (SRDRS). FY21 funding is required to complete planned upgrades and obsolescence to the SRDRS.

Exhibit P-40a, Budget Item Justification For Aggregated Items: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0955 / Deep Subm Sys Proj (DSSP) Equip	**Aggregated Items Title:** Deep Subm Sys Proj (DSSP) Equip

Item Number / Title [DODIC]	ID CD	MDAP/ MAIS Code	Prior Years			FY 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) HJ030 - RESCUE SUPPORT EQUIPMENT																				
1.1) SRC Materials	A		-	-	3.640	-	-	0.271	-	-	0.276	-	-	0.277	-	-	-	-	-	0.277
1.2) SRDRS System Upgrade and Upgrade Spares	A		-	-	44.376	-	-	3.358	-	-	2.633	-	-	2.641	-	-	-	-	-	2.641
Subtotal: 1) HJ030 - RESCUE SUPPORT EQUIPMENT			**-**	**-**	***48.016***	**-**	**-**	***3.629***	**-**	**-**	***2.909***	**-**	**-**	***2.918***	**-**	**-**	**-**	**-**	**-**	***2.918***
Total			**-**	**-**	**48.016**	**-**	**-**	**3.629**	**-**	**-**	**2.909**	**-**	**-**	**2.918**	**-**	**-**	**-**	**-**	**-**	**2.918**

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 01: Ships Support Equipment / BSA 9: Other Shipboard Equipment	**P-1 Line Item Number / Title:** 0960 / CG Modernization

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

Line Item MDAP/MAIS Code: N/A

Resource Summary	Prior Years	FY 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)*	3,188.526	268.509	193.990	87.978	0.000	87.978	86.524	18.860	4.950	5.023	-	3,854.360
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	3,188.526	268.509	193.990	87.978	0.000	87.978	86.524	18.860	4.950	5.023	-	3,854.360
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**3,188.526**	**268.509**	**193.990**	**87.978**	**0.000**	**87.978**	**86.524**	**18.860**	**4.950**	**5.023**	**-**	**3,854.360**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)												
Initial Spares *($ in Millions)*	-	1.248	0.951	2.299	-	2.299	0.429	0.118	0.097	0.099	Continuing	Continuing
Flyaway Unit Cost *($ in Thousands)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Thousands)*	-	-	-	-	-	-	-	-	-	-	-	-

Description:

The FY 2021 funding request was reduced by $46.204 million to account for the availability of prior year execution balances.

The FY21 budget request supports continued installation, engineering support and programmatic support for USS Cowpens (CG 63), USS Gettysburg (CG 64), USS Chosin (CG 65), USS Hue City (CG 66), USS Anzio (CG 68), USS Vicksburg (CG 69), USS Lake Erie (CG 70), and USS Cape St George (CG 71).

Modernized Ticonderoga Class cruisers are multi-mission, large surface combatants which will operate as the Air Defense Commander platform for Carrier Strike Groups, as units of Surface Action Groups, in support of Marine Amphibious Task Forces, or independently in multi-threat environments that include air, surface and subsurface threats. These ships respond to Low Intensity Conflict, Coastal and Littoral Offshore Warfare, and joint mission scenarios as well as open ocean conflict, providing and augmenting power projection and forward presence. These ships conduct Air, Surface and Undersea Dominance, Land Attack, and Force Protection missions. The Ticonderoga Class is currently executing the CG Modernization (Mod) Program which upgrades combat systems; command, control, communications, computers, and intelligence (C4I) systems; and hull, mechanical, and electrical (HM&E) systems to achieve an extended service life and pace the multi-mission threats.

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

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

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

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

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

Exhibit P-40, Budget Line Item Justification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 01: Ships Support Equipment / BSA 9: Other Shipboard Equipment	**P-1 Line Item Number / Title:** 0960 / CG Modernization	
ID Code (A=Service Ready, B=Not Service Ready): A	**Program Elements for Code B Items:** N/A	**Other Related Program Elements:** N/A
Line Item MDAP/MAIS Code: N/A		

[P3A - 2 / CC003 - COOPERATIVE ENGAGEMENT CAPABILITIES (CEC)]: Procures Cooperative Engagement Capability (CEC) that includes equipment procurement, recurring equipment engineering, equipment integration, and Integrated Logistics Support (ILS) for anti-air capabilities on Ticonderoga Class Ships.

[P3A - 3 / CC004 - AN/SQQ-89 A(V) 15 PROCUREMENT]: Procures AN/SQQ-89 A(V) 15 with Multi-Function Towed Array (MFTA) combat systems to replace the installed MIL-STD AN/SQQ-89(V) for Baseline 3 and 4 Ticonderoga Class ships including equipment procurement, recurring equipment engineering, equipment integration, and Integrated Logistics Support (ILS).

[P3A - 4 / CC007 - AEGIS WEAPONS SYSTEM (AWS) UPGRADE PROCUREMENT]: Procures AEGIS Weapons System (AWS) upgrade for Ticonderoga Class Ships including equipment procurement, recurring equipment engineering, equipment integration, and Integrated Logistics Support (ILS).

[P3A - 5 / CC008 - VERTICAL LAUNCH SYSTEM (VLS)]: Procures Vertical Launch System (VLS) Modifications, Evolved Sea Sparrow Missile VLS Modifications, SM3 Operability Heating Ventilation Air Conditioning (HVAC) and VLS MODS for SM3 Block 3 combat systems for Ticonderoga Class Ships including equipment procurement, recurring equipment engineering, equipment integration, and Integrated Logistics Support (ILS).

[P3A - 6 / CC010 - MK34 UPGRADE]: Procures MK34 Gun Weapon System (GWS) upgrade for Ticonderoga Class Ships including equipment procurement, recurring equipment engineering, equipment integration, and Integrated Logistics Support (ILS).

[P3A - 7 / CC011 - INTEGRATED SHIP CONTROLS (ISC)]: Procures Smartship Integrated Ship Controls (ISC) for all ships requiring upgrade including equipment procurement, recurring equipment engineering, equipment integration, and Integrated Logistics Support (ILS).

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

Appropriation / Budget Activity / Budget Sub Activity:
1810N: Other Procurement, Navy / BA 01: Ships Support Equipment / BSA 9: Other Shipboard Equipment

P-1 Line Item Number / Title:
0960 / CG Modernization

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

Line Item MDAP/MAIS Code: N/A

Exhibits Schedule					Prior Years	FY 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	CG Modernization				- / 1,182.881	- / 218.530	- / 127.671	- / 72.061	- / -	- / 72.061
P-3a	1 / CC001 - SPQ-9B UPGRADE (TBD)				- / 181.135	- / 2.700	- / 2.452	- / 0.279	- / 0.000	- / 0.279
P-3a	2 / CC003 - COOPERATIVE ENGAGEMENT CAPABILITIES (CEC) (TBD)				- / 136.696	- / 3.062	- / 2.861	- / 0.294	- / 0.000	- / 0.294
P-3a	3 / CC004 - AN/SQQ-89 A(V) 15 PROCUREMENT (TBD)				- / 301.787	- / 4.020	- / 4.608	- / 0.845	- / 0.000	- / 0.845
P-3a	4 / CC007 - AEGIS WEAPONS SYSTEM (AWS) UPGRADE PROCUREMENT (TBD)				- / 811.816	- / 21.204	- / 19.730	- / 2.517	- / 0.000	- / 2.517
P-3a	5 / CC008 - VERTICAL LAUNCH SYSTEM (VLS) (TBD)				- / 251.026	- / 1.110	- / 1.040	- / 0.110	- / 0.000	- / 0.110
P-3a	6 / CC010 - MK34 UPGRADE (TBD)				- / 194.238	- / 6.132	- / 5.746	- / 0.602	- / 0.000	- / 0.602
P-3a	7 / CC011 - INTEGRATED SHIP CONTROLS (ISC) (TBD)				- / 128.947	- / 11.751	- / 29.882	- / 11.270	- / 0.000	- / 11.270
P-40	**Total Gross/Weapon System Cost**				**- / 3,188.526**	**- / 268.509**	**- / 193.990**	**- / 87.978**	**- / 0.000**	**- / 87.978**

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-40a	CG Modernization				- / -	- / -	- / -	- / -	- / -	- / -
P-3a	1 / CC001 - SPQ-9B UPGRADE (TBD)				- / 1.168	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 187.734
P-3a	2 / CC003 - COOPERATIVE ENGAGEMENT CAPABILITIES (CEC) (TBD)				- / 1.378	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 144.291
P-3a	3 / CC004 - AN/SQQ-89 A(V) 15 PROCUREMENT (TBD)				- / 2.039	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 313.299
P-3a	4 / CC007 - AEGIS WEAPONS SYSTEM (AWS) UPGRADE PROCUREMENT (TBD)				- / 9.294	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 864.561
P-3a	5 / CC008 - VERTICAL LAUNCH SYSTEM (VLS) (TBD)				- / 0.500	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 253.786
P-3a	6 / CC010 - MK34 UPGRADE (TBD)				- / 2.750	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 209.468
P-3a	7 / CC011 - INTEGRATED SHIP CONTROLS (ISC) (TBD)				- / 9.033	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 190.883
P-40	**Total Gross/Weapon System Cost**				**- / 86.524**	**- / 18.860**	**- / 4.950**	**- / 5.023**	**- / -**	**- / 3,854.360**

*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 significant decrease from FY20 to FY21 is due to inclusion of only ONE HM&E availability award in FY21 versus TWO CG Mod combined Combat System and HM&E availability awards in FY20.

Exhibit P-40a, Budget Item Justification For Aggregated Items: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	P-1 Line Item Number / Title: 0960 / CG Modernization	Aggregated Items Title: CG Modernization (1)

Item Number / Title [DODIC]	ID CD	MDAP/ MAIS Code	Prior Years Unit Cost ($ K)	Prior Years Qty (Each)	Prior Years Total Cost ($ M)	FY 2019 Unit Cost ($ K)	FY 2019 Qty (Each)	FY 2019 Total Cost ($ M)	FY 2020 Unit Cost ($ K)	FY 2020 Qty (Each)	FY 2020 Total Cost ($ M)	FY 2021 Base Unit Cost ($ K)	FY 2021 Base Qty (Each)	FY 2021 Base Total Cost ($ M)	FY 2021 OCO Unit Cost ($ K)	FY 2021 OCO Qty (Each)	FY 2021 OCO Total Cost ($ M)	FY 2021 Total Unit Cost ($ K)	FY 2021 Total Qty (Each)	FY 2021 Total Total Cost ($ M)
1) CC002 - SARTIS																				
1.1) SARTIS EQUIPMENT	A		227.091	11	2.498	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: 1) CC002 - SARTIS			**-**	**-**	***2.498***	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
2) CC005 - SGS/CDLMS																				
2.1) SGS/CDLMS EQUIPMENT	A		820.143	7	5.741	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2.2) SGS/CDLMS ENGINEERING SERVICES	A		-	-	0.700	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: 2) CC005 - SGS/CDLMS			**-**	**-**	***6.441***	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
3) CC012 - VIRGINIA SITES																				
3.1) VIRGINIA SITES	A		-	-	82.028	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: 3) CC012 - VIRGINIA SITES			**-**	**-**	***82.028***	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
4) CC013 - INSTALLATION / DSA / AIT																				
4.1) CC013- INSTALLATION / DSA / AIT	A		-	-	545.316	-	-	111.831	-	-	127.671	-	-	72.061	-	-	-	-	-	72.061
Subtotal: 4) CC013 - INSTALLATION / DSA / AIT			**-**	**-**	***545.316***	**-**	**-**	***111.831***	**-**	**-**	***127.671***	**-**	**-**	***72.061***	**-**	**-**	**-**	**-**	**-**	***72.061***
5) CC014 - CONJUNCTIVE COMBAT SYSTEM ALTERATIONS																				
5.1) CONJUNCTIVE COMBAT SYSTEM ALTERATION EQUIPMENT	A		110,434.500	4	441.738	-	-	106.699	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: 5) CC014 - CONJUNCTIVE COMBAT SYSTEM ALTERATIONS			**-**	**-**	***441.738***	**-**	**-**	***106.699***	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
6) CC017 - MULTI-MISSION BMD CAPABILITIES																				
6.1) MULTI-MISSION BMD CAPABILITIES EQUIPMENT	A		1,553.333	3	4.660	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: 6) CC017 - MULTI-MISSION BMD CAPABILITIES			**-**	**-**	***4.660***	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
7) CC018 - MULTI-MISSION SSA/CWI MICROWAVE TUBES																				
7.1) MULTI-MISSION SSA/CWI MICROWAVE TUBE EQUIPMENT	A		1,140.000	3	3.420	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: 7) CC018 - MULTI-MISSION SSA/CWI MICROWAVE TUBES			**-**	**-**	***3.420***	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
8) CC015- MULTI-MISSION SIGPRO																				
8.1) CC015- MULTI-MISSION SIGPRO	A		-	-	66.000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Exhibit P-40a, Budget Item Justification For Aggregated Items: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0960 / CG Modernization	**Aggregated Items Title:** CG Modernization (1)

Item Number / Title [DODIC]	ID CD	MDAP/ MAIS Code	Prior Years			FY 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: 8) CC015- MULTI-MISSION SIGPRO			**-**	**-**	***66.000***	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
9) CC016-SPY-1B VARIANCE TRANSMITTER UPGRADES																				
9.1) CC016-SPY-1B VARIANCE TRANSMITTER UPGRADES	A		-	-	30.780	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: 9) CC016-SPY-1B VARIANCE TRANSMITTER UPGRADES			**-**	**-**	***30.780***	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Total			**-**	**-**	**1,182.881**	**-**	**-**	**218.530**	**-**	**-**	**127.671**	**-**	**-**	**72.061**	**-**	**-**	**-**	**-**	**-**	**72.061**

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

Footnotes:

(1) (1) The Consolidated Appropriations Act, 2015, H.R. 8110 re-appropriated and extended the Ship Modernization Operations and Sustainment Fund (SMOSF) to provide for costs associated with the continued operations and modernization of eleven cruisers. (2) FY15 and FY16 funding was provided via SMOSF transfer for procurements and installation for CG 63 Cowpens, CG 64 Gettysburg, CG 65 Chosin, and CG 69 Vicksburg. (3) SMOSF was rescinded in FY17 and placed in the Navy budget.

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0960 / CG Modernization	**Modification Number / Title:** 1 / CC001 - SPQ-9B UPGRADE
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

Resource Summary	Prior Years	FY 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)*	181.135	2.700	2.452	0.279	0.000	0.279	1.168	0.000	0.000	0.000	0.000	187.734
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	181.135	2.700	2.452	0.279	0.000	0.279	1.168	0.000	0.000	0.000	0.000	187.734
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**181.135**	**2.700**	**2.452**	**0.279**	**0.000**	**0.279**	**1.168**	**0.000**	**0.000**	**0.000**	**0.000**	**187.734**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)												
Initial Spares *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Thousands)*	-	-	-	-	-	-	-	-	-	-	-	-

Description:

Replaces the existing AN/SPQ-9A heavyweight (HW) Radar Set with the AN/SPQ-9B lightweight (LW) Radar Set. Supports associated DSA and Planning for installation.

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0960 / CG Modernization	**Modification Number / Title:** 1 / CC001 - SPQ-9B UPGRADE
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	
Models of Systems Affected: [No Model Specified]	**Modification Type:** TBD	**Related RDT&E PEs:**

Financial Plan	Prior Years	FY 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: CC001 - SPQ-9B UPGRADE												
B Kits												
Recurring												
1.1.1) CC001 - SPQ-9B EQUIPMENT - NonOrganic (2)	17 / 143.094	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	17 / 143.094
1.1.2) CC001 - SPQ-9B ENGINEERING SERVICES - Organic	- / 13.258	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / 13.258
Subtotal: Recurring	*- / 156.352*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / 0.000*	*- / 156.352*
Subtotal: CC001 - SPQ-9B UPGRADE	*17 / 156.352*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*17 / 156.352*
Subtotal: Procurement, All Modification Items	*- / 156.352*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / 0.000*	*- / 156.352*
Installation												
Modification Item 1 of 1: CC001 - SPQ-9B UPGRADE	- / 24.783	- / 2.700	- / 2.452	- / 0.279	- / 0.000	- / 0.279	- / 1.168	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 31.382
Subtotal: Installation	*- / 24.783*	*- / 2.700*	*- / 2.452*	*- / 0.279*	*- / -*	*- / 0.279*	*- / 1.168*	*- / -*	*- / -*	*- / -*	*- / 0.000*	*- / 31.382*
Total												
Total Cost (Procurement + Support + Installation)	**181.135**	**2.700**	**2.452**	**0.279**	**0.000**	**0.279**	**1.168**	**0.000**	**0.000**	**0.000**	**0.000**	**187.734**

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0960 / CG Modernization	**Modification Number / Title:** 1 / CC001 - SPQ-9B UPGRADE
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

Modification Item 1 of 1: CC001 - SPQ-9B UPGRADE

Manufacturer Information

Manufacturer Name: NORTHROP GRUMMAN SYSTEMS CORP.	Manufacturer Location: Melville, New York
Administrative Leadtime *(in Months)*: 6	Production Leadtime *(in Months)*: 18

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

Installation Information

Method of Implementation: [none specified]:: Installation Name: CC001 - SPQ-9B EQUIPMENT

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	12 / 24.783	2 / 2.700	2 / 2.452	0 / 0.279	0 / 0.000	0 / 0.279	1 / 1.168	- / -	- / -	- / -	0 / 0.000	17 / 31.382
FY 2019	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2020	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2021	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2022	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2023	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2024	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2025	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
To Complete	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
Total	12 / 24.783	2 / 2.700	2 / 2.452	0 / 0.279	0 / 0.000	0 / 0.279	1 / 1.168	- / -	- / -	- / -	0 / 0.000	17 / 31.382

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	12	-	2	-	-	-	2	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	17
Out	10	-	-	-	-	-	2	-	2	-	-	-	2	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	17

Footnotes:

(2) FY 15 combat system for the USS Cowpens (CG 63), USS Gettysburg (CG 64). FY16 procurement for USS Chosin (CG 65) and USS Vicksburg (CG 69) were funded by SMOSF. Installation funding for a ship is divided over a three-year period. Installation execution funding in the year of availability, and Design Service Allocation (DSA) two years prior to availability, and DSA in the year prior to the availability. This includes ship checks, ship installation drawing (SID) development, logistic document development and long lead time material procurements (LLTM). Installation costs across the FYDP may vary depending

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0960 / CG Modernization	**Modification Number / Title:** 1 / CC001 - SPQ-9B UPGRADE
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

on current port rates. Port rates are updated every year by a CNRMC letter based on the forecasted port loading model. Port loading rate forecasts are the rates recommended for all budgeted maintenance and organic modernization within a specific port. Individual ship's availability durations vary dependent upon the integration of ship's maintenance and modernization work packages.

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0960 / CG Modernization	**Modification Number / Title:** 2 / CC003 - COOPERATIVE ENGAGEMENT CAPABILITIES (CEC)
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

Resource Summary	Prior Years	FY 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)*	136.696	3.062	2.861	0.294	0.000	0.294	1.378	0.000	0.000	0.000	0.000	144.291
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	136.696	3.062	2.861	0.294	0.000	0.294	1.378	0.000	0.000	0.000	0.000	144.291
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**136.696**	**3.062**	**2.861**	**0.294**	**0.000**	**0.294**	**1.378**	**0.000**	**0.000**	**0.000**	**0.000**	**144.291**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)												
Initial Spares *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Thousands)*	-	-	-	-	-	-	-	-	-	-	-	-

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

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0960 / CG Modernization	**Modification Number / Title:** 2 / CC003 - COOPERATIVE ENGAGEMENT CAPABILITIES (CEC)
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	
Models of Systems Affected: [No Model Specified]	**Modification Type:** TBD	**Related RDT&E PEs:**

Financial Plan	Prior Years	FY 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: CC003 - COOPERATIVE ENGAGEMENT CAPABILITIES (CEC)												
B Kits												
Recurring												
1.1.1) CC003 - CEC EQUIPMENT - NonOrganic (3)	17 / 102.789	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	17 / 102.789
1.1.2) CC003 - CEC ENGINEERING SERVICES - NonOrganic	- / 9.708	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / 9.708
Subtotal: Recurring	*- / 112.497*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / 0.000*	*- / 112.497*
Subtotal: CC003 - COOPERATIVE ENGAGEMENT CAPABILITIES (CEC)	*17 / 112.497*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*17 / 112.497*
Subtotal: Procurement, All Modification Items	*- / 112.497*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / 0.000*	*- / 112.497*
Installation												
Modification Item 1 of 1: CC003 - COOPERATIVE ENGAGEMENT CAPABILITIES (CEC)	- / 24.199	- / 3.062	- / 2.861	- / 0.294	- / 0.000	- / 0.294	- / 1.378	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 31.794
Subtotal: Installation	*- / 24.199*	*- / 3.062*	*- / 2.861*	*- / 0.294*	*- / -*	*- / 0.294*	*- / 1.378*	*- / -*	*- / -*	*- / -*	*- / 0.000*	*- / 31.794*
Total												
Total Cost (Procurement + Support + Installation)	**136.696**	**3.062**	**2.861**	**0.294**	**0.000**	**0.294**	**1.378**	**0.000**	**0.000**	**0.000**	**0.000**	**144.291**

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0960 / CG Modernization	**Modification Number / Title:** 2 / CC003 - COOPERATIVE ENGAGEMENT CAPABILITIES (CEC)

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

Modification Item 1 of 1: CC003 - COOPERATIVE ENGAGEMENT CAPABILITIES (CEC)

Manufacturer Information

Manufacturer Name: RAYTHEON | Manufacturer Location: ST. PETERSBURG, FL

Administrative Leadtime *(in Months)*: 6 | Production Leadtime *(in Months)*: 18

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

Installation Information

Method of Implementation: [none specified]:: Installation Name: CC003 - CEC EQUIPMENT

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	12 / 24.199	2 / 3.062	2 / 2.861	0 / 0.294	0 / 0.000	0 / 0.294	1 / 1.378	- / -	- / -	- / -	0 / 0.000	17 / 31.794
FY 2019	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2020	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2021	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2022	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2023	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2024	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2025	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
To Complete	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
Total	12 / 24.199	2 / 3.062	2 / 2.861	0 / 0.294	0 / 0.000	0 / 0.294	1 / 1.378	- / -	- / -	- / -	0 / 0.000	17 / 31.794

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	12	-	2	-	-	-	2	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	17
Out	10	-	-	-	-	-	2	-	2	-	-	-	2	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	17

Footnotes:

(3) FY 15 combat system for the USS Cowpens (CG 63), USS Gettysburg (CG 64, USS Chosin (CG 65) and USS Vicksburg (CG 69) were funded by SMOSF. FY 18 procurement for USS Hue City (CG 66).Installation execution funding in the year of availability, and Design Service Allocation (DSA) two years prior to availability, and DSA in the year prior to the availability. This includes ship checks, ship installation drawing (SID) development, logistic document development and long lead time material procurements (LLTM). Installation costs across the FYDP may vary depending on current port rates. Port rates

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0960 / CG Modernization	**Modification Number / Title:** 2 / CC003 - COOPERATIVE ENGAGEMENT CAPABILITIES (CEC)
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

are updated every year by a CNRMC letter based on the forecasted port loading model. Port loading rate forecasts are the rates recommended for all budgeted maintenance and organic modernization within a specific port. Individual ship's availability durations vary dependent upon the integration of ship's maintenance and modernization work packages.

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0960 / CG Modernization	**Modification Number / Title:** 3 / CC004 - AN/SQQ-89 A(V) 15 PROCUREMENT
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

Resource Summary	Prior Years	FY 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)*	301.787	4.020	4.608	0.845	0.000	0.845	2.039	0.000	0.000	0.000	0.000	313.299
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	301.787	4.020	4.608	0.845	0.000	0.845	2.039	0.000	0.000	0.000	0.000	313.299
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**301.787**	**4.020**	**4.608**	**0.845**	**0.000**	**0.845**	**2.039**	**0.000**	**0.000**	**0.000**	**0.000**	**313.299**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)												
Initial Spares *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Thousands)*	-	-	-	-	-	-	-	-	-	-	-	-

Description:
Procure and Install AN/SQQ-89 A(V) 15 for CG Modernization.

[CC004 - AN/SQQ-89 A(V) 15 EQUIPMENT]

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0960 / CG Modernization	**Modification Number / Title:** 3 / CC004 - AN/SQQ-89 A(V) 15 PROCUREMENT
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	
Models of Systems Affected: [No Model Specified]	**Modification Type:** TBD	**Related RDT&E PEs:**

Financial Plan	Prior Years	FY 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: CC004 - AN/SQQ-89 A(V) 15 PROCUREMENT												
B Kits												
Recurring												
1.1.1) CC004 - AN/SQQ-89 A(V) 15 EQUIPMENT - NonOrganic (4)	17 / 232.066	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	17 / 232.066
1.1.2) CC004 - AN/SQQ-89 A(V) 15 ENGINEERING SERVICES - NonOrganic	- / 48.255	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / 48.255
Subtotal: Recurring	*- / 280.321*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / 0.000*	*- / 280.321*
Subtotal: CC004 - AN/SQQ-89 A(V) 15 PROCUREMENT	*17 / 280.321*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*17 / 280.321*
Subtotal: Procurement, All Modification Items	*- / 280.321*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / 0.000*	*- / 280.321*
Installation												
Modification Item 1 of 1: CC004 - AN/SQQ-89 A(V) 15 PROCUREMENT	- / 21.466	- / 4.020	- / 4.608	- / 0.845	- / 0.000	- / 0.845	- / 2.039	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 32.978
Subtotal: Installation	*- / 21.466*	*- / 4.020*	*- / 4.608*	*- / 0.845*	*- / -*	*- / 0.845*	*- / 2.039*	*- / -*	*- / -*	*- / -*	*- / 0.000*	*- / 32.978*
Total												
Total Cost (Procurement + Support + Installation)	**301.787**	**4.020**	**4.608**	**0.845**	**0.000**	**0.845**	**2.039**	**0.000**	**0.000**	**0.000**	**0.000**	**313.299**

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0960 / CG Modernization	**Modification Number / Title:** 3 / CC004 - AN/SQQ-89 A(V) 15 PROCUREMENT

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

Modification Item 1 of 1: CC004 - AN/SQQ-89 A(V) 15 PROCUREMENT

Manufacturer Information

Manufacturer Name: LOCKHEED MARTIN | Manufacturer Location: SYRACUSE, NY

Administrative Leadtime *(in Months)*: 6 | Production Leadtime *(in Months)*: 18

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

Installation Information

Method of Implementation: [none specified]:: Installation Name: CC004 - AN/SQQ-89 A(V) 15 EQUIPMENT

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	12 / 21.466	2 / 4.020	2 / 4.608	0 / 0.845	0 / 0.000	0 / 0.845	1 / 2.039	- / -	- / -	- / -	0 / 0.000	17 / 32.978
FY 2019	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2020	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2021	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2022	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2023	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2024	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2025	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
To Complete	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
Total	12 / 21.466	2 / 4.020	2 / 4.608	0 / 0.845	0 / 0.000	0 / 0.845	1 / 2.039	- / -	- / -	- / -	0 / 0.000	17 / 32.978

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	12	-	2	-	-	-	2	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	17
Out	10	-	-	-	-	-	2	-	2	-	-	-	2	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	17

Footnotes:

(4) FY 15 combat system for the USS Cowpens (CG 63), USS Gettysburg (CG 64), USS Chosin (CG 65) and USS Vicksburg (CG 69) were funded by SMOSF. FY 18 Combat System procurements for USS Hue City (CG 66). Installation execution funding in the year of availability, and Design Service Allocation (DSA) two years prior to availability, and DSA in the year prior to the availability. This includes ship checks, ship installation drawing (SID) development, logistic document development and long lead time material procurements (LLTM). Installation costs across the FYDP may vary depending on current port rates. Port

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0960 / CG Modernization	**Modification Number / Title:** 3 / CC004 - AN/SQQ-89 A(V) 15 PROCUREMENT
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

rates are updated every year by a CNRMC letter based on the forecasted port loading model. Port loading rate forecasts are the rates recommended for all budgeted maintenance and organic modernization within a specific port. Individual ship's availability durations vary dependent upon the integration of ship's maintenance and modernization work packages.

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0960 / CG Modernization	**Modification Number / Title:** 4 / CC007 - AEGIS WEAPONS SYSTEM (AWS) UPGRADE PROCUREMENT
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

Resource Summary	Prior Years	FY 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)*	811.816	21.204	19.730	2.517	0.000	2.517	9.294	0.000	0.000	0.000	0.000	864.561
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	811.816	21.204	19.730	2.517	0.000	2.517	9.294	0.000	0.000	0.000	0.000	864.561
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**811.816**	**21.204**	**19.730**	**2.517**	**0.000**	**2.517**	**9.294**	**0.000**	**0.000**	**0.000**	**0.000**	**864.561**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)												
Initial Spares *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Thousands)*	-	-	-	-	-	-	-	-	-	-	-	-

Description:
Provides improved computing and display capabilities, faster processing, and greater track capacity. Supports DSA and Planning for installation.

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0960 / CG Modernization	**Modification Number / Title:** 4 / CC007 - AEGIS WEAPONS SYSTEM (AWS) UPGRADE PROCUREMENT
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	
Models of Systems Affected: [No Model Specified]	**Modification Type:** TBD	**Related RDT&E PEs:**

Financial Plan	Prior Years	FY 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: CC007 - AEGIS WEAPONS SYSTEM (AWS) UPGRADE PROCUREMENT												
B Kits												
Recurring												
1.1.1) CC007 - AWS EQUIPMENT - NonOrganic (5)	17 / 540.440	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	17 / 540.440
1.1.2) CC007 - AWS ENGINEERING SERVICES - NonOrganic	- / 46.167	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / 46.167
Subtotal: Recurring	*- / 586.607*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / 0.000*	*- / 586.607*
Subtotal: CC007 - AEGIS WEAPONS SYSTEM (AWS) UPGRADE PROCUREMENT	*17 / 586.607*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*17 / 586.607*
Subtotal: Procurement, All Modification Items	*- / 586.607*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / 0.000*	*- / 586.607*
Installation												
Modification Item 1 of 1: CC007 - AEGIS WEAPONS SYSTEM (AWS) UPGRADE PROCUREMENT	- / 225.209	- / 21.204	- / 19.730	- / 2.517	- / 0.000	- / 2.517	- / 9.294	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 277.954
Subtotal: Installation	*- / 225.209*	*- / 21.204*	*- / 19.730*	*- / 2.517*	*- / -*	*- / 2.517*	*- / 9.294*	*- / -*	*- / -*	*- / -*	*- / 0.000*	*- / 277.954*
Total												
Total Cost (Procurement + Support + Installation)	**811.816**	**21.204**	**19.730**	**2.517**	**0.000**	**2.517**	**9.294**	**0.000**	**0.000**	**0.000**	**0.000**	**864.561**

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0960 / CG Modernization	**Modification Number / Title:** 4 / CC007 - AEGIS WEAPONS SYSTEM (AWS) UPGRADE PROCUREMENT

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

Modification Item 1 of 1: CC007 - AEGIS WEAPONS SYSTEM (AWS) UPGRADE PROCUREMENT

Manufacturer Information

Manufacturer Name: LOCKHEED MARTIN	Manufacturer Location: SYRACUSE, NY
Administrative Leadtime *(in Months)*: 6	Production Leadtime *(in Months)*: 20

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

Installation Information

Method of Implementation: [none specified]:: Installation Name: CC007 - AWS EQUIPMENT

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	12 / 225.209	2 / 21.204	2 / 19.730	0 / 2.517	0 / 0.000	0 / 2.517	1 / 9.294	- / -	- / -	- / -	0 / 0.000	17 / 277.954
FY 2019	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2020	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2021	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2022	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2023	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2024	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2025	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
To Complete	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
Total	12 / 225.209	2 / 21.204	2 / 19.730	0 / 2.517	0 / 0.000	0 / 2.517	1 / 9.294	- / -	- / -	- / -	0 / 0.000	17 / 277.954

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	12	-	2	-	-	-	2	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	17
Out	10	-	-	-	-	-	2	-	2	-	-	-	2	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	17

Footnotes:

(5) FY 15 combat system for the USS Cowpens (CG 63), USS Gettysburg (CG 64), USS Chosin (CG 65) and USS Vicksburg (CG 69) were funded by SMOSF. FY 18 Combat System procurements for USS Hue City (CG 66). Installation execution funding in the year of availability, and Design Service Allocation (DSA) two years prior to availability, and DSA in the year prior to the availability. This includes ship checks, ship installation drawing (SID) development, logistic document development and long lead time material procurements (LLTM). Installation costs across the FYDP may vary depending on current port rates. Port

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0960 / CG Modernization	**Modification Number / Title:** 4 / CC007 - AEGIS WEAPONS SYSTEM (AWS) UPGRADE PROCUREMENT
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

rates are updated every year by a CNRMC letter based on the forecasted port loading model. Port loading rate forecasts are the rates recommended for all budgeted maintenance and organic modernization within a specific port. Individual ship's availability durations vary dependent upon the integration of ship's maintenance and modernization work packages.

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0960 / CG Modernization	**Modification Number / Title:** 5 / CC008 - VERTICAL LAUNCH SYSTEM (VLS)
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

Resource Summary	Prior Years	FY 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)*	251.026	1.110	1.040	0.110	0.000	0.110	0.500	0.000	0.000	0.000	0.000	253.786
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	251.026	1.110	1.040	0.110	0.000	0.110	0.500	0.000	0.000	0.000	0.000	253.786
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**251.026**	**1.110**	**1.040**	**0.110**	**0.000**	**0.110**	**0.500**	**0.000**	**0.000**	**0.000**	**0.000**	**253.786**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)												
Initial Spares *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Thousands)*	-	-	-	-	-	-	-	-	-	-	-	-

Description:
Provides VLS upgrades one module forward and one module aft to support evolved sea sparrow missile system capability.

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0960 / CG Modernization	**Modification Number / Title:** 5 / CC008 - VERTICAL LAUNCH SYSTEM (VLS)
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	
Models of Systems Affected: [No Model Specified]	**Modification Type:** TBD	**Related RDT&E PEs:**

Financial Plan	Prior Years	FY 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: CC008 - VERTICAL LAUNCH SYSTEM (VLS)												
B Kits												
Recurring												
1.1.1) CC008 - VLS EQUIPMENT - NonOrganic [6]	17 / 225.756	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	17 / 225.756
1.1.2) CC008 - VLS ENGINEERING SERVICES - Organic	- / 8.829	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / 8.829
Subtotal: Recurring	*- / 234.585*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / 0.000*	*- / 234.585*
Subtotal: CC008 - VERTICAL LAUNCH SYSTEM (VLS)	*17 / 234.585*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*17 / 234.585*
Subtotal: Procurement, All Modification Items	*- / 234.585*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / 0.000*	*- / 234.585*
Installation												
Modification Item 1 of 1: CC008 - VERTICAL LAUNCH SYSTEM (VLS)	- / 16.441	- / 1.110	- / 1.040	- / 0.110	- / 0.000	- / 0.110	- / 0.500	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 19.201
Subtotal: Installation	*- / 16.441*	*- / 1.110*	*- / 1.040*	*- / 0.110*	*- / -*	*- / 0.110*	*- / 0.500*	*- / -*	*- / -*	*- / -*	*- / 0.000*	*- / 19.201*
Total												
Total Cost (Procurement + Support + Installation)	**251.026**	**1.110**	**1.040**	**0.110**	**0.000**	**0.110**	**0.500**	**0.000**	**0.000**	**0.000**	**0.000**	**253.786**

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0960 / CG Modernization	**Modification Number / Title:** 5 / CC008 - VERTICAL LAUNCH SYSTEM (VLS)

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

Modification Item 1 of 1: CC008 - VERTICAL LAUNCH SYSTEM (VLS)

Manufacturer Information

Manufacturer Name: LOCKHEED MARTIN	Manufacturer Location: MOORESTOWN, NJ
Administrative Leadtime *(in Months)*: 6	Production Leadtime *(in Months)*: 18

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

Installation Information

Method of Implementation: [none specified]:: Installation Name: CC008 - VLS EQUIPMENT

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	12 / 16.441	2 / 1.110	2 / 1.040	0 / 0.110	0 / 0.000	0 / 0.110	1 / 0.500	- / -	- / -	- / -	0 / 0.000	17 / 19.201
FY 2019	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2020	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2021	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2022	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2023	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2024	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2025	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
To Complete	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
Total	12 / 16.441	2 / 1.110	2 / 1.040	0 / 0.110	0 / 0.000	0 / 0.110	1 / 0.500	- / -	- / -	- / -	0 / 0.000	17 / 19.201

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	12	-	2	-	-	-	2	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	17
Out	10	-	-	-	-	-	2	-	2	-	-	-	2	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	17

Footnotes:

(6) FY 15 combat system for the USS Cowpens (CG 63), USS Gettysburg (CG 64), USS Chosin (CG 65) and USS Vicksburg (CG 69) were funded by SMOSF. FY 18 Combat System procurements for USS Hue City (CG 66). FY 18 Combat System procurements for USS Hue City (CG 66). Installation execution funding in the year of availability, and Design Service Allocation (DSA) two years prior to availability, and DSA in the year prior to the availability. This includes ship checks, ship installation drawing (SID) development, logistic document development and long lead time material procurements (LLTM). Installation

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0960 / CG Modernization	**Modification Number / Title:** 5 / CC008 - VERTICAL LAUNCH SYSTEM (VLS)
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

costs across the FYDP may vary depending on current port rates. Port rates are updated every year by a CNRMC letter based on the forecasted port loading model. Port loading rate forecasts are the rates recommended for all budgeted maintenance and organic modernization within a specific port. Individual ship's availability durations vary dependent upon the integration of ship's maintenance and modernization work packages.

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0960 / CG Modernization	**Modification Number / Title:** 6 / CC010 - MK34 UPGRADE
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

Resource Summary	Prior Years	FY 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)*	194.238	6.132	5.746	0.602	0.000	0.602	2.750	0.000	0.000	0.000	0.000	209.468
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	194.238	6.132	5.746	0.602	0.000	0.602	2.750	0.000	0.000	0.000	0.000	209.468
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**194.238**	**6.132**	**5.746**	**0.602**	**0.000**	**0.602**	**2.750**	**0.000**	**0.000**	**0.000**	**0.000**	**209.468**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)												
Initial Spares *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Thousands)*	-	-	-	-	-	-	-	-	-	-	-	-

Description:

Procures the MK34 Mod 4 Gun Weapon System (GWS) to replace the existing MK86 Gun Fire Control System. Supports DSA and Planning for installation.

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0960 / CG Modernization	**Modification Number / Title:** 6 / CC010 - MK34 UPGRADE
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	
Models of Systems Affected: [No Model Specified]	**Modification Type:** TBD	**Related RDT&E PEs:**

Financial Plan	Prior Years	FY 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: CC010 - MK34 UPGRADE												
B Kits												
Recurring												
1.1.1) CC010 - MK34 EQUIPMENT - NonOrganic (7)	17 / 126.939	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	17 / 126.939
1.1.2) CC010 - MK34 ENGINEERING SERVICES - NonOrganic	- / 23.443	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / 23.443
Subtotal: Recurring	*- / 150.382*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / 0.000*	*- / 150.382*
Subtotal: CC010 - MK34 UPGRADE	*17 / 150.382*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*17 / 150.382*
Subtotal: Procurement, All Modification Items	*- / 150.382*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / 0.000*	*- / 150.382*
Installation												
Modification Item 1 of 1: CC010 - MK34 UPGRADE	- / 43.856	- / 6.132	- / 5.746	- / 0.602	- / 0.000	- / 0.602	- / 2.750	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 59.086
Subtotal: Installation	*- / 43.856*	*- / 6.132*	*- / 5.746*	*- / 0.602*	*- / -*	*- / 0.602*	*- / 2.750*	*- / -*	*- / -*	*- / -*	*- / 0.000*	*- / 59.086*
Total												
Total Cost (Procurement + Support + Installation)	**194.238**	**6.132**	**5.746**	**0.602**	**0.000**	**0.602**	**2.750**	**0.000**	**0.000**	**0.000**	**0.000**	**209.468**

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0960 / CG Modernization	**Modification Number / Title:** 6 / CC010 - MK34 UPGRADE
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

Modification Item 1 of 1: CC010 - MK34 UPGRADE

Manufacturer Information

Manufacturer Name: Various	Manufacturer Location: Various
Administrative Leadtime *(in Months)*: 6	Production Leadtime *(in Months)*: 18

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

Installation Information

Method of Implementation: [none specified]:: Installation Name: CC010 - MK34 EQUIPMENT

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	12 / 43.856	2 / 6.132	2 / 5.746	0 / 0.602	0 / 0.000	0 / 0.602	1 / 2.750	- / -	- / -	- / -	0 / 0.000	17 / 59.086
FY 2019	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2020	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2021	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2022	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2023	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2024	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2025	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
To Complete	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
Total	12 / 43.856	2 / 6.132	2 / 5.746	0 / 0.602	0 / 0.000	0 / 0.602	1 / 2.750	- / -	- / -	- / -	0 / 0.000	17 / 59.086

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	12	-	2	-	-	-	2	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	17
Out	10	-	-	-	-	-	2	-	2	-	-	-	2	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	17

Footnotes:

(7) FY 15 combat system for the USS Cowpens (CG 63), USS Gettysburg (CG 64), USS Chosin (CG 65) and USS Vicksburg (CG 69) were funded by SMOSF. FY 18 Combat System procurements for USS Hue City (CG 66). CG Modernization Installation execution funding in the year of availability, and Design Service Allocation (DSA) two years prior to availability, and DSA in the year prior to the availability. This includes ship checks, ship installation drawing (SID) development, logistic document development and long lead time material procurements (LLTM). Installation costs across the FYDP may vary depending on

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0960 / CG Modernization	**Modification Number / Title:** 6 / CC010 - MK34 UPGRADE
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

current port rates. Port rates are updated every year by a CNRMC letter based on the forecasted port loading model. Port loading rate forecasts are the rates recommended for all budgeted maintenance and organic modernization within a specific port. Individual ship's availability durations vary dependent upon the integration of ship's maintenance and modernization work packages.

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0960 / CG Modernization	**Modification Number / Title:** 7 / CC011 - INTEGRATED SHIP CONTROLS (ISC)
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

Resource Summary	Prior Years	FY 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)*	128.947	11.751	29.882	11.270	0.000	11.270	9.033	0.000	0.000	0.000	0.000	190.883
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	128.947	11.751	29.882	11.270	0.000	11.270	9.033	0.000	0.000	0.000	0.000	190.883
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**128.947**	**11.751**	**29.882**	**11.270**	**0.000**	**11.270**	**9.033**	**0.000**	**0.000**	**0.000**	**0.000**	**190.883**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)												
Initial Spares *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Thousands)*	-	-	-	-	-	-	-	-	-	-	-	-

Description:
Procure and Install Smartship Integrated Ship Control (ISC) for CG Modernization.

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0960 / CG Modernization	**Modification Number / Title:** 7 / CC011 - INTEGRATED SHIP CONTROLS (ISC)
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	
Models of Systems Affected: [No Model Specified]	**Modification Type:** TBD	**Related RDT&E PEs:**

Financial Plan	Prior Years	FY 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: CC011 - INTEGRATED SHIP CONTROLS (ISC)												
B Kits												
Recurring												
1.1.1) CC011 - ISC EQUIPMENT - NonOrganic [8]	11 / 75.626	- / -	1 / 7.640	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	12 / 83.266
1.1.2) CC011 - ISC ENGINEERING SERVICES - Organic	- / 4.690	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / 4.690
Subtotal: Recurring	*- / 80.316*	*- / -*	*- / 7.640*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / 0.000*	*- / 87.956*
Subtotal: CC011 - INTEGRATED SHIP CONTROLS (ISC)	*11 / 80.316*	*- / -*	*1 / 7.640*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*12 / 87.956*
Subtotal: Procurement, All Modification Items	*- / 80.316*	*- / -*	*- / 7.640*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / 0.000*	*- / 87.956*
Installation												
Modification Item 1 of 1: CC011 - INTEGRATED SHIP CONTROLS (ISC)	- / 48.631	- / 11.751	- / 22.242	- / 11.270	- / 0.000	- / 11.270	- / 9.033	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 102.927
Subtotal: Installation	*- / 48.631*	*- / 11.751*	*- / 22.242*	*- / 11.270*	*- / -*	*- / 11.270*	*- / 9.033*	*- / -*	*- / -*	*- / -*	*- / 0.000*	*- / 102.927*
Total												
Total Cost (Procurement + Support + Installation)	**128.947**	**11.751**	**29.882**	**11.270**	**0.000**	**11.270**	**9.033**	**0.000**	**0.000**	**0.000**	**0.000**	**190.883**

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0960 / CG Modernization	**Modification Number / Title:** 7 / CC011 - INTEGRATED SHIP CONTROLS (ISC)

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

Modification Item 1 of 1: CC011 - INTEGRATED SHIP CONTROLS (ISC)

Manufacturer Information

Manufacturer Name: HENSCHEL | Manufacturer Location: NEWBURY PORT, MA

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

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

Installation Information

Method of Implementation: [none specified]:: Installation Name: CC011 - ISC EQUIPMENT

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	7 / 48.631	1 / 11.563	2 / 21.686	0 / 2.239	0 / 0.000	0 / 2.239	1 / 9.033	- / -	- / -	- / -	0 / 0.000	11 / 93.152
FY 2019	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2020	- / -	0 / 0.188	0 / 0.556	1 / 9.031	0 / 0.000	1 / 9.031	- / -	- / -	- / -	- / -	0 / 0.000	1 / 9.775
FY 2021	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2022	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2023	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2024	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2025	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
To Complete	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
Total	7 / 48.631	1 / 11.751	2 / 22.242	1 / 11.270	0 / 0.000	1 / 11.270	1 / 9.033	- / -	- / -	- / -	0 / 0.000	12 / 102.927

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	7	-	1	-	-	-	2	-	-	-	1	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12
Out	6	-	-	-	-	-	1	-	1	-	-	-	2	-	1	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	12

Footnotes:

(8) The ISC unit cost growth is associated with Windows 10 system upgrade addressing current obsolescence issues on CG 70 in compliance with CNO cybersecurity mandate. FY 15 procurement for the USS Cowpens (CG 63), USS Vicksburg (CG 69) were funded by SMOSF. FY18 procurements for USS Hue City (CG 66). FY20 procurement for USS Lake Erie (CG 70). Installation execution funding in the year of availability, and Design Service Allocation (DSA) two years prior to availability, and DSA in the year prior to the availability. This includes ship checks, ship installation drawing (SID) development, logistic

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0960 / CG Modernization	**Modification Number / Title:** 7 / CC011 - INTEGRATED SHIP CONTROLS (ISC)
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

document development and long lead time material procurements (LLTM). Installation costs across the FYDP may vary depending on current port rates. Port rates are updated every year by a CNRMC letter based on the forecasted port loading model. Port loading rate forecasts are the rates recommended for all budgeted maintenance and organic modernization within a specific port. Individual ship's availability durations vary dependent upon the integration of ship's maintenance and modernization work packages.

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Exhibit P-40, Budget Line Item Justification: PB 2021 Navy	Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 01: Ships Support Equipment / BSA 9: Other Shipboard Equipment	**P-1 Line Item Number / Title:** 0970 / LCAC

ID Code (A=Service Ready, B=Not Service Ready): A	**Program Elements for Code B Items:** N/A	**Other Related Program Elements:** N/A
Line Item MDAP/MAIS Code: N/A		

Resource Summary	Prior Years	FY 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)*	124.026	3.709	3.392	9.366	0.000	9.366	6.898	6.865	6.929	6.940	-	168.125
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	124.026	3.709	3.392	9.366	0.000	9.366	6.898	6.865	6.929	6.940	-	168.125
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**124.026**	**3.709**	**3.392**	**9.366**	**0.000**	**9.366**	**6.898**	**6.865**	**6.929**	**6.940**	**-**	**168.125**
(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:

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

LC001 - LCAC SYSTEM UPGRADES
The LCAC System Upgrade Program provides procurement and installation of components required to maintain acceptable levels of fleet operational readiness. LCAC System Upgrade Program will also provide materials to support systems upgrades. Equipment removal and installation will take place at Assault Craft Unit FOUR (ACU 4), ACU 5 and Naval Beach Unit SEVEN (NBU 7).

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

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

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

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

Exhibit P-40, Budget Line Item Justification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 01: Ships Support Equipment / BSA 9: Other Shipboard Equipment	**P-1 Line Item Number / Title:** 0970 / LCAC	
ID Code (A=Service Ready, B=Not Service Ready): A	**Program Elements for Code B Items:** N/A	**Other Related Program Elements:** N/A
Line Item MDAP/MAIS Code: N/A		

Exhibits Schedule					Prior Years	FY 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	LCAC				- / 124.026	- / 3.709	- / 3.392	- / 9.366	- / -	- / 9.366
P-40	**Total Gross/Weapon System Cost**				**- / 124.026**	**- / 3.709**	**- / 3.392**	**- / 9.366**	**- / 0.000**	**- / 9.366**

*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 increase is due to one additional LC001 LCAC System Upgrade and the procurement of eight (8) LC008 cold weather kits.

Exhibit P-40a, Budget Item Justification For Aggregated Items: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	P-1 Line Item Number / Title: 0970 / LCAC	Aggregated Items Title: LCAC

Item Number / Title [DODIC]	ID CD	MDAP/ MAIS Code	Prior Years			FY 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) LCAC																				
1.1) LC001 LCAC SYSTEMS UPGRADE (1)	A		3,259K	19	61.929	688,150.00	2	1.376	827,333.00	3	2.482	777,680.00	4	3.111	-	-	-	777,680.00	4	3.111
1.2) LC002 ENGINES	A		2,049K	23	47.138	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.3) LC007 LIGHTWEIGHT ARMOR	A		610,545.45	11	6.716	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.4) LC008 COLD WEATHER KITS	A		515,000.00	3	1.545	513,000.00	1	0.513	-	-	-	781,910.00	8	6.255	-	-	-	781,910.00	8	6.255
1.5) LC009 PERSONNEL TRANSPORT MODULE	A		837,250.00	8	6.698	910,000.00	2	1.820	910,000.00	1	0.910	-	-	-	-	-	-	-	-	-
Subtotal: 1) LCAC			**-**	**-**	***124.026***	**-**	**-**	***3.709***	**-**	**-**	***3.392***	**-**	**-**	***9.366***	**-**	**-**	**-**	**-**	**-**	***9.366***
Total			**-**	**-**	**124.026**	**-**	**-**	**3.709**	**-**	**-**	**3.392**	**-**	**-**	**9.366**	**-**	**-**	**-**	**-**	**-**	**9.366**

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

Footnotes:

(1) Increase statement: Increase due to one additional LC001 LCAC System Upgrade and the procurement of eight (8) LC008 cold weather kits in FY2021.

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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 01: Ships Support Equipment / BSA 9: Other Shipboard Equipment	**P-1 Line Item Number / Title:** 0977 / Underwater EOD Equipment

ID Code (A=Service Ready, B=Not Service Ready): A	**Program Elements for Code B Items:** N/A	**Other Related Program Elements:** 0603654N
Line Item MDAP/MAIS Code: N/A		

Resource Summary	Prior Years	FY 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)*	330.687	82.200	77.040	16.842	0.000	16.842	27.534	38.971	18.355	18.716	-	610.345
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	330.687	82.200	77.040	16.842	0.000	16.842	27.534	38.971	18.355	18.716	-	610.345
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**330.687**	**82.200**	**77.040**	**16.842**	**0.000**	**16.842**	**27.534**	**38.971**	**18.355**	**18.716**	**-**	**610.345**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)												
Initial Spares *($ in Millions)*	-	2.424	7.345	12.738	-	12.738	8.635	10.036	5.029	4.703	Continuing	Continuing
Flyaway Unit Cost *($ in Dollars)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Dollars)*	-	-	-	-	-	-	-	-	-	-	-	-

Description:

Underwater Explosive Ordnance Disposal (EOD) program supplies EOD and Maritime Expeditionary forces with the necessary allowance outfitting, and diving and diving-related equipment aligned to fulfill assigned missions that includes Expeditionary Mine Countermeasures (ExMCM), and other Maritime Expeditionary missions. Most equipment must have inherently low acoustic and magnetic signatures to support maritime operations in the vicinity of influence fired ordnance. This funding supports outfitting the Navy's only comprehensive capability in the fleet that can conduct full spectrum detect-to-engage ExMCM missions. Specifically, the Underwater Explosive Ordnance Disposal (EOD) program supports EOD Groups, Units, Platoons, and Detachments worldwide as well as Mobile Diving and Salvage Units (MDSUs) across the globe.

The nature of the missions assigned to EOD and MCM forces under OPNAVINST 3501.97H, Required Operational Capabilities & Projected Operational Environments (ROC/POE), require an aggregated set of systems and equipment to perform the wide range of mine countermeasures, underwater detection, location, investigation, force protection, exploitation, and neutralization tasks that comprise the mission set. The requirements for the procurement of each of these system suites are articulated in OPNAV approved requirements documents in accordance with DoD Directive 5000.2, SECNAVINST 5000.2E, and the JCIDS process as defined by CJSCINST 3170.01 and defined by the JROC approved ExMCM ICD.

Beginning in FY 21 and continuing across the FYDP, funding previously included in BLI 0977 for procurement of Expeditionary MCM Unmanned Undersea Vehicles (UUVs) is now included in the Small And Medium Class UUV BLI 1611.

Exhibit P-40, Budget Line Item Justification: PB 2021 Navy	Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 01: Ships Support Equipment / BSA 9: Other Shipboard Equipment	**P-1 Line Item Number / Title:** 0977 / Underwater EOD Equipment

ID Code (A=Service Ready, B=Not Service Ready): A	Program Elements for Code B Items: N/A	Other Related Program Elements: 0603654N

Line Item MDAP/MAIS Code: N/A

Exhibits Schedule					Prior Years	FY 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 / Underwater EOD Programs	P-5a, P-21			- / 287.899	- / 35.986	- / 40.595	- / 10.329	- / 0.000	- / 10.329
P-5	2 / Expeditionary Mine Countermeasures (ExMCM)	P-5a, P-21			- / 37.838	- / 40.340	- / 34.760	- / 3.903	- / 0.000	- / 3.903
P-5	3 / Naval Special Warfare Forces	P-5a			- / 4.950	- / 5.874	- / 1.685	- / 2.610	- / 0.000	- / 2.610
P-40	**Total Gross/Weapon System Cost**				**- / 330.687**	**- / 82.200**	**- / 77.040**	**- / 16.842**	**- / 0.000**	**- / 16.842**

*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 is required to continue procurement and fielding of Underwater EOD program systems and equipment to outfit Expeditionary MCM Companies, EOD and Mobile Salvage units with advanced sensors and hardware required to accomplish their OPNAV approved Required Operational Capability and Projected Operational Environments. This equipment will allow warfighters to detect, locate, neutralize and render safe unexploded ordnance including improvised explosive devices.

Additionally, FY 2021 funding is required to procure systems for Expeditionary MCM forces to include diving systems designed and first produced over 40 years ago that are obsolete. Additionally, this line enables production engineering and integrated logistics support needed for all Expeditionary MCM Companies, EOD Units, and Expeditionary Salvage units. These systems provide the only expeditionary mine interdiction capability in the US Navy. If not properly outfitted, these EOD forces, organized as Expeditionary MCM Companies will not be able to detect, locate, neutralize, and render safe underwater ordnance, sea mines, and other explosive hazards, which will significantly degrade Fleet maneuver against near peer adversaries. Specifically, this procures the next generation of Underwater Breathing Apparatus (Multi Mission UBA - MMUBA), significantly increasing EOD diver capability and system reliability to neutralize, destroy, or recover undersea mines. Remotely Operated Vehicles (ROV) will be procured to provide standoff EOD Response capabilities for mine/unexploded ordnance (UXO) target prosecution beyond depths of the diver or in situations where exposure is unnecessary.

Exhibit P-5, Cost Analysis: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0977 / Underwater EOD Equipment	**Item Number / Title [DODIC]:** 1 / Underwater EOD Programs
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

Resource Summary	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
Procurement Quantity *(Units in Each)*	-	-	-	-	-	-
Gross/Weapon System Cost *($ in Millions)*	287.899	35.986	40.595	10.329	0.000	10.329
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	287.899	35.986	40.595	10.329	0.000	10.329
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**287.899**	**35.986**	**40.595**	**10.329**	**0.000**	**10.329**
(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 - UQ019-MINE WARFARE VULENERABILITY IDENTIFICATION PROGRAM (MIW-VIP) Cost																		
Recurring Cost																		
1.1.1) MIW-VIP (1)	-	-	2.487	-	-	0.315	-	-	0.321	-	-	0.000	-	-	0.000	-	-	0.000
Subtotal: Recurring Cost	-	-	*2.487*	-	-	*0.315*	-	-	*0.321*	-	-	*0.000*	-	-	*0.000*	-	-	*0.000*
Subtotal: Hardware - UQ019-MINE WARFARE VULENERABILITY IDENTIFICATION PROGRAM (MIW-VIP) Cost	**-**	**-**	***2.487***	**-**	**-**	***0.315***	**-**	**-**	***0.321***	**-**	**-**	***0.000***	**-**	**-**	***0.000***	**-**	**-**	***0.000***
Hardware - UQ034 - U/W EOD & MCM SYSTEMS/EQUIPMENT Cost																		
Recurring Cost																		
2.1.1) ExMCM EOD Response Remotely Operated Vehicle (ROV)(†) (2)	175,000.00	14	2.450	205,555.00	9	1.850	-	-	0.000	261,944.44	18	4.715	-	-	0.000	261,944.44	18	4.715
2.1.2) UNDERWATER DIVER INTEGRATION SYSTEMS (e.g. STRIDENT)(†) (3)	158,333.33	129	20.425	-	-	0.000	230,000.00	5	1.150	-	-	0.000	-	-	0.000	-	-	0.000
2.1.3) ADVANCED FIRING SYSTEM(†) (4)	22,708.33	240	5.450	-	-	0.000	4,000.00	50	0.200	-	-	0.000	-	-	0.000	-	-	0.000
2.1.4) INFLUENCE SIGNATURE REDUCTION (5)	-	-	1.586	-	-	1.350	-	-	0.316	-	-	0.000	-	-	0.000	-	-	0.000

Exhibit P-5, Cost Analysis: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	P-1 Line Item Number / Title: 0977 / Underwater EOD Equipment	Item Number / Title [DODIC]: 1 / Underwater EOD Programs
ID Code (A=Service Ready, B=Not Service Ready) :	MDAP/MAIS Code:	

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

Cost Elements	Prior Years			FY 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)
2.1.6) MMUBA EQUIPMENT (6)	-	-	0.000	-	-	0.000	-	-	0.000	97,810.81	37	3.619	-	-	0.000	97,810.81	37	3.619
Subtotal: Recurring Cost	-	-	*29.911*	-	-	*3.200*	-	-	*1.666*	-	-	*8.334*	-	-	*0.000*	-	-	*8.334*
Subtotal: Hardware - UQ034 - U/W EOD & MCM SYSTEMS/EQUIPMENT Cost	**-**	**-**	***29.911***	**-**	**-**	***3.200***	**-**	**-**	***1.666***	**-**	**-**	***8.334***	**-**	**-**	***0.000***	**-**	**-**	***8.334***
Hardware - UQ035 - OUTFIT EOD/UMCM TOOLS & EQUIPMENT Cost																		
Recurring Cost																		
3.1.1) UW INTEGRATED SYSTEM INTERFACE (7)	-	-	2.066	-	-	0.395	-	-	0.430	-	-	0.000	-	-	0.000	-	-	0.000
Subtotal: Recurring Cost	-	-	*2.066*	-	-	*0.395*	-	-	*0.430*	-	-	*0.000*	-	-	*0.000*	-	-	*0.000*
Subtotal: Hardware - UQ035 - OUTFIT EOD/UMCM TOOLS & EQUIPMENT Cost	**-**	**-**	***2.066***	**-**	**-**	***0.395***	**-**	**-**	***0.430***	**-**	**-**	***0.000***	**-**	**-**	***0.000***	**-**	**-**	***0.000***
Hardware - UQ036 - DIVER SAFETY LIFE SUPPORT EQUIPMENT Cost																		
Recurring Cost																		
4.1.1) DIVER SAFETY LIFE SUPPORT EQUIPMENT (8)	-	-	4.424	-	-	0.660	-	-	0.660	-	-	0.000	-	-	0.000	-	-	0.000
Subtotal: Recurring Cost	-	-	*4.424*	-	-	*0.660*	-	-	*0.660*	-	-	*0.000*	-	-	*0.000*	-	-	*0.000*
Subtotal: Hardware - UQ036 - DIVER SAFETY LIFE SUPPORT EQUIPMENT Cost	**-**	**-**	***4.424***	**-**	**-**	***0.660***	**-**	**-**	***0.660***	**-**	**-**	***0.000***	**-**	**-**	***0.000***	**-**	**-**	***0.000***
Hardware - UQ037 - MARINE MAMMAL SYSTEM/EQUIPMENT Cost																		
Recurring Cost																		
5.1.1) MMS FIELDING AND INVESTMENT (9)	-	-	39.931	-	-	2.945	-	-	3.019	-	-	0.000	-	-	0.000	-	-	0.000
Subtotal: Recurring Cost	-	-	*39.931*	-	-	*2.945*	-	-	*3.019*	-	-	*0.000*	-	-	*0.000*	-	-	*0.000*
Subtotal: Hardware - UQ037 - MARINE MAMMAL SYSTEM/EQUIPMENT Cost	**-**	**-**	***39.931***	**-**	**-**	***2.945***	**-**	**-**	***3.019***	**-**	**-**	***0.000***	**-**	**-**	***0.000***	**-**	**-**	***0.000***
Hardware - UQ040 MK 18 UUV Cost																		
Recurring Cost																		

Exhibit P-5, Cost Analysis: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	P-1 Line Item Number / Title: 0977 / Underwater EOD Equipment	Item Number / Title [DODIC]: 1 / Underwater EOD Programs
ID Code (A=Service Ready, B=Not Service Ready) :	MDAP/MAIS Code:	

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

Cost Elements	Prior Years			FY 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)
6.1.1) MK18 MOD 2 RETROFIT KITS (INC I) (0204224N)(†) (10)	73,750.00	24	1.770	73,750.00	24	1.770	73,750.00	12	0.885	-	-	0.000	-	-	0.000	-	-	0.000
6.1.2) MK18 MOD 2 UUV OCO RESET (11)	-	-	0.000	-	-	0.000	-	-	5.800	-	-	0.000	-	-	0.000	-	-	0.000
6.1.3) MK 18 MOD 2 RETROFIT KITS (SSAM) (0204224N)(†) (12)	958,750.00	8	7.670	600,000.00	6	3.600	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000
6.1.4) MK18 MOD 2 RETROFIT KITS (ATLAS FORWARD LOOK SONAR) (0204224N)(†) (13)	400,000.00	15	6.000	400,000.00	22	8.800	400,000.00	8	3.200	-	-	0.000	-	-	0.000	-	-	0.000
6.1.5) MK 18 MOD 2 UUV (0204224N)(†) (14)	1,102K	27	29.750	1,050K	3	3.150	1,054K	12	12.645	-	-	0.000	-	-	0.000	-	-	0.000
6.1.6) MK 18 MOD 1 UMCM UUV INCREMENTAL (CIP) Retrofit Kit (0204224N)(†) (15)	1,060K	18	19.080	1,060K	2	2.120	1,072K	3	3.216	-	-	0.000	-	-	0.000	-	-	0.000
Subtotal: Recurring Cost	-	-	*64.270*	-	-	*19.440*	-	-	*25.746*	-	-	*0.000*	-	-	*0.000*	-	-	*0.000*
Subtotal: Hardware - UQ040 MK 18 UUV Cost	**-**	**-**	***64.270***	**-**	**-**	***19.440***	**-**	**-**	***25.746***	**-**	**-**	***0.000***	**-**	**-**	***0.000***	**-**	**-**	***0.000***
Support - UQ830 - PRODUCTION ENGINEERING Cost																		
7.1) PRODUCTION ENGINEERING (16)	-	-	25.027	-	-	4.786	-	-	4.405	-	-	1.346	-	-	0.000	-	-	1.346
Subtotal: Support - UQ830 - PRODUCTION ENGINEERING Cost	**-**	**-**	***25.027***	**-**	**-**	***4.786***	**-**	**-**	***4.405***	**-**	**-**	***1.346***	**-**	**-**	***0.000***	**-**	**-**	***1.346***
Support - UQ850 - PRODUCT IMPROVEMENT Cost																		
8.1) PRODUCT IMPROVEMENT (17)	-	-	19.685	-	-	3.710	-	-	3.793	-	-	0.000	-	-	0.000	-	-	0.000
Subtotal: Support - UQ850 - PRODUCT IMPROVEMENT Cost	**-**	**-**	***19.685***	**-**	**-**	***3.710***	**-**	**-**	***3.793***	**-**	**-**	***0.000***	**-**	**-**	***0.000***	**-**	**-**	***0.000***
Support - UQTNG - INITIAL TRAINING Cost																		
9.1) INITIAL TRAINING (18)	-	-	2.222	-	-	0.535	-	-	0.555	-	-	0.649	-	-	0.000	-	-	0.649

Exhibit P-5, Cost Analysis: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	P-1 Line Item Number / Title: 0977 / Underwater EOD Equipment	Item Number / Title [DODIC]: 1 / Underwater EOD Programs
ID Code (A=Service Ready, B=Not Service Ready) :	MDAP/MAIS Code:	

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

Cost Elements	Prior Years			FY 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 - UQTNG - INITIAL TRAINING Cost	-	-	2.222	-	-	0.535	-	-	0.555	-	-	0.649	-	-	0.000	-	-	0.649
Support - PRIOR YEARS CUMULATIVE FUNDING Cost																		
10.1) PRIOR YEARS CUMULATIVE FUNDING	-	-	97.876	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000
Subtotal: Support - PRIOR YEARS CUMULATIVE FUNDING Cost	-	-	97.876	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000
Gross/Weapon System Cost	-	-	287.899	-	-	35.986	-	-	40.595	-	-	10.329	-	-	0.000	-	-	10.329

(†) indicates the presence of a P-5a

Footnotes:

(1) CE 1.1.1 MIW-VIP: MIW-VIP measures magnetic and acoustic signatures of equipment that will be exposed to influence (magnetic and acoustic) ordnance in combat. This effort utilizes existing ranges and portable ranges (Forward Area Combined Degaussing and Acoustic Range (FACDAR)). Measurements are taken in both homeport areas and deployment areas to assess susceptibility of equipment to prioritized and emerging near peer competitor threat mines. Efforts across the FYDP include ranging newly fielded Expeditionary MCM RHIBS, newly fielded equipment (OPNAV approved Expeditionary MCM Table of Allowance items such as the Multi Mission Underwater Breating Apparatus and Diver Handheld Sonar (STRIDENT)) and unmanned systems (i.e. MK 18 UUVs, MK18 Incremental Upgrade Kits, and underwater ROVs). FY2021 efforts will focus on ranging system components and sub-systems to determine specific signature characteristics that will enable the development of credible and effective tactics and procedures to ensure survivability of these systems in various operation conditions, in addition to informing design of future systems to reduce overall signature to influence fired underwater enemy ordnance.

(2) CE 2.1.1 ExMCM EOD Response Remotely Operated Vehicle (ROV): Provides for procurement funding for OPNAV approved fleet outfitting of the MK19 Mod 2 Remotely Operated Vehicle (ROV). This capability will significantly reduce operational risk to EOD divers, as this underwater ROV will be used in operational scenarios where risk to the EOD diver is too great or when utilization of an EOD diver is unnecessary.

(3) CE 2.1.2 UNDERWATER DIVER INTEGRATION SYSTEMS (e.g. STRIDENT): Provides for the procurement of a specialized EOD Diver underwater handheld sonar that is developed to operate in an influence fired ordnance environment. Unit cost of individual retrofit kits may vary based on number and type of technology included in the kit.

(4) CE 2.1.3 ADVANCED FIRING SYSTEMS: Provides for the procurement of improved underwater acoustic transmitters and receivers to provide safe stand-off command detonation capabilities to Explosive Ordnance Disposal (EOD) divers. The improved firing systems will address the current capability shortfalls of the legacy MK 12 Acoustic Firing System, which has been removed from service due to safety issues.

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

(6) CE 2.1.6 MMUBA EQUIPMENT: These resources will procure the Multi-Mission Underwater Breathing Apparatus, which replaces the aging MK-16 UBA. This procurement will substantially improve a diver's ability to quickly and effectively counter enemy influence ordnance, which will decrease the detect to engage timeline and open sea lanes more quickly to Fleet maneuver and commercial shipping.

(7) CE 3.1.1. UNDERWATER (UW) INTEGRATED SYSTEM INTERFACE: Outfitting of the upgrade of COIN (Common Operator Interface, Navy, a graphical user interface) to interoperate with the MK 18 Family of Systems and the advanced sensors. COIN upgrades resourced will ensure interoperability with legacy MCM assets and that the fielding of the advanced sensors will meet interoperability performance requirements.

(8) CE 4.1.1 DIVER SAFETY LIFE SUPPORT EQUIPMENT: Provides for the procurement of a family of systems based on MOTS and mature technologies to provide safer tools and life support systems for EOD UMCM and MDSU operations. Based on family of systems concept, unit cost of individual systems and sub-systems will vary based on number and type of technology included.

Exhibit P-5, Cost Analysis: PB 2021 Navy		Date: February 2020
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(9) CE 5.1.1 MMS FIELDING AND INVESTMENT: Funding procures investment items required to maintain the MK7 Marine Mammal System and equipment required in the procurement, training, and production of new MK 7 MMS detachments in support of Maritime Homeland Defense and OPLAN MCM requirements. These systems are produced to replace MMS systems that have naturally aged beyond their operationally effective lifespans. Funding supports material and infrastructure items for the training of new MMS systems, investment level veterinary equipment (IAW SECNAVINST 3900.41), and outfitting of tools/equipment for all Fleet MMS in accordance with CNO approved allowance list. The MK 7 MMS remains the only operational buried mine hunting capability in the US Navy.

(10) CE 6.1.1 MK 18 MOD 2 RETROFIT KITS INCREMENT:(Autonomy and Automated Target Recognition): Provides for procurement of UUV MK 18 Mod 2 retrofit kits, which will be employed in operational missions in Shallow Water (SW) and Very Shallow Water (VSW) environments including GFM deployments of Expeditionary MCM Companies ISO C5F and C7F. These retrofit kits add capability that improves reliability, autonomous features, and automated target recognition capabilities. This upgrade kit reduces the detect to engage timeline for Expeditionary MCM Companies to enable Fleet Maneuver against near peer adversaries.

(11) CE 6.1.2 MK18 MOD2 UUV OCO RESET: Reset funding is for replacement of UUVs lost during fleet operations in support of C5F missions. OCO resources will replace and restore deployed systems to full operational readiness to meet C5F mission needs.

(12) CE 6.1.3 MK18 MOD2 RETROFIT KITS (SSAM) (0204224N): Provides for procurement of UUV MK 18 Mod 2 Advanced sensor retrofit kits, which will be employed in operational missions in Shallow Water (SW) and Very Shallow Water (VSW) environments including GFM deployments of Expeditionary MCM Companies ISO C5F and C7F. These retrofit kits add advanced sensor capability to the MK18 Mod 2 which increases area coverage rate and resolution of side scan sonar images of the sea floor which decreases the detect to engage timeline for Expeditionary MCM companies to enable rapid fleet maneuver.

(13) CE 6.1.4 MK18 MOD 2 RETROFIT KITS (ATLAS FORWARD LOOK SONAR) (0204224N): Provides for procurement of UUV MK 18 Mod 2 retrofit kits, which will be employed in operational missions in Shallow Water (SW) and Very Shallow Water (VSW) environments including GFM deployments of Expeditionary MCM Companies ISO C5F and C7F. These retrofit kits add advanced sensor capability to the MK 18 Mod 2 system, and specifically the ability to detect sea mines and other hazards in the volume of water (vice the sea floor).

(14) CE 6.1.5 MK 18 MOD 2 UUV (0204224N): Provides for procurement of UUV MK 18 Mod 2 vehicles, which will be employed in operational missions in Shallow Water (SW) and Very Shallow Water (VSW) environments including GFM deployments of Expeditionary MCM Companies ISO C5F and C7F. These UUVs are a critical component of the Expeditionary MCM detect to engage sequence for undersea mines and the inventory of these UUVs in doubling in conjunction with the growth of Expeditionary MCM Companies from 8 to 16 over the FYDP. Unit price increase by 4.8% due to price increases for critical system component parts (i.e. inertial navigation system, side scan sonar).

(15) CE 6.1.6 MK 18 MOD 1 UMCM UUV INCREMENTAL (CIP) Retrofit Kit (0204224N): Unit cost of individual retrofit kits may vary based on the number and type of technologies included and systems being upgraded and are identified as incremental Block Upgrades (e.g., current increment Block C retrofit kit is an upgrade in capability for the Mk 18 Mod 1 UUV system). These retrofit kits address more than one upgrade and address different functional area, i.e. enhanced navigation, system autonomy, improved post mission analysis, etc. Accordingly the number of retrofit kits may exceed number of systems/vehicles fielded

(16) CE 7.1 PRODUCTION ENGINEERING: Funding supports the production of, EOD Response ROVs, Multi Mission Underwater Breathing Apparatus, Diver Handheld Sonar, and other EOD equipment requiring additional production support to include production contract award, first article tests, and factory acceptance tests. This line enables the rapid and seamless transition from development to production, which is critical to the schedule for delivery of these Expeditionary MCM equipment items. The Navy's Expeditionary MCM Capacity is growing to 16 companies over the course of the FYDP which requires additional and accelerated production of equipment by industry and government partners.

(17) CE 8.1 PRODUCT IMPROVEMENT: Provides for engineering services to improve fielded EOD Diver-based and unmanned systems to improve Human Systems Integration (HSI)/Logistics domains insert technology refresh and/or decrease costs.

(18) CE 9.1 INITIAL TRAINING: Funding provides resources needed due to the increase in training requirements due to expanded employment of fleet systems and the fielding of new systems and incremental upgrades to existing systems. This line funds the development of initial training courses, computer based training, training manuals, and the development of NTSPs for EOD Response ROVs, Multi Mission Underwater Breathing Apparatus, Diver Handheld Sonar, and Advanced Firing Systems. This training is required based on execution of acquisition programs, ECPs and product improvements

Exhibit P-5a, Procurement History and Planning: PB 2021 Navy		Date: February 2020
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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) ExMCM EOD Response Remotely Operated Vehicle (ROV)		2018	U.S. ARMY / VARIOUS	C / FFP	PICATINNY ARSENAL, NJ	Oct 2017	Oct 2018	14	175,000.00	Y		
2.1.1) ExMCM EOD Response Remotely Operated Vehicle (ROV)		2019	U.S. ARMY / VARIOUS	C / FFP	PICATINNY ARSENAL, NJ	Mar 2019	Mar 2020	9	205,555.00	Y		
2.1.1) ExMCM EOD Response Remotely Operated Vehicle (ROV)		2021	U.S. ARMY / VARIOUS	C / FFP	PICATINNY ARSENAL, NJ, NJ	Mar 2021	Mar 2022	18	261,944.44	Y		
2.1.2) UNDERWATER DIVER INTEGRATION SYSTEMS (e.g. STRIDENT)		2018	SHARK MARINE / HALIFAX, CANADA	C / FFP	NAVSEA, HQ	May 2018	May 2019	5	220,000.00	Y		
2.1.2) UNDERWATER DIVER INTEGRATION SYSTEMS (e.g. STRIDENT)		2020	SHARK MARINE / HALIFAX, CANADA	C / FFP	Various	Oct 2019	Oct 2020	5	230,000.00	Y		
2.1.3) ADVANCED FIRING SYSTEM		2020	UARC-University of Texas at Austin / Austin, TX	C / TBD	NAVSEA, HQ	Oct 2019	Oct 2020	50	4,000.00	Y		
6.1.1) MK18 MOD 2 RETROFIT KITS (INC I) (0204224N)		2018	VARIOUS / VARIOUS	C / FFP	VARIOUS	Apr 2018	Apr 2019	24	73,750.00	Y		
6.1.1) MK18 MOD 2 RETROFIT KITS (INC I) (0204224N)		2019	VARIOUS / VARIOUS	C / FFP	VARIOUS	Apr 2019	Apr 2020	24	73,750.00	Y		
6.1.1) MK18 MOD 2 RETROFIT KITS (INC I) (0204224N)		2020	VARIOUS / VARIOUS	C / FFP	VARIOUS	Apr 2020	Apr 2021	12	73,750.00	Y		
6.1.3) MK 18 MOD 2 RETROFIT KITS (SSAM) (0204224N)		2019	VARIOUS / VARIOUS	C / FFP	NIWC PAC	Jan 2019	Jan 2020	6	600,000.00	Y		
6.1.4) MK18 MOD 2 RETROFIT KITS (ATLAS FORWARD LOOK SONAR) (0204224N)(†)		2018	VARIOUS / VARIOUS	C / FFP	NIWC PAC	Apr 2018	Apr 2019	15	400,000.00	Y		
6.1.4) MK18 MOD 2 RETROFIT KITS (ATLAS FORWARD LOOK SONAR) (0204224N)(†)		2019	VARIOUS / VARIOUS	C / FFP	NIWC PAC	Apr 2019	Apr 2020	22	400,000.00	Y		
6.1.4) MK18 MOD 2 RETROFIT KITS (ATLAS FORWARD LOOK SONAR) (0204224N)		2020	VARIOUS / VARIOUS	C / FFP	NIWC PAC	Apr 2020	Apr 2021	8	400,000.00	Y		
6.1.5) MK 18 MOD 2 UUV (0204224N)(†)		2018	VARIOUS / VARIOUS	C / TBD	NSWCIH, MD	Jan 2018	Jan 2019	8	990,000.00	Y		
6.1.5) MK 18 MOD 2 UUV (0204224N)(†)		2019	VARIOUS / VARIOUS	C / TBD	NSWCIH, MD	Jan 2019	Jan 2020	3	1,050K	Y		
6.1.5) MK 18 MOD 2 UUV (0204224N)(†)		2020	VARIOUS / VARIOUS	C / TBD	NSWCIH, MD	Jan 2020	Jan 2021	12	1,054K	Y		
6.1.6) MK 18 MOD 1 UMCM UUV INCREMENTAL (CIP) Retrofit Kit (0204224N)		2018	VARIOUS / VARIOUS	C / TBD	NSWCIH, MD	Oct 2017	Oct 2018	6	1,060K	Y		

Exhibit P-5a, Procurement History and Planning: PB 2021 Navy		Date: February 2020
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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
6.1.6) MK 18 MOD 1 UMCM UUV INCREMENTAL (CIP) Retrofit Kit (0204224N)		2019	VARIOUS / VARIOUS	C / TBD	NSWCIH	Oct 2018	Oct 2019	2	1,060K	Y		
6.1.6) MK 18 MOD 1 UMCM UUV INCREMENTAL (CIP) Retrofit Kit (0204224N)		2020	VARIOUS / VARIOUS	C / TBD	NSWCIH, MD	Oct 2019	Oct 2020	3	1,072K	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 / 01 / 9 | **P-1 Line Item Number / Title:** 0977 / Underwater EOD Equipment | **Item Number / Title [DODIC]:** 1 / Underwater EOD Programs

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	
6.1.4) MK18 MOD 2 RETROFIT KITS (ATLAS FORWARD LOOK SONAR) (0204224N) (13)																															
	1	2018	NAVY	15	0	15							A -	-	-	-	-	-	-	-	-	-	-	-	1	1	1	1	1	1	9
	1	2019	NAVY	22	0	22																			A -	-	-	-	-	-	22
6.1.5) MK 18 MOD 2 UUV (0204224N) (14)																															
Prior Years Deliveries: 19																															
	2	2018	NAVY	8	0	8				A -	-	-	-	-	-	-	-	-	-	-	-	1	1	1	1	1	1	1	1		0
	2	2019	NAVY	3	0	3																A -	-	-	-	-	-	-	-	-	3
	2	2020	NAVY	12	0	12																									12
							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 / 01 / 9	**P-1 Line Item Number / Title:** 0977 / Underwater EOD Equipment	**Item Number / Title [DODIC]:** 1 / Underwater EOD Programs

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	
6.1.4) MK18 MOD 2 RETROFIT KITS (ATLAS FORWARD LOOK SONAR) (0204224N) (13)																															
	1	2018	NAVY	15	6	9	1	1	1	1	1	1	1	1	1																0
	1	2019	NAVY	22	0	22	-	-	-	-	-	-	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	4
6.1.5) MK 18 MOD 2 UUV (0204224N) (14)																															
Prior Years Deliveries: 19																															
	2	2018	NAVY	8	8	0																									0
	2	2019	NAVY	3	0	3	-	-	-	1	-	-	1	-	-	1															0
	2	2020	NAVY	12	0	12				A -	-	-	-	-	-	-	-	-	-	-	-	1	1	1	1	1	1	1	1	1	3
							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
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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	
6.1.4) MK18 MOD 2 RETROFIT KITS (ATLAS FORWARD LOOK SONAR) (0204224N) (13)																															
	1	2018	NAVY	15	15	0																									0
	1	2019	NAVY	22	18	4	1	1	1	1																					0
6.1.5) MK 18 MOD 2 UUV (0204224N) (14)																															
Prior Years Deliveries: 19																															
	2	2018	NAVY	8	8	0																									0
	2	2019	NAVY	3	3	0																									0
	2	2020	NAVY	12	9	3	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 / 01 / 9	**P-1 Line Item Number / Title:** 0977 / Underwater EOD Equipment	**Item Number / Title [DODIC]:** 1 / Underwater EOD Programs

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	VARIOUS - VARIOUS			TBD	0	0	0	0	0	0	0	0
2	VARIOUS - VARIOUS			TBD	0	0	0	0	0	0	0	0

"A" in the Delivery Schedule indicates the Contract Award Date.
Note: Due to space limitations, quantities in the Exhibit P-21 delivery calendar are truncated and rounded based on the maximum quantity in the calendar as follows. If the maximum quantity is less than or equal to than 9,999, all quantities are shown as each. If the maximum quantity is between 10,000 and 999,999 all quantities are shown in thousands. If the maximum quantity is between 1,000,000 and 999,999,999 all quantities are shown in millions (rounded to the nearest thousand).If the maximum quantity is equal or greater than 1,000,000,000 all quantities are shown in billions (rounded to the nearest million).

Exhibit P-5, Cost Analysis: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0977 / Underwater EOD Equipment	**Item Number / Title [DODIC]:** 2 / Expeditionary Mine Countermeasures (ExMCM)
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

Resource Summary	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
Procurement Quantity *(Units in Each)*	-	-	-	-	-	-
Gross/Weapon System Cost *($ in Millions)*	37.838	40.340	34.760	3.903	0.000	3.903
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	37.838	40.340	34.760	3.903	0.000	3.903
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**37.838**	**40.340**	**34.760**	**3.903**	**0.000**	**3.903**
(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 - UQ038 Expeditionary Mine Countermeasures (ExMCM) Cost																		
Recurring Cost																		
1.1.1) MK18 MOD 1 UUV (0207404N)(†) (19)	398,818.18	11	4.387	440,000.00	12	5.280	449,000.00	12	5.388	-	-	0.000	-	-	0.000	-	-	0.000
1.1.2) ExMCM MK 18 MOD 2 UUV(†) (20)	1,049K	6	6.296	1,050K	6	6.300	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000
1.1.3) MK18 MOD 1 UMCM UUV INCREMENTAL (CIP) RETROFIT KIT (0207404N)(†) (21)	-	-	0.000	-	-	0.000	1,072K	5	5.360	-	-	0.000	-	-	0.000	-	-	0.000
1.1.4) MK18 MOD 2 RETROFIT KITS (SSAM) (0207404N)(†) (22)	-	-	0.000	-	-	0.000	600,000.00	15	9.000	-	-	0.000	-	-	0.000	-	-	0.000
1.1.5) MK18 MOD 2 RETROFIT KITS (ATLAS) (0207404N)(†) (23)	-	-	0.000	-	-	0.000	400,000.00	4	1.600	-	-	0.000	-	-	0.000	-	-	0.000
1.1.6) ExMCM AUX/ SUPPORT/MAINT/ MSE KITS(†) (24)	379,327.87	61	23.139	416,142.86	35	14.565	413,545.45	11	4.549	-	-	0.000	-	-	0.000	-	-	0.000

Exhibit P-5, Cost Analysis: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0977 / Underwater EOD Equipment	**Item Number / Title [DODIC]:** 2 / Expeditionary Mine Countermeasures (ExMCM)
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

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

Cost Elements	Prior Years			FY 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) ExMCM DIVER SENSOR/NAV SYSTEMS(†) (25)	-	-	0.000	225,000.00	5	1.125	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000
1.1.8) ExMCM EOD RESPONSE REMOTELY OPERATED VEHICLE (ROV)(†) (26)	-	-	0.000	-	-	0.000	259,133.33	15	3.887	262,411.76	7	1.837	-	-	0.000	262,411.76	7	1.837
1.1.9) ExMCM TOA EQUIPMENT (27)	-	-	0.000	-	-	0.000	-	-	2.526	-	-	2.066	-	-	0.000	-	-	2.066
1.1.10) ExMCM OPEN WATER TRANSPORT SYSTEM/ SHIPBOARD CHARGING CONTAINER OWTS/ SCC(†) (28)	-	-	0.000	289,545.45	22	6.370	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000
1.1.11) ExMCM PROCUREMENT C6F OCO (29)	-	-	4.016	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000
1.1.12) ExMCM DIVER EQUIPMENT (30)	-	-	0.000	-	-	6.700	-	-	2.450	-	-	0.000	-	-	0.000	-	-	0.000
Subtotal: Recurring Cost	-	-	*37.838*	-	-	*40.340*	-	-	*34.760*	-	-	*3.903*	-	-	*0.000*	-	-	*3.903*
Subtotal: Hardware - UQ038 Expeditionary Mine Countermeasures (ExMCM) Cost	**-**	**-**	***37.838***	**-**	**-**	***40.340***	**-**	**-**	***34.760***	**-**	**-**	***3.903***	**-**	**-**	***0.000***	**-**	**-**	***3.903***
Gross/Weapon System Cost	**-**	**-**	**37.838**	**-**	**-**	**40.340**	**-**	**-**	**34.760**	**-**	**-**	**3.903**	**-**	**-**	**0.000**	**-**	**-**	**3.903**

Remarks:
[Hardware/Recurring] [Hardware/Recurring] ExMCM Outfitting: This funding resources the procurement of Expeditionary systems and support equipment. Procurement of this equipment will allow the ExMCM forces to be deployed globally and employed from a wide variety of shipboard platforms at sea as well as small craft in performing EOD and EXMCM missions in support of global requirements. The various ExMCM outfitting kits comprise the ancillary and support equipment necessary to outfit an ExMCM Company with equipment based on approved Tables of Allowances (TOAs) and are procured from a variety of OEMs and sources.

UUV funding previous provided under Cost Elements 1.1.1. - 1.1.6 has been re-programmed to newly established BLI 1611 Small and Medium Class UUVs.

(†) 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 / 01 / 9	P-1 Line Item Number / Title: 0977 / Underwater EOD Equipment	Item Number / Title [DODIC]: 2 / Expeditionary Mine Countermeasures (ExMCM)
ID Code (A=Service Ready, B=Not Service Ready) :	MDAP/MAIS Code:	

Footnotes:

(19) CE 1.1.1 MK18 MOD 1 UUV (0207404N): Provides for procurement of UUV MK18 Mod 1 vehicles, which will be employed in operational missions in Shallow Water (SW) and Very Shallow Water (VSW) environments including rotational deployments to the Fifth Fleet and Seventh Fleet areas of responsibility.

(20) CE 1.1.2 EXPEDITIONARY MCM (ExMCM) MK 18 MOD 2 UUV: Provides for procurement of UUV MK 18 Mod 2 vehicles, which will be employed in operational missions in Shallow Water (SW) and Very Shallow Water (VSW) environments including GFM deployments of Expeditionary MCM Companies ISO C5F and C7F. These UUVs are a critical component of the Expeditionary MCM detect to engage sequence for undersea mines and the inventory of these UUVs in doubling in conjunction with the growth of Expeditionary MCM Companies from 8 to 16 over the FYDP.

(21) CE 1.1.3 MK18 MOD 1 UMCM UUV INCREMENTAL (CIP) RETROFIT KITS (0207404N): Unit cost of individual retrofit kits may vary based on the number and type of technologies included and systems being upgraded and are identified as incremental Block Upgrades (e.g., current increment Block C retrofit kit is an upgrade in capability for the MK18 MOD 1 UUV System) these retrofit kits address more than one upgrade and address different functional area, i.e. enhanced navigation, system autonomy, improved post mission analysis, etc. Accordingly the number of retrofit kits may vary in the number of systems/ vehicles fielded.

(22) CE 1.1.4 MK18 MOD 2 RETROFIT KITS SYNTHETIC APERTURE SONAR (SSAM) (0207404N): Provides for procurement of UUV MK 18 Mod 2 Advanced sensor retrofit kits, which will be employed in operational missions in Shallow Water (SW) and Very Shallow Water (VSW) environments including GFM deployments of Expeditionary MCM Companies ISO C5F and C7F. These retrofit kits add advanced sensor capability to the MK18 Mod 2 which increases area coverage rate and resolution of side scan sonar images of the sea floor which decreases the detect to engage timeline for Expeditionary MCM companies to enable rapid fleet maneuver.

(23) CE 1.1.5 MK18 MOD 2 RETROFIT KITS (ATLAS) (0207404N): Provides for procurement of UUV MK 18 Mod 2 retrofit kits, which will be employed in operational missions in Shallow Water (SW) and Very Shallow Water (VSW) environments including GFM deployments of Expeditionary MCM Companies ISO C5F and C7F. These retrofit kits add advanced sensor capability to the MK 18 Mod 2 system, and specifically the ability to detect sea mines and other hazards in the volume of water (vice the sea floor).

(24) CE 1.1.6 ExMCM AUXILIARY, SUPPORT, MAINTENANCE, and MISSION SUPPORT EQUIPMENT KITS: The ExMCM Aux Kits includes equipment required for ExMCM deployment, pre-mission planning and post mission analysis. In addition, new procurement auxiliary kits will need to be procured to support enhancements to legacy fleet systems through engineering changes, system upgrades and obsolescence of legacy auxiliary kits. Items include those required to deploy the ExMCM equipment such as transport carts, transport cases, test equipment, pre-mission planning equipment not covered in the support or maintenance kits The ExMCM Support Kit comprises GETACs, PMA stations, cross-domain modules, and other support items that comprise a portion of the ExMCM system outfitting. The Maintenance Kit comprises special tool kits, calibration equipment, fly away maintenance modules, and other maintenance items. Unit cost of individual kits may vary based on number and type of technology included in each kit.

(25) CE 1.1.7 ExMCM DIVER SENSOR/NAVIGATION SYSTEMS: Provides for the procurement of a specialized EOD Diver underwater handheld sonar that is developed to operate in an influence fired ordnance environment. Unit cost of individual retrofit kits may vary based on number and type of technology included in the kit.

(26) CE 1.1.8 ExMCM EOD RESPONSE REMOTELY OPERATED VEHICLE (ROV): Procurement of EOD Response vehicles and associated sub-systems to leverage advancements in robotic manipulators, target recognition software, user interface, and explosive recognition and neutralization that have been achieved in land robots and which can now be integrated into undersea remotely operated vehicles. These EOD response systems will enable more rapid reacquisition, identification and neutralization of mine like targets found by other search assets.

(27) CE 1.1.9 ExMCM TOA EQUIPMENT: Procurement of EXMCM Company Table of Allowance (TOA) equipment for the sixteen ExMCM companies supporting global operations.

(28) CE 1.1.10 ExMCM OPEN WATER TRANSPORT SYSTEM/SHIPBOARD CHARGING CONTAINER OWTS/SCC: Supports initial fielding of hardware of the Open Water Transport equipment and shipboard charging containers. Anticipated delivery schedule 2 per month.

(29) CE 1.1.11 ExMCM PROCUREMENT (C6F): Funding will procure critical ExMCM equipment needed to outfit deploying CTF 68 forces in support of ongoing USN operations in USSIXTHFLT AoR.

(30) CE 1.1.12 ExMCM DIVER EQUIPMENT: These resources will procure the Multi-Mission Underwater Breathing Apparatus, which replaces the obsolete MK-16 UBA. This procurement will substantially improve a diver's ability to quickly and effectively counter enemy influence ordnance, which will decrease the detect to engage timeline and open sea lanes more quickly to Fleet maneuver and commercial shipping.

Exhibit P-5a, Procurement History and Planning: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	P-1 Line Item Number / Title: 0977 / Underwater EOD Equipment	Item Number / Title [DODIC]: 2 / Expeditionary Mine Countermeasures (ExMCM)

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) MK18 MOD 1 UUV (0207404N)(†)		2019	HYDROID / POCASSET, MA	C / FFP	NSWCIH, MD	Nov 2018	Nov 2019	12	440,000.00	Y		
1.1.1) MK18 MOD 1 UUV (0207404N)(†)		2020	HYDROID / POCASSET, MA	C / FFP	NSWCIH, MD	Jan 2020	Jan 2021	12	449,000.00	Y		
1.1.2) ExMCM MK 18 MOD 2 UUV		2018	HYDROID / POCASSET, MA	C / FFP	NSWCIH, MD	Jan 2018	Jan 2019	6	1,049K	Y		
1.1.2) ExMCM MK 18 MOD 2 UUV		2019	HYDROID / POCASSET, MA	C / FFP	NSWCIH, MD	Jan 2019	Jan 2020	6	1,050K	Y		
1.1.3) MK18 MOD 1 UMCM UUV INCREMENTAL (CIP) RETROFIT KIT (0207404N)(†)		2020	HYDROID / POCASSET, MA	C / FFP	NSWCIH, MD	Nov 2019	Nov 2020	5	1,072K	Y		
1.1.4) MK18 MOD 2 RETROFIT KITS (SSAM) (0207404N)(†)		2020	HYDROID / POCASSET, MA	C / FFP	NSWCIH, MD	Mar 2020	Mar 2021	15	600,000.00	Y		
1.1.5) MK18 MOD 2 RETROFIT KITS (ATLAS) (0207404N)		2020	HYDROID / POCASSET, MA	C / FFP	NSWCIH, MD	Mar 2020	Mar 2021	4	400,000.00	Y		
1.1.6) ExMCM AUX/SUPPORT/ MAINT/MSE KITS		2018	VARIOUS / VARIOUS	C / FFP	NSWCIH, MD	Oct 2017	Oct 2017	25	390,000.00	Y		
1.1.6) ExMCM AUX/SUPPORT/ MAINT/MSE KITS		2019	VARIOUS / VARIOUS	C / FFP	NSWCIH, MD	Mar 2019	Mar 2020	35	416,142.86	Y		
1.1.6) ExMCM AUX/SUPPORT/ MAINT/MSE KITS		2020	VARIOUS / VARIOUS	C / FFP	NSWCIH, MD	Mar 2020	Mar 2021	11	413,545.45	Y		
1.1.7) ExMCM DIVER SENSOR/ NAV SYSTEMS		2019	SHARK MARINE / HALIFAX, CANADA	C / FFP	NAVSEA, HQ	Oct 2018	Oct 2019	5	225,000.00	Y		
1.1.8) ExMCM EOD RESPONSE REMOTELY OPERATED VEHICLE (ROV)		2020	U.S. ARMY / VARIOUS	C / FFP	PICATINNY ARSENAL, NJ	Mar 2020	Mar 2021	15	259,133.33	Y		
1.1.8) ExMCM EOD RESPONSE REMOTELY OPERATED VEHICLE (ROV)		2021	U.S. ARMY / VARIOUS	C / FFP	PICATINNY ARSENAL, NJ	Mar 2021	Mar 2022	7	262,411.76	Y		
1.1.10) ExMCM OPEN WATER TRANSPORT SYSTEM/ SHIPBOARD CHARGING CONTAINER OWTS/SCC		2019	PIF / HUNTSVILLE, AL	C / FFP	NSWCIH, MD	Mar 2019	Mar 2020	22	289,545.45	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 / 01 / 9	**P-1 Line Item Number / Title:** 0977 / Underwater EOD Equipment	**Item Number / Title [DODIC]:** 2 / Expeditionary Mine Countermeasures (ExMCM)

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	
1.1.1) MK18 MOD 1 UUV (0207404N) (19)																															
Prior Years Deliveries: 11																															
	1	2019	NAVY	12	0	12														A -	-	-	-	-	-	-	-	-	-	-	12
	1	2020	NAVY	12	0	12																									12
1.1.3) MK18 MOD 1 UMCM UUV INCREMENTAL (CIP) RETROFIT KIT (0207404N) (21)																															
	2	2020	NAVY	5	0	5																									5
1.1.4) MK18 MOD 2 RETROFIT KITS (SSAM) (0207404N) (22)																															
	3	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 / 01 / 9	**P-1 Line Item Number / Title:** 0977 / Underwater EOD Equipment	**Item Number / Title [DODIC]:** 2 / Expeditionary Mine Countermeasures (ExMCM)

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	
1.1.1) MK18 MOD 1 UUV (0207404N) (19)																															
Prior Years Deliveries: 11																															
	1	2019	NAVY	12	0	12	-	1	1	1	1	1	1	1	1	1	1	1	1												0
	1	2020	NAVY	12	0	12				A -	-	-	-	-	-	-	-	-	-	-	-	1	1	1	1	1	1	1	1	1	3
1.1.3) MK18 MOD 1 UMCM UUV INCREMENTAL (CIP) RETROFIT KIT (0207404N) (21)																															
	2	2020	NAVY	5	0	5		A -	-	-	-	-	-	-	-	-	-	-	-	1	1	1	1	1							0
1.1.4) MK18 MOD 2 RETROFIT KITS (SSAM) (0207404N) (22)																															
	3	2020	NAVY	15	0	15						A -	-	-	-	-	-	-	-	-	-	-	-	1	1	1	1	1	1	1	8
							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 / 01 / 9	**P-1 Line Item Number / Title:** 0977 / Underwater EOD Equipment	**Item Number / Title [DODIC]:** 2 / Expeditionary Mine Countermeasures (ExMCM)

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	
1.1.1) MK18 MOD 1 UUV (0207404N) (19)																															
Prior Years Deliveries: 11																															
	1	2019	NAVY	12	12	0																									0
	1	2020	NAVY	12	9	3	1	1	1																						0
1.1.3) MK18 MOD 1 UMCM UUV INCREMENTAL (CIP) RETROFIT KIT (0207404N) (21)																															
	2	2020	NAVY	5	5	0																									0
1.1.4) MK18 MOD 2 RETROFIT KITS (SSAM) (0207404N) (22)																															
	3	2020	NAVY	15	7	8	1	1	2	2	2																				0
							OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	

Exhibit P-21, Production Schedule: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0977 / Underwater EOD Equipment	**Item Number / Title [DODIC]:** 2 / Expeditionary Mine Countermeasures (ExMCM)

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	HYDROID - POCASSET, MA			TBD	0	0	0	0	0	0	0	0
2	HYDROID - POCASSET, MA			TBD	0	0	0	0	0	0	0	0
3	HYDROID - POCASSET, MA			TBD	0	0	0	0	0	0	0	0

"A" in the Delivery Schedule indicates the Contract Award Date.
Note: Due to space limitations, quantities in the Exhibit P-21 delivery calendar are truncated and rounded based on the maximum quantity in the calendar as follows. If the maximum quantity is less than or equal to than 9,999, all quantities are shown as each. If the maximum quantity is between 10,000 and 999,999 all quantities are shown in thousands. If the maximum quantity is between 1,000,000 and 999,999,999 all quantities are shown in millions (rounded to the nearest thousand).If the maximum quantity is equal or greater than 1,000,000,000 all quantities are shown in billions (rounded to the nearest million).

Exhibit P-5, Cost Analysis: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	P-1 Line Item Number / Title: 0977 / Underwater EOD Equipment	Item Number / Title [DODIC]: 3 / Naval Special Warfare Forces
ID Code (A=Service Ready, B=Not Service Ready) :	MDAP/MAIS Code:	

Resource Summary	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
Procurement Quantity *(Units in Each)*	-	-	-	-	-	-
Gross/Weapon System Cost *($ in Millions)*	4.950	5.874	1.685	2.610	0.000	2.610
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	4.950	5.874	1.685	2.610	0.000	2.610
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**4.950**	**5.874**	**1.685**	**2.610**	**0.000**	**2.610**
(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 - UQ039 NSW Common Equipment Cost																		
Recurring Cost																		
1.1.1) NSW MK18 MOD 1 (†) (31)	4,950K	1	4.950	2,937K	2	5.874	1,685K	1	1.685	2,610K	1	2.610	-	-	0.000	2,610K	1	2.610
Subtotal: Recurring Cost	-	-	*4.950*	-	-	*5.874*	-	-	*1.685*	-	-	*2.610*	-	-	*0.000*	-	-	*2.610*
Subtotal: Hardware - UQ039 NSW Common Equipment Cost	**-**	**-**	***4.950***	**-**	**-**	***5.874***	**-**	**-**	***1.685***	**-**	**-**	***2.610***	**-**	**-**	***0.000***	**-**	**-**	***2.610***
Gross/Weapon System Cost	**-**	**-**	**4.950**	**-**	**-**	**5.874**	**-**	**-**	**1.685**	**-**	**-**	**2.610**	**-**	**-**	**0.000**	**-**	**-**	**2.610**

Remarks:
[Hardware/Recurring] MK 18 UUV outfitting in support of Naval Special Operation Forces.

(†) indicates the presence of a P-5a

Footnotes:
(31) CE 1.1.1 MK18 MOD 1 UUV: Baseline funding provides for the replacement procurement of (4) MK18 MOD1 UUV in support of contingency Naval Special Warfare missions. The MK18 UUV systems have been identified as a Navy service-common systems and beginning in FY18 are funded using Department of the Navy resources. Previous MK18 UUV systems were procured by Special Operations Command (SOCOM) funding. Unit cost increase in FY21 allows for the procurement of a MK18 MOD1 UUV System. FY20 OPN funds insufficient to procure a full MK18 MOD1 UUV System. Technical Adjustment in FY21 and outyears adds OPN funds to allow for procurement of one system per year.

Exhibit P-5a, Procurement History and Planning: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	P-1 Line Item Number / Title: 0977 / Underwater EOD Equipment	Item Number / Title [DODIC]: 3 / Naval Special Warfare Forces

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) NSW MK18 MOD 1		2018	VARIOIUS / VARIOUS	C / TBD	** NO PCO **	Oct 2017	Oct 2017	1	4,950K	N		
1.1.1) NSW MK18 MOD 1		2019	VARIOIUS / VARIOUS	C / FFP	NSWCIH, MD	Mar 2019	Mar 2020	1	3,374K	Y		
1.1.1) NSW MK18 MOD 1	✓	2019	VARIOIUS / VARIOUS	C / FFP	NSWCIH, MD	Mar 2019	Mar 2019	1	2,500K	Y		

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Exhibit P-40, Budget Line Item Justification: PB 2021 Navy	Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 01: Ships Support Equipment / BSA 9: Other Shipboard Equipment	**P-1 Line Item Number / Title:** 0981 / Items less than $5 Million

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

Line Item MDAP/MAIS Code: N/A

Resource Summary	Prior Years	FY 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)*	698.381	122.985	87.857	105.715	0.000	105.715	127.291	90.083	73.738	70.702	Continuing	Continuing
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	698.381	122.985	87.857	105.715	0.000	105.715	127.291	90.083	73.738	70.702	Continuing	Continuing
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**698.381**	**122.985**	**87.857**	**105.715**	**0.000**	**105.715**	**127.291**	**90.083**	**73.738**	**70.702**	**Continuing**	**Continuing**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)												
Initial Spares *($ in Millions)*	-	-	0.015	-	-	-	-	-	-	-	-	0.015
Flyaway Unit Cost *($ in Dollars)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Dollars)*	-	-	-	-	-	-	-	-	-	-	-	-

Description:

The FY 2021 funding request was reduced by $16.491 million to account for the availability of prior year execution balances.

This budget provides for "S" cognizance (Shipboard, Hull, Mechanical & Electrical (HM&E) equipment for surface ships and aircraft carriers) which are not in any specific category. This equipment accomplishes program alterations for installation during CNO and Fleet availabilities, fills Fleet requisitions from casualties and attrition, provide tech refresh upgrades, and replaces obsolete equipment. Primary objectives are to maintain or improve readiness, safety, reliability, reduce workload, lower maintenance costs, improve sailor quality of life, and/or sustain ship classes through their notional life or beyond. The budget purchases install various equipment including machinery pumps, generators, ships propellers and shafts, air compressors, davits, A/C Plants, and steam propulsion items. It also procures allowance items as required by the Coordinated Shipboard Allowance List
(COSAL). Major programs are the CVN Class Machinery Plant Upgrades, MACHALTs, Carrier Auto Voltage Regulator (AVR), Solid State Lighting, Patrol Coastal Modernization, and Expeditionary Mobile Base (ESB).

[P40A / LT060 - MACHALTs]: The Machinery Alteration (MACHALT) Program supports identification, procurement, and installation of Hull, Mechanical and Electrical (HM&E) internal equipment and system improvements on in-service surface ships. The components are required to support units in the Fleet during the Continuous Maintenance Availability (CMAV) and other windows of opportunity (WOO). Due to Fleet usage, requirements, and alignment of availability periods in a given year, adjustments are made to quantities and items throughout the FYDP. Program execution improves system readiness and reduces life cycle cost. MACHALTs are installed via the Navy Modernization Process (NMP) in the following priority order: (1) Mandatory Safety, (2) Statutory, (3) Safety, and (4) Troubled Systems/Obsolescence Alts.

[P40A / LT110 - Propellers and Shafts - DDG 51]: LT110- VARIOUS PROPELLERS AND SHAFTS - This funding previously procured spare waterborne shafts (propeller shafts and stern tube shafts). In FY19 procurement and repair of waterborne shafts shifted from 2S (NAVSEA managed) to 7H (NAVSUP WSS managed) and therefore there is no more procurement requirement. This funding procures controllable pitch propeller (CPP) system end items such as propeller blades, hubs and oil distribution (OD) boxes used on DDG 51, LHD 8 and following (AF), LPD, LHA 6 AF, LSD 41, and DDG1000 class ships. These spares are required to DDG 51, LHD 8 and following (AF), LPD, LHA 6 AF, LSD 41, and DDG1000 Fleet demand due to scheduled replacement caused by lifecycle wear and unscheduled replacements caused by CASREPs. The component has long repair turn-around times (1-2 years) and thus cannot be repaired and reused during the same availability. The technical requirements and drydocking constraints drives the program to establish a rotatable pool to support replacements. The growing size of the fleet and insufficiency of the current number of DDG 51, LHD 8 and following (AF), LPD, LHA 6 AF, LSD 41, and DDG1000 spares to meet upcoming change-out demand per CNO availability schedules is driving the requirement to increase the number of spares to support a rotatable pool and ensure readiness. A malfunctioning propeller or shaft may result in excessive vibration, which could lead to damage of ship structures and equipment (bearings, main reduction gears, and bulkhead seal), increase of ship cavitation/ noise, loss of speed or loss of motion.

Exhibit P-40, Budget Line Item Justification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 01: Ships Support Equipment / BSA 9: Other Shipboard Equipment	**P-1 Line Item Number / Title:** 0981 / Items less than $5 Million	
ID Code (A=Service Ready, B=Not Service Ready): B	**Program Elements for Code B Items:** N/A	**Other Related Program Elements:** N/A
Line Item MDAP/MAIS Code: N/A		

[P40A / LT120 - Carrier Propulsion Plant Inspection]: Funds are used to procure the latest technology inspection system tooling, i.e., laser-optic, ultrasonic, fiber-optic, electro-optic and computed radiography inspection systems.

[P40A / LT130 - Steam Propulsion Items]: LT130 - STEAM PROPULSION ITEMS
This provides for several initiatives oriented to upgrading boiler efficiency and safety with downstream maintenance effectiveness. In particular, the items procured include: Upgraded Stack Gas Analyzer (SGA) , Optimization Trim Loop Material including fuel oil meters, stack gas temperature sensors, electronic automatic boiler controls interface software/schema to improve steam plant efficiency, Upgraded electronic automatic boiler control (E-ABC) system process controllers/smart transmitters, Upgraded Boiler Water/Feedwater (BW/FW) Chemistry Analysis/Carbohydrazide Implementation Equipment., Upgraded SSTG Protective Devices (Overspeed Trips), and Upgrades to Boiler Igniter System (BIS) (Fuel Valve and Insert/Retract Air Actuators). The Steam Propulsion Improvement Program provides safe and reliable power for ship movement through the water, and, in addition, provides power to ships combat and habitability systems, whether electrical or steam dependent. At any given time, due to propulsion plant casualties, ship propulsion systems may be operating at reduced capability, adversely affecting the ship's mission(s). The Steam Propulsion improvement program encompasses steam and diesel propulsion surface ships in the Fleet, and provides for material upgrades to propulsion systems resulting in increased readiness, safety and reliability. Items can be installed during a scheduled or unscheduled availability by a shipyard, tender/ Intermediate Maintenance Activity or Alteration Installation Team (AIT).

[P40A / LT830 - Carrier Production Engineering]: The review and approval of any production contract technical documentation, or the separate development of this documentation, to include: Technical Manuals, Planned Maintenance System (PMS), Level III Production Drawings, Provisioning Technical Documentation (PTD), Program Support Data (PSD), and Allowance Parts List (APL); engineering support for final design reviews.

[P40A / LT328 - Mobile Cleaning Recovery and Recycle System (MCRRS)]: The Mobile Cleaning, Recovery & Recycling System (MCRRS) is a shipboard heavy duty, self-powered and propelled cleaning vehicle which utilizes pressurized water jet technology, water reclaiming and recycling systems onboard the unit to clean and restore non-skid surfaces on Navy aircraft capable ships. MCRRS will replace the existing obsolete Tennant flight deck scrubber, significantly reduce manpower allocation and materials required to conduct the manual cleaning process utilizing soap and water, and be fielded on all LHA and LHD platforms. Funding will procure units, spares, training, and engineering services support.

[P40A / LT330 - CVN Cybersecurity]: CVN Cyber Security enables the development and installation of Ship Change Documents (SCDs) for Boundary Defense Capability (BDC), Situational Awareness and Physical Security. It will increase the Defense in Depth and improve the Cyber Security aspects of the CVN Nimitz Class HM&E Networks. Funding will be used to update hardware and software applications and system configurations required to be compatible with and meet DoD CYBER requirements, Security Technical Implementation Guide and other CYBER requirements. Funding will also be used to update system cybersecurity Certification and Accreditation. Add capability to protect, detect, and respond/recover to internal system events, and add additional defense in depth and monitoring to external interfaces.

[P40A / LT 331 CVN78]: CVN 78 funding will cover Contractor Furnished Equipment (CFE) modernizations in future CNO availabilities. This includes its first availability which upgrades the configuration of Machinery Control and Monitoring System (MCMS) valve operator architecture from Ring to Star configuration, upgrades the Aircrew Survival Equipment maintenance shops and flight/survival gear storage rooms, installs increased waste handling/management equipment upgrades to support the Plasma Arc Waste Destruction System (PAWDS) and updates the Dual Band Radar (DBR) Power Quality Data Acquisition System (PQDAS).

[P40A / LT332-CVN Mobile Cleaning, Recovery & Recycling System (MCRRS)]: The Mobile Cleaning, Recovery & Recycling System (MCRRS) is a shipboard heavy duty, self-powered and propelled cleaning vehicle which utilizes pressurized water jet technology, water reclaiming and recycling systems onboard the unit to clean and restore non-skid surfaces on Navy aircraft capable ships. MCRRS will replace the existing obsolete Tennant flight deck scrubber, significantly reduce manpower allocation and materials required to conduct the manual cleaning process utilizing soap and water, and be fielded on all CVN platforms. Funding will procure units and spares.

[P40A / LT335 CVN Training and Equipment]: LT335 - CVN Training and Equipment
This funding procures spare equipment, propulsion shafts, and propellers with long repair turn-around times to support a change in maintenance philosophy from inspection and repair to remove and replace in order to significantly reduce in-schedule risk to CNO maintenance periods. Funding will be used to replace antiquated equipment and provide a technology refresh in the machine shops on the CVN-68 class

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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		

carriers. Funding will also be used to replace outmoded and obsolete Training Test Equipment in established Navy schools, as identified in approved or draft Navy Training System Plans (NTSPs) as well as procure state-of-the-art, mobile and reconfigurable instructional facility, positioned at the point of need to support Sailor 2025 and Ready Relevant Learning (RRL).

[P3A / LT160 - Machinery Plant Upgrades]: The Machinery Plant Upgrade project within the CVN Fleet Modernization Program (FMP) encompasses CVN Machinery Control Systems, Ship Control (Navigation/ Steering), Integrated Voice Control Networks, Announcing Systems and Shipboard Air Traffic Control Communication Systems. The machinery plant upgrade modernization alterations currently consist of greater than 40 different Ship Change Documents (SCD) with a cost value of approximately $42M for all the alterations combined. Individual SCDs can range in cost from $5K (for software only changes) to ~ $14M for major system upgrade procurements. The range of SCD installs can cost as low as $100k and as high as $4 million for individual SCDs. During each CNO availability, we schedule and complete a subset of these 40+ alterations. Each hull is different receiving varying subsets of the 40+ SCDs depending on individual ship configurations. These alts are scheduled for installation over 3-4 availabilities (which may be 9-12 years) with many installations occurring in later years of the FYDP. Additionally, the machinery plant upgrade program is technology driven and many alterations are still being finalized in the Navy modernization Program (i.e. Ship Change Document (SCD) development) process for installation in later years. New SCDs continue to be developed to proactively address obsolescence issues associated with ever changing technology

[P3A - 2 / LT306 - Automated Voltage Regulator (AVR)]: LT306 - AUTOMATED VOLTAGE REGULATOR
The CVN Automatic Voltage Regulator (AVR) is a microprocessor based voltage regulator system for the NIMITZ Class, programmed to replace the legacy analog voltage regulator, which, although operational, lacks the improved reliability and lower maintenance costs of the AVR. It controls the output voltage of a turbine generator (TG), which converts steam into the electricity used for aircraft and combat operations, and reactor cooling.

[P3A - 3 / LT307 - Carrier Canned Lube Oil Pump]: The Canned Lube Oil Pump (CLOP) with a two-speed motor will replace both the Standby Lube Oil Pump (SLOP) and Emergency Lube Oil Pump (ELOP) on all CVN-68 Class carriers. The carriers have repeatedly overhauled SLOPs to replace turbine and reduction gear parts as well as replacing leaking mechanical seals at excessive costs. The ELOPs are also regularly overhauled to replace leaking mechanical seals. The motor and pump are an integral piece on the CLOP which alleviates any alignment issues and eliminates the need for a mechanical seal.

[P3A - 4 / LT308 - LHD/LHA Davits]: LT308 - LHD/LHA Davit
Funding provides for the procurement of Rigid Inflatable Boat (RIB) Davits for LHA and LHD Class Ships. These allow ships to utilize Navy Standard 11M RIBs which replace antiquated Landing Craft Personnel (LCPL) boats which are no longer supported and present a maintenance burden, reduction in operational availability and jeopardize ships' ability to perform Anti-Terrorism Force Protection (ATFP) missions.

[P3A - 5 / LT309 - Solid-State Lighting (SSL)]: LT309- SOLID-STATE LIGHTING (SSL) FIXTURES
Solid State Lighting refers to a type of lighting that uses semiconductor Light-Emitting Diodes (LEDs), Organic Light-Emitting Diodes (OLEDs), or Polymer Light-Emitting Diodes (PLEDs) as sources of illumination rather than electrical filaments, plasma (used in arc lamps such as fluorescent lamps) or gas. Funds provide for replacement of fluorescent and incandescent lighting fixtures installed on Amphibious Class ships with a Solid-State Lighting (SSL) fixtures.

[P3A - 6 / LT314 - Carrier Oil Water Separator]: Enhanced Oil Water Separator (OWS) systems are being installed on the CVN68 Class carriers to meet the new environmental discharge law of 15 parts per million (ppm) worldwide. The new OWS systems include an oil content monitor and a bilge stripping structure. The new system is expected to reduce costly maintenance and reliability issues.

[P3A - 7 / LT318 - Carriers Passive Countermeasures System (PCMS)]: Classified effort.

[P3A - 8 / FMP Ship Units - LSD Davit]: LT322 - LSD Davit
Provide Davit capabilities to meet the Department of Navy's LSD boat requirement for two 11M Rigid Hull Inflatable Boats (RHIBs). Previous requirement was one 7M RHIB and one 11M RHIB. New Davit provides RHIB Launching Capability that meets Mandatory Safety of Life At Sea (SOLAS), Force Protection and Mission Requirements (Amphibious Assault; Anti-Piracy; Visit, Board, Search, and Seizure (VBSS)).

Exhibit P-40, Budget Line Item Justification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 01: Ships Support Equipment / BSA 9: Other Shipboard Equipment	**P-1 Line Item Number / Title:** 0981 / Items less than $5 Million	
ID Code (A=Service Ready, B=Not Service Ready): B	**Program Elements for Code B Items:** N/A	**Other Related Program Elements:** N/A
Line Item MDAP/MAIS Code: N/A		

[P3A - 9 / LT321 ESB SOF Backfit]: Funds provided for ESB 3 and 4 Special Operation Forces (SOF) components. Efforts include ship changes necessary to make ESB compatible with night vision devices, and to add additional aircraft operating spots. Other efforts include ship changes and services for additional Twenty-foot Equivalent Unit (TEU) capacity, increased medical services (shock/triage/forward resuscitative surgery system), and increased capacity for storage/fueling capability of MOGAS.

[P3A - 10 / LT327 - Modular Refrigeration System.]: Modular Refrigeration System (MRS) replaces the existing legacy Ship's Stores Refrigeration System (SSRS) onboard CVN68 Class carriers. The legacy system is energy inefficient, space inefficient, and maintenance intensive, requiring highly skilled personnel to operate and maintain acceptable box temperatures. Most hardware associated with the legacy systems is specialized mil-spec and is either becoming unsupportable due to obsolescence, or is grossly expensive to maintain. Each MRS is comprised of a Modular Refrigeration Unit (MRU), an operating/ diagnostic control panel, and small chilled water cooled flat-plate condenser. There are 18 MRUs required per hull. MRS's are self-contained hatchable MRUs with a dedicated control panel that eliminate 90% of current maintenance requirements and require minimal operator support/training.

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

Appropriation / Budget Activity / Budget Sub Activity:
1810N: Other Procurement, Navy / BA 01: Ships Support Equipment / BSA 9: Other Shipboard Equipment

P-1 Line Item Number / Title:
0981 / Items less than $5 Million

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

Line Item MDAP/MAIS Code: N/A

Exhibits Schedule					Prior Years	FY 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	Items Less than $5M Programs	P-5a			- / 166.995	- / 58.328	- / 59.207	- / 64.540	- / -	- / 64.540
P-3a	1 / LT160 - Machinery Plant Upgrades (TBD)				- / 225.293	- / 13.044	- / 9.903	- / 28.971	- / 0.000	- / 28.971
P-3a	2 / LT306 - Automated Voltage Regulator (AVR) (TBD)				- / 63.354	- / 1.855	- / 0.000	- / 0.000	- / 0.000	- / 0.000
P-3a	3 / LT307 - Carrier Canned Lube Oil Pump (TBD)				- / 27.095	- / 6.750	- / 0.000	- / 0.000	- / 0.000	- / 0.000
P-3a	4 / LT308 - LHD/LHA Davits (TBD)				- / 28.396	- / 0.529	- / 3.378	- / 0.000	- / 0.000	- / 0.000
P-3a	5 / LT309 - Solid-State Lighting (SSL) (TBD)				- / 24.629	- / 6.406	- / 0.000	- / 0.000	- / 0.000	- / 0.000
P-3a	6 / LT314 - Carrier Oil Water Separator (TBD)				- / 14.572	- / 5.000	- / 3.400	- / 2.000	- / 0.000	- / 2.000
P-3a	7 / LT318 - Carriers Passive Countermeasures System (PCMS) (TBD)				- / 81.551	- / 18.750	- / 3.400	- / 0.000	- / 0.000	- / 0.000
P-3a	8 / LT322 - LSD Boat Davit (TBD)				- / 22.866	- / 8.490	- / 5.969	- / 5.704	- / 0.000	- / 5.704
P-3a	9 / LT321 ESB SOF Backfit (TBD)				- / 37.663	- / 3.833	- / 0.000	- / 0.000	- / 0.000	- / 0.000
P-3a	10 / LT327 - Modular Refrigeration System. (TBD)				- / 5.967	- / 0.000	- / 2.600	- / 4.500	- / 0.000	- / 4.500
P-40	**Total Gross/Weapon System Cost**				**- / 698.381**	**- / 122.985**	**- / 87.857**	**- / 105.715**	**- / 0.000**	**- / 105.715**

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-40a	Items Less than $5M Programs	P-5a			- / -	- / -	- / -	- / -	- / -	- / -
P-3a	1 / LT160 - Machinery Plant Upgrades (TBD)				- / 27.430	- / 29.706	- / 27.867	- / 32.328	Continuing	Continuing
P-3a	2 / LT306 - Automated Voltage Regulator (AVR) (TBD)				- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 65.209
P-3a	3 / LT307 - Carrier Canned Lube Oil Pump (TBD)				- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 33.845
P-3a	4 / LT308 - LHD/LHA Davits (TBD)				- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 32.303
P-3a	5 / LT309 - Solid-State Lighting (SSL) (TBD)				- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 31.035
P-3a	6 / LT314 - Carrier Oil Water Separator (TBD)				- / 4.000	- / 1.700	- / 3.500	- / 0.000	- / 0.000	- / 34.172
P-3a	7 / LT318 - Carriers Passive Countermeasures System (PCMS) (TBD)				- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 103.701
P-3a	8 / LT322 - LSD Boat Davit (TBD)				- / 5.195	- / 3.532	- / 0.000	- / 0.000	- / 0.000	- / 51.756
P-3a	9 / LT321 ESB SOF Backfit (TBD)				- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 41.496
P-3a	10 / LT327 - Modular Refrigeration System. (TBD)				- / 4.500	- / 4.500	- / 4.500	- / 4.500	- / 2.400	- / 33.467
P-40	**Total Gross/Weapon System Cost**				**- / 127.291**	**- / 90.083**	**- / 73.738**	**- / 70.702**	**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:
This line item funds baseline programs for items less than $5M.

Exhibit P-40a, Budget Item Justification For Aggregated Items: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	P-1 Line Item Number / Title: 0981 / Items less than $5 Million	Aggregated Items Title: Items Less than $5M Programs

Item Number / Title [DODIC]	ID CD	MDAP/ MAIS Code	Prior Years			FY 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) LT060 - MACHALTs																				
1.1) MACHALTs (Amphibs)	A		-	-	17.522	-	-	0.649	-	-	0.618	-	-	0.653	-	-	-	-	-	0.653
1.2) MACHALTs (Surface Ships)	A		-	-	83.270	-	-	7.087	-	-	9.181	-	-	6.200	-	-	-	-	-	6.200
Subtotal: 1) LT060 - MACHALTs			**-**	**-**	***100.792***	**-**	**-**	***7.736***	**-**	**-**	***9.799***	**-**	**-**	***6.853***	**-**	**-**	**-**	**-**	**-**	***6.853***
2) LT110 - Propellers and Shafts - DDG 51																				
2.1) Blade Set - DDG 51(†)	B		838,750.00	4	3.355	1,300K	2	2.599	1,239K	3	3.718	1,301K	1	1.301	-	-	-	1,301K	1	1.301
2.2) Hub Port - DDG 51(†)	A		1,027K	7	7.186	1,094K	1	1.094	1,108K	3	3.324	1,213K	3	3.639	-	-	-	1,213K	3	3.639
2.3) Hub STBD - DDG 51(†)	A		908,000.00	9	8.172	-	-	-	1,108K	2	2.216	1,213K	2	2.426	-	-	-	1,213K	2	2.426
2.4) Prop Shaft - DDG 51(†)	A		1,532K	8	12.258	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2.5) Stern Tube - DDG 51(†)	A		1,211K	14	16.959	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2.6) OD Box STBD - DDG 51(†)	A		234,153.85	13	3.044	285,000.00	1	0.285	330,750.00	2	0.662	-	-	-	-	-	-	-	-	-
2.7) OD Box Port - DDG 51(†)	A		225,333.33	6	1.352	-	-	-	330,750.00	1	0.331	-	-	-	-	-	-	-	-	-
Subtotal: 2) LT110 - Propellers and Shafts - DDG 51			**-**	**-**	***52.326***	**-**	**-**	***3.978***	**-**	**-**	***10.251***	**-**	**-**	***7.366***	**-**	**-**	**-**	**-**	**-**	***7.366***
3) LT110 - Propellers and Shafts - LHA 6 / LHD 8																				
3.1) OD Box - LHA 6 / LHD 8(†)	A		-	-	-	-	-	-	463,050.00	2	0.926	-	-	-	-	-	-	-	-	-
Subtotal: 3) LT110 - Propellers and Shafts - LHA 6 / LHD 8			**-**	**-**	***0.000***	**-**	**-**	**-**	**-**	**-**	***0.926***	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
5) LT110 - Shafts and Propellers - LPD 17																				
5.1) OD Box - LPD 17(†)	A		-	-	-	-	-	-	-	-	-	486,202.50	1	0.486	-	-	-	486,202.50	1	0.486
5.2) Blade Set - LPD 17(†)	A		-	-	-	-	-	-	-	-	-	1,414K	1	1.414	-	-	-	1,414K	1	1.414
5.3) Hub - LPD 17(†)	A		-	-	-	-	-	-	1,102K	1	1.102	-	-	-	-	-	-	-	-	-
Subtotal: 5) LT110 - Shafts and Propellers - LPD 17			**-**	**-**	***0.000***	**-**	**-**	**-**	**-**	**-**	***1.102***	**-**	**-**	***1.900***	**-**	**-**	**-**	**-**	**-**	***1.900***
6) LT110 - Propellers - LSD 41																				
6.2) Hub - LSD 41(†)	A		-	-	-	-	-	-	1,136K	2	2.272	-	-	-	-	-	-	-	-	-
Subtotal: 6) LT110 - Propellers - LSD 41			**-**	**-**	***0.000***	**-**	**-**	**-**	**-**	**-**	***2.272***	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**

Exhibit P-40a, Budget Item Justification For Aggregated Items: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	P-1 Line Item Number / Title: 0981 / Items less than $5 Million	Aggregated Items Title: Items Less than $5M Programs

Item Number / Title [DODIC]	ID CD	MDAP/ MAIS Code	Prior Years			FY 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) LT120 - Carrier Propulsion Plant Inspection																				
7.1) Propulsion Plant Inspection	A		-	-	1.883	-	-	0.170	-	-	0.170	-	-	0.170	-	-	-	-	-	0.170
Subtotal: 7) LT120 - Carrier Propulsion Plant Inspection			**-**	**-**	***1.883***	**-**	**-**	***0.170***	**-**	**-**	***0.170***	**-**	**-**	***0.170***	**-**	**-**	**-**	**-**	**-**	***0.170***
8) LT130 - Steam Propulsion Items																				
8.1) Steam Propulsion Items (1)	A		-	-	3.070	-	-	0.189	-	-	1.127	-	-	2.033	-	-	-	-	-	2.033
Subtotal: 8) LT130 - Steam Propulsion Items			**-**	**-**	***3.070***	**-**	**-**	***0.189***	**-**	**-**	***1.127***	**-**	**-**	***2.033***	**-**	**-**	**-**	**-**	**-**	***2.033***
9) LT830 - Carrier Production Engineering																				
9.1) Production Engineering	A		-	-	0.438	-	-	0.040	-	-	0.040	-	-	0.040	-	-	-	-	-	0.040
Subtotal: 9) LT830 - Carrier Production Engineering			**-**	**-**	***0.438***	**-**	**-**	***0.040***	**-**	**-**	***0.040***	**-**	**-**	***0.040***	**-**	**-**	**-**	**-**	**-**	***0.040***
10) LT322 - LSD Davit 3rd Cradle																				
10.1) LSD Davit 3rd Cradle (2)	A		-	-	-	-	-	-	-	-	0.786	-	-	1.373	-	-	-	-	-	1.373
Subtotal: 10) LT322 - LSD Davit 3rd Cradle			**-**	**-**	***0.000***	**-**	**-**	**-**	**-**	**-**	***0.786***	**-**	**-**	***1.373***	**-**	**-**	**-**	**-**	**-**	***1.373***
11) LT328 - Mobile Cleaning Recovery and Recycle System (MCRRS)																				
11.1) MCRRS Production Units (3)(†)	A		831,833.33	6	4.991	874,000.00	6	5.244	-	-	-	773,000.00	1	0.773	-	-	-	773,000.00	1	0.773
11.2) MCRRS Upgrades(†)	A		273,428.57	7	1.914	140,000.00	5	0.700	-	-	-	-	-	-	-	-	-	-	-	-
11.3) MCRRS Engineering Support	A		-	-	1.581	-	-	0.091	-	-	-	-	-	0.628	-	-	-	-	-	0.628
Subtotal: 11) LT328 - Mobile Cleaning Recovery and Recycle System (MCRRS)			**-**	**-**	***8.486***	**-**	**-**	***6.035***	**-**	**-**	**-**	**-**	**-**	***1.401***	**-**	**-**	**-**	**-**	**-**	***1.401***
12) LT330 - CVN Cybersecurity																				
12.1) LT330 - CVN Cybersecurity (4)	A		-	-	-	-	-	7.280	-	-	15.295	-	-	24.079	-	-	-	-	-	24.079
Subtotal: 12) LT330 - CVN Cybersecurity			**-**	**-**	***0.000***	**-**	**-**	***7.280***	**-**	**-**	***15.295***	**-**	**-**	***24.079***	**-**	**-**	**-**	**-**	**-**	***24.079***
13) LT331 CVN78 (5)																				
13.1) LT 331 CVN78	A		-	-	-	-	-	32.900	-	-	8.700	-	-	11.142	-	-	-	-	-	11.142
Subtotal: 13) LT331 CVN78			**-**	**-**	***0.000***	**-**	**-**	***32.900***	**-**	**-**	***8.700***	**-**	**-**	***11.142***	**-**	**-**	**-**	**-**	**-**	***11.142***
14) LT332-CVN Mobile Cleaning, Recovery & Recycling System (MCRRS)																				
14.1) LT332-CVN Mobile Cleaning,	A		-	-	-	-	-	-	-	-	8.739	-	-	8.183	-	-	-	-	-	8.183

Exhibit P-40a, Budget Item Justification For Aggregated Items: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0981 / Items less than $5 Million	**Aggregated Items Title:** Items Less than $5M Programs

Item Number / Title [DODIC]	ID CD	MDAP/ MAIS Code	Prior Years			FY 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)
Recovery & Recycling System (MCRRS) (6)																				
Subtotal: 14) LT332-CVN Mobile Cleaning, Recovery & Recycling System (MCRRS)			-	-	***0.000***	-	-	-	-	-	***8.739***	-	-	***8.183***	-	-	-	-	-	***8.183***
Total			-	-	**166.995**	-	-	**58.328**	-	-	**59.207**	-	-	**64.540**	-	-	-	-	-	**64.540**

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) Growth funds additional steam safety requirements.

(2) LSD 41/49 Class boat mix of a 3rd Cradle funds the requirement for LSD 41/49 Class ships to upgrade the boat mixture to support a third Rigid Inflatable Boat (RIB). FY 2021 funding is the installation cost for the FY 2020 procurement.

(3) FY21 increase for procurement of MCRRS units.

(4) Effort provides cybersecurity for carrier assets and infrastructure with emphasis to prevent network intrusion on CVNs. Efforts consists of (1) boundary defense mods, (2)situational awareness mods and (3) physical security mods. Quantities vary per hull and are fundamentally different; therefore not shown since not suited for comparison. Hulls will receive different mods in varying combinations; so each hull cost is mutually exclusive of others costs.

(5) The FY 2021 cost includes CVN 78 installation costs for a number of significant modernization efforts to include Dual Band Radar Capacitor Bank, Plastic Waste Compressed Melt Units, Waste Pulper, Hangar Bay Speakers, and Passive Countermeasures System material.

(6) Funding added in FY20-22 for procurement of MCRRS for Aircraft Carriers.

Exhibit P-5a, Procurement History and Planning: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	P-1 Line Item Number / Title: 0981 / Items less than $5 Million	Aggregated Items: Items Less than $5M Programs

Item Number / Title [DODIC]	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) LT110 - Propellers and Shafts - DDG 51												
2.1) Blade Set - DDG 51		2016	Rolls Royce / MS	C / FP	NAVSUP	May 2017	Apr 2019	1	1,218K	Y		
2.1) Blade Set - DDG 51		2017	Rolls Royce / MS	C / FP	NAVSUP	Jun 2018	Dec 2019	1	1,004K	Y		
2.1) Blade Set - DDG 51		2019	Rolls Royce / MS	C / FP	NAVSUP	Jun 2019	May 2021	2	1,300K	Y		
2.1) Blade Set - DDG 51		2020	Rolls Royce / MS	C / TBD	NAVSUP	Jun 2020	May 2022	3	1,239K	Y		
2.2) Hub Port - DDG 51		2017	Rolls Royce / MS	C / FP	NAVSUP	Jan 2018	Jan 2020	1	1,016K	Y		
2.2) Hub Port - DDG 51		2019	Rolls Royce / MS	C / FP	NAVSUP	Sep 2019	Sep 2021	1	1,094K	Y		
2.3) Hub STBD - DDG 51		2017	Rolls Royce / MS	C / FP	NAVSUP	Jan 2018	Jan 2020	1	1,016K	Y		
2.4) Prop Shaft - DDG 51		2016	Erie Forge / PA	C / FP	NAVSUP	Sep 2016	Aug 2018	1	1,066K	Y		
2.4) Prop Shaft - DDG 51		2018	Erie Forge / PA	C / FP	NAVSUP	Sep 2018	Aug 2020	1	1,619K	Y		
2.5) Stern Tube - DDG 51		2015	Erie Forge / PA	C / FP	NAVSUP	Jul 2015	Sep 2018	2	1,243K	Y		
2.5) Stern Tube - DDG 51		2016	Erie Forge / PA	C / FP	NAVSUP	Sep 2016	Aug 2018	1	870,631.00	Y		
2.6) OD Box STBD - DDG 51		2018	Rolls Royce / MS	C / FP	NAVSUP	Sep 2018	Sep 2020	1	279,000.00	Y		
2.6) OD Box STBD - DDG 51		2019	Rolls Royce / MS	C / FP	NAVSUP	May 2019	Nov 2020	1	285,000.00	Y		
2.6) OD Box STBD - DDG 51		2020	Rolls Royce / MS	C / TBD	NAVSUP	May 2020	Nov 2021	2	330,750.00	Y		
2.7) OD Box Port - DDG 51		2018	Rolls Royce / MS	C / FP	NAVSUP	Sep 2018	Sep 2020	1	279,000.00	Y		
2.7) OD Box Port - DDG 51		2020	Rolls Royce / MS	C / TBD	NAVSUP	Oct 2019	Apr 2021	1	330,750.00	Y		
3) LT110 - Propellers and Shafts - LHA 6 / LHD 8												
3.1) OD Box - LHA 6 / LHD 8		2020	ROLLS ROYCE / MS	C / TBD	NAVSUP	Apr 2020	Apr 2022	2	463,050.00	Y		
5) LT110 - Shafts and Propellers - LPD 17												
5.1) OD Box - LPD 17		2021	ROLLS ROYCE / MS	C / TBD	NAVSUP	Jan 2021	Jan 2021	1	486,202.50	Y		
5.2) Blade Set - LPD 17		2021	ROLLS ROYCE / MS	C / TBD	NAVSUP	Jan 2021	Jan 2021	1	1,414K	Y		
5.3) Hub - LPD 17		2020	ROLLS ROYCE / MS	C / TBD	NAVSUP	Jan 2020	Jan 2020	1	1,102K	Y		
6) LT110 - Propellers - LSD 41												
6.2) Hub - LSD 41		2020	ROLLS ROYCE / MS	C / TBD	NAVSUP	Jan 2020	Jan 2020	2	1,136K	Y		
11) LT328 - Mobile Cleaning Recovery and Recycle System (MCRRS)												
11.1) MCRRS Production Units (3)		2017 (7)	Triverus, LLC / Palmer, AK	C / FFP	Palmer, AK	Sep 2018	Sep 2019	2	835,000.00	Y		
11.1) MCRRS Production Units (3)		2018	Triverus, LLC / Palmer, AK	C / FFP	Palmer, AK	Sep 2018	Sep 2019	3	857,000.00	Y		
11.1) MCRRS Production Units (3)		2019	Triverus, LLC / Palmer, AK	C / FFP	Palmer, AK	Jul 2019	Jul 2020	6	874,000.00	Y		
11.1) MCRRS Production Units (3)		2021	Triverus, LLC / Palmer, AK	C / TBD	** NO PCO **	Jul 2021	Jul 2022	1	773,000.00	Y		
11.2) MCRRS Upgrades		2017 (8)	Triverus, LLC / Palmer, AK	C / FFP	Palmer, AK	Jul 2018	Jul 2019	2	135,000.00	Y		
11.2) MCRRS Upgrades		2018	Triverus, LLC / Palmer, AK	C / FFP	Palmer, AK	Jul 2018	Jul 2019	3	138,000.00	Y		

Exhibit P-5a, Procurement History and Planning: PB 2021 Navy		**Date:** February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0981 / Items less than $5 Million	**Aggregated Items:** Items Less than $5M Programs

Item Number / Title [DODIC]	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
11.2) MCRRS Upgrades		2019	Triverus, LLC / Palmer, AK	C / FFP	Palmer, AK	Feb 2019	Feb 2020	5	140,000.00	Y		

Footnotes:

(7) Date of First Scheduled Delivery is 2018-8 (4 months)

(8) Date of First Scheduled Delivery is 2018-8 (4 months)

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0981 / Items less than $5 Million	**Modification Number / Title:** 1 / LT160 - Machinery Plant Upgrades
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

Resource Summary	Prior Years	FY 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)*	225.293	13.044	9.903	28.971	0.000	28.971	27.430	29.706	27.867	32.328	Continuing	Continuing
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	225.293	13.044	9.903	28.971	0.000	28.971	27.430	29.706	27.867	32.328	Continuing	Continuing
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**225.293**	**13.044**	**9.903**	**28.971**	**0.000**	**28.971**	**27.430**	**29.706**	**27.867**	**32.328**	**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:

LT160 - MACHINERY PLANT UPGRADES - The Machinery Plant Upgrade project within the CVN Fleet Modernization Program (FMP) encompasses CVN Machinery Control Systems, Ship Control (Navigation/ Steering), Integrated Voice Control Networks, Announcing Systems and Shipboard Air Traffic Control Communication Systems. The machinery plant upgrade modernization alterations currently consist of greater than 40 different Ship Change Documents (SCD) with a cost value of approximately $42M for all the alterations combined. Individual SCDs can range in cost from $5K (for software only changes) to ~ $14M for major system upgrade procurements. The range of SCD installs can cost as low as $100K and as high as $4M for individual SCDs. During each CNO availability, we schedule and complete a subset of these 40+ alterations. Each hull is different receiving varying subsets of the 40+ SCDs depending on individual ship configurations. These alts are scheduled for installation over 3-4 availabilities (which may be 9-12 years) with many installations occurring in later years of the FYDP. Additionally, the machinery plant upgrade program is technology driven and many alterations are still being finalized in the Navy modernization Program (i.e. Ship Change Document (SCD) development) process for installation in later years. New SCDs continue to be developed to proactively address obsolescence issues associated with ever changing technology.

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0981 / Items less than $5 Million	**Modification Number / Title:** 1 / LT160 - Machinery Plant Upgrades
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	
Models of Systems Affected: Machinery Plant Upgrades	**Modification Type:** TBD	**Related RDT&E PEs:**

Financial Plan	Prior Years	FY 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: LT160 - Machinery Plant Upgrades												
B Kits												
Recurring												
1.1.1) Machinery Plant Upgrades - NonOrganic (9)	37 / 86.017	3 / 5.418	- / -	4 / 10.486	- / -	4 / 10.486	4 / 12.074	4 / 12.277	4 / 10.414	4 / 12.495	Continuing	Continuing
Subtotal: Recurring	*- / 86.017*	*- / 5.418*	*- / -*	*- / 10.486*	*- / -*	*- / 10.486*	*- / 12.074*	*- / 12.277*	*- / 10.414*	*- / 12.495*	*Continuing*	*Continuing*
Subtotal: LT160 - Machinery Plant Upgrades	*37 / 86.017*	*3 / 5.418*	*- / -*	*4 / 10.486*	*- / -*	*4 / 10.486*	*4 / 12.074*	*4 / 12.277*	*4 / 10.414*	*4 / 12.495*	*Continuing*	*Continuing*
Subtotal: Procurement, All Modification Items	*- / 86.017*	*- / 5.418*	*- / -*	*- / 10.486*	*- / -*	*- / 10.486*	*- / 12.074*	*- / 12.277*	*- / 10.414*	*- / 12.495*	*Continuing*	*Continuing*
Installation												
Modification Item 1 of 1: LT160 - Machinery Plant Upgrades	- / 139.276	- / 7.626	- / 9.903	- / 18.485	- / 0.000	- / 18.485	- / 15.356	- / 17.429	- / 17.453	- / 19.833	- / 0.000	- / 245.361
Subtotal: Installation	*- / 139.276*	*- / 7.626*	*- / 9.903*	*- / 18.485*	*- / -*	*- / 18.485*	*- / 15.356*	*- / 17.429*	*- / 17.453*	*- / 19.833*	*- / 0.000*	*- / 245.361*
Total												
Total Cost (Procurement + Support + Installation)	**225.293**	**13.044**	**9.903**	**28.971**	**0.000**	**28.971**	**27.430**	**29.706**	**27.867**	**32.328**	**Continuing**	**Continuing**

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0981 / Items less than $5 Million	**Modification Number / Title:** 1 / LT160 - Machinery Plant Upgrades
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

Modification Item 1 of 1: LT160 - Machinery Plant Upgrades

Manufacturer Information

Manufacturer Name: various	Manufacturer Location: various
Administrative Leadtime *(in Months)*: 2	Production Leadtime *(in Months)*: 5

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

Installation Information

Method of Implementation: AIT:: Installation Name: Machinery Plant Upgrades

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	35 / 137.863	2 / 3.851	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	37 / 141.714
FY 2019	0 / 1.413	1 / 3.775	2 / 7.903	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	3 / 13.091
FY 2020	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2021	- / -	- / -	0 / 2.000	2 / 13.995	0 / 0.000	2 / 13.995	2 / 5.400	- / -	- / -	- / -	0 / 0.000	4 / 21.395
FY 2022	- / -	- / -	- / -	0 / 4.490	0 / 0.000	0 / 4.490	2 / 5.356	2 / 6.415	- / -	- / -	0 / 0.000	4 / 16.261
FY 2023	- / -	- / -	- / -	- / -	- / -	- / -	0 / 4.600	2 / 6.414	2 / 6.228	- / -	0 / 0.000	4 / 17.242
FY 2024	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 4.600	2 / 6.225	2 / 9.933	0 / 0.000	4 / 20.758
FY 2025	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 5.000	2 / 9.900	2 / 0.000	4 / 14.900
To Complete	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
Total	35 / 139.276	3 / 7.626	2 / 9.903	2 / 18.485	0 / 0.000	2 / 18.485	4 / 15.356	4 / 17.429	4 / 17.453	4 / 19.833	2 / 0.000	60 / 245.361

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	35	1	1	1	-	1	1	-	-	-	-	2	-	-	2	-	2	-	2	1	1	-	1	2	1	-	1	2	1	2	60
Out	32	1	1	2	-	-	1	2	1	-	-	-	-	1	-	2	-	1	1	1	1	-	1	1	-	1	1	2	-	7	60

Footnotes:

(9) Installation funds are required in the year prior to install for DSA (hull planning yard ship checks, installation drawing development), Advanced Planning, and Integrated Logistics Support (ILS).

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0981 / Items less than $5 Million	**Modification Number / Title:** 2 / LT306 - Automated Voltage Regulator (AVR)
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

Resource Summary	Prior Years	FY 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)*	63.354	1.855	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	65.209
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	63.354	1.855	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	65.209
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**63.354**	**1.855**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**65.209**
(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 CVN Automatic Voltage Regulator (AVR) is a microprocessor based voltage regulator system for the NIMITZ Class, programmed to replace the legacy analog voltage regulator, which, although operational, lacks the improved reliability and lower maintenance costs of the AVR. It controls the output voltage of a turbine generator (TG), which converts steam into the electricity used for aircraft and combat operations, and reactor cooling.

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0981 / Items less than $5 Million	**Modification Number / Title:** 2 / LT306 - Automated Voltage Regulator (AVR)
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	
Models of Systems Affected: Auto Voltage Regulator	**Modification Type:** TBD	**Related RDT&E PEs:**

Financial Plan	Prior Years	FY 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: LT306 - Automated Voltage Regulator (AVR)												
B Kits												
Recurring												
1.1.1) AVR - NonOrganic (10)	62 / 29.975	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	62 / 29.975
1.1.2) Field Engineering Services - NonOrganic	- / 1.547	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / 1.547
Subtotal: Recurring	*- / 31.522*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / 0.000*	*- / 31.522*
Subtotal: LT306 - Automated Voltage Regulator (AVR)	*62 / 31.522*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*62 / 31.522*
Subtotal: Procurement, All Modification Items	*- / 31.522*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / 0.000*	*- / 31.522*
Installation												
Modification Item 1 of 1: LT306 - Automated Voltage Regulator (AVR)	- / 31.832	- / 1.855	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 33.687
Subtotal: Installation	*- / 31.832*	*- / 1.855*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / 0.000*	*- / 33.687*
Total												
Total Cost (Procurement + Support + Installation)	**63.354**	**1.855**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**65.209**

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0981 / Items less than $5 Million	**Modification Number / Title:** 2 / LT306 - Automated Voltage Regulator (AVR)

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

Modification Item 1 of 1: LT306 - Automated Voltage Regulator (AVR)

Manufacturer Information

Manufacturer Name: NG P/CS | Manufacturer Location: MD

Administrative Leadtime *(in Months)*: 6 | Production Leadtime *(in Months)*: 18

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

Installation Information

Method of Implementation: SHIPYARD:: Installation Name: AVR

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	57 / 31.832	4 / 1.855	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	61 / 33.687
FY 2019	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2020	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2021	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2022	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2023	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2024	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2025	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
To Complete	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
Total	57 / 31.832	4 / 1.855	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	61 / 33.687

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	57	-	-	-	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	61
Out	49	-	-	-	-	8	-	-	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	61

Footnotes:

(10) Note: AVRs procured = 62. AVRs to be installed = 61. The difference between the 62 procured vs 61 installed is due to one AVR purchased being used at the manufacturer's plant as a unit to test new circuit cards before issuing to the fleet. Installation cost per shipset of AVRs (8 units/shipset) ~ $3.6M.

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0981 / Items less than $5 Million	**Modification Number / Title:** 3 / LT307 - Carrier Canned Lube Oil Pump
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

Resource Summary	Prior Years	FY 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)*	27.095	6.750	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	33.845
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	27.095	6.750	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	33.845
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**27.095**	**6.750**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**33.845**
(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 Canned Lube Oil Pump (CLOP) with a two-speed motor will replace both the Standby Lube Oil Pump (SLOP) and Emergency Lube Oil Pump (ELOP) on all CVN-68 Class carriers. The carriers have repeatedly overhauled SLOPs to replace turbine and reduction gear parts as well as replacing leaking mechanical seals at excessive costs. The ELOPs are also regularly overhauled to replace leaking mechanical seals. The motor and pump are an integral piece on the CLOP which alleviates any alignment issues and eliminates the need for a mechanical seal.

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0981 / Items less than $5 Million	**Modification Number / Title:** 3 / LT307 - Carrier Canned Lube Oil Pump
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	
Models of Systems Affected: Carrier Canned Lube Oil Pump	**Modification Type:** TBD	**Related RDT&E PEs:**

Financial Plan	Prior Years	FY 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: LT307 - Carrier Canned Lube Oil Pump												
B Kits												
Recurring												
1.1.1) Canned Lube Oil Pump - NonOrganic (11)	24 / 7.200	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	24 / 7.200
Subtotal: Recurring	*- / 7.200*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / 0.000*	*- / 7.200*
Subtotal: LT307 - Carrier Canned Lube Oil Pump	*24 / 7.200*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*24 / 7.200*
Subtotal: Procurement, All Modification Items	*- / 7.200*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / 0.000*	*- / 7.200*
Installation												
Modification Item 1 of 1: LT307 - Carrier Canned Lube Oil Pump	- / 19.895	- / 6.750	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 26.645
Subtotal: Installation	*- / 19.895*	*- / 6.750*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / 0.000*	*- / 26.645*
Total												
Total Cost (Procurement + Support + Installation)	**27.095**	**6.750**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**33.845**

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0981 / Items less than $5 Million	**Modification Number / Title:** 3 / LT307 - Carrier Canned Lube Oil Pump

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

Modification Item 1 of 1: LT307 - Carrier Canned Lube Oil Pump

Manufacturer Information

Manufacturer Name: IMO Pumps | Manufacturer Location: Monroe, NC

Administrative Leadtime *(in Months)*: 2 | Production Leadtime *(in Months)*: 12

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

Installation Information

Method of Implementation: Shipyard:: Installation Name: Canned Lube Oil Pump

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	16 / 19.895	8 / 6.750	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	24 / 26.645
FY 2019	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2020	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2021	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2022	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2023	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2024	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2025	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
To Complete	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
Total	16 / 19.895	8 / 6.750	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	24 / 26.645

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	16	-	-	-	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	24
Out	16	-	-	-	-	-	-	-	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	24

Footnotes:

(11) Note: Installation costs for Lube Oil Service Pump effort has been updated to reflect actual costs from the performing activity. Installation funds are also required in the year prior to install for DSA (hull planning yard ship checks, installation drawing development), Advanced Planning, and Integrated Logistics Support (ILS)

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0981 / Items less than $5 Million	**Modification Number / Title:** 4 / LT308 - LHD/LHA Davits
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

Resource Summary	Prior Years	FY 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)*	28.396	0.529	3.378	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	32.303
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	28.396	0.529	3.378	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	32.303
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**28.396**	**0.529**	**3.378**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**32.303**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)												
Initial Spares *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Dollars)*	-	-	-	-	-	-	-	-	-	-	-	-

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

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0981 / Items less than $5 Million	**Modification Number / Title:** 4 / LT308 - LHD/LHA Davits
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	
Models of Systems Affected: Boat (RIB) Davits	**Modification Type:** TBD	**Related RDT&E PEs:**

Financial Plan	Prior Years	FY 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: LT308 - LHD/LHA Davits												
B Kits												
Recurring												
1.1.1) Boat (RIB) Davits - NonOrganic	9 / 7.725	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	9 / 7.725
Subtotal: Recurring	*- / 7.725*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / 0.000*	*- / 7.725*
Subtotal: LT308 - LHD/LHA Davits	*9 / 7.725*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*9 / 7.725*
Subtotal: Procurement, All Modification Items	*- / 7.725*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / 0.000*	*- / 7.725*
Installation												
Modification Item 1 of 1: LT308 - LHD/LHA Davits	- / 20.671	- / 0.529	- / 3.378	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 24.578
Subtotal: Installation	*- / 20.671*	*- / 0.529*	*- / 3.378*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / 0.000*	*- / 24.578*
Total												
Total Cost (Procurement + Support + Installation)	**28.396**	**0.529**	**3.378**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**32.303**

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0981 / Items less than $5 Million	**Modification Number / Title:** 4 / LT308 - LHD/LHA Davits

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

Modification Item 1 of 1: LT308 - LHD/LHA Davits

Manufacturer Information

Manufacturer Name: Not Specified. Manufacturer Location: Not Specified..

Administrative Leadtime *(in Months)*: 0 Production Leadtime *(in Months)*: 0

Dates	FY 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: Boat (RIB) Davits

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 / 20.671	0 / 0.529	1 / 3.378	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	9 / 24.578
FY 2019	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2020	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2021	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2022	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2023	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2024	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2025	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
To Complete	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
Total	8 / 20.671	0 / 0.529	1 / 3.378	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	9 / 24.578

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	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	9
Out	7	-	1	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	9

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0981 / Items less than $5 Million	**Modification Number / Title:** 5 / LT309 - Solid-State Lighting (SSL)
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

Resource Summary	Prior Years	FY 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)*	24.629	6.406	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	31.035
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	24.629	6.406	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	31.035
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**24.629**	**6.406**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**31.035**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)												
Initial Spares *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Dollars)*	-	-	-	-	-	-	-	-	-	-	-	-

Description:
Procure/Install solid state lighting fixtures to replace fluorescent and incandescent lighting fixtures installed on Amphibious Class ships.

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0981 / Items less than $5 Million	**Modification Number / Title:** 5 / LT309 - Solid-State Lighting (SSL)
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	
Models of Systems Affected: Solid State Lighting	**Modification Type:** TBD	**Related RDT&E PEs:**

Financial Plan	Prior Years	FY 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: LT309 - Solid-State Lighting (SSL)												
B Kits												
Recurring												
1.1.1) Solid State Lighting - NonOrganic	29 / 12.349	8 / 3.208	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	37 / 15.557
Subtotal: Recurring	*- / 12.349*	*- / 3.208*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / 0.000*	*- / 15.557*
Subtotal: LT309 - Solid-State Lighting (SSL)	*29 / 12.349*	*8 / 3.208*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*37 / 15.557*
Subtotal: Procurement, All Modification Items	*- / 12.349*	*- / 3.208*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / 0.000*	*- / 15.557*
Support *(All Modification Items)*												
2.1) Engineering Services	- / 0.750	- / 0.625	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / 1.375
Subtotal: Support	*- / 0.750*	*- / 0.625*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / 0.000*	*- / 1.375*
Installation												
Modification Item 1 of 1: LT309 - Solid-State Lighting (SSL)	- / 11.530	- / 2.573	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 14.103
Subtotal: Installation	*- / 11.530*	*- / 2.573*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / 0.000*	*- / 14.103*
Total												
Total Cost (Procurement + Support + Installation)	**24.629**	**6.406**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**31.035**

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0981 / Items less than $5 Million	**Modification Number / Title:** 5 / LT309 - Solid-State Lighting (SSL)
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

Modification Item 1 of 1: LT309 - Solid-State Lighting (SSL)

Manufacturer Information

Manufacturer Name: Energy Focus Inc	Manufacturer Location: Solon, OH
Administrative Leadtime *(in Months)*: 3	Production Leadtime *(in Months)*: 6

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

Installation Information

Method of Implementation: AIT:: Installation Name: Solid State Lighting

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	29 / 11.530	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	29 / 11.530
FY 2019	- / -	8 / 2.573	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	8 / 2.573
FY 2020	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2021	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2022	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2023	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2024	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2025	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
To Complete	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
Total	29 / 11.530	8 / 2.573	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	37 / 14.103

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	29	-	-	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	37
Out	29	-	-	-	-	-	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	37

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0981 / Items less than $5 Million	**Modification Number / Title:** 6 / LT314 - Carrier Oil Water Separator
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

Resource Summary	Prior Years	FY 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)*	14.572	5.000	3.400	2.000	0.000	2.000	4.000	1.700	3.500	0.000	0.000	34.172
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	14.572	5.000	3.400	2.000	0.000	2.000	4.000	1.700	3.500	0.000	0.000	34.172
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**14.572**	**5.000**	**3.400**	**2.000**	**0.000**	**2.000**	**4.000**	**1.700**	**3.500**	**0.000**	**0.000**	**34.172**
(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:

Enhanced Oil Water Separator (OWS) systems are being installed on the CVN68 Class carriers to meet the new environmental discharge law of 15 parts per million (ppm) worldwide. The new OWS systems include an oil content monitor and a bilge stripping structure. The new system is expected to reduce costly maintenance and reliability issues.

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0981 / Items less than $5 Million	**Modification Number / Title:** 6 / LT314 - Carrier Oil Water Separator
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	
Models of Systems Affected: Carrier Oil Water Separator	**Modification Type:** TBD	**Related RDT&E PEs:**

Financial Plan	Prior Years	FY 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: LT314 - Carrier Oil Water Separator												
B Kits												
Recurring												
1.1.1) Oil Water Separator - NonOrganic (12)	6 / 3.560	2 / 1.200	- / -	3 / 1.600	- / -	3 / 1.600	- / -	2 / 1.200	- / -	- / -	- / -	13 / 7.560
Subtotal: Recurring	*- / 3.560*	*- / 1.200*	*- / -*	*- / 1.600*	*- / -*	*- / 1.600*	*- / -*	*- / 1.200*	*- / -*	*- / -*	*- / 0.000*	*- / 7.560*
Subtotal: LT314 - Carrier Oil Water Separator	*6 / 3.560*	*2 / 1.200*	*- / -*	*3 / 1.600*	*- / -*	*3 / 1.600*	*- / -*	*2 / 1.200*	*- / -*	*- / -*	*- / -*	*13 / 7.560*
Subtotal: Procurement, All Modification Items	*- / 3.560*	*- / 1.200*	*- / -*	*- / 1.600*	*- / -*	*- / 1.600*	*- / -*	*- / 1.200*	*- / -*	*- / -*	*- / 0.000*	*- / 7.560*
Installation												
Modification Item 1 of 1: LT314 - Carrier Oil Water Separator	- / 11.012	- / 3.800	- / 3.400	- / 0.400	- / 0.000	- / 0.400	- / 4.000	- / 0.500	- / 3.500	- / 0.000	- / 0.000	- / 26.612
Subtotal: Installation	*- / 11.012*	*- / 3.800*	*- / 3.400*	*- / 0.400*	*- / -*	*- / 0.400*	*- / 4.000*	*- / 0.500*	*- / 3.500*	*- / -*	*- / 0.000*	*- / 26.612*
Total												
Total Cost (Procurement + Support + Installation)	**14.572**	**5.000**	**3.400**	**2.000**	**0.000**	**2.000**	**4.000**	**1.700**	**3.500**	**0.000**	**0.000**	**34.172**

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0981 / Items less than $5 Million	**Modification Number / Title:** 6 / LT314 - Carrier Oil Water Separator

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

Modification Item 1 of 1: LT314 - Carrier Oil Water Separator

Manufacturer Information

Manufacturer Name: TBD | Manufacturer Location: TBD

Administrative Leadtime *(in Months)*: 2 | Production Leadtime *(in Months)*: 12

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

Installation Information

Method of Implementation: AIT:: Installation Name: Oil Water Separator

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 / 11.012	2 / 3.300	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	6 / 14.312
FY 2019	- / -	0 / 0.500	2 / 3.400	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	2 / 3.900
FY 2020	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2021	- / -	- / -	- / -	0 / 0.400	0 / 0.000	0 / 0.400	3 / 4.000	- / -	- / -	- / -	0 / 0.000	3 / 4.400
FY 2022	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2023	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.500	2 / 3.500	- / -	0 / 0.000	2 / 4.000
FY 2024	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2025	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
To Complete	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
Total	4 / 11.012	2 / 3.800	2 / 3.400	0 / 0.400	0 / 0.000	0 / 0.400	3 / 4.000	0 / 0.500	2 / 3.500	- / -	0 / 0.000	13 / 26.612

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	-	-	-	2	-	-	-	2	-	-	-	-	-	-	3	-	-	-	-	-	-	2	-	-	-	-	-	-	-	13
Out	2	-	-	-	2	-	-	-	2	-	2	-	-	-	-	-	1	-	-	2	-	-	-	-	-	-	-	2	-	-	13

Footnotes:

(12) Procurements/installs planned to level load the AIT based on latest Carrier Availability schedule. Installation funds are also required in the year prior to install for DSA (hull planning yard ship checks, installation drawing development), Advanced Planning, and Integrated Logistics Support (ILS). Changes from the FY 2020 President's Budget request: FY21 - 2 units being procured for CVN75 ($600K per unit). 1 unit being procured for CVN70 ($400K per unit - CVN70 not originally sked to get the OWS upgrade but will now get only the bilge and stripping upgrade portion of the OWS system upgrade).

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0981 / Items less than $5 Million	**Modification Number / Title:** 7 / LT318 - Carriers Passive Countermeasures System (PCMS)
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

Resource Summary	Prior Years	FY 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)*	81.551	18.750	3.400	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	103.701
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	81.551	18.750	3.400	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	103.701
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**81.551**	**18.750**	**3.400**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**103.701**
(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:
Classified effort.

PCMS funding is solely for installation. Procurement of material is done separately via a different sponsor and program office. Material is provided as Government Furnished Equipment (GFE) at the start of the availability.

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0981 / Items less than $5 Million	**Modification Number / Title:** 7 / LT318 - Carriers Passive Countermeasures System (PCMS)
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	
Models of Systems Affected: Carrier PCMS	**Modification Type:** TBD	**Related RDT&E PEs:**

Financial Plan	Prior Years	FY 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: LT318 - Carriers Passive Countermeasures System (PCMS)												
B Kits												
Recurring												
1.1.1) PCMS - Organic	- / 81.551	- / 18.750	- / 3.400	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / 103.701
Subtotal: Recurring	*- / 81.551*	*- / 18.750*	*- / 3.400*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / 0.000*	*- / 103.701*
Subtotal: LT318 - Carriers Passive Countermeasures System (PCMS)	*- / 81.551*	*- / 18.750*	*- / 3.400*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / 103.701*
Subtotal: Procurement, All Modification Items	*- / 81.551*	*- / 18.750*	*- / 3.400*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / 0.000*	*- / 103.701*
Installation												
Subtotal: Installation	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*
Total												
Total Cost (Procurement + Support + Installation)	**81.551**	**18.750**	**3.400**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**103.701**

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0981 / Items less than $5 Million	**Modification Number / Title:** 7 / LT318 - Carriers Passive Countermeasures System (PCMS)
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	
Modification Item 1 of 1: LT318 - Carriers Passive Countermeasures System (PCMS)		

Manufacturer Information

Manufacturer Name: New MFG - Name	Manufacturer Location: New MFG - Loc
Administrative Leadtime *(in Months)*: 0	Production Leadtime *(in Months)*: 0

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

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0981 / Items less than $5 Million	**Modification Number / Title:** 8 / LT322 - LSD Boat Davit
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

Resource Summary	Prior Years	FY 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)*	22.866	8.490	5.969	5.704	0.000	5.704	5.195	3.532	0.000	0.000	0.000	51.756
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	22.866	8.490	5.969	5.704	0.000	5.704	5.195	3.532	0.000	0.000	0.000	51.756
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**22.866**	**8.490**	**5.969**	**5.704**	**0.000**	**5.704**	**5.195**	**3.532**	**0.000**	**0.000**	**0.000**	**51.756**
(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:

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

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0981 / Items less than $5 Million	**Modification Number / Title:** 8 / LT322 - LSD Boat Davit
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	
Models of Systems Affected: [No Model Specified]	**Modification Type:** TBD	**Related RDT&E PEs:**

Financial Plan	Prior Years	FY 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: LT322 - LSD Boat Davit												
B Kits												
Recurring												
1.1.1) FMP Ship Units - LSD Davit - NonOrganic (13)	8 / 9.315	1 / 1.125	- / -	1 / 1.261	- / -	1 / 1.261	- / -	- / -	- / -	- / -	- / -	10 / 11.701
1.1.2) End Item Spares - Organic - Organic	- / -	- / -	- / -	- / -	- / -	- / -	1 / 1.286	- / -	- / -	- / -	- / -	1 / 1.286
Subtotal: Recurring	*- / 9.315*	*- / 1.125*	*- / -*	*- / 1.261*	*- / -*	*- / 1.261*	*- / 1.286*	*- / -*	*- / -*	*- / -*	*- / 0.000*	*- / 12.987*
Subtotal: LT322 - LSD Boat Davit	*8 / 9.315*	*1 / 1.125*	*- / -*	*1 / 1.261*	*- / -*	*1 / 1.261*	*1 / 1.286*	*- / -*	*- / -*	*- / -*	*- / -*	*11 / 12.987*
Subtotal: Procurement, All Modification Items	*- / 9.315*	*- / 1.125*	*- / -*	*- / 1.261*	*- / -*	*- / 1.261*	*- / 1.286*	*- / -*	*- / -*	*- / -*	*- / 0.000*	*- / 12.987*
Support *(All Modification Items)*												
2.1) Engineering/Contract/Testing (Nonrecurring)	- / 1.734	- / 0.027	- / 0.061	- / 0.500	- / -	- / 0.500	- / 0.250	- / 0.125	- / -	- / -	- / -	- / 2.697
Subtotal: Support	*- / 1.734*	*- / 0.027*	*- / 0.061*	*- / 0.500*	*- / -*	*- / 0.500*	*- / 0.250*	*- / 0.125*	*- / -*	*- / -*	*- / 0.000*	*- / 2.697*
Installation												
Modification Item 1 of 1: LT322 - LSD Boat Davit	- / 11.817	- / 7.338	- / 5.908	- / 3.943	- / 0.000	- / 3.943	- / 3.659	- / 3.407	- / 0.000	- / 0.000	- / 0.000	- / 36.072
Subtotal: Installation	*- / 11.817*	*- / 7.338*	*- / 5.908*	*- / 3.943*	*- / -*	*- / 3.943*	*- / 3.659*	*- / 3.407*	*- / -*	*- / -*	*- / 0.000*	*- / 36.072*
Total												
Total Cost (Procurement + Support + Installation)	**22.866**	**8.490**	**5.969**	**5.704**	**0.000**	**5.704**	**5.195**	**3.532**	**0.000**	**0.000**	**0.000**	**51.756**

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0981 / Items less than $5 Million	**Modification Number / Title:** 8 / LT322 - LSD Boat Davit

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

Modification Item 1 of 1: LT322 - LSD Boat Davit

Manufacturer Information

Manufacturer Name: Oldenburg Group Inc | Manufacturer Location: Iron River, MI

Administrative Leadtime *(in Months)*: 3 | Production Leadtime *(in Months)*: 20

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

Installation Information

Method of Implementation: Industrial/AIT:: Installation Name: FMP Ship Units - LSD Davit

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 / 11.518	3 / 7.338	2 / 5.110	1 / 3.371	0 / 0.000	1 / 3.371	- / -	- / -	- / -	- / -	0 / 0.000	8 / 27.337
FY 2019	0 / 0.299	- / -	0 / 0.798	0 / 0.216	0 / 0.000	0 / 0.216	1 / 3.438	- / -	- / -	- / -	0 / 0.000	1 / 4.751
FY 2020	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2021	- / -	- / -	- / -	0 / 0.356	0 / 0.000	0 / 0.356	0 / 0.221	1 / 3.407	- / -	- / -	0 / 0.000	1 / 3.984
FY 2022	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2023	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2024	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2025	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
To Complete	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
Total	2 / 11.817	3 / 7.338	2 / 5.908	1 / 3.943	0 / 0.000	1 / 3.943	1 / 3.659	1 / 3.407	- / -	- / -	0 / 0.000	10 / 36.072

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	-	-	1	1	-	1	1	-	-	-	2	-	-	-	1	-	-	-	1	-	-	-	-	-	-	-	-	-	-	10
Out	2	-	-	-	-	-	-	1	-	-	2	-	1	2	-	-	-	-	-	-	-	1	-	1	-	-	-	-	-	-	10

Method of Implementation (Organic): End Item Spares - Organic | **Installation Quantity:** 1

Footnotes:

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0981 / Items less than $5 Million	**Modification Number / Title:** 8 / LT322 - LSD Boat Davit
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

(13) Two years prior to install, DSA is required to fund new Milestones for Fixed Price Shipyard Install Contracts and to support Ship Check, Installation Drawing/Work Specification development required for the Request For Proposal (RFP). SLAD unit procured in FY19 and intended for a FY21 installation will now be installed in FY22 due to an availability cancellation. FY21-23 reflect revised budget cost based on recent return cost. Installation costs vary depending on current port rates.

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0981 / Items less than $5 Million	**Modification Number / Title:** 9 / LT321 ESB SOF Backfit
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

Resource Summary	Prior Years	FY 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)*	37.663	3.833	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	41.496
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	37.663	3.833	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	41.496
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**37.663**	**3.833**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**41.496**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)												
Initial Spares *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Dollars)*	-	-	-	-	-	-	-	-	-	-	-	-

Description:

Funds provided for ESB 3 and 4 Special Operation Forces (SOF) components. Efforts include ship changes necessary to make ESB compatible with night vision devices, and to add additional aircraft operating spots. Other efforts include ship changes and services for additional Twenty-foot Equivalent Unit (TEU) capacity, increased medical services (shock/triage/forward resuscitative surgery system), and increased capacity for storage/fueling capability of MOGAS.

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0981 / Items less than $5 Million	**Modification Number / Title:** 9 / LT321 ESB SOF Backfit
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	
Models of Systems Affected: [No Model Specified]	**Modification Type:** TBD	**Related RDT&E PEs:**

Financial Plan	Prior Years	FY 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: LT321 ESB SOF Backfit												
B Kits												
Recurring												
1.1.1) LT321 ESB SOF . - NonOrganic	3 / 26.701	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	3 / 26.701
Subtotal: Recurring	*- / 26.701*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / 0.000*	*- / 26.701*
Subtotal: LT321 ESB SOF Backfit	*3 / 26.701*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*3 / 26.701*
Subtotal: Procurement, All Modification Items	*- / 26.701*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / 0.000*	*- / 26.701*
Installation												
Modification Item 1 of 1: LT321 ESB SOF Backfit	- / 10.962	- / 3.833	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 14.795
Subtotal: Installation	*- / 10.962*	*- / 3.833*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / 0.000*	*- / 14.795*
Total												
Total Cost (Procurement + Support + Installation)	**37.663**	**3.833**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**41.496**

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0981 / Items less than $5 Million	**Modification Number / Title:** 9 / LT321 ESB SOF Backfit

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

Modification Item 1 of 1: LT321 ESB SOF Backfit

Manufacturer Information

Manufacturer Name: Various | Manufacturer Location: TBD

Administrative Leadtime *(in Months)*: 0 | Production Leadtime *(in Months)*: 0

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

Installation Information

Method of Implementation: [none specified]:: Installation Name: LT321 ESB SOF .

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 / 10.962	1 / 3.833	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	3 / 14.795
FY 2019	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2020	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2021	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2022	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2023	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2024	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2025	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
To Complete	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
Total	2 / 10.962	1 / 3.833	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	3 / 14.795

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	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3
Out	2	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0981 / Items less than $5 Million	**Modification Number / Title:** 10 / LT327 - Modular Refrigeration System.
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

Resource Summary	Prior Years	FY 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)*	5.967	0.000	2.600	4.500	0.000	4.500	4.500	4.500	4.500	4.500	2.400	33.467
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	5.967	0.000	2.600	4.500	0.000	4.500	4.500	4.500	4.500	4.500	2.400	33.467
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**5.967**	**0.000**	**2.600**	**4.500**	**0.000**	**4.500**	**4.500**	**4.500**	**4.500**	**4.500**	**2.400**	**33.467**
(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:

[Modular Reefer System] Modular Refrigeration System (MRS) replaces the existing legacy ship's stores refrigeration system (SSRS) onboard CVN68 class carriers. The legacy system is energy inefficient, space inefficient, and maintenance intensive, requiring highly skilled personnel to operate and maintain acceptable box temperatures. Most hardware associated with the legacy systems is specialized mil-spec and is either becoming unsupportable due to obsolescence, or is grossly expensive to maintain. Each Modular Refrigeration System (MRS) is comprised of a Modular Refrigeration Unit (MRU), an operating/ diagnostic control panel, and small chilled water cooled flat-plate condenser. There are 18 MRUs required per hull. Modular Refrigeration Systems (MRS's) are self-contained hatchable modular refrigeration units (MRU) with a dedicated control panel that eliminate 90% of current maintenance requirements and require minimal operator support/training.

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0981 / Items less than $5 Million	**Modification Number / Title:** 10 / LT327 - Modular Refrigeration System.
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	
Models of Systems Affected: [No Model Specified]	**Modification Type:** TBD	**Related RDT&E PEs:**

Financial Plan	Prior Years	FY 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: LT327 - Modular Refrigeration System.												
B Kits												
Recurring												
1.1.1) Modular Reefer System - NonOrganic (14)	15 / 3.400	- / -	18 / 2.300	18 / 2.300	- / -	18 / 2.300	18 / 2.300	18 / 2.300	18 / 2.300	18 / 2.300	- / -	123 / 17.200
Subtotal: Recurring	*- / 3.400*	*- / -*	*- / 2.300*	*- / 2.300*	*- / -*	*- / 2.300*	*- / 2.300*	*- / 2.300*	*- / 2.300*	*- / 2.300*	*- / 0.000*	*- / 17.200*
Subtotal: LT327 - Modular Refrigeration System.	*15 / 3.400*	*- / -*	*18 / 2.300*	*18 / 2.300*	*- / -*	*18 / 2.300*	*18 / 2.300*	*18 / 2.300*	*18 / 2.300*	*18 / 2.300*	*- / -*	*123 / 17.200*
Subtotal: Procurement, All Modification Items	*- / 3.400*	*- / -*	*- / 2.300*	*- / 2.300*	*- / -*	*- / 2.300*	*- / 2.300*	*- / 2.300*	*- / 2.300*	*- / 2.300*	*- / 0.000*	*- / 17.200*
Installation												
Modification Item 1 of 1: LT327 - Modular Refrigeration System.	- / 2.567	- / 0.000	- / 0.300	- / 2.200	- / 0.000	- / 2.200	- / 2.200	- / 2.200	- / 2.200	- / 2.200	- / 2.400	- / 16.267
Subtotal: Installation	*- / 2.567*	*- / -*	*- / 0.300*	*- / 2.200*	*- / -*	*- / 2.200*	*- / 2.200*	*- / 2.200*	*- / 2.200*	*- / 2.200*	*- / 2.400*	*- / 16.267*
Total												
Total Cost (Procurement + Support + Installation)	**5.967**	**0.000**	**2.600**	**4.500**	**0.000**	**4.500**	**4.500**	**4.500**	**4.500**	**4.500**	**2.400**	**33.467**

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0981 / Items less than $5 Million	**Modification Number / Title:** 10 / LT327 - Modular Refrigeration System.

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

Modification Item 1 of 1: LT327 - Modular Refrigeration System.

Manufacturer Information

Manufacturer Name: DRS Marlo Coil | Manufacturer Location: High Ridge, MO

Administrative Leadtime *(in Months)*: 2 | Production Leadtime *(in Months)*: 10

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			
Delivery Dates	Oct 2019	Oct 2020	Oct 2021	Oct 2022			

Installation Information

Method of Implementation: AIT:: Installation Name: Modular Reefer System

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	15 / 2.567	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	15 / 2.567
FY 2019	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2020	- / -	- / -	0 / 0.300	18 / 1.900	0 / 0.000	18 / 1.900	- / -	- / -	- / -	- / -	0 / 0.000	18 / 2.200
FY 2021	- / -	- / -	- / -	0 / 0.300	0 / 0.000	0 / 0.300	18 / 1.900	- / -	- / -	- / -	0 / 0.000	18 / 2.200
FY 2022	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.300	18 / 1.900	- / -	- / -	0 / 0.000	18 / 2.200
FY 2023	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.300	18 / 1.900	- / -	0 / 0.000	18 / 2.200
FY 2024	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.300	18 / 1.900	0 / 0.000	18 / 2.200
FY 2025	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.300	18 / 2.400	18 / 2.700
To Complete	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
Total	15 / 2.567	- / -	0 / 0.300	18 / 2.200	0 / 0.000	18 / 2.200	18 / 2.200	18 / 2.200	18 / 2.200	18 / 2.200	18 / 2.400	123 / 16.267

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	15	-	-	-	-	-	-	-	-	-	-	18	-	-	18	-	-	-	-	18	-	-	-	-	18	-	-	18	-	18	123
Out	-	-	-	15	-	-	-	-	-	-	-	-	-	18	-	-	18	-	-	-	-	18	-	-	-	-	18	-	-	36	123

Footnotes:

(14) Installation funds are also required in the year prior to install for DSA (hull planning yard ship checks, installation drawing development), Advanced Planning, and Integrated Logistics Support (ILS) Future Modular Refrigeration System (MRS) installations currently planned for 1 hull per year starting in FY21 (procurement in FY20). No changes from the FY 2020 President's Budget request.

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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 01: Ships Support Equipment / BSA 9: Other Shipboard Equipment	**P-1 Line Item Number / Title:** 0989 / Chemical Warfare Detectors

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

Line Item MDAP/MAIS Code: N/A

Resource Summary	Prior Years	FY 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)*	51.477	2.966	2.961	3.044	0.000	3.044	3.100	3.165	3.202	3.261	56.650	129.826
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	51.477	2.966	2.961	3.044	0.000	3.044	3.100	3.165	3.202	3.261	56.650	129.826
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**51.477**	**2.966**	**2.961**	**3.044**	**0.000**	**3.044**	**3.100**	**3.165**	**3.202**	**3.261**	**56.650**	**129.826**
(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:

CHEMICAL & BIOLOGICAL DEFENSE PROGRAM (INSTALLATION REQUIREMENTS):
Public Law 103-160, Section 1703 created a Joint Service Chemical and Biological Defense Program (CBDP) to address ever growing threats from the aggressive proliferation of chemical and biological weapons. Joint CBDP funds the development and procurement of Chemical and Biological Defense (CBD) Equipment to enhance the warfighter's ability to survive and complete their mission in a chemical biological contaminated environment. The Navy is responsible for the associated installation/integration and sustainment funds only. The Navy's requirement for Joint Biological Point Detection System (JBPDS), Improved Point Detection System/Lifecycle Replacement (IPDS/LR), Joint Biological Agent Identification and Diagnostic System (JBAIDS), Next Generation Chemical Detection (NGDS) System, Enhanced Maritime Biological Detection (EMBD) system and Dismounted Reconnaissance Sets, and Outfits (DRSKO) has been validated by CNO in associated Joint Operational Requirements Documents and/or Capability Production Documents.

Installation of Equipment
Funding is for installation of equipment including Fleet Modernization Program installations, installation of training equipment and installation of equipment in other shore facilities. Procurement of equipment is funded by the Joint
Service CBDP.

Detector installation costs can vary significantly, even within ship class, depending on installation location (East coast, West coast, OCONUS, etc.), if installation accomplished pier side or in a ship yard (i.e. availability type during which installation actually occurs), ship as built and as found conditions, and installation growth work (i.e. unplanned/unexpected work) driven by as found conditions.

[P3A / IPDS/LR]: The IPDS/LR (formerly SEACADS/IPDS) will improve the existing shipboard point detection system for detecting and identifying chemical nerve and blister agent contamination presence. Inventory objective for shipboard installations is 130.

[P3A - 2 / JBAIDS]: The JBAIDS will provide U.S. operating forces with a biological organism identification and diagnostic device that will identify and quantify biological organisms of operational concern and other pathogens of clinical significance for confirmatory and prognostic purposes. Inventory objective for shipboard JBAIDS installations is 23 and Refrigeration installations is 17.

[P3A - 4 / JBPDS BLK 1]: The JBPDS Block I will provide the Navy with automated, knowledge-based capability to detect and identify biological warfare agents in less than 20 minutes. The inventory objective for shipboard installations is 78.

Exhibit P-40, Budget Line Item Justification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 01: Ships Support Equipment / BSA 9: Other Shipboard Equipment	**P-1 Line Item Number / Title:** 0989 / Chemical Warfare Detectors	
ID Code (A=Service Ready, B=Not Service Ready): A	**Program Elements for Code B Items:** N/A	**Other Related Program Elements:** N/A
Line Item MDAP/MAIS Code: N/A		

[P3A - 5 / NGCD]: The Next Generation Chemical Detector (NGCD) is a technology replacement for the IPDS and IPDS-LR systems. The inventory objective for shipboard installations is 183.

[P3A - 7 / IPDS-LR Heater]: The IPDS-LR Heater Upgrade provides the ability for IPDS-LR to function in various extreme environmental conditions that may cause system degradation and ultimately failure. This is a new, emergent requirement to ensure automated chemical agent detection is operationally available. The equipment development and procurement for this upgrade is funded out of the Joint Service CBDP Budget and is expected to be provided to Navy by mid FY19. The Navy is required to fund the integration and installation. Inventory objective for shipboard installations is 77.

[P3A - 8 / CW001 CHEMICAL WARFARE PROGRAM DRSKO STOWAGE]: The CBRN Dismounted Reconnaissance Sets, Kits, and Outfits (DRSKO) consists of portable, commercial and government off-the-shelf equipment which provides Visit Board Search and Seizure (VBSS) forces with the capability to detect or deny the presence of Weapons of Mass Destruction (WMD) in support of WMD Interdiction (WMD-I) missions. This installation will install shelving and provide controlled access to support proper stowage of the Joint developed CBRN DRSKO system. The inventory objective for shipboard installations is 4.

[P3A - 9 / CW001 CHEMICAL WARFARE PROGRAM EMBD UPGRADE KIT]: OPNAVINST 3400.10G articulates U.S. Navy Chemical, Biological and Radiological Defense (CBRD) policy and establishes functional responsibilities to ensure the highest level of the Fleet readiness and warfighting sustainability in a CBR environment. The Enhanced Maritime Biological Detection (EMBD) kit is intended as a lifecycle replacement for the JBPDS system, and will include improved detection and identification capabilities. The equipment procurement is funded out of the Joint Service Chemical Biological Defense Program Budget. The inventory objective for shipboard installations is 128.

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

Appropriation / Budget Activity / Budget Sub Activity:
1810N: Other Procurement, Navy / BA 01: Ships Support Equipment / BSA 9: Other Shipboard Equipment

P-1 Line Item Number / Title:
0989 / Chemical Warfare Detectors

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

Line Item MDAP/MAIS Code: N/A

Exhibits Schedule					Prior Years	FY 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-3a	1 / CW001 CHEMICAL WARFARE PROGRAM IPDS/LR (TBD)				- / 21.365	- / 2.316	- / 1.581	- / 0.581	- / 0.000	- / 0.581
P-3a	2 / CW001 CHEMICAL WARFARE PROGRAM JBAIDS (TBD)				- / 5.126	- / 0.060	- / 0.090	- / 0.000	- / 0.000	- / 0.000
P-3a	4 / CW001 CHEMICAL WARFARE PROGRAM JBPDS BLK 1 (TBD)				- / 24.585	- / 0.000	- / 0.000	- / 0.220	- / 0.000	- / 0.220
P-3a	5 / CW001 CHEMICAL WARFARE PROGRAM NGCD (TBD)				- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000
P-3a	7 / CW001 CHEMICAL WARFARE PROGRAM IPDS-LR HEATER UPGRADE (TBD)				- / 0.000	- / 0.430	- / 0.744	- / 1.641	- / 0.000	- / 1.641
P-3a	8 / CW001 CHEMICAL WARFARE PROGRAM DRSKO STOWAGE (TBD)				- / 0.401	- / 0.160	- / 0.450	- / 0.000	- / 0.000	- / 0.000
P-3a	9 / CW001 CHEMICAL WARFARE PROGRAM EMBD UPGRADE KIT (TBD)				- / 0.000	- / 0.000	- / 0.096	- / 0.602	- / 0.000	- / 0.602
P-40	**Total Gross/Weapon System Cost**				**- / 51.477**	**- / 2.966**	**- / 2.961**	**- / 3.044**	**- / 0.000**	**- / 3.044**

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-3a	1 / CW001 CHEMICAL WARFARE PROGRAM IPDS/LR (TBD)				- / 0.400	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 26.243
P-3a	2 / CW001 CHEMICAL WARFARE PROGRAM JBAIDS (TBD)				- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 5.276
P-3a	4 / CW001 CHEMICAL WARFARE PROGRAM JBPDS BLK 1 (TBD)				- / 0.841	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 25.646
P-3a	5 / CW001 CHEMICAL WARFARE PROGRAM NGCD (TBD)				- / 0.371	- / 1.597	- / 1.940	- / 1.911	- / 56.650	- / 62.469
P-3a	7 / CW001 CHEMICAL WARFARE PROGRAM IPDS-LR HEATER UPGRADE (TBD)				- / 0.374	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 3.189
P-3a	8 / CW001 CHEMICAL WARFARE PROGRAM DRSKO STOWAGE (TBD)				- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 1.011
P-3a	9 / CW001 CHEMICAL WARFARE PROGRAM EMBD UPGRADE KIT (TBD)				- / 1.114	- / 1.568	- / 1.262	- / 1.350	- / 0.000	- / 5.992
P-40	**Total Gross/Weapon System Cost**				**- / 3.100**	**- / 3.165**	**- / 3.202**	**- / 3.261**	**- / 56.650**	**- / 129.826**

*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.

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0989 / Chemical Warfare Detectors	**Modification Number / Title:** 1 / CW001 CHEMICAL WARFARE PROGRAM IPDS/LR
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

Resource Summary	Prior Years	FY 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)*	21.365	2.316	1.581	0.581	0.000	0.581	0.400	0.000	0.000	0.000	0.000	26.243
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	21.365	2.316	1.581	0.581	0.000	0.581	0.400	0.000	0.000	0.000	0.000	26.243
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**21.365**	**2.316**	**1.581**	**0.581**	**0.000**	**0.581**	**0.400**	**0.000**	**0.000**	**0.000**	**0.000**	**26.243**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)												
Initial Spares *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Dollars)*	-	-	-	-	-	-	-	-	-	-	-	-

Description:

OPNAVINST 3400.10G articulates U.S. Navy Chemical, Biological and Radiological Defense (CBRD) policy and establishes functional responsibilities to ensure the highest level of the Fleet readiness and warfighting sustainability in a CBR environment. CBRD Improved Point Detection System/Lifecycle Replacement (IPDS/LR) provides shipboard point detection system for detecting and identifying nerve and blister agent contamination presence. The equipment procurement is funded out of the Joint Service Chemical Biological Defense Program Budget.

[IPDS/LR] Remarks: A total of one hundred and sixteen (116) completed. LSD-47 installation was started in FY18, but had to be halted awaiting offload of ammunition. The installation was completed third quarter FY19. Planned installation start for four (4) CG Class ships was delayed from 4th quarter FY19 to second quarter FY20 (1 each), third quarter FY20 (1 each), and fourth quarter FY20 (2 each) to better align with ship availability. Three (3) of the delayed ships are in the middle of complex overhauls, so is more ideal to wait until the end of the ship availability to complete installation since more ship services will be back on-line. Planned installations have increased from 127 at the FY 2020 President's Budget request to 130. At the concurrence of OPNAV and USFFC, removed the two (2) previously planned installations onboard LCS-2 and LCS-4 since those hulls were recently changed to training assets and to conserve IPDS-LR for SCN ships. Added three (3) CG-47 Class ships back into the schedule to perform shock qualified installation of IPDS-LR. At the concurrence of OPNAV and USFFC, added LCS-1 and LCS-3 to the plan to remove IPDS-LR to reallocate the systems for new ship construction.

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0989 / Chemical Warfare Detectors	**Modification Number / Title:** 1 / CW001 CHEMICAL WARFARE PROGRAM IPDS/LR
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	
Models of Systems Affected: [No Model Specified]	**Modification Type:** TBD	**Related RDT&E PEs:**

Financial Plan	Prior Years	FY 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: CW001 CHEMICAL WARFARE PROGRAM IPDS/LR												
B Kits												
Recurring												
1.1.1) IPDS/LR - NonOrganic (1)	113 / 0.000	7 / 0.000	6 / 0.000	2 / 0.000	- / -	2 / 0.000	2 / 0.000	- / -	- / -	- / -	- / -	130 / 0.000
Subtotal: Recurring	*- / 0.000*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / 0.000*
Subtotal: CW001 CHEMICAL WARFARE PROGRAM IPDS/LR	*113 / 0.000*	*7 / 0.000*	*6 / 0.000*	*2 / 0.000*	*- / -*	*2 / 0.000*	*2 / 0.000*	*- / -*	*- / -*	*- / -*	*- / -*	*130 / 0.000*
Subtotal: Procurement, All Modification Items	*- / 0.000*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / 0.000*
Installation												
Modification Item 1 of 1: CW001 CHEMICAL WARFARE PROGRAM IPDS/LR	- / 21.365	- / 2.316	- / 1.581	- / 0.581	- / 0.000	- / 0.581	- / 0.400	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 26.243
Subtotal: Installation	*- / 21.365*	*- / 2.316*	*- / 1.581*	*- / 0.581*	*- / -*	*- / 0.581*	*- / 0.400*	*- / -*	*- / -*	*- / -*	*- / 0.000*	*- / 26.243*
Total												
Total Cost (Procurement + Support + Installation)	**21.365**	**2.316**	**1.581**	**0.581**	**0.000**	**0.581**	**0.400**	**0.000**	**0.000**	**0.000**	**0.000**	**26.243**

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0989 / Chemical Warfare Detectors	**Modification Number / Title:** 1 / CW001 CHEMICAL WARFARE PROGRAM IPDS/LR

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

Modification Item 1 of 1: CW001 CHEMICAL WARFARE PROGRAM IPDS/LR

Manufacturer Information

Manufacturer Name: TBD | Manufacturer Location: TBD

Administrative Leadtime *(in Months)*: 0 | Production Leadtime *(in Months)*: 0

Dates	FY 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: IPDS/LR

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	113 / 21.365	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	113 / 21.365
FY 2019	- / -	3 / 2.316	4 / 0.000	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	7 / 2.316
FY 2020	- / -	- / -	6 / 1.581	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	6 / 1.581
FY 2021	- / -	- / -	- / -	2 / 0.581	0 / 0.000	2 / 0.581	- / -	- / -	- / -	- / -	0 / 0.000	2 / 0.581
FY 2022	- / -	- / -	- / -	- / -	- / -	- / -	2 / 0.400	- / -	- / -	- / -	0 / 0.000	2 / 0.400
FY 2023	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2024	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2025	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
To Complete	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
Total	113 / 21.365	3 / 2.316	10 / 1.581	2 / 0.581	0 / 0.000	2 / 0.581	2 / 0.400	- / -	- / -	- / -	0 / 0.000	130 / 26.243

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	113	1	2	-	-	-	3	3	4	-	1	-	1	-	-	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	130
Out	111	1	2	2	-	-	3	3	4	-	1	-	1	-	-	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	130

Footnotes:

(1) IPDS-LR plan - The procurement costs are specifically referring to Installation and Design Service Allocation (DSA) costs as there are no equipment procurement costs with any detector system installed. DSA costs are for government engineering oversight/support in preparation for ship installation and ship class planning yards for engineering services which include ship check, development and approval of ship installation drawings (SIDs), Ship Selected Record changes, Bill of Material (BOM), onsite planning yard engineering support during installation to answer liaison action record (LARs), and other engineering

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0989 / Chemical Warfare Detectors	**Modification Number / Title:** 1 / CW001 CHEMICAL WARFARE PROGRAM IPDS/LR
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

services depending on the planning yard. DSA costs are generally funded up to one year prior to planned installation due to drawing development lead time and installation preparation efforts. These costs are ship specific since drawings are developed for each ship, not class of ship, excluding IPDS-LR for DDG Class ships which are class-wide drawings. - FY19 installations total seven (7) ships to include two (2) LSD-41 Class ships at $220K each, one (1) LSD-49 Class ships at $225K each, and four (4) CG-47 Class ships at $239K each. Total installation costs for FY19 is $1,631K plus $685K for DSA costs. - FY20 installations total six (6) ships to include one (1) LDS-49 Class at $225K and five (5) CG-47 Class ships at $225K each. Total installation costs for IPDS-LR in FY20 is $1,350K plus $231K for DSA costs. - FY21 installations total two (2) ships to include two (2) CG-47 Class at $230K each. Total installation costs for IPDS-LR in FY21 is $460K plus $121K for DSA costs.

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0989 / Chemical Warfare Detectors	**Modification Number / Title:** 2 / CW001 CHEMICAL WARFARE PROGRAM JBAIDS
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

Resource Summary	Prior Years	FY 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)*	5.126	0.060	0.090	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	5.276
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	5.126	0.060	0.090	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	5.276
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**5.126**	**0.060**	**0.090**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**5.276**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)												
Initial Spares *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Dollars)*	-	-	-	-	-	-	-	-	-	-	-	-

Description:

OPNAVINST 3400.10G articulates U.S. Navy Chemical, Biological and Radiological Defense (CBRD) policy and establishes functional responsibilities to ensure the highest level of the Fleet readiness and warfighting sustainability in a CBR environment. JBAIDS systems will identify and quantify biological organisms of operational concern and other pathogens of clinical significance for confirmatory and prognostic purposes. The CENTCOM HR urgent need (dated Aug 2009) modifies the JBAIDS ORD (dated May 2003) with the addition of detection capability for the 2009/A/H1N1 influenza. The equipment procurement is funded out of the Joint Service CBDP Budget P-1 Item Nomenclature: JBAIDS. Beginning in FY13, system will install with refrigeration unit.

[JBAIDS] Remarks: A total of twenty two (22) completed of twenty three (23) planned. The LHA 7 installation will occur during PSA in FY20. LHA 8 has successfully added JBAIDS to the baseline and should have the system installed during construction. DSA costs for FY19 were recently added to support LHA 7 installation.

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0989 / Chemical Warfare Detectors	**Modification Number / Title:** 2 / CW001 CHEMICAL WARFARE PROGRAM JBAIDS
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	
Models of Systems Affected: [No Model Specified]	**Modification Type:** TBD	**Related RDT&E PEs:**

Financial Plan	Prior Years	FY 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: CW001 CHEMICAL WARFARE PROGRAM JBAIDS												
B Kits												
Non-Recurring												
1.1.1) JBAIDS - NonOrganic (2)	22 / 0.000	- / -	1 / 0.000	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	23 / 0.000
Subtotal: Non-Recurring	*- / 0.000*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / 0.000*
Subtotal: CW001 CHEMICAL WARFARE PROGRAM JBAIDS	*22 / 0.000*	*- / -*	*1 / 0.000*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*23 / 0.000*
Subtotal: Procurement, All Modification Items	*- / 0.000*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / 0.000*
Installation												
Modification Item 1 of 1: CW001 CHEMICAL WARFARE PROGRAM JBAIDS	- / 5.126	- / 0.060	- / 0.090	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 5.276
Subtotal: Installation	*- / 5.126*	*- / 0.060*	*- / 0.090*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / 0.000*	*- / 5.276*
Total												
Total Cost (Procurement + Support + Installation)	**5.126**	**0.060**	**0.090**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**5.276**

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0989 / Chemical Warfare Detectors	**Modification Number / Title:** 2 / CW001 CHEMICAL WARFARE PROGRAM JBAIDS

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

Modification Item 1 of 1: CW001 CHEMICAL WARFARE PROGRAM JBAIDS

Manufacturer Information

Manufacturer Name: TBD | Manufacturer Location: TBD

Administrative Leadtime *(in Months)*: 0 | Production Leadtime *(in Months)*: 0

Dates	FY 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: JBAIDS

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	22 / 5.126	0 / 0.060	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	22 / 5.186
FY 2019	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2020	- / -	- / -	1 / 0.090	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	1 / 0.090
FY 2021	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2022	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2023	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2024	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2025	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
To Complete	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
Total	22 / 5.126	0 / 0.060	1 / 0.090	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	23 / 5.276

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	22	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	23
Out	22	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	23

Footnotes:

(2) There are no equipment procurement costs with any detector system installed. The Design Service Allocation (DSA) costs are for government engineering oversight/support in preparation for ship installation and ship class planning yards for engineering services which include ship check, development and approval of ship installation drawings (SIDs), Ship Selected Record changes, Bill of Material (BOM), onsite planning yard engineering support during installation to answer liaison action record (LARs), and other engineering services depending on the planning yard. DSA costs are generally funded up to one year prior

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0989 / Chemical Warfare Detectors	**Modification Number / Title:** 2 / CW001 CHEMICAL WARFARE PROGRAM JBAIDS
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

to planned installation due to drawing development lead time and installation preparation efforts. These costs are ship specific since drawings are developed for each ship, not class of ship. - FY19 includes DSA costs in the amount of $60K in support of LHA-7 installation planned in FY20. - FY20 installations include one (1) LHA-6 Class ship at $90K.

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0989 / Chemical Warfare Detectors	**Modification Number / Title:** 4 / CW001 CHEMICAL WARFARE PROGRAM JBPDS BLK 1
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

Resource Summary	Prior Years	FY 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)*	24.585	0.000	0.000	0.220	0.000	0.220	0.841	0.000	0.000	0.000	0.000	25.646
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	24.585	0.000	0.000	0.220	0.000	0.220	0.841	0.000	0.000	0.000	0.000	25.646
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**24.585**	**0.000**	**0.000**	**0.220**	**0.000**	**0.220**	**0.841**	**0.000**	**0.000**	**0.000**	**0.000**	**25.646**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)												
Initial Spares *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Dollars)*	-	-	-	-	-	-	-	-	-	-	-	-

Description:

OPNAVINST 3400.10F articulates U.S. Navy CBRD policy and establishes functional responsibilities to ensure the highest level of Fleet Readiness and warfighting sustainability in a CBR environment. JBPDS BLK I provides for improved biological agent detection and reporting. The JBPDS ORD (J2-B001-Revision 1, dated 7 January, 2002) validates the modification. The equipment procurement is funded out of the Joint CBDP Budget P-1 Item Nomenclature: (JP0100) JBPDS.

[JBPDS BLK 1] Remarks: A total of 74 completed of 78 planned. JBPDS on LCS-2 and LCS-4 were previously planned to be relocated to function properly in FY21 since both hulls has JBPDS partially installed by the ship builder during construction and are inoperable. These hulls were recently changed to training assets. At the concurrence of OPNAV and USFFC, the systems will now be removed permanently onboard LCS-2 and LCS-4 vice relocated. LCS-1 and LCS-3 were recently changed to training assets. At the concurrence of OPNAV and USFFC, the systems are now to be removed from LCS-1 and LCS-3 and reallocated for new ship construction.

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0989 / Chemical Warfare Detectors	**Modification Number / Title:** 4 / CW001 CHEMICAL WARFARE PROGRAM JBPDS BLK 1

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

Models of Systems Affected: [No Model Specified] **Modification Type:** TBD **Related RDT&E PEs:**

Financial Plan	Prior Years	FY 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: CW001 CHEMICAL WARFARE PROGRAM JBPDS BLK 1												
B Kits												
Non-Recurring												
1.1.1) JBPDS BLK 1 - NonOrganic (3)	74 / 0.000	- / -	- / -	- / -	- / -	- / -	4 / 0.000	- / -	- / -	- / -	- / -	78 / 0.000
Subtotal: Non-Recurring	*- / 0.000*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / 0.000*
Subtotal: CW001 CHEMICAL WARFARE PROGRAM JBPDS BLK 1	*74 / 0.000*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*4 / 0.000*	*- / -*	*- / -*	*- / -*	*- / -*	*78 / 0.000*
Subtotal: Procurement, All Modification Items	*- / 0.000*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / 0.000*
Installation												
Modification Item 1 of 1: CW001 CHEMICAL WARFARE PROGRAM JBPDS BLK 1	- / 24.585	- / 0.000	- / 0.000	- / 0.220	- / 0.000	- / 0.220	- / 0.841	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 25.646
Subtotal: Installation	*- / 24.585*	*- / -*	*- / -*	*- / 0.220*	*- / -*	*- / 0.220*	*- / 0.841*	*- / -*	*- / -*	*- / -*	*- / 0.000*	*- / 25.646*
Total												
Total Cost (Procurement + Support + Installation)	**24.585**	**0.000**	**0.000**	**0.220**	**0.000**	**0.220**	**0.841**	**0.000**	**0.000**	**0.000**	**0.000**	**25.646**

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0989 / Chemical Warfare Detectors	**Modification Number / Title:** 4 / CW001 CHEMICAL WARFARE PROGRAM JBPDS BLK 1

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

Modification Item 1 of 1: CW001 CHEMICAL WARFARE PROGRAM JBPDS BLK 1

Installation Information

Method of Implementation: AIT:: Installation Name: JBPDS BLK 1

Installation Cost	Prior Years	FY 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	74 / 24.585	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	74 / 24.585
FY 2019	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2020	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2021	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2022	- / -	- / -	- / -	0 / 0.220	0 / 0.000	0 / 0.220	4 / 0.841	- / -	- / -	- / -	0 / 0.000	4 / 1.061
FY 2023	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2024	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2025	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
To Complete	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
Total	74 / 24.585	- / -	- / -	0 / 0.220	0 / 0.000	0 / 0.220	4 / 0.841	- / -	- / -	- / -	0 / 0.000	78 / 25.646

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	74	-	-	-	-	-	-	-	-	-	-	-	-	1	1	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	78
Out	74	-	-	-	-	-	-	-	-	-	-	-	-	1	1	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	78

Footnotes:

(3) The procurement costs are specifically referring to installation and Design Service Allocation (DSA) costs as there are no equipment procurement costs with any detector system installed. DSA costs are for government engineering oversight/support in preparation for ship installation and ship class planning yards for engineering services which include ship check, development and approval of ship installation drawings (SIDs), Ship Selected Record changes, Bill of Material (BOM), onsite planning yard engineering support during installation to answer liaison action record (LARs), and other engineering services depending on the planning yard. DSA costs are generally funded up to one year prior to planned installation due to drawing development lead time and installation preparation efforts. These costs are ship specific since drawings are developed for each ship, not class of ship, excluding JBPDS for DDG Class ships which are class-wide drawings. - FY21 costs are for DSA only in the amount of $220K in support of planned removal of JBPDS from LCS 1 thru LCS-4 in FY22.

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0989 / Chemical Warfare Detectors	**Modification Number / Title:** 5 / CW001 CHEMICAL WARFARE PROGRAM NGCD
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

Resource Summary	Prior Years	FY 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	0.000	0.000	0.000	0.000	0.371	1.597	1.940	1.911	56.650	62.469
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	0.000	0.000	0.000	0.000	0.000	0.000	0.371	1.597	1.940	1.911	56.650	62.469
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.371**	**1.597**	**1.940**	**1.911**	**56.650**	**62.469**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)												
Initial Spares *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Dollars)*	-	-	-	-	-	-	-	-	-	-	-	-

Description:

OPNAVINST 3400.10G articulates U.S. Navy Chemical, Biological and Radiological Defense (CBRD) policy and establishes functional responsibilities to ensure the highest level of the Fleet readiness and warfighting sustainability in a CBR environment. The Next Generation Chemical Detector (NGCD) provides shipboard point detection system for detecting and identifying nerve and blister agent contamination presence. The equipment procurement is funded out of the Joint Service Chemical Biological Defense Program Budget.

[NGCD] Remarks: The Next Generation Chemical Detector (NGCD) is a technology replacement for the IPDS and IPDS-LR systems. The program consists of four variants for multiple applications; the Navy will be installing variant 1 for fixed chemical agent detection capability. The inventory objective for shipboard installations is 183. Previously, installations were expected to start in FY22 with advance planning activities (DSA) to start in FY21, but recent Joint program delays now expect NGCD fielding to Navy to commence FY22, necessitating Navy change planned installations to start FY23.

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0989 / Chemical Warfare Detectors	**Modification Number / Title:** 5 / CW001 CHEMICAL WARFARE PROGRAM NGCD
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	
Models of Systems Affected: [No Model Specified]	**Modification Type:** TBD	**Related RDT&E PEs:**

Financial Plan	Prior Years	FY 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: CW001 CHEMICAL WARFARE PROGRAM NGCD												
B Kits												
Recurring												
1.1.1) NGCD - NonOrganic (4)	- / -	- / -	- / -	- / -	- / -	- / -	- / -	6 / 0.000	8 / 0.000	8 / 0.000	161 / 0.000	183 / 0.000
Subtotal: Recurring	*- / 0.000*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / 0.000*
Subtotal: CW001 CHEMICAL WARFARE PROGRAM NGCD	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*6 / 0.000*	*8 / 0.000*	*8 / 0.000*	*161 / 0.000*	*183 / 0.000*
Subtotal: Procurement, All Modification Items	*- / 0.000*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / 0.000*
Installation												
Modification Item 1 of 1: CW001 CHEMICAL WARFARE PROGRAM NGCD	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.371	- / 1.597	- / 1.940	- / 1.911	- / 56.650	- / 62.469
Subtotal: Installation	*- / 0.000*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / 0.371*	*- / 1.597*	*- / 1.940*	*- / 1.911*	*- / 56.650*	*- / 62.469*
Total												
Total Cost (Procurement + Support + Installation)	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.371**	**1.597**	**1.940**	**1.911**	**56.650**	**62.469**

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0989 / Chemical Warfare Detectors	**Modification Number / Title:** 5 / CW001 CHEMICAL WARFARE PROGRAM NGCD

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

Modification Item 1 of 1: CW001 CHEMICAL WARFARE PROGRAM NGCD

Manufacturer Information

Manufacturer Name: TBD | Manufacturer Location: TBD

Administrative Leadtime *(in Months)*: 0 | Production Leadtime *(in Months)*: 0

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

Installation Information

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

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	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.371	6 / 1.275	- / -	- / -	0 / 0.000	6 / 1.646
FY 2024	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.322	8 / 1.725	- / -	0 / 0.000	8 / 2.047
FY 2025	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.215	8 / 1.742	0 / 0.000	8 / 1.957
To Complete	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.169	161 / 56.650	161 / 56.819
Total	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.371	6 / 1.597	8 / 1.940	8 / 1.911	161 / 56.650	183 / 62.469

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	2	2	2	2	2	2	2	2	2	161	183
Out	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	2	2	2	2	2	2	2	2	2	2	161	183

Footnotes:

(4) There are no equipment procurement costs with any detector system installed. The Design Service Allocation (DSA) costs are for government engineering oversight/support in preparation for ship installation and ship class planning yards for engineering services which include ship check, development and approval of ship installation drawings (SIDs), Ship Selected Record changes, Bill of Material (BOM), onsite

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0989 / Chemical Warfare Detectors	**Modification Number / Title:** 5 / CW001 CHEMICAL WARFARE PROGRAM NGCD
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

planning yard engineering support during installation to answer liaison action record (LARs), and other engineering services depending on the planning yard. DSA costs are generally funded up to one year prior to planned installation due to drawing development lead time and installation preparation efforts. These costs are ship specific since drawings are developed for each ship, not class of ship.

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0989 / Chemical Warfare Detectors	**Modification Number / Title:** 7 / CW001 CHEMICAL WARFARE PROGRAM IPDS-LR HEATER UPGRADE
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

Resource Summary	Prior Years	FY 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	0.430	0.744	1.641	0.000	1.641	0.374	0.000	0.000	0.000	0.000	3.189
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	0.000	0.430	0.744	1.641	0.000	1.641	0.374	0.000	0.000	0.000	0.000	3.189
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**0.000**	**0.430**	**0.744**	**1.641**	**0.000**	**1.641**	**0.374**	**0.000**	**0.000**	**0.000**	**0.000**	**3.189**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)												
Initial Spares *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Dollars)*	-	-	-	-	-	-	-	-	-	-	-	-

Description:

OPNAVINST 3400.10G articulates U.S. Navy CBRD policy and establishes functional responsibilities to ensure the highest level of the Fleet readiness and warfighting sustainability in a CBR environment. CBRD Improved Point Detection System Heater Upgrade (IPDS-LR HU) provides the ability for IPDS-LR to function in various extreme environmental conditions that may cause system degradation and ultimately failure. This is a new, emergent requirement to ensure automated chemical agent detection is operationally available. The equipment development and procurement for this upgrade is funded out of the Joint Service CBDP Budget and is expected to be provided to Navy by early FY19. Navy must fund integration and installation. DSA costs are expected to start early FY19 with installations to start in FY19.

[IPDS-LR Heater] Remarks: Seventy-Seven (77) heater upgrades are currently planned and budgeted. The Joint Service CBDP is procuring seventy (70) heater upgrade kits vice eighty-nine (89) previously expected. Some of the heater upgrade kits are expected to be able to be split and installed on two ships vice one, increasing planned kit installation from seventy (70) hulls to seventy-seven (77) hulls. Upgrade kits are now expected to be provided to the Navy by the end of first quarter FY20 vice during FY19, shifting planned installation start to 3rd quarter FY20. A contract to produce the heater upgrade kit was awarded by the Joint Service CBDP February 2019. Once heater upgrade is fully developed by the Joint Service CBDP, further refinement of integration and installation costs can be accomplished and inventory objective may be adjusted.

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0989 / Chemical Warfare Detectors	**Modification Number / Title:** 7 / CW001 CHEMICAL WARFARE PROGRAM IPDS-LR HEATER UPGRADE

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

Models of Systems Affected: [No Model Specified] **Modification Type:** TBD **Related RDT&E PEs:**

Financial Plan	Prior Years	FY 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: CW001 CHEMICAL WARFARE PROGRAM IPDS-LR HEATER UPGRADE												
B Kits												
Recurring												
1.1.1) IPDS-LR Heater - NonOrganic (5)	- / -	- / -	24 / 0.000	42 / 0.000	- / -	42 / 0.000	11 / 0.000	- / -	- / -	- / -	- / -	77 / 0.000
Subtotal: Recurring	*- / 0.000*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / 0.000*
Subtotal: CW001 CHEMICAL WARFARE PROGRAM IPDS-LR HEATER UPGRADE	*- / -*	*- / -*	*24 / 0.000*	*42 / 0.000*	*- / -*	*42 / 0.000*	*11 / 0.000*	*- / -*	*- / -*	*- / -*	*- / -*	*77 / 0.000*
Subtotal: Procurement, All Modification Items	*- / 0.000*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / 0.000*
Installation												
Modification Item 1 of 1: CW001 CHEMICAL WARFARE PROGRAM IPDS-LR HEATER UPGRADE	- / 0.000	- / 0.430	- / 0.744	- / 1.641	- / 0.000	- / 1.641	- / 0.374	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 3.189
Subtotal: Installation	*- / 0.000*	*- / 0.430*	*- / 0.744*	*- / 1.641*	*- / -*	*- / 1.641*	*- / 0.374*	*- / -*	*- / -*	*- / -*	*- / 0.000*	*- / 3.189*
Total												
Total Cost (Procurement + Support + Installation)	**0.000**	**0.430**	**0.744**	**1.641**	**0.000**	**1.641**	**0.374**	**0.000**	**0.000**	**0.000**	**0.000**	**3.189**

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0989 / Chemical Warfare Detectors	**Modification Number / Title:** 7 / CW001 CHEMICAL WARFARE PROGRAM IPDS-LR HEATER UPGRADE

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

Modification Item 1 of 1: CW001 CHEMICAL WARFARE PROGRAM IPDS-LR HEATER UPGRADE

Installation Information

Method of Implementation: [none specified]:: Installation Name: IPDS-LR Heater

Installation Cost	Prior Years	FY 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	- / -	0 / 0.430	24 / 0.744	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	24 / 1.174
FY 2021	- / -	- / -	- / -	42 / 1.393	0 / 0.000	42 / 1.393	- / -	- / -	- / -	- / -	0 / 0.000	42 / 1.393
FY 2022	- / -	- / -	- / -	0 / 0.248	0 / 0.000	0 / 0.248	11 / 0.374	- / -	- / -	- / -	0 / 0.000	11 / 0.622
FY 2023	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2024	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2025	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
To Complete	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
Total	- / -	0 / 0.430	24 / 0.744	42 / 1.641	0 / 0.000	42 / 1.641	11 / 0.374	- / -	- / -	- / -	0 / 0.000	77 / 3.189

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	9	12	10	10	11	11	2	3	3	3	-	-	-	-	-	-	-	-	-	-	-	-	-	77
Out	-	-	-	-	-	-	3	9	12	10	10	11	11	2	3	3	3	-	-	-	-	-	-	-	-	-	-	-	-	-	77

Footnotes:

(5) IPDS-LR Heater Upgrade plan - The procurement costs are specifically referring to Installation and Design Service Allocation (DSA) costs as there are no equipment procurement costs with any detector system installed. DSA costs are for government engineering oversight/support in preparation for ship installation and ship class planning yards for engineering services which include ship check, development and approval of ship installation drawings (SIDs), Ship Selected Record changes, Bill of Material (BOM), onsite planning yard engineering support during installation to answer liaison action record (LARs), and other engineering services depending on the planning yard. DSA costs are generally funded up to one year prior to planned installation due to drawing development lead time and installation preparation efforts. These costs are ship specific since drawings are developed for each ship, not class of ship. - FY19 funding includes $430K for DSA costs. - FY20 funded installations total twenty-four(24). Costs include twenty four (24) DDG-51 Class ships. - FY21 funded installations total forty-two (42). Costs include three (3) LHD-1 Class at $34K each, four (4) CVN-68 Class ships at $34K each, and thirty-five (35) DDG-51 class ships at $33K each. Total FY21 installation costs is $1,393K plus $248K in DSAs.

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0989 / Chemical Warfare Detectors	**Modification Number / Title:** 8 / CW001 CHEMICAL WARFARE PROGRAM DRSKO STOWAGE
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

Resource Summary	Prior Years	FY 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)*	0.401	0.160	0.450	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.011
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	0.401	0.160	0.450	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.011
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**0.401**	**0.160**	**0.450**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**1.011**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)												
Initial Spares *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Dollars)*	-	-	-	-	-	-	-	-	-	-	-	-

Description:

OPNAVINST 3400.10G articulates U.S. Navy Chemical, Biological and Radiological Defense (CBRD) policy and establishes functional responsibilities to ensure the highest level of the Fleet readiness and warfighting sustainability in a CBR environment. Chemical Biological Radiological Nuclear Dismounted Reconnaissance Sets, Kits, and Outfits (CBRN DRSKO) provides Navy Boarding Teams personnel protection from current and emerging CBRN hazards through detection, identification, sample collection, decontamination, marking, and hazard reporting for CBRN threats. Due to system size and storage requirements of equipment and materials, a ship alteration must be accomplished for adequate shelving, electrical power, ventilation, and stowage space security. The equipment procurement is funded out of the Joint Service Chemical Biological Defense Program Budget.

[CW001 CHEMICAL WARFARE PROGRAM DRSKO STOWAGE] Remarks: A total of four (4) installations are currently planned. One (1) for each of the following ship classes: DDG-51, LPD-17, LSD-41, and CG-47. This alteration will install shelving and provide controlled access to support proper stowage of the Joint developed CBRN DRSKO system. DDG class SIDs were previously developed and approved. SIDs for the other three (3) classes are being developed to support FY20 installations. The planned installation for DDG-66 was delayed from Q4 FY18 since the SCD was not fully approved. The SCD is now fully approved. The installation was scheduled to start fourth quarter FY19, but the installation team was required to wait on the ship to offload ammunition due to required hotwork. The installation started December 2019 and is expected to complete January 2020. The installation for LPD and CG class ships shifted from FY19 to FY20 to align funding to expected SCD approval and ship schedule. SIDs are currently being developed to support SCD approval.

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0989 / Chemical Warfare Detectors	**Modification Number / Title:** 8 / CW001 CHEMICAL WARFARE PROGRAM DRSKO STOWAGE
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	
Models of Systems Affected: [No Model Specified]	**Modification Type:** TBD	**Related RDT&E PEs:**

Financial Plan	Prior Years	FY 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: CW001 CHEMICAL WARFARE PROGRAM DRSKO STOWAGE												
B Kits												
Recurring												
1.1.1) CW001 CHEMICAL WARFARE PROGRAM DRSKO STOWAGE - NonOrganic (6)	1 / 0.000	- / -	3 / 0.000	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	4 / 0.000
Subtotal: Recurring	*- / 0.000*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / 0.000*
Subtotal: CW001 CHEMICAL WARFARE PROGRAM DRSKO STOWAGE	*1 / 0.000*	*- / -*	*3 / 0.000*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*4 / 0.000*
Subtotal: Procurement, All Modification Items	*- / 0.000*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / 0.000*
Installation												
Modification Item 1 of 1: CW001 CHEMICAL WARFARE PROGRAM DRSKO STOWAGE	- / 0.401	- / 0.160	- / 0.450	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 1.011
Subtotal: Installation	*- / 0.401*	*- / 0.160*	*- / 0.450*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / 0.000*	*- / 1.011*
Total												
Total Cost (Procurement + Support + Installation)	**0.401**	**0.160**	**0.450**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**1.011**

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0989 / Chemical Warfare Detectors	**Modification Number / Title:** 8 / CW001 CHEMICAL WARFARE PROGRAM DRSKO STOWAGE

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

Modification Item 1 of 1: CW001 CHEMICAL WARFARE PROGRAM DRSKO STOWAGE

Installation Information

Method of Implementation: [none specified]:: Installation Name: CW001 CHEMICAL WARFARE PROGRAM DRSKO STOWAGE

Installation Cost	Prior Years	FY 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	0 / 0.401	- / -	1 / 0.000	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	1 / 0.401
FY 2019	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2020	- / -	0 / 0.160	3 / 0.450	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	3 / 0.610
FY 2021	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2022	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2023	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2024	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2025	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
To Complete	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
Total	0 / 0.401	0 / 0.160	4 / 0.450	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	4 / 1.011

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	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4
Out	-	-	-	-	-	-	2	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4

Footnotes:

(6) Dismounted Reconnaissance Sets, Kits, and Outfits (DRSKO) Stowage plan - The procurement costs are specifically referring to Installation and Design Service Allocation (DSA) costs as there are no equipment procurement costs with any detector system installed. DSA costs are for government engineering oversight/support in preparation for ship installation and ship class planning yards for engineering services which include ship check, development and approval of ship installation drawings (SIDs), Ship Selected Record changes, Bill of Material (BOM), onsite planning yard engineering support during installation to answer liaison action record (LARs), and other engineering services depending on the planning yard. DSA costs are generally funded up to one year prior to planned installation due to drawing development lead time and installation preparation efforts. These costs are ship specific since drawings are developed for each ship, not class of ship. - FY18 funded installation includes one (1) DDG-51 Class at $141.2K to occur Q4 FY19. - FY19 funding includes DSAs in the amount of $160K for LSD-41 class. - FY20 installations includes one (1) LSD-41 Class ship at $150K, one (1) CG-47 Class ship at $150K, and one (1) LPD-17 class at $150K. Total install cost is $450K.

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0989 / Chemical Warfare Detectors	**Modification Number / Title:** 9 / CW001 CHEMICAL WARFARE PROGRAM EMBD UPGRADE KIT
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

Resource Summary	Prior Years	FY 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	0.096	0.602	0.000	0.602	1.114	1.568	1.262	1.350	0.000	5.992
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	0.000	0.000	0.096	0.602	0.000	0.602	1.114	1.568	1.262	1.350	0.000	5.992
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**0.000**	**0.000**	**0.096**	**0.602**	**0.000**	**0.602**	**1.114**	**1.568**	**1.262**	**1.350**	**0.000**	**5.992**
(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:

[CW001 CHEMICAL WARFARE PROGRAM EMBD UPGRADE KIT] Remarks: EMBD is a new acquisition program, which will provide lifecycle replacement kits for existing JBPDS system installations. The EMBD kit is intended to install within the existing JBPDS frame, reducing overall installation complexity and refurbishment unit costs. Labor for refurbishment of ships already equipped with the JBPDS system will be funded by the Joint Service Chemical Biological Program, however, the Navy must fund DSA and other incidental costs, to include planning yard and ship yard costs, to complete planned back-fit upgrades. The Navy now expects to receive sufficient quantities of the upgrade kit by FY21 to start installations late FY21 vice previously planned FY23. DSA costs will now start to be incurred in FY20 to support FY21 installations.

- FY20 costs include DSAs in the amount of $96K.

- FY21 installations include three (3) DDG-51 Class ships at $25K each. Total installation costs are $75K plus $527K in DSAs.

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0989 / Chemical Warfare Detectors	**Modification Number / Title:** 9 / CW001 CHEMICAL WARFARE PROGRAM EMBD UPGRADE KIT
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	
Models of Systems Affected: [No Model Specified]	**Modification Type:** TBD	**Related RDT&E PEs:**

Financial Plan	Prior Years	FY 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: CW001 CHEMICAL WARFARE PROGRAM EMBD UPGRADE KIT												
B Kits												
Recurring												
1.1.1) CW001 CHEMICAL WARFARE PROGRAM EMBD UPGRADE KIT - NonOrganic	- / -	- / -	- / -	3 / 0.000	- / -	3 / 0.000	21 / 0.000	33 / 0.000	36 / 0.000	35 / 0.000	- / -	128 / 0.000
Subtotal: Recurring	*- / 0.000*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / 0.000*
Subtotal: CW001 CHEMICAL WARFARE PROGRAM EMBD UPGRADE KIT	*- / -*	*- / -*	*- / -*	*3 / 0.000*	*- / -*	*3 / 0.000*	*21 / 0.000*	*33 / 0.000*	*36 / 0.000*	*35 / 0.000*	*- / -*	*128 / 0.000*
Subtotal: Procurement, All Modification Items	*- / 0.000*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / 0.000*
Installation												
Modification Item 1 of 1: CW001 CHEMICAL WARFARE PROGRAM EMBD UPGRADE KIT	- / 0.000	- / 0.000	- / 0.096	- / 0.602	- / 0.000	- / 0.602	- / 1.114	- / 1.568	- / 1.262	- / 1.350	- / 0.000	- / 5.992
Subtotal: Installation	*- / 0.000*	*- / -*	*- / 0.096*	*- / 0.602*	*- / -*	*- / 0.602*	*- / 1.114*	*- / 1.568*	*- / 1.262*	*- / 1.350*	*- / 0.000*	*- / 5.992*
Total												
Total Cost (Procurement + Support + Installation)	**0.000**	**0.000**	**0.096**	**0.602**	**0.000**	**0.602**	**1.114**	**1.568**	**1.262**	**1.350**	**0.000**	**5.992**

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0989 / Chemical Warfare Detectors	**Modification Number / Title:** 9 / CW001 CHEMICAL WARFARE PROGRAM EMBD UPGRADE KIT

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

Modification Item 1 of 1: CW001 CHEMICAL WARFARE PROGRAM EMBD UPGRADE KIT

Installation Information

Method of Implementation: [none specified]:: Installation Name: CW001 CHEMICAL WARFARE PROGRAM EMBD UPGRADE KIT

Installation Cost	Prior Years	FY 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	- / -	- / -	0 / 0.096	3 / 0.075	0 / 0.000	3 / 0.075	- / -	- / -	- / -	- / -	0 / 0.000	3 / 0.171
FY 2022	- / -	- / -	- / -	0 / 0.527	0 / 0.000	0 / 0.527	21 / 0.546	- / -	- / -	- / -	0 / 0.000	21 / 1.073
FY 2023	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.568	33 / 0.825	- / -	- / -	0 / 0.000	33 / 1.393
FY 2024	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.743	36 / 0.900	- / -	0 / 0.000	36 / 1.643
FY 2025	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.362	35 / 1.350	0 / 0.000	35 / 1.712
To Complete	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
Total	- / -	- / -	0 / 0.096	3 / 0.602	0 / 0.000	3 / 0.602	21 / 1.114	33 / 1.568	36 / 1.262	35 / 1.350	0 / 0.000	128 / 5.992

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	5	5	5	6	7	8	9	9	9	9	9	9	8	9	9	9	-	128
Out	-	-	-	-	-	-	-	-	-	-	-	-	3	5	5	5	6	7	8	9	9	9	9	9	9	8	9	9	9	-	128

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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 01: Ships Support Equipment / BSA 9: Other Shipboard Equipment	**P-1 Line Item Number / Title:** 0990 / Submarine Life Support System

ID Code (A=Service Ready, B=Not Service Ready): A	**Program Elements for Code B Items:** N/A	**Other Related Program Elements:** N/A
Line Item MDAP/MAIS Code: N/A		

Resource Summary	Prior Years	FY 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)*	95.722	6.924	6.635	5.885	0.000	5.885	6.820	6.984	7.078	7.219	11.740	155.007
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	95.722	6.924	6.635	5.885	0.000	5.885	6.820	6.984	7.078	7.219	11.740	155.007
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**95.722**	**6.924**	**6.635**	**5.885**	**0.000**	**5.885**	**6.820**	**6.984**	**7.078**	**7.219**	**11.740**	**155.007**
(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:

Submarine Life Support System procures Low Pressure Electrolyzer (LPE) oxygen generators to fulfill the Program of Record requirement to replace the legacy obsolete high pressure Electrolytic Oxygen Generator (EOG) on SSBNs. The LPE is critical to the OHIO Class to achieve service life extension to 42 years. Procurements are tied to specific submarine availabilities since a major ship alteration is required for installation.

[P40A / SUBMARINE LIFE SUPPORT SYSTEM]: 5D830 - PRODUCTION ENGINEERING The review and approval of any production contract technical documentation, or the separate development of this documentation to include, technical manuals, Preventive Maintenance Schedule, Level III production drawings, Provisioning Technical Documentation, Program Support Data and Allowance Parts Lists; Engineering & support for final design reviews. This work can be accomplished by NSWC PHILA as the in-service engineering agent, other Naval activities or contractors as appropriate.
Design and Development: Funding to support the necessary Design and Development efforts to address required modernization changes to the Submarine Life Support Systems. This funding will start the design and development efforts for the Central Atmosphere Monitoring System (CAMS) sustainment for VIRGINIA Class blocks I and II via upgrade, achieving commonality with later VA Class blocks and with COLUMBIA and LOS ANGELES Class. This alteration provides sustainable capability for atmosphere monitoring on VA Class submarines with improved parts support for atmosphere monitoring on OHIO and SEAWOLF Class.

[P3A - 2 / LOW PRESSURE ELECTROLYZER]: 5D010 - THE LOW PRESSURE ELECTROLYZER (LPE) The LPE will replace the EOG currently being used on SSBN/SSGN Class submarines. The LPE produces oxygen at low pressure, eliminating the need for high pressure oxygen storage. There will be two LPEs on each SSBN/SSGN Class submarine. EOG's must be replaced by LPE's on OHIO SSBNs to ensure they can sustain current operational availability requirements through their 42 yr service life. Oxygen Generators are necessary to maintain submarine stealth while on mission. Therefore, procurements are driven by the OHIO Class maintenance period schedule. The replacement of the EOG with the LPE must be done during a major maintenance availability due to the time to complete the installation. As OHIO Class submarine approach the end of service life there are fewer major maintenance periods remaining, increasing the number of concurrent procurements required. Differences in unit costs above inflation are due to the number of units being procured each fiscal year. Unit costs are impacted by quantities of scale.

Exhibit P-40, Budget Line Item Justification: PB 2021 Navy	Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 01: Ships Support Equipment / BSA 9: Other Shipboard Equipment	**P-1 Line Item Number / Title:** 0990 / Submarine Life Support System

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

Line Item MDAP/MAIS Code: N/A

Exhibits Schedule					Prior Years	FY 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	SUBMARINE LIFE SUPPORT SYSTEM				- / 7.302	- / 0.329	- / 0.320	- / 2.360	- / -	- / 2.360
P-3a	2 / 5D010 LOW PRESSURE ELECTROLYZER (TBD)				- / 88.420	- / 6.595	- / 6.315	- / 3.525	- / 0.000	- / 3.525
P-40	**Total Gross/Weapon System Cost**				**- / 95.722**	**- / 6.924**	**- / 6.635**	**- / 5.885**	**- / 0.000**	**- / 5.885**

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-40a	SUBMARINE LIFE SUPPORT SYSTEM				- / -	- / -	- / -	- / -	- / -	- / -
P-3a	2 / 5D010 LOW PRESSURE ELECTROLYZER (TBD)				- / 3.052	- / 0.552	- / 6.714	- / 4.182	- / 10.732	- / 130.087
P-40	**Total Gross/Weapon System Cost**				**- / 6.820**	**- / 6.984**	**- / 7.078**	**- / 7.219**	**- / 11.740**	**- / 155.007**

*Title represents 1) the Number / Title for Items; 2) the Number / Title [DODIC] for Ammunition; and/or 3) the Number / Title (Modification Type) for Modifications. Title represents the P-40a Title when only the P-40a Summary/Total is shown.

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

Justification:

Contract used to procure LPEs was awarded in FY16. This is a five-year fixed price contract to achieve a better price with higher quantity orders. LPE units orders are timed to support LPE installations during a refit that supports extending the service life of the submarine. Installations are also aligned when current oxygen generators would receive required replacement of cells which are necessary for continued operation of legacy oxygen generators, thus avoiding an approximate $2M/ship additional maintenance cost. Funding decrease in FY21 and increase in FY22 through FY25 are due to realigning the procurement and installation of Low Pressure Electrolyzers (LPEs) on OHIO Class submarines to one per year to coincide with availability schedules. Provides a steady and executable funding profile for LPEs as the existing Electrolytic Oxygen Generators (EOGs) have parts obsolescence and increased risk of at-sea failures.

Additionally, BLI 0990 is for all Submarine Life Support Systems, including Central Atmospheric Monitoring System (CAMS), Diesel Exhaust, Electro Oxygen Generators (EOG), Automatic Electro-Oxygen Generators (AEOG), Oxygen Concentration (SAROS), other oxygen generators (ILPE, AILPE, LPE), CO2 Scrubbers, and Burners. Starting in FY20, there is sufficient funding to begin design and development of Modernization of CAMS, as discussed in the second paragraph in Page 1 of the P-40. As more obsolescence requires redesign, the funds in this very specific BLI will be applied to the above systems to ensure Submarine Atmosphere Control systems meet the needs of the fleet. BLI 0990 supports level loaded funding for obsolescence management as agreed upon with N97 resource sponsor. For example, CAMS sustainment for Blocks 1 and 2 is requested to convert legacy CAMS units by replacing the A5 module with CAMS modules used on a later VIRGINIA Class block design. The legacy A5 module unit is the heart of CAMS, containing a ruggedized mass spectrometer requiring periodic replacement and overhaul. The A5 modules used in legacy CAMS (blocks 1 and 2) are no longer manufactured by vendors and spares are limited, so without redesign & development, the system is not supportable for the life cycle of the platform.

Exhibit P-40a, Budget Item Justification For Aggregated Items: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0990 / Submarine Life Support System	**Aggregated Items Title:** SUBMARINE LIFE SUPPORT SYSTEM

Item Number / Title [DODIC]	ID CD	MDAP/ MAIS Code	Prior Years			FY 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) 5D830 PRODUCTION ENGINEERING																				
1.1) PRODUCTION ENGINEERING	A		-	-	7.302	-	-	0.329	-	-	0.320	-	-	0.336	-	-	-	-	-	0.336
1.2) DESIGN AND DEVELOPMENT	A		-	-	-	-	-	-	-	-	-	-	-	2.024	-	-	-	-	-	2.024
Subtotal: 1) 5D830 PRODUCTION ENGINEERING			**-**	**-**	***7.302***	**-**	**-**	***0.329***	**-**	**-**	***0.320***	**-**	**-**	***2.360***	**-**	**-**	**-**	**-**	**-**	***2.360***
Total			**-**	**-**	**7.302**	**-**	**-**	**0.329**	**-**	**-**	**0.320**	**-**	**-**	**2.360**	**-**	**-**	**-**	**-**	**-**	**2.360**

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

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0990 / Submarine Life Support System	**Modification Number / Title:** 2 / 5D010 LOW PRESSURE ELECTROLYZER
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

Resource Summary	Prior Years	FY 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)*	88.420	6.595	6.315	3.525	0.000	3.525	3.052	0.552	6.714	4.182	10.732	130.087
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	88.420	6.595	6.315	3.525	0.000	3.525	3.052	0.552	6.714	4.182	10.732	130.087
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**88.420**	**6.595**	**6.315**	**3.525**	**0.000**	**3.525**	**3.052**	**0.552**	**6.714**	**4.182**	**10.732**	**130.087**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)												
Initial Spares *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Dollars)*	-	-	-	-	-	-	-	-	-	-	-	-

Description:

[LOW PRESSURE ELECTROLYZER] The LPE will replace the EOG currently being used on SSBN/SSGN Class submarines. The LPE produces oxygen at low pressure, eliminating the need for high pressure oxygen storage. There will be two LPEs on each SSBN/SSGN Class submarine. EOG's must be replaced by LPE's on OHIO SSBNs to ensure they can sustain current operational availability requirements through their 42 yr service life. Oxygen Generators are necessary to maintain submarine stealth while on mission. Therefore, procurements are driven by the OHIO Class maintenance period schedule. The replacement of the EOG with the LPE must be done during a major maintenance availability due to the time to complete the installation. As OHIO Class submarine approach the end of service life there are fewer major maintenance periods remaining, increasing the number of concurrent procurements required. Differences in unit costs above inflation are due to the number of units being procured each fiscal year. Unit costs are impacted by quantities of scale.

Increased funding to install Low Pressure Electrolyzer (LPE) on 7 SSN 688I submarines planned for ERO/life extension. Current 688 Class Electrolytic Oxygen Generators (AEOGs) are not sustainable for planned extended life of above 7 hulls. AEOGs are 1960s technology, not fully supported, and use costly, hazardous materials operating at high pressures. LPEs are common to OHIO, VIRGINA and SEAWOLF Class and are supportable for life of refueled 688s.

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0990 / Submarine Life Support System	**Modification Number / Title:** 2 / 5D010 LOW PRESSURE ELECTROLYZER
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	
Models of Systems Affected: Low Pressure Electrolyzer	**Modification Type:** TBD	**Related RDT&E PEs:**

Financial Plan	Prior Years	FY 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: 5D010 LOW PRESSURE ELECTROLYZER												
B Kits												
Recurring												
1.1.1) LOW PRESSURE ELECTROLYZER - NonOrganic (1)	28 / 85.420	3 / 5.045	2 / 5.275	1 / 1.932	- / -	1 / 1.932	1 / 1.970	- / -	3 / 6.150	2 / 4.182	3 / 5.999	43 / 115.973
Subtotal: Recurring	*- / 85.420*	*- / 5.045*	*- / 5.275*	*- / 1.932*	*- / -*	*- / 1.932*	*- / 1.970*	*- / -*	*- / 6.150*	*- / 4.182*	*- / 5.999*	*- / 115.973*
Subtotal: 5D010 LOW PRESSURE ELECTROLYZER	*28 / 85.420*	*3 / 5.045*	*2 / 5.275*	*1 / 1.932*	*- / -*	*1 / 1.932*	*1 / 1.970*	*- / -*	*3 / 6.150*	*2 / 4.182*	*3 / 5.999*	*43 / 115.973*
Subtotal: Procurement, All Modification Items	*- / 85.420*	*- / 5.045*	*- / 5.275*	*- / 1.932*	*- / -*	*- / 1.932*	*- / 1.970*	*- / -*	*- / 6.150*	*- / 4.182*	*- / 5.999*	*- / 115.973*
Installation												
Modification Item 1 of 1: 5D010 LOW PRESSURE ELECTROLYZER	- / 3.000	- / 1.550	- / 1.040	- / 1.593	- / 0.000	- / 1.593	- / 1.082	- / 0.552	- / 0.564	- / 0.000	- / 4.733	- / 14.114
Subtotal: Installation	*- / 3.000*	*- / 1.550*	*- / 1.040*	*- / 1.593*	*- / -*	*- / 1.593*	*- / 1.082*	*- / 0.552*	*- / 0.564*	*- / -*	*- / 4.733*	*- / 14.114*
Total												
Total Cost (Procurement + Support + Installation)	**88.420**	**6.595**	**6.315**	**3.525**	**0.000**	**3.525**	**3.052**	**0.552**	**6.714**	**4.182**	**10.732**	**130.087**

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0990 / Submarine Life Support System	**Modification Number / Title:** 2 / 5D010 LOW PRESSURE ELECTROLYZER

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

Modification Item 1 of 1: 5D010 LOW PRESSURE ELECTROLYZER

Manufacturer Information

Manufacturer Name: HAMILTON SUNDSTRAND | Manufacturer Location: CT

Administrative Leadtime *(in Months)*: 3 | Production Leadtime *(in Months)*: 15

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

Installation Information

Method of Implementation: Method:: Installation Name: Installation Group Name

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	23 / 3.000	3 / 1.550	2 / 1.040	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	28 / 5.590
FY 2019	- / -	- / -	- / -	3 / 1.593	0 / 0.000	3 / 1.593	- / -	- / -	- / -	- / -	0 / 0.000	3 / 1.593
FY 2020	- / -	- / -	- / -	- / -	- / -	- / -	2 / 1.082	- / -	- / -	- / -	0 / 0.000	2 / 1.082
FY 2021	- / -	- / -	- / -	- / -	- / -	- / -	- / -	1 / 0.552	- / -	- / -	0 / 0.000	1 / 0.552
FY 2022	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	1 / 0.564	- / -	0 / 0.000	1 / 0.564
FY 2023	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2024	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	3 / 1.734	3 / 1.734
FY 2025	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	2 / 1.200	2 / 1.200
To Complete	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	3 / 1.799	3 / 1.799
Total	23 / 3.000	3 / 1.550	2 / 1.040	3 / 1.593	0 / 0.000	3 / 1.593	2 / 1.082	1 / 0.552	1 / 0.564	- / -	8 / 4.733	43 / 14.114

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	23	1	2	-	-	2	-	-	-	3	-	-	-	2	-	-	-	1	-	-	-	1	-	-	-	-	-	-	-	8	43
Out	23	1	2	-	-	2	-	-	-	3	-	-	-	2	-	-	-	1	-	-	-	1	-	-	-	-	-	-	-	8	43

Footnotes:

(1) Current LPE procurement contract expires in FY21. A new contract will be competed and initial first article unit will be ordered. Estimated contract award mid FY22, manufacture time 15 months plus 3 months of qualification unit. Unit requires refurbishment after qualification testing. Second unit will be ordered after qualification testing in FY24 with expected install of units in FY25. Final two units procured

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 9	**P-1 Line Item Number / Title:** 0990 / Submarine Life Support System	**Modification Number / Title:** 2 / 5D010 LOW PRESSURE ELECTROLYZER
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

in FY25, with expected delivery in FY26. Additionally, funding for the 688 Class LPEs: Procure 1 LPE in FY19 for installation in FY21, procure 1 LPE in FY21 for installation in FY23, procure 1 LPE in FY22 for installation in FY24, procure 1 LPE in FY24 for installation in FY26, procure 2 LPEs in FY25 for installation in FY27, and procure 1 LPE in FY26 for installation in FY28.

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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 01: Ships Support Equipment / BSA 10: Reactor Plant Equipment	**P-1 Line Item Number / Title:** 1000 / Ship Maintenance, Repair and Modernization

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

Line Item MDAP/MAIS Code: N/A

Resource Summary	Prior Years	FY 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	1,000.000	1,260.721	0.000	1,260.721	0.000	0.000	0.000	0.000	-	2,260.721
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	0.000	0.000	1,000.000	1,260.721	0.000	1,260.721	0.000	0.000	0.000	0.000	-	2,260.721
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**0.000**	**0.000**	**1,000.000**	**1,260.721**	**0.000**	**1,260.721**	**0.000**	**0.000**	**0.000**	**0.000**	**-**	**2,260.721**
(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:

The Fiscal Year (FY) 2020 Consolidated Appropriations Act H.R. 1158 appropriated funding in Other Procurement, Navy Line 23X, Ship Maintenance, Repair and Modernization for a pilot program to fund $1B private contracted ship maintenance planned for the Pacific Fleet in FY 2020. The Pilot Program in FY 2020 funds 16 Pacific Feet private contracted availabilities in OPN. FY 2021 Presidents Budget Request $1.3B in OPN will improve our ability to execute the potential benefits of conducting this OPN Trial. The Pilot Program in FY 2021 funds 26 Pacific Feet private contracted availabilities in OPN.

Funding private contracted ship maintenance planned for Pacific Fleet in the OPN pilot allows the Navy to implement commercial best practices for ship maintenance, including extending contract lead times, improved partnerships with industry, and the ability to avoid the "use or lose" aspect of funds in the 4th quarter of the fiscal year. The Navy can address emergent repair requirements that occur toward the end of the fiscal year without rushing through inefficient contracting processes. If operating under a Continuing Resolution (CR), OPN allows for a better contracting timeline and negotiations, removing an artificially compressed contracting timeline that produces lower-quality 1-year OMN obligations in the fourth quarter. OPN reduces the need to re-shuffle ship repair schedules or to reprioritize the next fiscal year's funding to address shortfalls during the execution of ship repairs. Lastly, since 75% of ship repair contracts conclude in the 2nd and 3rd year when OPN funds are still available for use, with congressional approval, funds included in the pilot could be applied to other repair projects or emergent requirements.

Division A of the Joint Explanatory Statement for H.R. 1158 directs the Navy to submit an execution plan for the funding in Other Procurement, Navy 23x, Ship Maintenance Repair, and Modernization. The Navy will address the status of the pilot program as directed to include benefits, challenges and failures associated with OPN funding in its quarterly reporting requirement to Congress. The Navy will report on changes in planning and maintenance schedules, impacts to contracting and execution of funds across the three years. This includes information on the deobligation of funds and the reuse of funds to meet other ship maintenance requirements. During the trial, the Navy would continue to adhere to current above threshold and below threshold reprogramming guidance for OPN funding.

Ship maintenance is a high priority for the Navy, and the OPN trial provides the Navy with an opportunity to establish and capitalize on best practices and evaluate how OPN can be beneficial for the future of Navy readiness.

Exhibit P-40, Budget Line Item Justification: PB 2021 Navy	Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 01: Ships Support Equipment / BSA 10: Reactor Plant Equipment	**P-1 Line Item Number / Title:** 1000 / Ship Maintenance, Repair and Modernization

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

Line Item MDAP/MAIS Code: N/A

Exhibits Schedule					Prior Years	FY 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 / Ship Maintenance, Repair and Modernization				- / 0.000	- / 0.000	- / 1,000.000	- / 1,260.721	- / 0.000	- / 1,260.721
P-40	**Total Gross/Weapon System Cost**				**- / 0.000**	**- / 0.000**	**- / 1,000.000**	**- / 1,260.721**	**- / 0.000**	**- / 1,260.721**

*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:
Ship maintenance supports private contracted ship maintenance for Pacific Fleet Command for Fiscal Year 2020 and 2021.

Congressional special interest item increases FY 2020 baseline by $1 Billion for pilot program to fund the private contract ship maintenance planned for the Pacific Fleet Command. Funding was transferred from OM,N line 1B4B. As directed, FY 2020 execution plan report was provided to the congressional defense committees prior to the execution of FY 2020 funding. An updated execution progress report will be provided each quarter thereafter.

FY 2021 requests $1.3 Billion baseline for Pacific Fleet Command to continue private contracted ship maintenance. Funding for ship maintenance Overhauls (OH) to Restricted/Technical Availabilities (RA/TA) performed at private shipyards. Ship overhauls restore the ship, including all operating systems that affect safety or combat capability, to established performance standards.

Exhibit P-5, Cost Analysis: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 10	**P-1 Line Item Number / Title:** 1000 / Ship Maintenance, Repair and Modernization	**Item Number / Title [DODIC]:** 1 / Ship Maintenance, Repair and Modernization
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	1,000.000	1,260.721	0.000	1,260.721
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	0.000	0.000	1,000.000	1,260.721	0.000	1,260.721
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**0.000**	**0.000**	**1,000.000**	**1,260.721**	**0.000**	**1,260.721**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)						
Initial Spares *($ in Millions)*	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Dollars)*	-	-	-	-	-	-

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)
Flyaway - Ships - Availability Cost																		
Recurring Cost																		
1.1.1) Abraham Lincoln (CVN-0072) (1)	-	-	-	-	-	-	-	-	64.103	-	-	-	-	-	-	-	-	-
1.1.2) Boxer (LHD-0004)	-	-	-	-	-	-	-	-	239.377	-	-	-	-	-	-	-	-	-
1.1.3) Gridley (DDG-0101)	-	-	-	-	-	-	-	-	18.555	-	-	-	-	-	-	-	-	-
1.1.4) Paul Hamilton (DDG-0060)	-	-	-	-	-	-	-	-	19.148	-	-	2.561	-	-	-	-	-	2.561
1.1.5) Harpers Ferry (LSD-0049)	-	-	-	-	-	-	-	-	127.772	-	-	-	-	-	-	-	-	-
1.1.6) John P Murtha (LPD-0026)	-	-	-	-	-	-	-	-	31.903	-	-	-	-	-	-	-	-	-
1.1.7) Mobile Bay (CG-0053)	-	-	-	-	-	-	-	-	34.922	-	-	-	-	-	-	-	-	-
1.1.8) Lake Erie (CG-0070)	-	-	-	-	-	-	-	-	31.981	-	-	3.852	-	-	-	-	-	3.852
1.1.9) Montgomery (LCS-0008)	-	-	-	-	-	-	-	-	51.685	-	-	-	-	-	-	-	-	-
1.1.10) Jackson (LCS-0006)	-	-	-	-	-	-	-	-	54.043	-	-	-	-	-	-	-	-	-
1.1.11) Preble (DDG-0088)	-	-	-	-	-	-	-	-	94.888	-	-	-	-	-	-	-	-	-

Exhibit P-5, Cost Analysis: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 10	P-1 Line Item Number / Title: 1000 / Ship Maintenance, Repair and Modernization	Item Number / Title [DODIC]: 1 / Ship Maintenance, Repair and Modernization
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)
1.1.12) McCampbell (DDG-0085)	-	-	-	-	-	-	-	-	82.646	-	-	-	-	-	-	-	-	-
1.1.13) Spruance (DDG-0111)	-	-	-	-	-	-	-	-	54.411	-	-	-	-	-	-	-	-	-
1.1.14) Wayne E Meyer (DDG-0108)	-	-	-	-	-	-	-	-	61.014	-	-	-	-	-	-	-	-	-
1.1.15) Theodore Roosevelt (CVN-0071)	-	-	-	-	-	-	-	-	15.333	-	-	153.142	-	-	-	-	-	153.142
1.1.16) Nimitz (CVN-0068)	-	-	-	-	-	-	-	-	18.219	-	-	54.292	-	-	-	-	-	54.292
1.1.17) Princeton (CG-0059)	-	-	-	-	-	-	-	-	-	-	-	24.100	-	-	-	-	-	24.100
1.1.18) Mustin (DDG-0089)	-	-	-	-	-	-	-	-	-	-	-	68.729	-	-	-	-	-	68.729
1.1.19) Pinckney (DDG-0091)	-	-	-	-	-	-	-	-	-	-	-	75.415	-	-	-	-	-	75.415
1.1.20) Chafee (DDG-0090)	-	-	-	-	-	-	-	-	-	-	-	72.584	-	-	-	-	-	72.584
1.1.21) William P. Lawrence (DDG-0110)	-	-	-	-	-	-	-	-	-	-	-	67.769	-	-	-	-	-	67.769
1.1.22) Howard (DDG-0083)	-	-	-	-	-	-	-	-	-	-	-	3.028	-	-	-	-	-	3.028
1.1.23) Higgins (DDG-0076)	-	-	-	-	-	-	-	-	-	-	-	3.762	-	-	-	-	-	3.762
1.1.24) Rafael Peralta (DDG-0115)	-	-	-	-	-	-	-	-	-	-	-	10.224	-	-	-	-	-	10.224
1.1.25) John Finn (DDG-0113)	-	-	-	-	-	-	-	-	-	-	-	10.533	-	-	-	-	-	10.533
1.1.26) Sterett (DDG-0104)	-	-	-	-	-	-	-	-	-	-	-	14.975	-	-	-	-	-	14.975
1.1.27) Sampson (DDG-0102)	-	-	-	-	-	-	-	-	-	-	-	18.055	-	-	-	-	-	18.055
1.1.28) Kidd (DDG-0100)	-	-	-	-	-	-	-	-	-	-	-	17.551	-	-	-	-	-	17.551
1.1.29) Halsey (DDG-0097)	-	-	-	-	-	-	-	-	-	-	-	49.532	-	-	-	-	-	49.532
1.1.30) Russell (DDG-0059)	-	-	-	-	-	-	-	-	-	-	-	41.055	-	-	-	-	-	41.055
1.1.31) Gabrielle Giffords (LCS-0010)	-	-	-	-	-	-	-	-	-	-	-	45.739	-	-	-	-	-	45.739

Exhibit P-5, Cost Analysis: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 10	**P-1 Line Item Number / Title:** 1000 / Ship Maintenance, Repair and Modernization	**Item Number / Title [DODIC]:** 1 / Ship Maintenance, Repair and Modernization
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)
1.1.32) Manchester (LCS-0014)	-	-	-	-	-	-	-	-	-	-	-	44.624	-	-	-	-	-	44.624
1.1.33) Omaha (LCS-0012)	-	-	-	-	-	-	-	-	-	-	-	44.649	-	-	-	-	-	44.649
1.1.34) San Diego (LPD-0022)	-	-	-	-	-	-	-	-	-	-	-	88.299	-	-	-	-	-	88.299
1.1.35) Comstock (LSD-0045)	-	-	-	-	-	-	-	-	-	-	-	126.371	-	-	-	-	-	126.371
1.1.36) Makin Island (LHD-0008)	-	-	-	-	-	-	-	-	-	-	-	53.272	-	-	-	-	-	53.272
1.1.37) Portland (LPD-0027)	-	-	-	-	-	-	-	-	-	-	-	27.553	-	-	-	-	-	27.553
1.1.38) Somerset (LPD-0025)	-	-	-	-	-	-	-	-	-	-	-	39.845	-	-	-	-	-	39.845
1.1.39) Pearl Harbor (LSD-0052)	-	-	-	-	-	-	-	-	-	-	-	45.113	-	-	-	-	-	45.113
1.1.40) Germantown (LSD-0042)	-	-	-	-	-	-	-	-	-	-	-	54.097	-	-	-	-	-	54.097
Subtotal: Recurring Cost	-	-	-	-	-	-	-	-	*1,000.000*	-	-	*1,260.721*	-	-	-	-	-	*1,260.721*
Subtotal: Flyaway - Ships - Availability Cost	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	***1,000.000***	**-**	**-**	***1,260.721***	**-**	**-**	**-**	**-**	**-**	***1,260.721***
Gross/Weapon System Cost	**-**	**-**	**0.000**	**-**	**-**	**0.000**	**-**	**-**	**1,000.000**	**-**	**-**	**1,260.721**	**-**	**-**	**0.000**	**-**	**-**	**1,260.721**

Footnotes:

(1) FY 2021 Ship Maintenance, Repair and Modernization contract strategy initiatives to properly fund availabilites are based on projected ship availability contract award dates.

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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 01: Ships Support Equipment / BSA 10: Reactor Plant Equipment	**P-1 Line Item Number / Title:** 1010 / Reactor Power Units

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

Line Item MDAP/MAIS Code: N/A

Resource Summary	Prior Years	FY 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)*	1,449.897	346.325	5.340	5.305	0.000	5.305	3.270	0.000	0.000	0.000	Continuing	Continuing
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	1,449.897	346.325	5.340	5.305	0.000	5.305	3.270	0.000	0.000	0.000	Continuing	Continuing
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**1,449.897**	**346.325**	**5.340**	**5.305**	**0.000**	**5.305**	**3.270**	**0.000**	**0.000**	**0.000**	**Continuing**	**Continuing**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)												
Initial Spares *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Flyaway Unit Cost *($ in Dollars)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Dollars)*	-	-	-	-	-	-	-	-	-	-	-	-

Description:

The Other Procurement, Navy, Reactor Power Units budget provides for the procurement of reactor refueling cores including naval nuclear fuel work (and the completion of core assembly to support select SSN and CVN refueling). Reactor refueling cores are the assemblies of nuclear fuel and associated structural and reactivity control equipment required for the refueling of nuclear powered ships. The procurement of these units is accomplished by the Department of Energy (DOE) using the Economy Act of 1932, as amended and codified in 31 USC 1535. The DOE has developed production lines to fabricate these units at the sole remaining core manufacturer. Reactor refueling core procurements are required to support scheduled refueling of operational ships and are budgeted on a lead-time basis while preserving workload stability and efficiency.

Exhibit P-40, Budget Line Item Justification: PB 2021 Navy	**Date:** February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 01: Ships Support Equipment / BSA 10: Reactor Plant Equipment	**P-1 Line Item Number / Title:** 1010 / Reactor Power Units

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

Line Item MDAP/MAIS Code: N/A

Exhibits Schedule					Prior Years	FY 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	Reactor Power Units				- / 1,449.897	- / 346.325	- / 5.340	- / 5.305	- / -	- / 5.305
P-40	**Total Gross/Weapon System Cost**				**- / 1,449.897**	**- / 346.325**	**- / 5.340**	**- / 5.305**	**- / 0.000**	**- / 5.305**

*Title represents 1) the Number / Title for Items; 2) the Number / Title [DODIC] for Ammunition; and/or 3) the Number / Title (Modification Type) for Modifications. Title represents the P-40a Title when only the P-40a Summary/Total is shown.

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

Justification:
Funding in FY21 through FY22 is included for completion of three refueling cores for use in LOS ANGELES-Class refueling overhauls.

Exhibit P-40a, Budget Item Justification For Aggregated Items: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 10	**P-1 Line Item Number / Title:** 1010 / Reactor Power Units	**Aggregated Items Title:** Reactor Power Units

Item Number / Title [DODIC]	ID CD	MDAP/ MAIS Code	Prior Years			FY 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) Reactor Power Units																				
1) Reactor Power Units	A		-	-	1,449.897	-	-	346.325	-	-	5.340	-	-	5.305	-	-	-	-	-	5.305
Subtotal: 1) Reactor Power Units			**-**	**-**	***1,449.897***	**-**	**-**	***346.325***	**-**	**-**	***5.340***	**-**	**-**	***5.305***	**-**	**-**	**-**	**-**	**-**	***5.305***
Total			**-**	**-**	**1,449.897**	**-**	**-**	**346.325**	**-**	**-**	**5.340**	**-**	**-**	**5.305**	**-**	**-**	**-**	**-**	**-**	**5.305**

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 01: Ships Support Equipment / BSA 10: Reactor Plant Equipment	**P-1 Line Item Number / Title:** 1020 / Reactor Components

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

Line Item MDAP/MAIS Code: N/A

Resource Summary	Prior Years	FY 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)*	2,511.434	496.439	452.692	415.404	0.000	415.404	442.514	408.989	392.225	454.417	Continuing	Continuing
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	2,511.434	496.439	452.692	415.404	0.000	415.404	442.514	408.989	392.225	454.417	Continuing	Continuing
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**2,511.434**	**496.439**	**452.692**	**415.404**	**0.000**	**415.404**	**442.514**	**408.989**	**392.225**	**454.417**	**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:

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

Exhibit P-40, Budget Line Item Justification: PB 2021 Navy	Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 01: Ships Support Equipment / BSA 10: Reactor Plant Equipment	**P-1 Line Item Number / Title:** 1020 / Reactor Components

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

Line Item MDAP/MAIS Code: N/A

Exhibits Schedule					Prior Years	FY 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	Reactor Components				- / 2,511.434	- / 496.439	- / 452.692	- / 415.404	- / -	- / 415.404
P-40	**Total Gross/Weapon System Cost**				**- / 2,511.434**	**- / 496.439**	**- / 452.692**	**- / 415.404**	**- / 0.000**	**- / 415.404**

*Title represents 1) the Number / Title for Items; 2) the Number / Title [DODIC] for Ammunition; and/or 3) the Number / Title (Modification Type) for Modifications. Title represents the P-40a Title when only the P-40a Summary/Total is shown.

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

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

Exhibit P-40a, Budget Item Justification For Aggregated Items: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 10	**P-1 Line Item Number / Title:** 1020 / Reactor Components	**Aggregated Items Title:** Reactor Components

Item Number / Title [DODIC]	ID CD	MDAP/ MAIS Code	Prior Years			FY 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) Reactor Components																				
1.1) Reactor Components	A		-	-	2,511.434	-	-	496.439	-	-	452.692	-	-	415.404	-	-	-	-	-	415.404
Subtotal: 1) Reactor Components			**-**	**-**	***2,511.434***	**-**	**-**	***496.439***	**-**	**-**	***452.692***	**-**	**-**	***415.404***	**-**	**-**	**-**	**-**	**-**	***415.404***
Total			**-**	**-**	**2,511.434**	**-**	**-**	**496.439**	**-**	**-**	**452.692**	**-**	**-**	**415.404**	**-**	**-**	**-**	**-**	**-**	**415.404**

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 01: Ships Support Equipment / BSA 11: Ocean Engineering	**P-1 Line Item Number / Title:** 1130 / Diving and Salvage Equipment

ID Code (A=Service Ready, B=Not Service Ready): A	Program Elements for Code B Items: N/A	Other Related Program Elements: 0204561N, 0204454N, 0204423N, 0203424N, 0603713N

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)*	60.720	10.706	11.854	11.143	0.000	11.143	11.201	11.448	11.603	11.832	-	140.507
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	60.720	10.706	11.854	11.143	0.000	11.143	11.201	11.448	11.603	11.832	-	140.507
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**60.720**	**10.706**	**11.854**	**11.143**	**0.000**	**11.143**	**11.201**	**11.448**	**11.603**	**11.832**	**-**	**140.507**
(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:

DIVING AND SALVAGE EQUIPMENT:
The equipment procured from this Diving and Salvage OPN line item provides critical diving and salvage equipment that enables planned/emergent waterborne submarine/ship repairs, salvage and battle damage repair operations, search and recovery to water depths up to 20,000 feet of seawater and Undersea Clandestine Insertion of Special Operations Forces (UCI-SOF) (service common equipment) to keep our Navy fleet operational and enable national priority missions. Program objectives are to: (1) provide increased safety for diver decompression and better recompression chamber patient monitoring capability, (2) increase underwater ship maintenance capabilities, (3) improve quick response capability, and (4) standardize the configuration of diving systems in the Fleet.

FY-21 investment in diving capability continues to emphasize phased replacement of aging life support equipment including surface-supplied diving helmets (4), a portable dive control system (1), composite air storage flasks (50), SCUBA regulators (189), and surface supplied augmented SCUBA sets (2). Navy dive computers (72), required by each diver to calculate decompression penalties, will also be procured. This equipment is essential to maintaining diving readiness throughout the Fleet. Additionally we will make investments in new technology equipment that offer capability gains such as Flex recompression chambers (2), which are lighter weight and more easily transported in support of expeditionary diving operations, and equipment, which will significantly improve divers' visual acuity in dark, limited visibility operations. This improved visual acuity equipment includes sector scan SONAR (3), augmented visual displays (3), 3D SONAR (2) and associated computer based training hardware (1). When integrated together these systems will produce a virtual environment in which a diver can operate and be directed by topside supervisors to execute salvage, search and recovery and other missions. Lastly, we continue to invest in upgrades to the Navy Experimental Diving Unit, which houses national assets such as the Ocean Simulation Facility (OSF). The OSF is a 40+ year old system that permits advanced research and testing of diving technology, diving procedures, human performance, decompression and physiology essential to advancing diving capabilities.

FY-21 investment in Naval Special Warfare Service-Common Equipment continues with acquisition of SCUBA and SONAR equipment kits (16).

FY-21 investment in Mobile Diving Salvage Unit Outfitting Equipment includes diver launch and recovery system (1), augmented visual displays (3), sector scan SONAR (3), 3D SONAR (1) and SCUBA regulators (8).

FY-21 investment in Salvage and Underwater Ship Husbandry include a commercial off-the-shelf 6,000 meter capable ROV (Remotely Operated Vehicle) (1) for recovery of aircraft and weapons lost in the deep ocean. This ROV will offer significantly more horsepower than our existing vehicle, which is over 20 years old and in need of replacement. It represents a one-of-one deep ocean salvage capability for the Navy

Exhibit P-40, Budget Line Item Justification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 01: Ships Support Equipment / BSA 11: Ocean Engineering	**P-1 Line Item Number / Title:** 1130 / Diving and Salvage Equipment	
ID Code (A=Service Ready, B=Not Service Ready): A	**Program Elements for Code B Items:** N/A	**Other Related Program Elements:** 0204561N, 0204454N, 0204423N, 0203424N, 0603713N
Line Item MDAP/MAIS Code: N/A		

and DoD. Other salvage equipment investments include upgrades to existing Clyde Winches (2) used for ship salvage and a 3D imaging SONAR (1) used to map debris fields and provide significant information for mission planning. In Underwater Ship Husbandry we continue investments in replacing 30 year old 50 ton underwater chain hoists (3) used for a variety of rigging applications. These hoists are required to replace propellers underwater on aircraft carriers and large deck amphibious ships. Also required for continuing underwater Ship Husbandry operations, we will acquire underwater hydraulic power tool kits (1), and a pier side support van (1) which houses standard tools and equipment to support underwater operations around the world. Underwater Ship Husbandry investments continue to produce significant return on investment by eliminating the need for emergent dry-dockings, thereby returning ships to service faster and less expensive than traditional shipyard availabilities. In FY-18, similar investments eliminated the need for 65 dry-dockings and returned over 700 operating days to the Fleet Commanders.

[P40A / DIVING (N97)]: The DIVING EQUIPMENT to be procured in FY21 in the amount of $3.290M includes modernization of the Navy Experimental Diving Unit's Ocean Simulation Facility, surface supplied diving helmets, surface supplied diving life support consoles and associated air storage flasks, SCUBA equipment, dive computers (wrist mounted for calculating decompression requirements), flexible recompression chambers and Diver Augmented Visual Display (DAVD) equipment. DAVD investment will provide Navy divers the ability to see and navigate in zero visibility water. More detailed descriptions are provided below:

[P40A / HY179 - NAVY EXPERIMENTAL DIVING UNIT]: (FY21 = $652,000) NEDU's mission is to support the Fleet diver through test and evaluation of diving equipment and procedures as well as hyperbaric systems for NAVSEA, Navy, and DoD activities. Funding is to procure equipment for test, facilities atmospheric control, life support, and physiological systems. These systems not only ensure the safety and lives of NEDU sailors performing experimental dives, but ultimately support the combat readiness and mission success of the Fleet sailors who use the equipment tested at NEDU. Funding is included to support the periodic upgrade of Ocean Simulation Facility (OSF) components. The OSF is the world's largest man-rated hyperbaric chamber affording space for 12 divers in 5 hyperbaric dry chambers, man-rated for dives to 2,250 feet of sea water (1000 psi) with a 50' x 15', 55,000-gallon wet-pot capacity, temperatures from 28 to 104 degrees Fahrenheit, an associated 1.3 million-cubic foot (37 km3) bottle field and uses a fully computerized data instrumentation and collection system. Unit prices vary depending on the specific equipment mix planned for upgrade in any single year.

[P40A / HY193 - SURFACE SUPPLIED DIVING HELMET]: (FY21 = 4 @ $7,050 each) Kirby Morgan KM-37 NS Underwater Breathing Apparatus. This is a diving helmet with a fiberglass shell and second stage regulator that works in conjunction with a surface supply control console assembly (CCA) and an umbilical. Required I/O is 250.

[P40A / HY199 - NAVY DIVE COMPUTER]: (FY21 = 72 @ $1,587 each) The Navy Dive Computer is a diver worn decompression computer which provides primarily Self Contained Underwater Breathing Apparatus (SCUBA) divers with real time calculation of decompression limits/obligations. I/O is 1400.

[P40A / HY212 - PORTABLE DIVE SYSTEM CONTROL CONSOLE ASSEMBLY (CCA)]: (FY21 = 1 @ $114,090) This is a surface supplied diving system control console assembly that will regulate and supply diving breathing gas from the surface to 3 divers. The system is not anticipated to have a volume tank as it will operate on separate high pressure breathing gas sources only. Required Inventory Objective I/O is 100.

[P40A / HY213 - HP COMPOSITE FLASK REPLACEMENT]: (FY21 = 50 @ $5,030 each) The flasks used in the CAOS, ASRA, OSRA, HOSRA, CASRA, and COSRA all require replacement after 15 years. NAVSEA 00C has will provide the cylinders to fleet diving commands. Required Inventory Objective I/O is 2500.

[P40A / HY224 - SCUBA REGULATORS]: (FY21 = 189 @ $1,060 each) This is 1st and 2nd stage Self Contained Underwater Breathing Apparatus (SCUBA) regulator fitted with an additional octopus 2nd stage and a console with both a cylinder pressure gauge and diver's depth gauge included. I/O is 5,000.

[P40A / HY226 - FLEX CHAMBER]: (FY21 = 2 @ $548,390 each) The flexible recompression chamber system is composed of a double-lock flexible chamber, control console, gas supply and interconnecting hoses. The flex chamber is designed as an extreme lightweight system used to treat diver's injuries, including Arterial Gas Embolism and Decompression Sickness. I/O is 36.

[P40A / HY233 - SURFACE SUPPLY AUGMENTED SCUBA SYSTEM]: (FY21 = 2 @ $108,680 each) The Surface Supply Augmented SCUBA System consists of the Interspiro DIVIATOR Dive Panel (DP) Surface Supply System and the Interspiro DIVIATOR Self Contained Underwater Breathing Apparatus (SCUBA) System. This is a lightweight, highly portable system which makes is ideal for rapid deployment to remote locations. The apparatus combines the capability of surface supplied diving with the portability of SCUBA. Required Inventory Objective I/O is 50.

Exhibit P-40, Budget Line Item Justification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 01: Ships Support Equipment / BSA 11: Ocean Engineering	**P-1 Line Item Number / Title:** 1130 / Diving and Salvage Equipment	
ID Code (A=Service Ready, B=Not Service Ready): A	**Program Elements for Code B Items:** N/A	**Other Related Program Elements:** 0204561N, 0204454N, 0204423N, 0203424N, 0603713N
Line Item MDAP/MAIS Code: N/A		

[P40A / HY234 - DIVER AUGMENTED VISUAL DISPLAY (DAVD)]: (FY21 = 3 @ 39,970 each) The Diver Augmented Visual Display (DAVD) is a system that incorporates 3D sonar mapping, high speed - high frequency helmet mounted sonar, diver tracking, and a head's up display into an existing USN underwater breathing apparatus (UBA). The system allows a diver in low/no visibility waters to locate targets of interest, transit to the location and see their work environment in real-time. In addition, the system allows a top-side diving supervisor to monitor the divers work progress. Each system includes equipment for one diver. Required Inventory Objective I/O is 173

[P40A / HY250 - DAVD SECTOR SCAN SONAR]: (FY21 = 3 @ 46,970 each) The sector scan sonar is a 2D portable sonar system that mounts on a tripod that is lowered to the bottom that provides 360-degree continuous sonar imagery to the DAVD topside control box. The system has a useable range of 300 meters out from the sonar head. This system has been evaluated for electrical and acoustic safety and is approved for use with US Navy Divers. I/O = 50

[P40A / HY251 - DAVD 3D SONAR]: (FY21 = 2 @ $101,580) The 3D sonar imaging system produces real time high-resolution 3D imagery that can be used to create a 3D model of a large undersea area. The system is also capable of producing real time sonar imagery that can be over-laid onto a previously produced 3D model and used for diver locating and navigation controlled by the DAVD topside control system. The CODA is capable of tracking the diver working on the bottom and has a range of over 300 meters. This system has been evaluated for electrical and acoustic safety and is approved for use with US Navy Divers. HY-251 and HY-254 - This equipment significantly improve divers visual acuity in dark, limited visibility operations. This improved visual acuity equipment includes sector scan SONAR (3), augmented visual displays (3), 3D SONAR (1) and associated computer based training hardware (1). When integrated together these systems will produce a virtual environment in which a diver can operate and be directed by topside supervisors to execute salvage, search and recovery and other missions. I/O = 50

[P40A / HY254 - DAVD COMPUTER BASED TRAINING SYSTEMS]: (FY21 = 1 @ 152,370) Computer based training system that will provide training to USN divers in the operation and maintenance of the DAVD system. HY-251 and HY-254: This equipment significantly improve divers' visual acuity in dark, limited visibility operations. This improved visual acuity equipment includes sector scan SONAR (3), augmented visual displays (3), 3D SONAR (1) and associated computer based training hardware (1). When integrated together these systems will produce a virtual environment in which a diver can operate and be directed by topside supervisors to execute salvage, search and recovery and other missions. I/O = 10

[P40A / NSW SERVICE-COMMON EQUIPMENT (N95)]: The NSW SERVICE COMMON EQUIPMENT to be procured in FY21 in the amount of $1.725M includes SCUBA and hand-held sonar and diver visualization systems. More detailed descriptions are provided below:

[P40A / HY235 - NSW SERVICE COMMON SCUBA/SONAR KIT]: (FY21 = 16 @ $107,810 each) This kit includes standard SCUBA gear for one diver including: regulator, buoyancy compensator, mask, fins, gloves, boots, suits. In addition, it also includes handheld SONAR systems, lights and other diver visualization gear. I/O is 200

[P40A / MOBILE DIVING SALVAGE UNIT (MDSU) OUTFITTING EQUIPMENT (N95)]: The DIVING EQUIPMENT to be procured in FY21 in the amount of $0.683M provides prioritized outfitting for Mobile Diving Salvage Unit (MDSU), Explosive Ordinance Disposal (EOD) Commands and Underwater Construction Team (UCT) Table of Allowance (TOA) requirements of centrally managed diving systems and equipment. This equipment includes diving, salvage and combat support equipment to meet Required Operational Capabilities / Projected Operational Environment (ROC/POE) and Navy Mission Essential Tasks (NMET) to include underwater visual augmentation systems, dive computers, diver launch and recovery systems, flexible recompression chambers, sonar systems and SCUBA regulators.

[P40A / HY255 - DIVER LARS - NECC]: (FY21=1 @ $312,340) This item replaces and improves upon the capabilities provided by current Diver Launch and Recovery Systems (LARS) utilized by Nay Expeditionary Combat Command (NECC) forces. This is an A-Frame style LARS wth a stage to deploy divers from the deck of a vessel.

[P40A / HY256 - DAVD GEN 1 - NECC]: (FY21 = 3 @ $39,970) The diver augmented visual display (DAVD) is a system that incorporates 2D/3D sonar mapping, diver tracking and a head's up display (HUD) into an existing USN underwater breathing apparatus (UBA). The system allows a Navy Expeditionary Combat Command (NECC) diver in low/no visibility waters to locate targets if interest, transit to the location and see their work in real time. In addition, the system allows a top-side diving supervisor to monitor the divers and their progress.

Exhibit P-40, Budget Line Item Justification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 01: Ships Support Equipment / BSA 11: Ocean Engineering	**P-1 Line Item Number / Title:** 1130 / Diving and Salvage Equipment	
ID Code (A=Service Ready, B=Not Service Ready): A	**Program Elements for Code B Items:** N/A	**Other Related Program Elements:** 0204561N, 0204454N, 0204423N, 0203424N, 0603713N
Line Item MDAP/MAIS Code: N/A		

[P40A / HY257 - DAVD SECTOR SCAN SONAR - NECC]: (FY21 = 3 @ $46,970) The sector scan sonar is a 2D portable sonar system that mounts on a tripod that is lowered to the bottom that provides 360-degree continuous sonar imagery to the Diver Augmented Vistal Display (DAVD) topside control box. This is intended for use by Navy Expeditionary Combat Command (NECC) divers.

[P40A / HY258 - DAVD 3D SONAR - NECC]: (FY21 = 1 @ $101,580) The 3D sonar imaging system produces real-time, high resolution 3D imagery that can be used to create a 3D model of a large undersea area. This equipment is intended to work in conjunction with or separate from the Diver Augmented Visual Display (DAVD) systems deployed by Navy Expeditionary Combat Command divers.

[P40A / HY263 - SCUBA REGULATORS - NECC]: (FY21 = 8 @ $1,060) These a self contained underwater breathing apparatus (SCUBA) regulators that are used to reduce air pressure in a SCUBA cylinder and deliver that air at a useable pressure to a Navy Expeditionary Combat Command (NECC) diver. The make and model of the SCUBA regulator shall be approved on the US Navy Authorized for Navy Use (ANU) list.

[P40A / SALVAGE (N97)]: The SALVAGE EQUIPMENT to be procured in FY21 in the amount of $5.445M includes a work-class Remotely Operated Vehicle (ROV), 3D sonar equipment, salvage winch upgrades, underwater power tools. Also included are underwater ship husbandry equipment (video kit, pierside support systems and 50 ton hydraulic chain hoists) to permit divers to make underwater repairs to ships and submarines afloat. More detailed descriptions are provided below:

[P40A / HY169 - UWSH POWER TOOLS]: (FY21 = 1 @ $102,000) These tools will replace the hydraulic tool previously issued to Fleet divers with improved technology. This technology improvement will provide tools which are more environmentally compatible, offer greater power, lighter weight and reduced maintenance. I/O is 20.

[P40A / HY197 - UWSH PIERSIDE SUPPORT VANS]: (FY21 = 1 @ $205,000) Portable milvans and shippable containers outfitted with general and special purpose tools to support various underwater ship husbandry operations. I/O is 12.

[P40A / HY223 - 3D SONAR]: (FY21 = 1 @ 566,000) This system generates a 3D Image of the area or object being surveyed and is viewable in real time. The record of data is viewable off line for mission planning, allows for the measurement of distances and dimensions, and can be used during mission execution for operational control and situational awareness in zero visibility situations. I/O is 2.

[P40A / HY228 - CLYDE WINCH UPGRADE MODIFICATIONS]: (FY21 = 2 @ $108,500 each) Portable Clyde deck winch consists of a dual drum assembly and a horizontal capstan mounted on the side of the deck winch. The deck winch is hydraulically driven by a self contained diesel engine and each drum/ capstan can pull up to 8 tons. The drive mechanism and braking system is upgraded to a hydraulic control and operation. Required I/O is 20.

[P40A / HY243 - WORK CLASS ROV]: (FY21 = 1 @ 3,980,000) Industrial capacity ROV capable of +100HP work and rated in depth to at least 6000 meters. Required I/O is 1. Current ROV system is a 'one-off' system approaching end-of-life and becoming increasing difficult to support which threatens on-call capability. This capability is specifically required by Navy Salvage Requirement and Policy (OPNAVINST 4740.2G) which directs a deep ocean search and recovery capability down to 20,000 feet. Such ROVs are now available in the commercial sector and are dependably supportable world-wide, using available components that are of current technology.

[P40A / HY248 - HYDRAULIC CHAIN HOIST (50 TON)]: (FY21 = 3 @ $125,000 each) This system provides a means to lift loads utilizing rigging points under water. These Hydraulic Chain Hoists are specially designed for underwater use and are sized to safely lift 50 tons. Required I/O is 15.

Exhibit P-40, Budget Line Item Justification: PB 2021 Navy		**Date:** February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 01: Ships Support Equipment / BSA 11: Ocean Engineering	**P-1 Line Item Number / Title:** 1130 / Diving and Salvage Equipment	
ID Code (A=Service Ready, B=Not Service Ready): A	**Program Elements for Code B Items:** N/A	**Other Related Program Elements:** 0204561N, 0204454N, 0204423N, 0203424N, 0603713N
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	Diving and Salvage Equipment	P-5a			- / 60.720	- / 10.706	- / 11.854	- / 11.143	- / -	- / 11.143
P-40	**Total Gross/Weapon System Cost**				**- / 60.720**	**- / 10.706**	**- / 11.854**	**- / 11.143**	**- / 0.000**	**- / 11.143**

*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.

Exhibit P-40a, Budget Item Justification For Aggregated Items: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 11	P-1 Line Item Number / Title: 1130 / Diving and Salvage Equipment	Aggregated Items Title: Diving and Salvage Equipment

Item Number / Title [DODIC]	ID CD	MDAP/ MAIS Code	Prior Years			FY 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) DIVING (N97)																				
1.1) HY176 - HP AIR COMPRESSORS(†)	A		40,562.50	16	0.649	-	-	-	72,630.00	1	0.073	-	-	-	-	-	-	-	-	-
1.2) HY177 - AIR PURIFICATION UNITS(†)	A		63,227.27	44	2.782	45,100.00	13	0.586	44,330.00	2	0.089	-	-	-	-	-	-	-	-	-
1.3) HY179 - NAVY EXPERIMENTAL DIVING UNIT(†)	A		908,888.89	9	8.180	627,000.00	1	0.627	638,000.00	1	0.638	652,000.00	1	0.652	-	-	-	652,000.00	1	0.652
1.4) HY193 - SURFACE SUPPLIED DIVING HELMET(†)	A		15,040.82	49	0.737	7,076.00	6	0.042	6,940.00	12	0.083	7,050.00	4	0.028	-	-	-	7,050.00	4	0.028
1.5) HY199 - NAVY DIVE COMPUTER(†)	A		1,636.25	778	1.273	1,590.00	51	0.081	1,560.00	63	0.098	1,587.00	72	0.114	-	-	-	1,587.00	72	0.114
1.6) HY210 - COMPACT DIVER LIFE SUPPORT SYSTEM AIR SUPPLY(†)	A		35,441.86	43	1.524	20,720.00	10	0.207	-	-	-	-	-	-	-	-	-	-	-	-
1.7) HY212 - PORTABLE DIVE SYSTEM CONTROL CONSOLE ASSEMBLY (CCA)(†)	A		-	-	3.250	114,280.00	8	0.914	112,320.00	1	0.112	114,090.00	1	0.114	-	-	-	114,090.00	1	0.114
1.8) HY213 - HP COMPOSITE FLASK REPLACEMENT(†)	A		4,733.76	631	2.987	5,032.00	80	0.403	4,950.00	60	0.297	5,030.00	50	0.252	-	-	-	5,030.00	50	0.252
1.9) HY224 - SCUBA REGULATORS(†)	A		1,037.50	160	0.166	1,060.00	69	0.073	1,043.00	369	0.385	1,060.00	189	0.200	-	-	-	1,060.00	189	0.200
1.10) HY226 - FLEX CHAMBER (1)(†)	A		-	-	-	-	-	-	539,850.00	2	1.080	548,390.00	2	1.097	-	-	-	548,390.00	2	1.097
1.11) HY233 - SURFACE SUPPLY AUGMENTED SCUBA SYSTEM(†)	A		109,000.00	1	0.109	108,860.00	4	0.435	106,990.00	2	0.214	108,680.00	2	0.217	-	-	-	108,680.00	2	0.217
1.12) HY234 - DIVER AUGMENTED VISUAL DISPLAY (DAVD)(†)	A		-	-	-	-	-	-	39,350.00	2	0.079	39,970.00	3	0.120	-	-	-	39,970.00	3	0.120
1.14) HY250 - DAVD SECTOR SCAN SONAR(†)	A		-	-	-	-	-	-	46,240.00	2	0.092	46,970.00	3	0.141	-	-	-	46,970.00	3	0.141
1.15) HY251 - DAVD 3D SONAR (2)(†)	A		-	-	-	-	-	-	-	-	-	101,580.00	2	0.203	-	-	-	101,580.00	2	0.203

Exhibit P-40a, Budget Item Justification For Aggregated Items: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 11	P-1 Line Item Number / Title: 1130 / Diving and Salvage Equipment	Aggregated Items Title: Diving and Salvage Equipment

Item Number / Title [DODIC]	ID CD	MDAP/ MAIS Code	Prior Years			FY 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)
1.18) HY254 - DAVD COMPUTER BASED TRAINING SYSTEMS (3)(†)	A		-	-	-	-	-	-	-	-	-	152,370.00	1	0.152	-	-	-	152,370.00	1	0.152
Subtotal: 1) DIVING (N97)			**-**	**-**	***21.657***	**-**	**-**	***3.368***	**-**	**-**	***3.240***	**-**	**-**	***3.290***	**-**	**-**	**-**	**-**	**-**	***3.290***
2) NSW SERVICE-COMMON EQUIPMENT (N95)																				
2.1) HY235 - NSW SERVICE COMMON SCUBA/SONAR KIT (4)(†)	A		100,176.47	17	1.703	105,125.00	16	1.682	106,500.00	14	1.491	107,810.00	16	1.725	-	-	-	107,810.00	16	1.725
2.2) HY236 - NSW SERVICE COMMON STANDARD DOUBLE LOCK RECOMPRESSION CHAMBER(†)	A		-	-	-	-	-	-	1,625K	1	1.625	-	-	-	-	-	-	-	-	-
Subtotal: 2) NSW SERVICE-COMMON EQUIPMENT (N95)			**-**	**-**	***1.703***	**-**	**-**	***1.682***	**-**	**-**	***3.116***	**-**	**-**	***1.725***	**-**	**-**	**-**	**-**	**-**	***1.725***
3) MOBILE DIVING SALVAGE UNIT (MDSU) OUTFITTING EQUIPMENT (N95)																				
3.1) HY255 - DIVER LARS - NECC(†)	A		-	-	-	-	-	-	-	-	-	312,340.00	1	0.312	-	-	-	312,340.00	1	0.312
3.2) HY256 - DAVD GEN 1 - NECC(†)	A		-	-	-	-	-	-	-	-	-	39,970.00	3	0.120	-	-	-	39,970.00	3	0.120
3.3) HY257 - DAVD SECTOR SCAN SONAR - NECC(†)	A		-	-	-	-	-	-	-	-	-	46,970.00	3	0.141	-	-	-	46,970.00	3	0.141
3.4) HY258 - DAVD 3D SONAR - NECC(†)	A		-	-	-	-	-	-	-	-	-	101,580.00	1	0.102	-	-	-	101,580.00	1	0.102
3.9) HY263 - SCUBA REGULATORS - NECC(†)	A		-	-	-	-	-	-	-	-	-	1,060.00	8	0.008	-	-	-	1,060.00	8	0.008
Subtotal: 3) MOBILE DIVING SALVAGE UNIT (MDSU) OUTFITTING EQUIPMENT (N95)			**-**	**-**	***0.000***	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	***0.683***	**-**	**-**	**-**	**-**	**-**	***0.683***
4) SALVAGE (N97)																				
4.1) HY050 - SYNTHETIC LINES(†)	A		203,500.00	2	0.407	198,000.00	2	0.396	207,900.00	5	1.040	-	-	-	-	-	-	-	-	-
4.2) HY116 - PORTABLE SUBMERSIBLE PUMPS	A		144,600.00	20	2.892	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4.3) HY131 - ROV HANDLING SYSTEM	A		1,084K	1	1.084	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Exhibit P-40a, Budget Item Justification For Aggregated Items: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 11	P-1 Line Item Number / Title: 1130 / Diving and Salvage Equipment	Aggregated Items Title: Diving and Salvage Equipment

Item Number / Title [DODIC]	ID CD	MDAP/ MAIS Code	Prior Years			FY 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)
4.5) HY145 - COFFERDAM SYSTEM(†)	A		251,583.33	12	3.019	-	-	-	145,000.00	1	0.145	-	-	-	-	-	-	-	-	-
4.6) HY146 - PROPELLER REPAIR KIT(†)	A		289,714.29	7	2.028	228,400.00	1	0.228	-	-	-	-	-	-	-	-	-	-	-	-
4.7) HY153 - TENSIOMETERS(†)	A		15,843.75	32	0.507	14,850.00	2	0.030	-	-	-	-	-	-	-	-	-	-	-	-
4.8) HY156 - SALVAGE VANS	A		173,888.89	9	1.565	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4.9) HY169 - UWSH POWER TOOLS(†)	A		130,666.67	6	0.784	-	-	-	129,000.00	1	0.129	102,000.00	1	0.102	-	-	-	102,000.00	1	0.102
4.10) HY184 - SALVAGE SUPPORT SYSTEMS(†)	A		320,444.44	9	2.884	215,100.00	1	0.215	-	-	-	-	-	-	-	-	-	-	-	-
4.11) HY186 - SMART TOW SYSTEMS(†)	A		132,250.00	4	0.529	153,900.00	1	0.154	156,495.00	1	0.156	-	-	-	-	-	-	-	-	-
4.12) HY190 - VIDEO/CAMERA EQUIPMENT(†)	A		114,142.86	7	0.799	-	-	-	72,000.00	1	0.072	-	-	-	-	-	-	-	-	-
4.13) HY195 - UNDERWATER RIGGING SUPPORT SYSTEM(†)	A		233,818.18	11	2.572	186,975.00	1	0.187	189,000.00	1	0.189	-	-	-	-	-	-	-	-	-
4.14) HY196 - UWSH SUBMARINE SUPPORT SYSTEM	A		557,000.00	14	7.798	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4.15) HY197 - UWSH PIERSIDE SUPPORT VANS(†)	A		314,250.00	4	1.257	-	-	-	223,000.00	1	0.223	205,000.00	1	0.205	-	-	-	205,000.00	1	0.205
4.16) HY198 - UWSH SURFACE SHIP SUPPORT SYSTEMS(†)	A		156,833.33	24	3.764	115,200.00	4	0.461	-	-	-	-	-	-	-	-	-	-	-	-
4.17) HY201 - JETTING PUMPS(†)	A		206,846.15	13	2.689	219,600.00	2	0.439	224,500.00	2	0.449	-	-	-	-	-	-	-	-	-
4.18) HY203 - HYDRAULIC U/W TOOL KIT(†)	A		61,000.00	17	1.037	63,000.00	1	0.063	63,000.00	7	0.441	-	-	-	-	-	-	-	-	-
4.20) HY205 - LIGHTING KIT SYSTEM(†)	A		15,200.00	20	0.304	17,100.00	2	0.034	17,500.00	2	0.035	-	-	-	-	-	-	-	-	-
4.21) HY206 - KERRIE CABLE	A		18,500.00	6	0.111	16,875.00	7	0.118	17,325.00	3	0.052	-	-	-	-	-	-	-	-	-

Exhibit P-40a, Budget Item Justification For Aggregated Items: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 11	P-1 Line Item Number / Title: 1130 / Diving and Salvage Equipment	Aggregated Items Title: Diving and Salvage Equipment

Item Number / Title [DODIC]	ID CD	MDAP/ MAIS Code	Prior Years			FY 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)
UNDERWATER CUTTING SYSTEM(†)																				
4.22) HY219 - PORTABLE SALVAGE CRANE(†)	A		216,000.00	1	0.216	197,100.00	1	0.197	-	-	-	-	-	-	-	-	-	-	-	-
4.24) HY223 - 3D SONAR(†)	A		-	-	-	583,200.00	1	0.583	-	-	-	566,000.00	1	0.566	-	-	-	566,000.00	1	0.566
4.25) HY227 - COMPLEX AND/OR LARGE UWSH REPAIR COFFERDAM SUPPORT SYSTEMS(†)	A		780,000.00	1	0.780	713,700.00	1	0.714	720,000.00	1	0.720	-	-	-	-	-	-	-	-	-
4.26) HY228 - CLYDE WINCH UPGRADE MODIFICATIONS(†)	A		114,000.00	2	0.228	104,850.00	6	0.629	106,500.00	2	0.213	108,500.00	2	0.217	-	-	-	108,500.00	2	0.217
4.27) HY229 - AC SOLAR CELL DEPLOYMENT KIT(†)	A		-	-	-	63,000.00	1	0.063	63,900.00	2	0.128	-	-	-	-	-	-	-	-	-
4.28) HY230 - NEXGEN HYDRAULIC POWER UNIT, MOD 6B(†)	A		106,000.00	1	0.106	97,200.00	1	0.097	99,000.00	1	0.099	-	-	-	-	-	-	-	-	-
4.30) HY232 - DECK SYSTEMS HYDRAULIC POWER UNIT UPGRADE(†)	A		-	-	-	25,200.00	3	0.076	-	-	-	-	-	-	-	-	-	-	-	-
4.33) HY239 - 600 CFM SALVAGE AIR COMPRESSOR(†)	A		-	-	-	81,900.00	1	0.082	82,800.00	1	0.083	-	-	-	-	-	-	-	-	-
4.34) HY240 - SALVAGE PATCHING AND RIGGING VAN(†)	A		-	-	-	75,600.00	2	0.151	77,000.00	1	0.077	-	-	-	-	-	-	-	-	-
4.35) HY241 - DEEP OCEAN SALVAGE SYSTEM(†)	A		-	-	-	738,900.00	1	0.739	751,495.00	1	0.751	-	-	-	-	-	-	-	-	-
4.36) HY243 - WORK CLASS ROV (5)(†)	A		-	-	-	-	-	-	-	-	-	3,980K	1	3.980	-	-	-	3,980K	1	3.980
4.38) HY245 - HYDRAULIC CHAIN HOIST (6 TON)(†)	A		-	-	-	-	-	-	38,000.00	2	0.076	-	-	-	-	-	-	-	-	-

Exhibit P-40a, Budget Item Justification For Aggregated Items: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 11	**P-1 Line Item Number / Title:** 1130 / Diving and Salvage Equipment	**Aggregated Items Title:** Diving and Salvage Equipment

Item Number / Title [DODIC]	ID CD	MDAP/ MAIS Code	Prior Years			FY 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)
4.39) HY246 - HYDRAULIC CHAIN HOIST (12 TON)(†)	A		-	-	-	-	-	-	40,000.00	2	0.080	-	-	-	-	-	-	-	-	-
4.40) HY247 - HYDRAULLIC CHAIN HOIST (25 TON)(†)	A		-	-	-	-	-	-	90,000.00	1	0.090	-	-	-	-	-	-	-	-	-
4.41) HY248 - HYDRAULIC CHAIN HOIST (50 TON)(†)	A		-	-	-	-	-	-	125,000.00	2	0.250	125,000.00	3	0.375	-	-	-	125,000.00	3	0.375
Subtotal: 4) SALVAGE (N97)			**-**	**-**	***37.360***	**-**	**-**	***5.656***	**-**	**-**	***5.498***	**-**	**-**	***5.445***	**-**	**-**	**-**	**-**	**-**	***5.445***
Total			**-**	**-**	**60.720**	**-**	**-**	**10.706**	**-**	**-**	**11.854**	**-**	**-**	**11.143**	**-**	**-**	**-**	**-**	**-**	**11.143**

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

(†) indicates the presence of a P-5a

Footnotes:

(1) HY226 FLEX CHAMBER introduces lightweight fabric recompression chambers to replace some aging steel chambers. Flex chambers reduce size and weight of steel chambers and are ideally suited for expeditionary diving forces. The fabric used on the chambers is the result of several years of development and testing.

(2) HY251 - DAVD 3D SONAR - These sonars provide a three-dimensional rendering of the underwater environment. This allows for the creation of a real time augmented reality for divers working in dark or occluded waters (i.e. 'allows them to see in the dark'). This is one capability set for the Divers Augmented Visual Display. These sonars can also be used on their own to find underwater wreckage, targets of interest or obstructions that could pose a danger to divers.

(3) HY254 - DAVD COMPUTER BASED TRAINING SYSTEMS - This is a computer based training (CBT) system that will provide training for personnel who need to dive with or act as surface operator of a Diver Augmented Visual Display (DAVD) system. These CBT systems will be strategically located at diver concentration areas so that they are easily accessed by the most possible divers. Without these systems it will be necessary to incorporate this training into Dive School at the Naval Diving and Salvage Training Center (NDSTC) or provide a Tiger Team type training on a rotating basis. Both of those other options are determined to cost more money with no added knowledge gain.

(4) HY235 - NSW SERVICE COMMON SCUBA/SONAR KIT - These kits provide life support and covert navigation capability to US Navy SEALs. The systems allow for long range underwater navigation for an individual or team to conduct an insertion from a large US Navy asset to shore. Loss of any of this funding will result in a degraded Special Forces Capability.

(5) HY243 - WORK CLASS ROV - A commercial off-the-shelf 6,000 meter capable ROV (Remotely Operated Vehicle) (1) for recovery of aircraft and weapons lost in the deep ocean. This ROV will offer significantly more horsepower than our existing vehicle, which is over 20 years old and in need of replacement. It represents a one-of-one deep ocean salvage capability for the Navy and DoD. This 6,000 meter remote recovery capability serves both unclassified and more importantly, classified high tempo recoveries. The capability is considered a 'National Asset' and has peer competitor implications.

Exhibit P-5a, Procurement History and Planning: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 11	P-1 Line Item Number / Title: 1130 / Diving and Salvage Equipment	Aggregated Items: Diving and Salvage Equipment

Item Number / Title [DODIC]	OCO	FY	Contractor and Location	Method/Type or Funding Vehicle	Location of PCO	Award Date	Date of First Delivery	Qty (Each)	Unit Cost ($)	Specs Avail Now?	Date Revision Available	RFP Issue Date
1) DIVING (N97)												
1.1) HY176 - HP AIR COMPRESSORS		2020	TBD / TBD	TBD	WASHINGTON, DC	Oct 2019	Oct 2019	1	72,630.00	Y		
1.2) HY177 - AIR PURIFICATION UNITS		2019	GLOBAL PCCI / IRVINE CA	C / CPFF	WASHINGTON, DC	Jan 2019	Jan 2020	13	45,100.00	Y		
1.2) HY177 - AIR PURIFICATION UNITS		2020	TBD / TBD	TBD	WASHINGTON, DC	Oct 2019	Oct 2020	2	44,330.00	Y		
1.3) HY179 - NAVY EXPERIMENTAL DIVING UNIT		2019	Navy Experimental Diving Unit / Panama City, FL	Various	Panama City, FL	Apr 2019	Apr 2020	1	627,000.00	Y		
1.3) HY179 - NAVY EXPERIMENTAL DIVING UNIT		2020	TBD / TBD	TBD	Panama City, FL	Oct 2019	Oct 2020	1	638,000.00	Y		
1.3) HY179 - NAVY EXPERIMENTAL DIVING UNIT		2021	TBD / TBD	TBD	Panama City, FL	Oct 2020	Oct 2021	1	652,000.00	Y		
1.4) HY193 - SURFACE SUPPLIED DIVING HELMET		2019	GLOBAL PCCI / IRVINE CA	C / CPFF	WASHINGTON, DC	Jan 2019	Jan 2020	6	7,076.00	Y		
1.4) HY193 - SURFACE SUPPLIED DIVING HELMET		2020	TBD / TBD	TBD	WASHINGTON, DC	Oct 2019	Oct 2020	12	6,940.00	Y		
1.4) HY193 - SURFACE SUPPLIED DIVING HELMET		2021	TBD / TBD	TBD	WASHINGTON, DC	Oct 2020	Oct 2021	4	7,050.00	Y		
1.5) HY199 - NAVY DIVE COMPUTER		2019	GLOBAL PCCI / IRVINE CA	C / CPFF	WASHINGTON, DC	Jan 2019	Jan 2020	51	1,590.00	Y		
1.5) HY199 - NAVY DIVE COMPUTER		2020	TBD / TBD	TBD	** NO PCO **	Oct 2019	Oct 2020	63	1,560.00	Y		
1.5) HY199 - NAVY DIVE COMPUTER		2021	TBD / TBD	TBD	WASHINGTON, DC	Oct 2020	Oct 2021	72	1,587.00	Y		
1.6) HY210 - COMPACT DIVER LIFE SUPPORT SYSTEM AIR SUPPLY		2019	GLOBAL PCCI / IRVINE CA	C / CPFF	WASHINGTON, DC	Jan 2019	Jan 2020	10	20,720.00	Y		
1.7) HY212 - PORTABLE DIVE SYSTEM CONTROL CONSOLE ASSEMBLY (CCA)		2019	GLOBAL PCCI / IRVINE CA	C / CPFF	WASHINGTON, DC	Jan 2019	Jan 2020	8	114,280.00	Y		
1.7) HY212 - PORTABLE DIVE SYSTEM CONTROL CONSOLE ASSEMBLY (CCA)		2020	TBD / TBD	TBD	WASHINGTON, DC	Oct 2019	Oct 2020	1	112,320.00	Y		
1.7) HY212 - PORTABLE DIVE SYSTEM CONTROL CONSOLE ASSEMBLY (CCA)		2021	TBD / TBD	TBD	WASHINGTON, DC	Oct 2020	Oct 2021	1	114,090.00	Y		
1.8) HY213 - HP COMPOSITE FLASK REPLACEMENT		2019	GLOBAL PCCI / IRVINE CA	C / CPFF	WASHINGTON, DC	Jan 2019	Jan 2020	80	5,032.00	Y		

Exhibit P-5a, Procurement History and Planning: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 11	P-1 Line Item Number / Title: 1130 / Diving and Salvage Equipment	Aggregated Items: Diving and Salvage Equipment

Item Number / Title [DODIC]	OCO	FY	Contractor and Location	Method/Type or Funding Vehicle	Location of PCO	Award Date	Date of First Delivery	Qty (Each)	Unit Cost ($)	Specs Avail Now?	Date Revision Available	RFP Issue Date
1.8) HY213 - HP COMPOSITE FLASK REPLACEMENT		2020	TBD / TBD	TBD	WASHINGTON, DC	Oct 2019	Oct 2020	60	4,950.00	Y		
1.8) HY213 - HP COMPOSITE FLASK REPLACEMENT		2021	TBD / TBD	TBD	WASHINGTON, DC	Oct 2020	Oct 2021	50	5,030.00	Y		
1.9) HY224 - SCUBA REGULATORS		2019	GLOBAL PCCI / IRVINE CA	C / CPFF	WASHINGTON, DC	Jan 2019	Jan 2020	69	1,060.00	Y		
1.9) HY224 - SCUBA REGULATORS		2020	TBD / TBD	TBD	WASHINGTON, DC	Oct 2019	Oct 2019	369	1,043.00	Y		
1.9) HY224 - SCUBA REGULATORS		2021	TBD / TBD	TBD	WASHINGTON, DC	Oct 2020	Oct 2020	189	1,060.00	Y		
1.10) HY226 - FLEX CHAMBER (1)		2020	TBD / TBD	TBD	WASHINGTON, DC	Oct 2019	Oct 2019	2	539,850.00	Y		
1.10) HY226 - FLEX CHAMBER (1)		2021	TBD / TBD	TBD	WASHINGTON, DC	Oct 2020	Oct 2020	2	548,390.00	Y		
1.11) HY233 - SURFACE SUPPLY AUGMENTED SCUBA SYSTEM		2019	GLOBAL PCCI / IRVINE CA	C / CPFF	WASHINGTON, DC	Jan 2019	Jan 2020	4	108,860.00	Y		
1.11) HY233 - SURFACE SUPPLY AUGMENTED SCUBA SYSTEM		2020	TBD / TBD	TBD	WASHINGTON, DC	Oct 2019	Oct 2020	2	106,990.00	Y		
1.11) HY233 - SURFACE SUPPLY AUGMENTED SCUBA SYSTEM		2021	TBD / TBD	TBD	WASHINGTON, DC	Oct 2020	Oct 2020	2	108,680.00	Y		
1.12) HY234 - DIVER AUGMENTED VISUAL DISPLAY (DAVD)		2020	TBD / TBD	C / TBD	WASHINGTON, DC	Oct 2019	Oct 2020	2	39,350.00	Y		
1.12) HY234 - DIVER AUGMENTED VISUAL DISPLAY (DAVD)		2021	TBD / TBD	C / TBD	WASHINGTON, DC	Oct 2020	Oct 2021	3	39,970.00	Y		
1.14) HY250 - DAVD SECTOR SCAN SONAR		2020	TBD / TBD	C / TBD	WASHINGTON, DC	Oct 2019	Oct 2020	2	46,240.00	Y		
1.14) HY250 - DAVD SECTOR SCAN SONAR		2021	TBD / TBD	C / TBD	WASHINGTON, DC	Oct 2020	Oct 2021	3	46,970.00	Y		
1.15) HY251 - DAVD 3D SONAR (2)		2021	TBD / TBD	C / TBD	WASHINGTON, DC	Oct 2020	Oct 2021	2	101,580.00	Y		
1.18) HY254 - DAVD COMPUTER BASED TRAINING SYSTEMS (3)		2021	TBD / TBD	C / TBD	WASHINGTON, DC	Oct 2020	Oct 2021	1	152,370.00	Y		
2) NSW SERVICE-COMMON EQUIPMENT (N95)												
2.1) HY235 - NSW SERVICE COMMON SCUBA/SONAR KIT (4)		2019	GLOBAL PCCI / IRVINE CA	C / CPFF	WASHINGTON, DC	Jun 2019	Jun 2020	16	105,125.00	Y		
2.1) HY235 - NSW SERVICE COMMON SCUBA/SONAR KIT (4)		2020	TBD / TBD	TBD	WASHINGTON, DC	Oct 2019	Oct 2019	14	106,500.00	Y		
2.1) HY235 - NSW SERVICE COMMON SCUBA/SONAR KIT (4)		2021	TBD / TBD	TBD	WASHINGTON, DC	Oct 2020	Oct 2020	16	107,810.00	Y		

Exhibit P-5a, Procurement History and Planning: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 11	P-1 Line Item Number / Title: 1130 / Diving and Salvage Equipment	Aggregated Items: Diving and Salvage Equipment

Item Number / Title [DODIC]	OCO	FY	Contractor and Location	Method/Type or Funding Vehicle	Location of PCO	Award Date	Date of First Delivery	Qty (Each)	Unit Cost ($)	Specs Avail Now?	Date Revision Available	RFP Issue Date
2.2) HY236 - NSW SERVICE COMMON STANDARD DOUBLE LOCK RECOMPRESSION CHAMBER		2020	TBD / TBD	TBD	WASHINGTON, DC	Oct 2019	Oct 2019	1	1,625K	Y		
3) MOBILE DIVING SALVAGE UNIT (MDSU) OUTFITTING EQUIPMENT (N95)												
3.1) HY255 - DIVER LARS - NECC		2021	TBD / TBD	C / CPAF	WASHINGTON, DC	Oct 2020	Oct 2021	1	312,340.00	Y		
3.2) HY256 - DAVD GEN 1 - NECC		2021	TBD / TBD	C / CPAF	WASHINGTON, DC	Oct 2020	Oct 2021	3	39,970.00	Y		
3.3) HY257 - DAVD SECTOR SCAN SONAR - NECC		2021	TBD / TBD	C / CPAF	WASHINGTON, DC	Oct 2020	Oct 2021	3	46,970.00	Y		
3.4) HY258 - DAVD 3D SONAR - NECC		2021	TBD / TBD	C / CPAF	WASHINGTON, DC	Oct 2020	Oct 2021	1	101,580.00	Y		
3.9) HY263 - SCUBA REGULATORS - NECC		2021	TBD / TBD	C / CPAF	WASHINGTON, DC	Oct 2020	Oct 2021	8	1,060.00	Y		
4) SALVAGE (N97)												
4.1) HY050 - SYNTHETIC LINES		2019	GLOBAL PCCI / IRVINE CA	C / CPFF	WASHINGTON, DC	Jul 2019	Jul 2020	2	198,000.00	Y		
4.1) HY050 - SYNTHETIC LINES		2020	TBD / TBD	TBD	WASHINGTON, DC	Oct 2019	Oct 2020	5	207,900.00	Y		
4.5) HY145 - COFFERDAM SYSTEM		2020	TBD / TBD	TBD	WASHINGTON, DC	Oct 2019	Oct 2019	1	145,000.00	Y		
4.6) HY146 - PROPELLER REPAIR KIT		2019	GLOBAL PCCI / IRVINE CA	C / CPFF	WASHINGTON, DC	Dec 2018	Dec 2019	1	228,400.00	Y		
4.7) HY153 - TENSIOMETERS		2019	GLOBAL PCCI / IRVINE CA	C / CPFF	WASHINGTON, DC	Jul 2019	Jul 2020	2	14,850.00	Y		
4.9) HY169 - UWSH POWER TOOLS		2020	TBD / TBD	TBD	WASHINGTON, DC	Oct 2019	Oct 2019	1	129,000.00	Y		
4.9) HY169 - UWSH POWER TOOLS		2021	TBD / TBD	TBD	WASHINGTON, DC	Oct 2020	Oct 2020	1	102,000.00	Y		
4.10) HY184 - SALVAGE SUPPORT SYSTEMS		2019	GLOBAL PCCI / IRVINE CA	C / CPFF	WASHINGTON, DC	Jul 2019	Jul 2020	1	215,100.00	Y		
4.11) HY186 - SMART TOW SYSTEMS		2019	GLOBAL PCCI / IRVINE CA	C / CPFF	WASHINGTON, DC	Jul 2019	Jul 2020	1	153,900.00	Y		
4.11) HY186 - SMART TOW SYSTEMS		2020	TBD / TBD	TBD	WASHINGTON, DC	Oct 2019	Oct 2019	1	156,495.00	Y		
4.12) HY190 - VIDEO/CAMERA EQUIPMENT		2020	TBD / TBD	TBD	WASHINGTON, DC	Oct 2019	Oct 2019	1	72,000.00	Y		
4.13) HY195 - UNDERWATER RIGGING SUPPORT SYSTEM		2019	GLOBAL PCCI / IRVINE CA	C / CPFF	WASHINGTON, DC	Dec 2018	Dec 2019	1	186,975.00	Y		
4.13) HY195 - UNDERWATER RIGGING SUPPORT SYSTEM		2020	TBD / TBD	TBD	WASHINGTON, DC	Oct 2019	Oct 2019	1	189,000.00	Y		
4.15) HY197 - UWSH PIERSIDE SUPPORT VANS		2020	TBD / TBD	TBD	WASHINGTON, DC	Oct 2019	Oct 2019	1	223,000.00	Y		

Exhibit P-5a, Procurement History and Planning: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 11	P-1 Line Item Number / Title: 1130 / Diving and Salvage Equipment	Aggregated Items: Diving and Salvage Equipment

Item Number / Title [DODIC]	OCO	FY	Contractor and Location	Method/Type or Funding Vehicle	Location of PCO	Award Date	Date of First Delivery	Qty (Each)	Unit Cost ($)	Specs Avail Now?	Date Revision Available	RFP Issue Date
4.15) HY197 - UWSH PIERSIDE SUPPORT VANS		2021	TBD / TBD	TBD	WASHINGTON, DC	Oct 2020	Oct 2020	1	205,000.00	Y		
4.16) HY198 - UWSH SURFACE SHIP SUPPORT SYSTEMS		2019	GLOBAL PCCI / IRVINE CA	C / CPFF	WASHINGTON, DC	Dec 2018	Dec 2019	4	115,200.00	Y		
4.17) HY201 - JETTING PUMPS		2019	GLOBAL PCCI / IRVINE CA	C / CPFF	WASHINGTON, DC	Jul 2019	Jul 2020	2	219,600.00	Y		
4.17) HY201 - JETTING PUMPS		2020	TBD / TBD	TBD	WASHINGTON, DC	Oct 2019	Oct 2020	2	224,500.00	Y		
4.18) HY203 - HYDRAULIC U/W TOOL KIT		2019	GLOBAL PCCI / IRVINE CA	C / CPFF	WASHINGTON, DC	Jul 2019	Jul 2020	1	63,000.00	Y		
4.18) HY203 - HYDRAULIC U/W TOOL KIT		2020	TBD / TBD	TBD	WASHINGTON, DC	Oct 2019	Oct 2020	7	63,000.00	Y		
4.20) HY205 - LIGHTING KIT SYSTEM		2019	GLOBAL PCCI / IRVINE CA	C / CPFF	WASHINGTON, DC	Jul 2019	Jul 2020	2	17,100.00	Y		
4.20) HY205 - LIGHTING KIT SYSTEM		2020	TBD / TBD	TBD	WASHINGTON, DC	Oct 2019	Oct 2020	2	17,500.00	Y		
4.21) HY206 - KERRIE CABLE UNDERWATER CUTTING SYSTEM		2019	GLOBAL PCCI / IRVINE CA	C / CPFF	WASHINGTON, DC	Jul 2019	Jul 2020	7	16,875.00	Y		
4.21) HY206 - KERRIE CABLE UNDERWATER CUTTING SYSTEM		2020	TBD / TBD	TBD	WASHINGTON, DC	Oct 2019	Oct 2020	3	17,325.00	Y		
4.22) HY219 - PORTABLE SALVAGE CRANE		2019	GLOBAL PCCI / IRVINE CA	C / CPFF	WASHINGTON, DC	Jul 2019	Jul 2020	1	197,100.00	Y		
4.24) HY223 - 3D SONAR		2019	GLOBAL PCCI / IRVINE CA	C / CPFF	WASHINGTON, DC	Jul 2019	Jul 2020	1	583,200.00	Y		
4.24) HY223 - 3D SONAR		2021	TBD / TBD	TBD	WASHINGTON, DC	Oct 2020	Oct 2021	1	566,000.00	Y		
4.25) HY227 - COMPLEX AND/ OR LARGE UWSH REPAIR COFFERDAM SUPPORT SYSTEMS		2019	GLOBAL PCCI / WASHINGTON, DC	C / CPFF	WASHINGTON, DC	Dec 2018	Dec 2019	1	713,700.00	Y		
4.25) HY227 - COMPLEX AND/ OR LARGE UWSH REPAIR COFFERDAM SUPPORT SYSTEMS		2020	TBD / TBD	TBD	WASHINGTON, DC	Oct 2019	Oct 2020	1	720,000.00	Y		
4.26) HY228 - CLYDE WINCH UPGRADE MODIFICATIONS		2019	GLOBAL PCCI / IRVINE CA	C / CPFF	WASHINGTON, DC	Jul 2019	Jul 2020	6	104,850.00	Y		
4.26) HY228 - CLYDE WINCH UPGRADE MODIFICATIONS		2020	TBD / TBD	TBD	WASHINGTON, DC	Oct 2019	Oct 2020	2	106,500.00	Y		
4.26) HY228 - CLYDE WINCH UPGRADE MODIFICATIONS		2021	TBD / TBD	TBD	WASHINGTON, DC	Oct 2020	Oct 2021	2	108,500.00	Y		
4.27) HY229 - AC SOLAR CELL DEPLOYMENT KIT		2019	GLOBAL PCCI / IRVINE CA	C / CPFF	WASHINGTON, DC	Jul 2019	Jul 2020	1	63,000.00	Y		

Exhibit P-5a, Procurement History and Planning: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 11	P-1 Line Item Number / Title: 1130 / Diving and Salvage Equipment	Aggregated Items: Diving and Salvage Equipment

Item Number / Title [DODIC]	OCO	FY	Contractor and Location	Method/Type or Funding Vehicle	Location of PCO	Award Date	Date of First Delivery	Qty (Each)	Unit Cost ($)	Specs Avail Now?	Date Revision Available	RFP Issue Date
4.27) HY229 - AC SOLAR CELL DEPLOYMENT KIT		2020	TBD / TBD	TBD	WASHINGTON, DC	Oct 2019	Oct 2020	2	63,900.00	Y		
4.28) HY230 - NEXGEN HYDRAULIC POWER UNIT, MOD 6B		2019	GLOBAL PCCI / IRVINE CA	C / CPFF	WASHINGTON, DC	Jul 2019	Jul 2020	1	97,200.00	Y		
4.28) HY230 - NEXGEN HYDRAULIC POWER UNIT, MOD 6B		2020	TBD / TBD	TBD	WASHINGTON, DC	Oct 2019	Oct 2020	1	99,000.00	Y		
4.30) HY232 - DECK SYSTEMS HYDRAULIC POWER UNIT UPGRADE		2019	GLOBAL PCCI / IRVINE CA	C / CPFF	WASHINGTON, DC	Jul 2019	Jul 2020	3	25,200.00	Y		
4.33) HY239 - 600 CFM SALVAGE AIR COMPRESSOR		2019	GLOBAL PCCI / IRVINE CA	C / CPFF	WASHINGTON, DC	Jul 2019	Jul 2020	1	81,900.00	Y		
4.33) HY239 - 600 CFM SALVAGE AIR COMPRESSOR		2020	TBD / TBD	TBD	WASHINGTON, DC	Oct 2019	Oct 2020	1	82,800.00	Y		
4.34) HY240 - SALVAGE PATCHING AND RIGGING VAN		2019	GLOBAL PCCI / IRVINE CA	C / CPFF	WASHINGTON, DC	Jul 2019	Jul 2019	2	75,600.00	Y		
4.34) HY240 - SALVAGE PATCHING AND RIGGING VAN		2020	TBD / TBD	TBD	WASHINGTON, DC	Oct 2019	Oct 2020	1	77,000.00	Y		
4.35) HY241 - DEEP OCEAN SALVAGE SYSTEM		2019	GLOBAL PCCI / IRVINE CA	C / FFP	WASHINGTON, DC	Jul 2019	Jul 2020	1	738,900.00	Y		
4.35) HY241 - DEEP OCEAN SALVAGE SYSTEM		2020	TBD / TBD	TBD	WASHINGTON, DC	Oct 2019	Oct 2020	1	751,495.00	Y		
4.36) HY243 - WORK CLASS ROV (5)		2021	TBD / TBD	C / TBD	WASHINGTON, DC	Oct 2020	Oct 2020	1	3,980K	Y		
4.38) HY245 - HYDRAULIC CHAIN HOIST (6 TON)		2020	TBD / TBD	TBD	WASHINGTON, DC	Oct 2019	Oct 2020	2	38,000.00	Y		
4.39) HY246 - HYDRAULIC CHAIN HOIST (12 TON)		2020	TBD / TBD	TBD	WASHINGTON, DC	Oct 2019	Oct 2020	2	40,000.00	Y		
4.40) HY247 - HYDRAULLIC CHAIN HOIST (25 TON)		2020	TBD / TBD	TBD	WASHINGTON, DC	Oct 2019	Oct 2020	1	90,000.00	Y		
4.41) HY248 - HYDRAULIC CHAIN HOIST (50 TON)		2020	TBD / TBD	TBD	WASHINGTON, DC	Oct 2019	Oct 2020	2	125,000.00	Y		
4.41) HY248 - HYDRAULIC CHAIN HOIST (50 TON)		2021	TBD / TBD	TBD	WASHINGTON, DC	Oct 2020	Oct 2021	3	125,000.00	Y		

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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 01: Ships Support Equipment / BSA 12: Small Boats	**P-1 Line Item Number / Title:** 1210 / Standard Boats

ID Code (A=Service Ready, B=Not Service Ready): A	**Program Elements for Code B Items:** N/A	**Other Related Program Elements:** N/A
Line Item MDAP/MAIS Code: N/A		

Resource Summary	Prior Years	FY 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)*	657.684	68.607	67.102	52.371	19.104	71.475	50.706	53.084	55.667	58.740	Continuing	Continuing
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	657.684	68.607	67.102	52.371	19.104	71.475	50.706	53.084	55.667	58.740	Continuing	Continuing
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**657.684**	**68.607**	**67.102**	**52.371**	**19.104**	**71.475**	**50.706**	**53.084**	**55.667**	**58.740**	**Continuing**	**Continuing**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)												
Initial Spares *($ in Millions)*	-	-	-	0.411	-	0.411	0.044	0.040	0.040	0.035	Continuing	Continuing
Flyaway Unit Cost *($ in Dollars)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Dollars)*	-	-	-	-	-	-	-	-	-	-	-	-

Description:

Naval Sea Systems Command (NAVSEA) -- Boats are procured to fill allowances established by CNO and NAVSEA and to replace boats now in service which are beyond economical repair at shore activities and aboard ships. Total inventory objectives change based on Fleet requirements.

H0001 BASE OPERATING FORCES

Force Protection Boat (Small) - Light gasoline twin outboard engine powered (up to 150 HP each) aluminum boats from 7 to 8.2 meters (24 to 27 ft) in length used primarily for fleet force protection, maritime interdiction, law enforcement operations, at Naval activities and adjacent ports and waterways duties. Can operate in areas where the environment (sea states/climatology) does not present a significant challenge. Service life is 7 years.

CNIC Force Protection Boat (Small) - Gasoline twin outboard engine aluminum boats approximately 8.5 meters (27 ft) in length with a narrow beam to aid in transport. Used primarily for fleet security, force protection/anti-terrorism, maritime interdiction and law enforcement operations at Naval activities and adjacent ports and waterways. The boats are provided with shouldering capabilities and foundations suitable for weapons. The boats operate primarily at Naval activities in sheltered harbors and waterways. Service life is 7 years.

CNIC Force Protection Boat (Medium) - Gasoline outboard engine powered aluminum boats approximately 10 meters (33 ft) in length used primarily for fleet force protection, maritime interdiction, law enforcement operations at Naval activities and adjacent ports and waterways duties. Needed for operations in areas where the environment (sea states/climatology) is significant enough to necessitate the larger boat and resultant larger engines to meet the performance/operational requirements. Service life is 7 years.

CNIC Force Protection Boat (Large) - Gasoline twin outboard engine powered aluminum boats approximately 11 meters (36 ft) in length with a wide beam used primarily for fleet force protection, maritime interdiction, law enforcement operations, at Naval activities and adjacent ports and waterways duties. Needed in areas where the environment (sea states/climatology) necessitates a larger boat for dependability. Service life is 7 years.

CNIC Workboat (Medium) - Diesel inboard-engine powered steel boats up to approximately 11 meters (36 ft) in length used primarily for multi-purpose workboat applications at Naval activities and adjacent ports and waterways duties, such as towing and pusher boat capabilities, line handling, harbor cleaning, and security barrier tending. Habitability, maneuverability and bollard pull power are commensurate

Exhibit P-40, Budget Line Item Justification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 01: Ships Support Equipment / BSA 12: Small Boats	P-1 Line Item Number / Title: 1210 / Standard Boats	
ID Code (A=Service Ready, B=Not Service Ready): A	Program Elements for Code B Items: N/A	Other Related Program Elements: N/A
Line Item MDAP/MAIS Code: N/A		

with operational requirements associated with barrier and moderately sized vessel assist (i.e., barges, boats, etc.). The Workboat (Medium) is capable of performing operations in areas where the operating environment (sea states/climatology) is not significant enough to necessitate the larger boat, but includes the capabilities necessary to meet operational requirements. Service life is 20 years.

CNIC Workboat (Large) - Diesel inboard-engine powered steel boats over approximately 11 meters (36 ft) in length used primarily for multi-purpose workboat applications at Naval activities and adjacent ports and waterways. Duties include towing and pusher tugboat capabilities, diver support, ship's husbandry, cargo carrier, personnel ferry, harbor cleaning, firefighting and security barrier tending. Habitability, maneuverability and bollard pull power are commensurate with operational requirements associated with large sized vessel assist (i.e., ships, derricks, etc.). The Workboat (Large) is needed for operations in areas where the operating environment (including sea states/climatology) is significant enough to necessitate the larger boat and include the capabilities necessary to meet operational requirements. Service life is 25 years.

CNIC Utility Boat (Small) - Gasoline outboard engine powered aluminum boats approximately 8 meters (26 ft) in length. Used for a variety of missions including search and rescue, craft maintenance, diver support, and transfer of personnel and light cargo. Service life is 10 years.

H0002 AMPHIBIOUS ASSAULT SHIPS

7M (24 ft) Rigid Inflatable Boat (RIB) - Diesel powered, primarily used as ship's lifeboats, search and rescue boats, liberty boats, and for general transportation on auxiliaries, combatants, carriers, amphibious, and shore activities. Also used for Anti-Terrorism/Force Protection (AT/FP) and Maritime Interdiction Operation/Vessel, Boarding, Search and Seizure (MIO/VBSS) operations. Service life is 12 years.

11M (36 ft) RIB - Carried as a ship's boat or assigned to a shore activity to perform a variety of operations including personnel and light cargo transfer, anchorage administration AT/FP operations and swimmer defense, visit/boarding/search and maritime interdiction, Amphibious Assault Vehicle (AAV) safety boat and Advanced Amphibious Assault Vehicle (AAAV) assist boat. Service life is 12 years.

H0003 EXPLOSIVE ORDNANCE DISPOSAL FORCES

Explosive Ordnance Disposal (EOD) Support Craft RIB - Used for area search, MK 5 and MK 16 Underwater Breathing Apparatus (UBA)/diving training, mammal operations, ordnance/mine recovery, parachute insertion support and command and control. Service life is 10 years.

11M (36 ft) EOD RIB - The 11M RIBs are required to support the emergent establishment of an enduring MK 18 unmanned underwater vehicle family of systems capability for near term operational missions in the shallow water and very shallow water environments in the Fifth Fleet area of responsibility. Operational missions include intelligence preparation of the operational environment/mine countermeasure missions. Service life is 7 to 10 years.

H0004 NAVAL SPECIAL WARFARE

NSW Short Range Support Craft - Used in support of combat swimmer-diver training evolutions and the Special Warfare Combatant Craft (SWCC) basic crewman training curriculum. Service life is 10 years.

NSW Long Range Support Craft - SEAL combat swimmer/SEAL Delivery Vehicle (SDV)/surface swimmer safety craft for offshore/open ocean training support. Provides transportation to/from training areas, dive supervisor/event officer-in-charge/corpsman safety support platform and injured diver/swimmer egress platform for Naval Special Warfare. Service life is 10 years.

NSW RIB (formerly Enhanced Visit Board Search and Seizure (VBSS)) - Provide operational commander a capability to conduct VBSS and Maritime Interception Operations (MIO) from an Afloat Staging Base in conjunction with an overwatch craft and other friendly forces. Service life is 7 years.

H0005 RIVERINE ACTIVITIES

Exhibit P-40, Budget Line Item Justification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 01: Ships Support Equipment / BSA 12: Small Boats	**P-1 Line Item Number / Title:** 1210 / Standard Boats	
ID Code (A=Service Ready, B=Not Service Ready): A	**Program Elements for Code B Items:** N/A	**Other Related Program Elements:** N/A
Line Item MDAP/MAIS Code: N/A		

40PB (formerly Patrol Boat (X)) - The craft will support maritime security operation missions and tasks such as harbor approach defense; high value unit transit escort operations; VBSS operations and overwatch; critical infrastructure protection; amphibious operations support; riverine operations; mine warfare support; embarked forces support (e.g., Special Operations Forces (SOF), EOD, United States Coast Guard (USCG) Law Enforcement Detachment (LEDET); and, Humanitarian Assistance/Disaster Relief (HA/DR) support. Twin diesel engine powered boat with a nominal length of 40 ft used to patrol green water littoral zones such as coastal water approaches, bays, major rivers, ports, and harbors. Service life is 15 to 20 years.

Coastal Riverine Force (CRF) Boat Simulator - Funding will be used to procure integrated virtual training simulators. These virtual simulators will provide training for MK VI and 40PB coxswains, navigators, engineers, and weapons personnel.

Riverine Multi-Mission Craft - Provides the Navy with, but not limited to, high value unit Escort, maritime infrastructure protection; coastal riverine security; VBSS, VBSS overwatch and/or mine warfare support. Service life is 8 years.

MK VI Patrol Boat - Naval Expeditionary Combat Command (NECC) Riverine Forces require a tactically sized, highly reliable, combatant craft capable of operating from land or maritime platforms. The mission of the MK VI is to provide the operational commander a capability to persistently patrol shallow littoral areas beyond sheltered harbors and bays, and into less sheltered open water out to the Departure Sea Area (DSA) for the purpose of force protection of friendly and coalition forces and critical infrastructure. Mission profiles may include: patrol of Maritime Pre-positioning Force (MPF) and Joint Logistics Over the Shore (JLOTS) anchorage and marshaling areas, offshore economic infrastructure Gulf Oil Platforms (GOPLATs), High-Value Asset (HVA) shipping escort, over watch of MIO/VBSS operations, Theater Security Cooperation (TSC), and Security Force Assistance (SFA). Service life is 7 to 10 years.

H0006 SUPPORT FORCES

7M (24 ft) RIB - Diesel powered, primarily used as ship's lifeboats, search and rescue boats, liberty boats, and for general transportation on auxiliaries, combatants, carriers, amphibious, and shore activities. Also used for AT/FP and MIO/VBSS operations. Service life is 12 years.

H0007 FLEET LOGISTICS SUPPORT

7M (24 ft) RIB - Diesel powered, primarily used as ship's lifeboats, search and rescue boats, liberty boats, and for general transportation on auxiliaries, combatants, carriers, amphibious, and shore activities. Also used for AT/FP and MIO/VBSS operations. Service life is 12 years.

H0008 NAVAL COASTAL WARFARE

Patrol Boat (Small) - Light gasoline twin outboard engine powered (up to 150 HP each) aluminum boats from 7 to 8.2 meters (24 to 27 ft) in length used primarily for fleet force protection, maritime interdiction, law enforcement operations, at Naval activities and adjacent ports and waterways duties. Can operate in areas where the environment (sea states/climatology) does not present a significant challenge. Service life is 7 years.

Patrol Boat (Large) - Twin diesel engine powered aluminum boats over 9 meters (30 ft) in length used primarily for fleet force protection, maritime interdiction, law enforcement operations, at Naval activities and adjacent ports and waterways duties. Needed in areas where the environment (sea states/climatology) necessitates a larger boat for dependability. Too heavy to meet the performance/operational requirements with outboard engines. Service life is 7 years.

H0009 SUBMARINE WARFARE

Dive Boat Replacement - Aluminum hull from 50 to 60 ft boat used in operations involving diving or the need to deploy support equipment at or near the water. Examples include dive operations focusing on underwater ships husbandry of Fleet assets, training, underwater survey and RDT&E, as well as, general ports and waterways operations, routine harbor maintenance and cleanup duties, and to assist in patrol, rescue, firefighting and picket operations. Service life: 15 to 20 years.

Exhibit P-40, Budget Line Item Justification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 01: Ships Support Equipment / BSA 12: Small Boats	**P-1 Line Item Number / Title:** 1210 / Standard Boats	
ID Code (A=Service Ready, B=Not Service Ready): A	**Program Elements for Code B Items:** N/A	**Other Related Program Elements:** N/A
Line Item MDAP/MAIS Code: N/A		

H0010 POLLUTION CONTROL EQUIPMENT

Oil Boom Platform - 30 ft Boom Platform (BP) Boat used for Oil Spill Response (OSR) operations, working in conjunction with 25 ft Utility Boats (UBs) and Rapid Response Skimmers (RRS). Typical mission requires UB and BP to sprint to the oil spill location ahead of the RRS. After spill assessment, 24" response boom (aboard BP) is tied off to UB, which is used to payout/deploy boom to surround spill while the RRS recovers the oil. BP crew delivers and unravels the boom during oil skimming operations. Typical mission duration is 3-8 hours. Service life is 10 years.

Utility Boats - 25 ft boats used for OSR operations, working in conjunction with Boom Platforms (BPs) and Rapid Response Skimmers (RRS). Typical mission requires UB and BP to sprint to the oil spill location ahead of the RRS. After spill assessment, 24" response boom (aboard BP) is tied off to UB, which is used to payout/deploy boom to surround spill while the RRS recovers the oil. UB crew tends boom during oil skimming operations, accessing boom over low gunwales or via dive door on UB. Typical mission duration is 3-8 hours. Service life is 10 years.

Rapid Response Skimmers - 30 ft boats used for OSR operations, working in conjunction with Boom Platforms (BPs) and Utility Boats (UBs). Typical mission requires UB and BP to sprint to the oil spill location ahead of the RRS. After spill assessment, 24" response boom (aboard BP) is tied off to UB, which is used to payout/deploy boom to surround spill while the RRS recovers the oil. The RRS "skims" the oil off of the top of the water and holds it in an onboard storage container for proper disposal and processing. Typical mission duration is 3-24 hours. Service life is 10 years.

H0011 WARFARE INTEGRATION

Workboat (Medium) - Diesel inboard-engine powered steel boats up to approximately 11 meters (36 ft) in length used primarily for multi-purpose workboat applications at Naval activities and adjacent ports and waterways duties, such as towing and pusher boat capabilities, line handling, harbor cleaning, and security barrier tending. Habitability, maneuverability and bollard pull power are commensurate with operational requirements associated with barrier and moderately sized vessel assist (i.e., barges, boats, etc.). The Workboat (Medium) is capable of performing operations in areas where the operating environment (sea states/climatology) is not significant enough to necessitate the larger boat, but includes the capabilities necessary to meet operational requirements. Service life is 20 years.

H0830 PRODUCTION ENGINEERING

Production Engineering funds are used for engineering and technical support of boat and combatant craft acquisition and the development of integrated logistics support documentation to include technical data packages, provisioning, technical manuals, preventative maintenance documents and naval training systems plans. Technical support shall include acceptance trials, test and evaluation, inspections of production facilities, methods and quality assurance procedures and processes during and after construction. Additionally, official Navy boat inventory management, pre-delivery and post-delivery inspections and preparing documentation regarding boat and combatant craft procurement contract closeout and may be accomplished. Boats will not be safe or suitable to perform Navy boat and combatant craft missions if acquisition engineering technical support and integrated logistics support are not funded and completed. Boats will not be properly accounted for in accordance with the Department of Navy's instruction 4780.6E if boat inventory management is not provided.

H0CA5 DIVE BOATS

Aluminum hull from 50 to 60 ft boat used in operations involving diving or the need to deploy support equipment at or near the water. Examples include dive operations focusing on underwater ships husbandry of Fleet assets, training, underwater survey and RDT&E, as well as, general ports and waterways operations, routine harbor maintenance and cleanup duties, and to assist in patrol, rescue, firefighting and picket operations. Service life: 15 to 20 years.

H0CA6 RANGE SUPPORT CRAFT

Workboat type vessel to serve US Navy Weapons Systems Training and Validation, assisting fleet operations conducting acoustical, thermal and cross-section measurements and testing. Hulls to be steel or aluminum with aluminum superstructure and corrosion resistant systems, components and hardware to operate in industrial conditions with minimal maintenance. Sea kindliness underway and while loitering for extended periods are among the primary operational requirements. A large open workspace on the after deck with a retrieval ramp providing access to the water and appropriate weapons handling machinery.

Exhibit P-40, Budget Line Item Justification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 01: Ships Support Equipment / BSA 12: Small Boats	**P-1 Line Item Number / Title:** 1210 / Standard Boats	
ID Code (A=Service Ready, B=Not Service Ready): A	**Program Elements for Code B Items:** N/A	**Other Related Program Elements:** N/A
Line Item MDAP/MAIS Code: N/A		

Weapons systems equipment to be handled includes missiles, torpedoes, surface and air launched Remotely Operated Vehicles (ROVs) and targets. Minimal freeboard height aft is necessary for crew safety while accessing and operating the weapons retrieval mechanism without compromising stability. The boat must be able to accommodate extreme loading conditions (i.e., from a full weapons load topside to light load). The boat must be as stable and as wide as possible to provide the inherent stability characteristics necessary to perform the operations and necessary to provide ergonomics for the crew and passengers. Requirements include communications, navigation and other electronics systems necessary to support the sophisticated training, validation and recording of specialized measurements to support a wide variety of operations. A Commercial Off The Shelf (COTS) boat built to recognize commercial standards can accomplish specific operational requirements for the mission. Service Life is 25 years.

H0CAB FORCE PROTECTION BOAT (SMALL)

Light gasoline twin outboard engine powered (up to 150 HP each) aluminum boats from 7 to 8.2 meters (24 to 27 ft) in length used primarily for fleet force protection, maritime interdiction, law enforcement operations, at Naval activities and adjacent ports and waterways duties. Can operate in areas where the environment (sea states/climatology) does not present a significant challenge. Service life is 7 years.

H0G86 OCO SUPPLEMENTAL

Current existing systems require replacements for boats due to excessive wear and tear. The boats are being maintained; however, they are not designed for the operational tempo (OPTEMPO) and harsh operating conditions in which they will be employed. The Force Protection Coastal (FPC) boats will provide capability called for in Visit, Board, Search and Seizure (VBSS) overwatch Urgent Operational Needs Statement (UONS) that cannot be met with existing boats. The Riverine Patrol boats, 7M EOD RIBS, and Force Protection (Large) are for boats already in theater.

Coastal Riverine Force (CRF) 40PB (formerly Patrol Boat (X)) - The craft will support maritime security operation missions and tasks such as Harbor Approach Defense; high value unit transit escort operations; VBSS operations and overwatch; critical infrastructure protection; amphibious operations support; riverine operations; mine warfare support; Embarked Forces Support (e.g., SOF, EOD, USCG LEDET); and, Humanitarian Assistance/Disaster Relief (HA/DR) Support. Twin diesel engine powered boat with a nominal length of 40 ft used to patrol green water littoral zones such as coastal water approaches, bays, major rivers, ports, and harbors. Service life is 15 to 20 years. This begins the reset of twenty-four (24) over age and deteriorating patrol boats continuously deployed to CENTCOM in support of Operation Freedom's Sentinel - Theater (OFS-T). The craft are needed to maintain operational capability and readiness to support force protection and Intelligence, Surveillance and Reconnaissance (ISR) missions in CENTCOM for OFS-T.

Rigid Inflatable Boats (RIB) ISO Global Mine Warfare (MIW) Operations - FY19 OCO funding to support the purchase of one (1) 8.5M Rigid Inflatable Boat (RIB) to replace the Combat Rubber Rating Crafts (CRRCs) currently being utilized for global Unmanned Underwater Vehicle (UUV) inshore surveys. The larger RIBs are required due to the CRRCs not being designed for offshore use thus unsafe/unreliable in offshore maritime conditions, and severely limit maneuverability through most sea-states which is unsuitable for the majority of UUV surveys. RIBs are designed for offshore UUV survey requests. The RHIBs will greatly improve the ability to provide mission critical information aimed at protecting the Navy from underwater threats and support the increased naval demand in offshore operations. The project is in geographic area for MIW operations in support of a USCENTCOM requirement ("SPARTAN SHIELD"/FTN # 1190C066396)

SSPBV Blocking Vessels

Blocking Vessels - 250' Off Shore Vessels (OSVs) also referred to as Blocking Vessels (BVs) operating at each Strategic Weapons Facility (Bangor, Washington and Kings Bay, Georgia). The Blocking Vessels are a key security component in the transit of SSBNs to and from the dive point. Service Life is 25 years.

Exhibit P-40, Budget Line Item Justification: PB 2021 Navy	Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 01: Ships Support Equipment / BSA 12: Small Boats	**P-1 Line Item Number / Title:** 1210 / Standard Boats

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

Line Item MDAP/MAIS Code: N/A

Exhibits Schedule					Prior Years	FY 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	Standard Boats	P-5a			- / 657.684	- / 68.607	- / 67.102	- / 52.371	- / 19.104	- / 71.475
P-40	**Total Gross/Weapon System Cost**				**- / 657.684**	**- / 68.607**	**- / 67.102**	**- / 52.371**	**- / 19.104**	**- / 71.475**

*Title represents 1) the Number / Title for Items; 2) the Number / Title [DODIC] for Ammunition; and/or 3) the Number / Title (Modification Type) for Modifications. Title represents the P-40a Title when only the P-40a Summary/Total is shown.

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

Justification:
Funds baseline programs to provide boats established by CNO and NAVSEA.

H0003 3.1 - Increase in unit cost due to change in requirements to meet the fleets needs which includes; onboard generator, dynamic positioning computer and rough terrain trailer. The increase in the unit price increase also includes funding for Command, Control, Communications, Computers and Intelligence (C4I), which were previously budgeted for under OPN BLI 8128.

H0003 3.2 - Increase in unit cost due to change in requirements to meet the fleets needs which includes; greater deck space, improved Unmanned Undersea Vehicle (UUV) launch and recovery system and a transom tailgate. The increase in the unit price increase also includes funding for C4I, which was previously budgeted for under OPN 8128. Unit cost being updated to reflect actuals from April 2019 contract award.

H0005 5.1 & H0G86 16.5 - Change in unit cost to reflect actuals from contract award and include change in requirements to meet the fleets needs which include; updated ballistic protection, increased range, and addition of a remotely operated mount weapon.

OCO:
Coastal Riverine Force (CRF) 40PB - The craft will support maritime security operation missions and tasks such as Harbor Approach Defense; High Value Unit Transit Escort Operations; VBSS Operations and Overwatch; Critical Infrastructure Protection; Amphibious Operations Support; Riverine Operations; Mine Warfare Support; Embarked Forces Support (e.g., SOF, EOD, USCG LEDET); and, Humanitarian Assistance/Disaster Relief (HA/DR) Support. Twin diesel engine powered boat with a nominal length of 40ft used to patrol green water littoral zones such as coastal water approaches, bays, major rivers, ports, and harbors. Service life is 15 to 20 years. Eight (8) CRF PB units are being requested for $19.104M. This continues the reset of twenty-four (24) over age and deteriorating patrol boats continuously deployed to CENTCOM in support of Operation Freedom's Sentinel - Theater (OFS-T). The craft are needed to maintain operational capability and readiness to support force protection and ISR missions in CENTCOM for OFS-T.

Exhibit P-40a, Budget Item Justification For Aggregated Items: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 12	P-1 Line Item Number / Title: 1210 / Standard Boats	Aggregated Items Title: Standard Boats

Item Number / Title [DODIC]	ID CD	MDAP/ MAIS Code	Prior Years			FY 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) H0001 - Base Operating Forces																				
1.1) Force Protection Small	A		3,387K	3	10.161	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.2) CNIC Force Protection (Small) (1)(†)	A		382,090.91	11	4.203	-	-	-	-	-	-	439,000.00	3	1.317	-	-	-	439,000.00	3	1.317
1.3) CNIC Force Protection (Medium)(†)	A		512,776.47	85	43.586	484,000.00	9	4.356	493,000.00	11	5.423	502,000.00	8	4.016	-	-	-	502,000.00	8	4.016
1.4) CNIC Force Protection (Large) (2)(†)	A		11,379K	3	34.136	-	-	-	-	-	-	907,000.00	3	2.721	-	-	-	907,000.00	3	2.721
1.5) CNIC Workboat (Medium) (3)(†)	A		1,002K	22	22.039	954,333.33	3	2.863	972,000.00	2	1.944	991,000.00	3	2.973	-	-	-	991,000.00	3	2.973
1.6) CNIC Workboat (Large)(†)	A		1,620K	9	14.583	1,707K	3	5.121	1,738K	3	5.214	1,772K	2	3.545	-	-	-	1,772K	2	3.545
Subtotal: 1) H0001 - Base Operating Forces			**-**	**-**	***128.708***	**-**	**-**	***12.340***	**-**	**-**	***12.581***	**-**	**-**	***14.572***	**-**	**-**	**-**	**-**	**-**	***14.572***
2) H0002 - Amphibious Assault Ships																				
2.1) 7M (24 ft) Rigid Inflatable Boat (RIB)(†)	A		-	-	-	-	-	-	211,714.29	7	1.482	216,200.00	6	1.297	-	-	-	216,200.00	6	1.297
2.2) 11M (36 ft) RIB (4)(†)	A		956,277.78	18	17.213	-	-	-	-	-	-	825,000.00	2	1.650	-	-	-	825,000.00	2	1.650
Subtotal: 2) H0002 - Amphibious Assault Ships			**-**	**-**	***17.213***	**-**	**-**	**-**	**-**	**-**	***1.482***	**-**	**-**	***2.947***	**-**	**-**	**-**	**-**	**-**	***2.947***
3) H0003 - Explosive Ordnance Forces																				
3.1) EOD Support Craft RIB (5)(†)	A		361,200.00	50	18.060	700,000.00	3	2.100	714,000.00	3	2.142	728,000.00	3	2.184	-	-	-	728,000.00	3	2.184
3.2) 11M EOD RIB (6)(†)	A		939,272.73	11	10.332	1,203K	4	4.812	1,227K	12	14.724	1,668K	3	5.004	-	-	-	1,668K	3	5.004
Subtotal: 3) H0003 - Explosive Ordnance Forces			**-**	**-**	***28.392***	**-**	**-**	***6.912***	**-**	**-**	***16.866***	**-**	**-**	***7.188***	**-**	**-**	**-**	**-**	**-**	***7.188***
4) H0004 - Naval Special Warfare																				
4.1) NSW Long Range Support Craft(†)	A		359,371.43	35	12.578	347,000.00	8	2.776	353,000.00	6	2.118	360,000.00	4	1.440	-	-	-	360,000.00	4	1.440
4.2) NSW Short Range Support Craft(†)	A		559,894.74	19	10.638	345,000.00	9	3.105	351,000.00	9	3.159	358,000.00	7	2.506	-	-	-	358,000.00	7	2.506
4.3) NSW RIB(†)	A		1,013K	12	12.157	1,069K	2	2.138	1,089K	2	2.178	-	-	-	-	-	-	-	-	-
Subtotal: 4) H0004 - Naval Special Warfare			**-**	**-**	***35.373***	**-**	**-**	***8.019***	**-**	**-**	***7.455***	**-**	**-**	***3.946***	**-**	**-**	**-**	**-**	**-**	***3.946***

Exhibit P-40a, Budget Item Justification For Aggregated Items: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 12	P-1 Line Item Number / Title: 1210 / Standard Boats	Aggregated Items Title: Standard Boats

Item Number / Title [DODIC]	ID CD	MDAP/ MAIS Code	Prior Years			FY 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)
5) H0005 - Riverine Activities																				
5.1) 40PB (7)(†)	A		2,756K	13	35.832	2,295K	4	9.180	2,341K	4	9.364	2,388K	4	9.552	-	-	-	2,388K	4	9.552
5.2) 40PB Production Support-Logistics-Inventory Mgmt-GFE-Spares (8)	A		-	-	-	-	-	2.012	-	-	1.940	-	-	1.808	-	-	-	-	-	1.808
5.3) 40PB Spares/ Design rights	A		-	-	1.100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5.4) CRF Boat Simulator(†)	A		-	-	-	-	-	-	3,000K	2	6.000	-	-	-	-	-	-	-	-	-
5.5) Riverine Multi-Mission Craft	A		4,085K	11	44.936	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5.6) MK VI Patrol Boat	A		8,217K	3	24.651	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: 5) H0005 - Riverine Activities			**-**	**-**	***106.519***	**-**	**-**	***11.192***	**-**	**-**	***17.304***	**-**	**-**	***11.360***	**-**	**-**	**-**	**-**	**-**	***11.360***
6) H0006 - Support Forces																				
6.1) 7M (24 ft) RIB(†)	A		276,100.00	120	33.132	208,000.00	13	2.704	212,000.00	13	2.756	216,230.77	13	2.811	-	-	-	216,230.77	13	2.811
Subtotal: 6) H0006 - Support Forces			**-**	**-**	***33.132***	**-**	**-**	***2.704***	**-**	**-**	***2.756***	**-**	**-**	***2.811***	**-**	**-**	**-**	**-**	**-**	***2.811***
7) H0007 - Fleet Logistics Support																				
7.1) 7M (24 ft) RIB(†)	A		311,761.90	21	6.547	208,000.00	3	0.624	212,000.00	3	0.636	216,333.33	3	0.649	-	-	-	216,333.33	3	0.649
Subtotal: 7) H0007 - Fleet Logistics Support			**-**	**-**	***6.547***	**-**	**-**	***0.624***	**-**	**-**	***0.636***	**-**	**-**	***0.649***	**-**	**-**	**-**	**-**	**-**	***0.649***
8) H0008 - Naval Coastal Warfare																				
8.1) Reserve Patrol Boat Small	A		-	-	0.681	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
8.2) Reserve Patrol Boat Large	A		1,227K	3	3.680	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: 8) H0008 - Naval Coastal Warfare			**-**	**-**	***4.361***	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
9) H0009 - Submarine Warfare																				
9.1) Dive Boat Replacement(†)	A		1,921K	9	17.290	2,037K	2	4.074	2,077K	2	4.154	2,118K	1	2.119	-	-	-	2,118K	1	2.119
Subtotal: 9) H0009 - Submarine Warfare			**-**	**-**	***17.290***	**-**	**-**	***4.074***	**-**	**-**	***4.154***	**-**	**-**	***2.119***	**-**	**-**	**-**	**-**	**-**	***2.119***
10) H0010 - Pollution Control Equipment																				
10.1) Oilboom Platform(†)	A		189,000.00	8	1.512	197,000.00	4	0.788	200,000.00	4	0.800	204,000.00	4	0.816	-	-	-	204,000.00	4	0.816
10.2) Utility Boats(†)	A		134,300.00	20	2.686	143,000.00	5	0.715	146,000.00	9	1.314	148,888.89	9	1.340	-	-	-	148,888.89	9	1.340
10.3) Rapid Response Skimmer(†)	A		390,565.22	23	8.983	416,000.00	4	1.664	424,000.00	2	0.848	432,500.00	2	0.865	-	-	-	432,500.00	2	0.865

Exhibit P-40a, Budget Item Justification For Aggregated Items: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 12	P-1 Line Item Number / Title: 1210 / Standard Boats	Aggregated Items Title: Standard Boats

Item Number / Title [DODIC]	ID CD	MDAP/ MAIS Code	Prior Years			FY 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)
10.4) OSR OB Engine (9)(†)	A		10,000.00	4	0.040	10,333.33	3	0.031	10,333.33	3	0.031	10,333.33	4	0.041	-	-	-	10,333.33	4	0.041
Subtotal: 10) H0010 - Pollution Control Equipment			**-**	**-**	***13.221***	**-**	**-**	***3.198***	**-**	**-**	***2.993***	**-**	**-**	***3.062***	**-**	**-**	**-**	**-**	**-**	***3.062***
11) H0011 - Warfare Integration																				
11.1) Workboat (Medium) (10)(†)	A		-	-	-	-	-	-	-	-	-	991,000.00	3	2.973	-	-	-	991,000.00	3	2.973
Subtotal: 11) H0011 - Warfare Integration			**-**	**-**	***0.000***	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	***2.973***	**-**	**-**	**-**	**-**	**-**	***2.973***
12) H0830 - Production Engineering																				
12.1) Production Engineering	A		-	-	9.174	-	-	0.383	-	-	0.517	-	-	0.388	-	-	-	-	-	0.388
12.2) Production Engineering (Naval Coastal Warfare)	A		-	-	0.391	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: 12) H0830 - Production Engineering			**-**	**-**	***9.565***	**-**	**-**	***0.383***	**-**	**-**	***0.517***	**-**	**-**	***0.388***	**-**	**-**	**-**	**-**	**-**	***0.388***
13) H0900 - Consulting Services																				
13.1) Consulting Services	A		-	-	6.969	-	-	0.325	-	-	0.358	-	-	0.356	-	-	-	-	-	0.356
13.2) Consulting Services (Naval Coastal Warfare)	A		-	-	0.289	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: 13) H0900 - Consulting Services			**-**	**-**	***7.258***	**-**	**-**	***0.325***	**-**	**-**	***0.358***	**-**	**-**	***0.356***	**-**	**-**	**-**	**-**	**-**	***0.356***
14) H0CA5 - Dive Boats																				
14.1) Dive Boats	A		2,259K	3	6.777	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: 14) H0CA5 - Dive Boats			**-**	**-**	***6.777***	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
15) H0CA6 - Range Support Craft																				
15.1) Range Support Craft	A		18,362K	2	36.723	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: 15) H0CA6 - Range Support Craft			**-**	**-**	***36.723***	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
16) H0CAB - Force Protection Boat (Small)																				
16.1) Force Protection Boat (Small)	A		-	-	2.000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
16.2) Small Escort Vessels (33')	A		-	-	9.979	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: 16) H0CAB - Force Protection Boat (Small)			**-**	**-**	***11.979***	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
17) H0G86 - OCO																				

Exhibit P-40a, Budget Item Justification For Aggregated Items: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 12	P-1 Line Item Number / Title: 1210 / Standard Boats	Aggregated Items Title: Standard Boats

Item Number / Title [DODIC]	ID CD	MDAP/ MAIS Code	Prior Years			FY 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)
17.1) OCO - Patrol Boat (Large) (Reserve)	A		651,000.00	2	1.302	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
17.2) OCO - RIBS	A		500,000.00	2	1.000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
17.3) OCO - 7M EOD RIBs (Reserve)	A		234,000.00	6	1.404	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
17.4) OCO - Force Protection - Coastal (Reserve)	A		4,000K	5	20.000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
17.5) Coastal Riverine Force (CRF) - 40PB (11)(†)	A		2,250K	8	18.000	2,295K	8	18.360	-	-	-	-	-	0.000	2,388K	8	19.104	2,388K	8	19.104
17.6) RIB - Global Mine(†)	A		-	-	-	476,000.00	1	0.476	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: 17) H0G86 - OCO			**-**	**-**	***41.706***	**-**	**-**	***18.836***	**-**	**-**	**-**	**-**	**-**	***0.000***	**-**	**-**	***19.104***	**-**	**-**	***19.104***
18) SSPBV																				
18.1) Blocking Vessels	A		38,230K	4	152.920	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: 18) SSPBV			**-**	**-**	***152.920***	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Total			**-**	**-**	**657.684**	**-**	**-**	**68.607**	**-**	**-**	**67.102**	**-**	**-**	**52.371**	**-**	**-**	**19.104**	**-**	**-**	**71.475**

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

(†) indicates the presence of a P-5a

Footnotes:

(1) The increase in quantity is to replace the backlog of craft that are beyond economical repair and are past their established service life.

(2) The increase in quantity is to replace the backlog of craft that are beyond economical repair and are past their established service life.

(3) The increase in quantity is to replace the backlog of craft that are beyond economical repair and are past their established service life.

(4) The increase in quantity is to replace the backlog of craft that are beyond economical repair and are past their established service life.

(5) Increase in unit cost due to change in requirements to meet the fleets needs which includes; onboard generator, dynamic positioning computer and rough terrain trailer. The increase in the unit price increase also includes funding for Command, Control, Communications, Computers and Intelligence (C4I), which were previously budgeted for under OPN BLI 8128. Unit cost has been updated to reflect actuals from April 2019 contract award.

(6) Increase in unit cost due to change in requirements to meet the fleets needs which includes; greater deck space, improved Unmanned Undersea Vehicle (UUV) launch and recovery system and a transom tailgate. The increase in the unit price increase also includes funding for C4I, which was previously budgeted for under OPN 8128. Unit cost has been updated to reflect actuals from April 2019 contract award.

(7) Change in unit cost to reflect actuals from contract award and include change in requirements to meet the fleets needs which include; updated ballistic protection, increased range, and addition of a remotely operated mount weapon.

(8) Funding is for production engineering (Acquisition Engineering Agent (AEA / Integrated Logistics Support (ILS)), Boat Inventory Management (BIM), Government Furnished Equipment (GFE) and spares in support of the 40PB.

(9) The increase in quantity is to replace the backlog of engines that are beyond economical repair and are past their established service life.

(10) The increase in quantity is to replace the backlog of craft that are beyond economical repair and are past their established service life.

(11) The OCO boats being procured (Coastal Riverine Force (CRF) - Patrol Boat (X)) is the same boat type as 40PB (Formerly PB(X) under H0005, 5.1). Change in FY 2018 and FY 2019 unit cost reflects actuals from contract award and include change in requirements to meet the fleets needs which include; updated ballistic protection, increased range, and addition of a remotely operated mount weapon.

Exhibit P-5a, Procurement History and Planning: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 12	P-1 Line Item Number / Title: 1210 / Standard Boats	Aggregated Items: Standard Boats

Item Number / Title [DODIC]	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) H0001 - Base Operating Forces												
1.2) CNIC Force Protection (Small) (1)		2021	TBD / TBD	C / IDIQ	NAVSEA	Jul 2021	Mar 2022	3	439,000.00	N		
1.3) CNIC Force Protection (Medium)		2019	TBD / TBD	C / IDIQ	NAVSEA	Feb 2020	Sep 2020	9	484,000.00	N		
1.3) CNIC Force Protection (Medium)		2020	TBD / TBD	C / IDIQ	NAVSEA	Jun 2020	Jan 2021	11	493,000.00	N		
1.3) CNIC Force Protection (Medium)		2021	TBD / TBD	C / IDIQ	NAVSEA	Jun 2021	Jan 2022	8	502,000.00	N		
1.4) CNIC Force Protection (Large) (2)		2021	TBD / TBD	C / IDIQ	NAVSEA	Jul 2021	Mar 2022	3	907,000.00	N		
1.5) CNIC Workboat (Medium) (3)		2019	Modutech / Tacoma, WA	C / IDIQ	NAVSEA	Oct 2018	Apr 2020	3	954,333.33	N		
1.5) CNIC Workboat (Medium) (3)		2020	Modutech / Tacoma, WA	C / IDIQ	NAVSEA	Oct 2019	Apr 2021	2	972,000.00	N		
1.5) CNIC Workboat (Medium) (3)		2021	TBD / TBD	C / IDIQ	NAVSEA	Jul 2021	May 2022	3	991,000.00	N		
1.6) CNIC Workboat (Large)		2018	Snow & Company / Seattle, WA	C / IDIQ	NAVSEA	Mar 2018	Jan 2020	3	1,681K	N		
1.6) CNIC Workboat (Large)		2019	Snow & Company / Seattle, WA	C / IDIQ	NAVSEA	Nov 2018	Sep 2020	3	1,707K	N		
1.6) CNIC Workboat (Large)		2020	TBD / TBD	C / IDIQ	NAVSEA	Jun 2020	Sep 2021	3	1,738K	N		
1.6) CNIC Workboat (Large)		2021	TBD / TBD	C / IDIQ	NAVSEA	Jun 2021	Sep 2022	2	1,772K	N		
2) H0002 - Amphibious Assault Ships												
2.1) 7M (24 ft) Rigid Inflatable Boat (RIB)		2020	TBD / TBD	C / IDIQ	NAVSEA	Jul 2020	Feb 2021	7	211,714.29	N		
2.1) 7M (24 ft) Rigid Inflatable Boat (RIB)		2021	TBD / TBD	C / IDIQ	NAVSEA	Jun 2021	Jan 2022	6	216,200.00	N		
2.2) 11M (36 ft) RIB (4)		2021	TBD / TBD	C / IDIQ	NAVSEA	Jun 2021	Mar 2022	2	825,000.00	N		
3) H0003 - Explosive Ordnance Forces												
3.1) EOD Support Craft RIB (5)		2019	USMI / Gulfport, MS	C / IDIQ	NAVSEA	Apr 2019	Apr 2020	3	700,000.00	N		
3.1) EOD Support Craft RIB (5)		2020	USMI / Gulfport, MS	C / IDIQ	NAVSEA	Nov 2019	Nov 2020	3	714,000.00	N		
3.1) EOD Support Craft RIB (5)		2021	TBD / TBD	C / IDIQ	NAVSEA	May 2021	Nov 2021	3	728,000.00	N		
3.2) 11M EOD RIB (6)		2018	RIBCRAFT / Marblehead, MA	C / IDIQ	NAVSEA	Apr 2019	Nov 2020	9	748,000.00	N		
3.2) 11M EOD RIB (6)		2019	RIBCRAFT / Marblehead, MA	C / IDIQ	NAVSEA	Apr 2019	Feb 2021	4	1,203K	N		
3.2) 11M EOD RIB (6)		2020	TBD / TBD	C / IDIQ	NAVSEA	Jun 2020	Feb 2021	12	1,227K	N		
3.2) 11M EOD RIB (6)		2021	TBD / TBD	C / IDIQ	NAVSEA	Jun 2021	Feb 2022	3	1,668K	N		
4) H0004 - Naval Special Warfare												

Exhibit P-5a, Procurement History and Planning: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 12	P-1 Line Item Number / Title: 1210 / Standard Boats	Aggregated Items: Standard Boats

Item Number / Title [DODIC]	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) NSW Long Range Support Craft		2019	Silverships / Theodore, AL	C / IDIQ	NAVSEA	Jul 2019	Mar 2020	8	347,000.00	N		
4.1) NSW Long Range Support Craft		2020	TBD / TBD	C / IDIQ	NAVSEA	Jul 2020	Jan 2021	6	353,000.00	N		
4.1) NSW Long Range Support Craft		2021	TBD / TBD	C / IDIQ	NAVSEA	Jun 2021	Dec 2021	4	360,000.00	N		
4.2) NSW Short Range Support Craft		2019	Workskiff / Woolley, WA	C / IDIQ	NAVSEA	Feb 2019	Sep 2019	9	345,000.00	N		
4.2) NSW Short Range Support Craft		2020	TBD / TBD	C / IDIQ	NAVSEA	Jul 2020	Feb 2021	9	351,000.00	N		
4.2) NSW Short Range Support Craft		2021	TBD / TBD	C / IDIQ	NAVSEA	Jun 2021	Jan 2022	7	358,000.00	N		
4.3) NSW RIB		2019	USMI / Gulfport, MS	C / IDIQ	NAVSEA	Feb 2019	Mar 2020	2	1,069K	N		
4.3) NSW RIB		2020	TBD / TBD	C / IDIQ	NAVSEA	Jul 2020	Jan 2021	2	1,089K	N		
5) H0005 - Riverine Activities												
5.1) 40PB (7)		2018	Gravois Aluminum Boats / Jeanerette, LA	C / IDIQ	NAVSEA	Jul 2018	Jun 2021	3	2,250K	N		
5.1) 40PB (7)		2019	Gravois Aluminum Boats / Jeanerette, LA	C / IDIQ	NAVSEA	Mar 2019	Feb 2022	4	2,295K	N		
5.1) 40PB (7)		2020	TBD / TBD	C / IDIQ	NAVSEA	Jun 2020	May 2023	4	2,341K	N		
5.1) 40PB (7)		2021	TBD / TBD	C / IDIQ	NAVSEA	Jun 2021	May 2024	4	2,388K	N		
5.4) CRF Boat Simulator		2020	TBD / TBD	C / FFP	NAVSEA	Jul 2020	Jul 2021	2	3,000K	N		
6) H0006 - Support Forces												
6.1) 7M (24 ft) RIB		2019	RIBCRAFT / Marblehead, MA	C / FFP	NAVSEA	Nov 2018	Jun 2019	13	208,000.00	N		
6.1) 7M (24 ft) RIB		2020	TBD / TBD	C / IDIQ	NAVSEA	Jul 2020	Feb 2021	13	212,000.00	N		
6.1) 7M (24 ft) RIB		2021	TBD / TBD	C / IDIQ	NAVSEA	Jun 2021	Jan 2022	13	216,230.77	N		
7) H0007 - Fleet Logistics Support												
7.1) 7M (24 ft) RIB		2019	RIBCRAFT / Marblehead, MA	C / FFP	NAVSEA	Nov 2018	Jun 2019	3	208,000.00	N		
7.1) 7M (24 ft) RIB		2020	TBD / TBD	C / IDIQ	NAVSEA	Jul 2020	Feb 2021	3	212,000.00	N		
7.1) 7M (24 ft) RIB		2021	TBD / TBD	C / IDIQ	NAVSEA	Jun 2021	Jan 2022	3	216,333.33	N		
9) H0009 - Submarine Warfare												
9.1) Dive Boat Replacement		2019	Marine Group / Chula Vista, CA	C / IDIQ	NAVSEA	Mar 2019	Nov 2020	2	2,037K	N		
9.1) Dive Boat Replacement		2020	Marine Group / Chula Vista, CA	C / IDIQ	NAVSEA	Oct 2019	Jun 2021	2	2,077K	N		
9.1) Dive Boat Replacement		2021	TBD / TBD	C / IDIQ	NAVSEA	Jun 2021	Jun 2022	1	2,118K	N		
10) H0010 - Pollution Control Equipment												

Exhibit P-5a, Procurement History and Planning: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 12	P-1 Line Item Number / Title: 1210 / Standard Boats	Aggregated Items: Standard Boats

Item Number / Title [DODIC]	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
10.1) Oilboom Platform		2019	Metal Craft Marine, Inc. / Cape Vincent NY	C / IDIQ	NAVSEA	Jan 2019	Nov 2019	4	197,000.00	N		
10.1) Oilboom Platform		2020	Metal Craft Marine, Inc. / Cape Vincent NY	C / IDIQ	NAVSEA	Jan 2020	Nov 2020	4	200,000.00	N		
10.1) Oilboom Platform		2021	TBD / TBD	C / IDIQ	NAVSEA	Jun 2021	Dec 2021	4	204,000.00	N		
10.2) Utility Boats		2019	Metal Craft Marine, Inc. / Cape Vincent NY	C / IDIQ	NAVSEA	Jan 2019	Dec 2019	5	143,000.00	N		
10.2) Utility Boats		2020	Metal Craft Marine, Inc. / Cape Vincent NY	C / IDIQ	NAVSEA	Jan 2020	Dec 2020	9	146,000.00	N		
10.2) Utility Boats		2021	TBD / TBD	C / IDIQ	NAVSEA	Jun 2021	Nov 2021	9	148,888.89	N		
10.3) Rapid Response Skimmer		2019	Kvichak Marine / Seattle, WA	C / IDIQ	NAVSEA	Feb 2019	Dec 2019	4	416,000.00	N		
10.3) Rapid Response Skimmer		2020	TBD / TBD	C / IDIQ	NAVSEA	Jul 2020	Jan 2021	2	424,000.00	N		
10.3) Rapid Response Skimmer		2021	TBD / TBD	C / IDIQ	NAVSEA	Jun 2021	Dec 2021	2	432,500.00	N		
10.4) OSR OB Engine (9)		2019	DLA / Philadelphia, PA	MIPR	NAVSEA	Jun 2019	Nov 2019	3	10,333.33	N		
10.4) OSR OB Engine (9)		2020	TBD / TBD	MIPR	NAVSEA	Jun 2020	Nov 2020	3	10,333.33	N		
10.4) OSR OB Engine (9)		2021	TBD / TBD	MIPR	NAVSEA	Jun 2021	Nov 2021	4	10,333.33	N		
11) H0011 - Warfare Integration												
11.1) Workboat (Medium) (10)		2021	TBD / TBD	C / IDIQ	NAVSEA	Jun 2021	Apr 2022	3	991,000.00	N		
17) H0G86 - OCO												
17.5) Coastal Riverine Force (CRF) - 40PB (11)	✓	2018	Gravois Aluminum Boats, LLC / Jeanerette, LA	C / IDIQ	NAVSEA	Jul 2018	Sep 2021	8	2,250K	N		
17.5) Coastal Riverine Force (CRF) - 40PB (11)	✓	2019	Gravois Aluminum Boats, LLC / Jeanerette, LA	C / IDIQ	NAVSEA	Mar 2019	May 2022	8	2,295K	N		
17.5) Coastal Riverine Force (CRF) - 40PB (11)	✓	2021	TBD / TBD	C / IDIQ	NAVSEA	Jun 2021	Aug 2024	8	2,388K	N		
17.6) RIB - Global Mine	✓	2019	United States Marine / Gulfport, MS	C / IDIQ	NAVSEA	Jul 2019	Jan 2020	1	476,000.00	N		

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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 01: Ships Support Equipment / BSA 14: Production Facilities Equipment	**P-1 Line Item Number / Title:** 1445 / Operating Forces IPE

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

Line Item MDAP/MAIS Code: N/A

Resource Summary	Prior Years	FY 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)*	679.002	284.429	202.238	233.667	0.000	233.667	199.917	218.092	221.059	225.385	Continuing	Continuing
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	679.002	284.429	202.238	233.667	0.000	233.667	199.917	218.092	221.059	225.385	Continuing	Continuing
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**679.002**	**284.429**	**202.238**	**233.667**	**0.000**	**233.667**	**199.917**	**218.092**	**221.059**	**225.385**	**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:

The Operating Forces Industrial Plant Equipment (IPE) budget funds capitalized personal property procurements for the Naval Shipyards and Fleet I-level maintenance activities. These procurements provide new and efficiency-enabling equipment required to support submarine, CVN, and surface ship maintenance, eliminating reliance on significantly aged and obsolete equipment, including recapitalization of significantly aged IPE, weight handling equipment, and nuclear support equipment infrastructure.

Improved maintenance capabilities at the activities supported by the Capital Investment Program and Ship Maintenance Investment Program are integral to the Nuclear Enterprise. Modernizing equipment infrastructure improves maintenance activity productivity and throughput, eliminates workaround and mitigation costs to the Fleet, contributes to decreasing CVN, surface ship, and submarine availability cost and schedule, and improves operational availability.

Funding also support new-mission capital equipment requirements, including VIRGINIA Class introduction at NNSY, concurrent VIRGINIA Class availabilities at PNSY and PHNSY, and LOS ANGELES Class service life extension refueling overhauls at PNSY.

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

[P40A / KN200: NAVY MARITIME MAINTENANCE ENTERPRISE SOLUTION SUSTAINMENT]: This funding supports the Navy Maritime Maintenance Enterprise Solution (NMMES), a strategic information technology investment that has standardized NAVSEA and Fleet ship maintenance functions ashore, controlling and managing all aspects of ship maintenance at the Naval Shipyards, Regional Maintenance Centers (RMCs), and Ship Repair Facilities.
Depot and Intermediate Level maintenance business processes to schedule, execute, monitor, certify work, and pay employees at aircraft carrier, submarine, and ship maintenance activities are codified within the NMMES toolset. Additionally, NMMES is utilized to manage finance, supply, shop workflow, configuration management, environmental health & safety, quality assurance, up-line management reporting and other functions. NMMES standardizes and institutionalizes the Navy's ship and submarine maintenance business practice processes. These processes are fully embedded in the NMMES IT systems to gain efficiencies in the maintenance process. NMMES systems provide the functionality and processes to continually address the maintenance needs of the Fleet, and have a critical role in the efficient brokering, planning, material ordering, financial performance, and execution of shore maintenance.
This sustainment funding will support procurement of commercial-off-the-shelf (COTS) hardware and software in support of NMMES IT applications.

Exhibit P-40, Budget Line Item Justification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 01: Ships Support Equipment / BSA 14: Production Facilities Equipment	**P-1 Line Item Number / Title:** 1445 / Operating Forces IPE	
ID Code (A=Service Ready, B=Not Service Ready): A	**Program Elements for Code B Items:** N/A	**Other Related Program Elements:** N/A
Line Item MDAP/MAIS Code: N/A		

[P40A / KN201: NAVY MARITIME MAINTENANCE ENTERPRISE SOLUTION TECHNICAL REFRESH (NMMES-TR)]: The NMMES-TR plan for acquisition that has been endorsed by the Executive Steering Committee and recently approved at a Gate 2 Review by the R3B is to procure initial COTS licenses in FY18 that could address the functional requirements for work brokering, MRO requirements management and scheduling.

These licenses will be used to either prototype a potential solution or procure software licenses to address the critical need to replace the Validation Screening And Brokering (VSB), Regional Maintenance Automated Information System (RMAIS), and Project Sequencing and Scheduling systems (PSS) that are either unsupported or not fulfilling the required functional requirement.

[P40A / KN300: SHIPYARD CAPITAL INVESTMENT PROGRAM (CIP)]: Provides funding for the Shipyard Capital Investment Program (CIP) in support of the four mission funded Naval Shipyards and attached and Intermediate Maintenance Facilities (IMF). Funds will be used for the procurement and execution of Class 3 & 4 plant and personal property projects to maintain, modernize and improve the infrastructure and industrial base at the mission funded Naval Shipyard/IMF activities. Funding will allow for the acquisition of equipment and OP,N related Automated Data Processing (ADP) Hardware/Software necessary to perform the mission of repairing, conversion, and modernization of fleet ships and submarines in the most economical, efficient, environmentally sound and safe manner possible. Continued reliance on an aged capital equipment infrastructure increases submarine and aircraft carrier depot maintenance availability costs and places schedules at risk.

Shipyard capital equipment investments are in accordance with the February 2018 Shipyard Infrastructure Optimization Plan Report to Congress as well as supporting new mission requirements, such as LOS ANGELES Class service life extension refueling availabilities at Portsmouth Naval Shipyard. The full FY 2021 request is urgently required to modernize the Naval Shipyard equipment infrastructure to improve depot maintenance throughput in support of their mission.

FY21 KN300 Capital Investment Program funding above FY20 level is required to support acquisition of a new heavy lift portal crane for Pearl Harbor Naval Shipyard.

NOTE that the budget year equipment requirements provided in this exhibit are based on current Shipyard priorities to best improve submarine and aircraft carrier availability execution within currently projected budget. Projected costs are best government estimates based on market research and are subject to change. Changes to program funding, realized costs, and/or realization of emergent Shipyard equipment requirements after budget submittal could impact the requirements identified in this exhibit.

[P40A / SHIPYARD CAPITAL INVESTMENT PROGRAM (CIP)]: Improved maintenance capabilities at the Naval Shipyards are integral to the Nuclear Enterprise. Procurement of new and efficiency-enabling capital equipment to repair CVNs and submarines in accordance with the February 2018 Shipyard Infrastructure Optimization Plan Report to Congress contributes to decreasing availability costs and schedules, ultimately returning mission days to the Fleet and moving the needle on Shipyard throughput.

The KN300 Capital Investment Program funding includes the $150M/year capital equipment modernization requirement provided in the February 2018 Shipyard Infrastructure Optimization Report to Congress, in addition to new mission investments required to execute LOS ANGELES Class refueling service life extensions at PNSY, which is critical to supporting the 355 ship fleet.

The Operating Forces IPE Budget for the Shipyard Capital Investment Program has been restructured to identify and break out individual component costs for acquisitions over $10M that were consolidated within Item Numbers in previous budget submits.

[P40A / 25 Ton Portal Crane]: Procures a new high hook speed portal crane for PSNS&IMF, Bremerton (Shipyard site). This procurement directly supports an increase in workload for the Shipyard that requires additional portal cranes to meet project demands. This crane is designed to fill a critical capability gap for pier and dry dock support. Continued reliance on existing crane population will continue exposure to increasing costs to customer due to lack of support causing delays to the projects, increasing costs to maintain, support, and operate rental/lease cranes, and increasing costs and lower efficiency using higher capacity portal cranes to lift lighter, repetitive loads.

[P40A / CNC Shaft Lathe]: Procures Computer Numerically Controlled (CNC) shaft lathes required by NNSY, PNSY, and PSNSY to support depot availability critical path submarine and CVN shaft maintenance as well as the shaft rotatable pool.

Exhibit P-40, Budget Line Item Justification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 01: Ships Support Equipment / BSA 14: Production Facilities Equipment	**P-1 Line Item Number / Title:** 1445 / Operating Forces IPE	
ID Code (A=Service Ready, B=Not Service Ready): A	**Program Elements for Code B Items:** N/A	**Other Related Program Elements:** N/A
Line Item MDAP/MAIS Code: N/A		

[P40A / 145 TON REFUELING HEAVY LIFT PORTAL CRANE]: The FY19 145 ton refueling heavy lift portal crane is required to execute LOS ANGELES Class refueling evolutions at PNSY. Refueling lifts cannot be executed using existing 60 ton portal crane infrastructure. The unique configuration at PNSY dry dock 1 requires a 145 ton capacity at a larger radius then what is supported by future year 175 ton portal crane procurements, resulting in higher cost.

[P40A / 175 TON HEAVY LIFT PORTAL CRANE]: FY20 and later 175 ton heavy lift portal crane acquisitions recapitalize existing shipyard assets that are in poor material condition, beyond maximum expected service life, and are experiencing repair parts obsolescence issues. These heavy lift portal cranes are required for critical path submarine and CVN nuclear defueling weight handling evolutions that can't be executed using the remaining lower capacity portal crane Fleet as well as supporting all depot maintenance lifting and handling requirements.

[P40A / REFUELING STORAGE ENCLOSURE]: PNSY Refueling Storage Enclosure that is required to execute LOS ANGELES Class refueling evolutions at PNSY IAW current schedule.

[P40A / NFPC SU-12 Propeller Profiler Replacement]: Replaces existing Navy Foundry and Propeller Center (NFPC) propeller profiler with a new CNC milling machine. This acquisition is required to support VIRGINIA Class and COLUMBIA Class propulsor manufacture and repair.

[P40A / VIRGINIA Class Propulsor Handling System]: Provides stacking stands, platforms, Heavy Lift Transporters (HLTs) and the necessary Lifting and Handling system to remove, stow, and reinstall the VIRGINIA Class Propulsor and shaft assembly during depot availabilities. Without this procurement, NNSY will be unable to support assigned VIRGINIA Class depot maintenance. This is the only approved system design for executing these precise and demanding Propulsor and shaft maintenance actions.

[P40A / FORGE PRESS AND MANIPULATOR]: Forge Press Manipulator replaces the existing out of commission 1,250 ton forging press and port-a-bar billet handling system. The port-a-bar will be replaced with a 6,000 lb. forge manipulator. This equipment is required for large forging operations, including submarine and CVN control surface repairs.

[P40A / NFPC SU-9 MILLING MACHINE REPLACEMENT]: Milling Machine replaces an aged, unreliable, and obsolete milling machine at the Navy Foundry and Propeller Center. This new machine is required to efficiently and reliably perform VIRGINIA Class and COLUMBIA Class propulsor manufacture, which is part of new construction critical path, and repairs.

[P40A / KNCA1: SHIPYARD CAPITAL INVESTMENT PROGRAM (CIP) CONGRESSIONAL ADD]: Provides funding for the Shipyard Capital Investment Program (CIP) in support of the four mission funded Naval Shipyards and attached and Intermediate Maintenance Facilities (IMF). KNCA1 captures FY19 congressional add funding provided to accelerate shipyard infrastructure optimization, breaking out individual component costs for acquisitions over $10M.

Funds will be used for the procurement and execution of Class 3 & 4 plant and personal property projects to maintain, modernize and improve the infrastructure and industrial base at the mission funded Naval Shipyard/IMF activities. Funding will allow for the acquisition of equipment and OPN related Automated Data Processing (ADP) Hardware/Software necessary to perform the mission of repairing, conversion, and modernization of fleet ships and submarines in the most economical, efficient, environmentally sound and safe manner possible. Continued reliance on an aged capital equipment infrastructure increases submarine and aircraft carrier depot maintenance availability costs and places schedules at risk.

[P40A / SHIPYARD CAPITAL INVESTMENT PROGRAM (CIP) CONGRESSIONAL ADD]: Improved maintenance capabilities at the Naval Shipyards are integral to the Nuclear Enterprise. Procurement of new and efficiency-enabling capital equipment to repair CVNs and submarines in accordance with the February 2018 Shipyard Infrastructure Optimization Plan Report to Congress contributes to decreasing availability costs and schedules, ultimately returning mission days to the Fleet and moving the needle on Shipyard throughput. KNCA1 captures FY19 congressional add funding provided to accelerate shipyard infrastructure optimization. No individual FY19 CA acquisitions exceed $10M for inclusion as discrete cost elements.

[P40A / KN400: SHIP MAINTENANCE INVESTMENT PROGRAM]: Provides funding to support capital investments for the Regional Maintenance Centers (RMCs), including forward deployed RMCs, Trident Refit Facility (TRF) Kings Bay (KB), Naval Submarine Support Facility New London (NSSF NL), and Navy Base Guam. Funds will be used for the procurement and execution of personal property projects (including Industrial Plant Equipment (IPE), IT HW/SW, lifting and handling equipment, MILCON collateral equipment, etc.) of a capital nature (greater then $250K) to maintain and modernize the ship maintenance industrial base, with a focus on reducing total ownership costs. These personal property projects are required for the RMCs, NSSF NL, Navy Base Guam, and TRF KB to perform their mission of repairing, conversion, and modernization of fleet ships and submarines.

Exhibit P-40, Budget Line Item Justification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 01: Ships Support Equipment / BSA 14: Production Facilities Equipment	**P-1 Line Item Number / Title:** 1445 / Operating Forces IPE	
ID Code (A=Service Ready, B=Not Service Ready): A	**Program Elements for Code B Items:** N/A	**Other Related Program Elements:** N/A
Line Item MDAP/MAIS Code: N/A		

FY21 KN400 Ship Maintenance Investment Program funding above FY20 level is required for acquisition of capital equipment required to support increased submarine maintenance mission at Navy Base Guam, including two pure water trailers, three VIRGINIA Class topside and sail maintenance platforms, and three 1000 KW emergency diesel generators.

[P40A / KN504: SRF-JRMC Capital Investment Program]: Procures capital investment items required to maintain and modernize the Fleet's ship maintenance industrial base at Ship Repair Facility - Japan Regional Maintenance Center (SRF-JRMC). Funds will be used for the procurement and execution of personal property projects (including Industrial Plant Equipment (IPE), IT HW/SW, lifting and handling equipment, material handling equipment, MILCON collateral equipment, etc.) of a capital nature (greater then $250K) to maintain and modernize the ship maintenance industrial base, with a focus on reducing total ownership costs. These personal property projects are required by SRF-JRMC to support its mission of repairing, conversion, and modernization of fleet surface ships.

[P40A / KN507: SRF-JRMC Capital Investment Program]: Procures capital investment items required to maintain and modernize the Fleet's ship maintenance industrial base at Ship Repair Facility - Japan Regional Maintenance Center (SRF-JRMC). Funds will be used for the procurement and execution of personal property projects (including Industrial Plant Equipment (IPE), IT HW/SW, lifting and handling equipment, material handling equipment, MILCON collateral equipment, etc.) of a capital nature (greater then $250K) to maintain and modernize the ship maintenance industrial base, with a focus on reducing total ownership costs. These personal property projects are required by SRF-JRMC to support its mission of repairing, conversion, and modernization of fleet surface ships.

[P40A / SRF-JRMC Capital Investment Program]: FY21 KN507 Ship Repair Facility Yokosuka Program funding above FY20 level is required to support acquisition of a pump stand needed for surface ship fluid systems depot maintenance.

[P40A / KN800: INTEGRATED CONDITION ASSESSMENT SYSTEM (ICAS) AND ENTERPRISE REMOTE MONITORING (eRM) NEW INSTALL]: Procures all new installations of the Integrated Condition Assessment System (ICAS) and Enterprise Remote Monitoring (eRM) hardware and software aboard Surface Fleet hulls. New Installation include: ICAS/eRM workstation hardware (including Palm Pilot Portable Data Terminal (PDTs)), latest version of ICAS/eRM system software, Configuration Data Set (CDS) (including the implementation of developed enhancements), firewall (if applicable), remote monitoring utility (RMU), ILS and ship's force training. Manage contractor efforts, prepare installation plans, perform ship checks, procure material, oversee shipboard installation and Quality Assurance (QA), develop/implement CDS, install/test all software and CDSs, provide ship's force training.

[P40A / KN900: INTEGRATED CONDITION ASSESSMENT SYSTEM (ICAS) AND ENTERPRISE REMOTE MONITORING (eRM) TECH REFRESH]: Procures all technical refresh upgrades of the Integrated Condition Assessment System (ICAS) and Enterprise Remote Monitoring (eRM) hardware and software aboard Surface Fleet hulls. Upgrades will include: ICAS/eRM workstation hardware (including Palm Pilot Portable Data Terminal (PDTs)), latest version of ICAS/eRM system software, Configuration Data Set (CDS) groom (including the implementation of developed enhancements), firewall (if applicable), remote monitoring utility (RMU), and ship's force refresher training. Manage contractor efforts, prepare installation plans, perform ship checks, procure material, oversee shipboard installation and Quality Assurance (QA), develop/implement CDS updates, install/test all software and CDSs, provide ship's force training.

Exhibit P-40, Budget Line Item Justification: PB 2021 Navy	Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 01: Ships Support Equipment / BSA 14: Production Facilities Equipment	**P-1 Line Item Number / Title:** 1445 / Operating Forces IPE

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

Line Item MDAP/MAIS Code: N/A

Exhibits Schedule					Prior Years	FY 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	Operating Forces IPE	P-5a, P-21			- / 679.002	- / 284.429	- / 202.238	- / 233.667	- / -	- / 233.667
P-40	**Total Gross/Weapon System Cost**				**- / 679.002**	**- / 284.429**	**- / 202.238**	**- / 233.667**	**- / 0.000**	**- / 233.667**

*Title represents 1) the Number / Title for Items; 2) the Number / Title [DODIC] for Ammunition; and/or 3) the Number / Title (Modification Type) for Modifications. Title represents the P-40a Title when only the P-40a Summary/Total is shown.

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

Justification:
The Operating Forces Industrial Plant Equipment (IPE) for the Shipyard Capital Investment Program and NMMES Sustainment have been restructured to identify and break out individual component costs for acquisitions over $10M that were consolidated within Item Numbers in previous budget submits.

FY18 and later KN300 Capital Investment Program funding includes the $150M/year capital equipment modernization requirement provided in the February 2018 Shipyard Infrastructure Optimization Report to Congress, in addition to new mission investments such as equipment infrastructure required to execute LOS ANGELES Class refueling service life extensions at PNSY, which is critical to supporting the 355 ship fleet.

FY19 Congressional Add funding provided to accelerate shipyard infrastructure optimization. Additionally, FY19 is the last year OPN BLI 1445 funding is provided for Navy Maintenance Enterprise Solution Technical Refresh (NMMES-TR) program. FY19 and FY20 include additional funding for capital equipment investments required for new mission refueling evolutions at Portsmouth Naval Shipyard (PNSY) ($49.4M in FY19 and $30M in FY20).

FY21 KN300 Capital Investment Program funding above FY20 level is required to support acquisition of a new heavy lift portal crane for Pearl Harbor Naval Shipyard.

FY21 KN507 Ship Repair Facility Yokosuka Program funding above FY20 level is required to support acquisition of a pump stand needed for surface ship fluid systems depot maintenance.

Exhibit P-40a, Budget Item Justification For Aggregated Items: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 14	P-1 Line Item Number / Title: 1445 / Operating Forces IPE	Aggregated Items Title: Operating Forces IPE

Item Number / Title [DODIC]	ID CD	MDAP/ MAIS Code	Prior Years Unit Cost ($)	Prior Years Qty (Each)	Prior Years Total Cost ($ M)	FY 2019 Unit Cost ($)	FY 2019 Qty (Each)	FY 2019 Total Cost ($ M)	FY 2020 Unit Cost ($)	FY 2020 Qty (Each)	FY 2020 Total Cost ($ M)	FY 2021 Base Unit Cost ($)	FY 2021 Base Qty (Each)	FY 2021 Base Total Cost ($ M)	FY 2021 OCO Unit Cost ($)	FY 2021 OCO Qty (Each)	FY 2021 OCO Total Cost ($ M)	FY 2021 Total Unit Cost ($)	FY 2021 Total Qty (Each)	FY 2021 Total Total Cost ($ M)
1) KN200: NAVY MARITIME MAINTENANCE ENTERPRISE SOLUTION SUSTAINMENT																				
1.1) NAVY MARITIME MAINTENANCE ENTERPRISE SOLUTION SUSTAINMENT (1)	A		-	-	31.695	-	-	3.355	-	-	8.838	-	-	3.388	-	-	-	-	-	3.388
Subtotal: 1) KN200: NAVY MARITIME MAINTENANCE ENTERPRISE SOLUTION SUSTAINMENT			**-**	**-**	***31.695***	**-**	**-**	***3.355***	**-**	**-**	***8.838***	**-**	**-**	***3.388***	**-**	**-**	**-**	**-**	**-**	***3.388***
2) KN201: NAVY MARITIME MAINTENANCE ENTERPRISE SOLUTION TECHNICAL REFRESH (NMMES-TR)																				
2.1) NAVY MARITIME MAINTENANCE ENTERPRISE SOLUTION TECHNICAL REFRESH	A		-	-	1.200	-	-	0.021	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: 2) KN201: NAVY MARITIME MAINTENANCE ENTERPRISE SOLUTION TECHNICAL REFRESH (NMMES-TR)			**-**	**-**	***1.200***	**-**	**-**	***0.021***	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
3) KN300: SHIPYARD CAPITAL INVESTMENT PROGRAM (CIP)																				
3.1) SHIPYARD CAPITAL INVESTMENT PROGRAM (CIP) (2)	A		-	-	565.670	-	-	76.199	-	-	98.466	-	-	110.747	-	-	-	-	-	110.747
3.2) 25 Ton Portal Crane (3)(†)	A		17,116K	1	17.116	15,924K	1	15.924	-	-	-	-	-	-	-	-	-	-	-	-
3.3) CNC Shaft Lathe(†)	A		-	-	-	15,000K	1	15.000	15,250K	1	15.250	15,555K	1	15.555	-	-	-	15,555K	1	15.555
3.4) 145 TON REFUELING HEAVY LIFT PORTAL CRANE(†)	A		-	-	-	57,929K	1	57.929	-	-	-	-	-	-	-	-	-	-	-	-
3.5) 175 TON HEAVY LIFT PORTAL CRANE(†)	A		-	-	-	-	-	-	46,500K	1	46.500	47,000K	1	47.000	-	-	-	47,000K	1	47.000
3.6) REFUELING STORAGE ENCLOSURE(†)	A		-	-	-	7,000K	1	7.000	-	-	-	-	-	-	-	-	-	-	-	-
3.7) NFPC SU-12 Propeller Profiler Replacement(†)	A		-	-	-	16,500K	1	16.500	-	-	-	-	-	-	-	-	-	-	-	-
3.8) VIRGINIA Class Propulsor Handling System (4)(†)	A		-	-	-	-	-	-	13,500K	1	13.500	-	-	-	-	-	-	-	-	-

Exhibit P-40a, Budget Item Justification For Aggregated Items: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 14	P-1 Line Item Number / Title: 1445 / Operating Forces IPE	Aggregated Items Title: Operating Forces IPE

Item Number / Title [DODIC]	ID CD	MDAP/ MAIS Code	Prior Years			FY 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)
3.9) FORGE PRESS AND MANIPULATOR (5)(†)	A		-	-	-	-	-	-	-	-	-	10,100K	1	10.100	-	-	-	10,100K	1	10.100
3.10) NFPC SU-9 MILLING MACHINE REPLACEMENT (6)(†)	A		-	-	-	-	-	-	-	-	-	16,320K	1	16.320	-	-	-	16,320K	1	16.320
Subtotal: 3) KN300: SHIPYARD CAPITAL INVESTMENT PROGRAM (CIP)			**-**	**-**	***582.786***	**-**	**-**	***188.552***	**-**	**-**	***173.716***	**-**	**-**	***199.722***	**-**	**-**	**-**	**-**	**-**	***199.722***
4) KNCA1: SHIPYARD CAPITAL INVESTMENT PROGRAM (CIP) CONGRESSIONAL ADD																				
4.1) SHIPYARD CAPITAL INVESTMENT PROGRAM (CIP) CONGRESSIONAL ADD	A		-	-	-	-	-	75.000	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: 4) KNCA1: SHIPYARD CAPITAL INVESTMENT PROGRAM (CIP) CONGRESSIONAL ADD			**-**	**-**	***0.000***	**-**	**-**	***75.000***	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
5) KN400: SHIP MAINTENANCE INVESTMENT PROGRAM																				
5.1) SHIP MAINTENANCE INVESTMENT PROGRAM	A		-	-	32.683	-	-	7.181	-	-	7.483	-	-	8.355	-	-	-	-	-	8.355
Subtotal: 5) KN400: SHIP MAINTENANCE INVESTMENT PROGRAM			**-**	**-**	***32.683***	**-**	**-**	***7.181***	**-**	**-**	***7.483***	**-**	**-**	***8.355***	**-**	**-**	**-**	**-**	**-**	***8.355***
6) KN504: SRF-JRMC Capital Investment Program (7)																				
6.1) SRF-JRMC Capital Investment Program	A		-	-	3.696	-	-	6.555	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: 6) KN504: SRF-JRMC Capital Investment Program			**-**	**-**	***3.696***	**-**	**-**	***6.555***	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
7) KN507: SRF-JRMC Capital Investment Program (8)																				
7.1) SRF-JRMC Capital Investment Program	A		-	-	-	-	-	-	-	-	6.383	-	-	11.252	-	-	-	-	-	11.252
Subtotal: 7) KN507: SRF-JRMC Capital Investment Program			**-**	**-**	***0.000***	**-**	**-**	**-**	**-**	**-**	***6.383***	**-**	**-**	***11.252***	**-**	**-**	**-**	**-**	**-**	***11.252***
8) KN800: INTEGRATED CONDITION ASSESSMENT SYSTEM (ICAS) AND ENTERPRISE REMOTE MONITORING (eR																				
8.1) INTEGRATED CONDITION ASSESSMENT SYSTEM (ICAS) AND eRM (9)	A		-	-	11.085	-	-	2.185	-	-	4.208	-	-	9.336	-	-	-	-	-	9.336

Exhibit P-40a, Budget Item Justification For Aggregated Items: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 14	P-1 Line Item Number / Title: 1445 / Operating Forces IPE	Aggregated Items Title: Operating Forces IPE

Item Number / Title [DODIC]	ID CD	MDAP/ MAIS Code	Prior Years			FY 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: 8) KN800: INTEGRATED CONDITION ASSESSMENT SYSTEM (ICAS) AND ENTERPRISE REMOTE MONITORING (eR			-	-	***11.085***	-	-	***2.185***	-	-	***4.208***	-	-	***9.336***	-	-	-	-	-	***9.336***
9) KN900: INTEGRATED CONDITION ASSESSMENT SYSTEM (ICAS) AND ENTERPRISE REMOTE MONITORING (eR																				
9.1) INTEGRATED CONDITION ASSESSMENT SYSTEM (ICAS) AND eRM	A		-	-	15.857	-	-	1.580	-	-	1.610	-	-	1.614	-	-	-	-	-	1.614
Subtotal: 9) KN900: INTEGRATED CONDITION ASSESSMENT SYSTEM (ICAS) AND ENTERPRISE REMOTE MONITORING (eR			-	-	***15.857***	-	-	***1.580***	-	-	***1.610***	-	-	***1.614***	-	-	-	-	-	***1.614***
Total			-	-	**679.002**	-	-	**284.429**	-	-	**202.238**	-	-	**233.667**	-	-	-	-	-	**233.667**

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) FY20 to FY21 changes reflects program requirements that support hardware and software for ship maintenance systems, including; product data management hardware/software, enterprise data analytics software, cybersecurity vulnerability software, and increased hardware capacity at Navy data centers. The program has worked with the Resource Sponsor to support project requirements and schedule which are reflected in the budget submission. This funding level supports current project implementation schedules.

(2) This Shipyard Capital Investment Program (CIP) funding includes new mission investments required to execute LOS ANGELES Class refueling service life extensions at PNSY, which is critical to supporting the 355 ship fleet, beginning in FY19 and continuing throughout the FYDP. The increase between in FY 2021 is due primarily to the Refueling Effort the Los Angeles Class.

(3) Portal crane acquisition budgets are based on the negotiated costs of these 25 ton portal cranes in the IDIQ acquisition contract. The first (FY18) PSNS&IMF Bremerton site crane includes site-specific fitup, CDRL deliverables, acceptance testing, and engineering efforts and associated costs that only apply to the first Bremerton site acquisition and are not repeated for the second (FY19) and later Bremerton site acquisitions.

(4) FY20 funding for this requirement is needed to ensure equipment is available at NNSY to execute the FY22 USS JOHN WARNER depot maintenance availability.

(5) Forge Press Manipulator replaces the existing out of commission 1,250 ton forging press and port-a-bar billet handling system. This equipment is required for large forging operations, including submarine and CVN control surface repairs.

(6) Milling Machine replaces an aged, unreliable, and obsolete milling machine at the Navy Foundry and Propeller Center. This new machine is required to efficiently and reliably perform VIRGINIA Class and COLUMBIA Class propulsor manufacture, which is part of new construction critical path, and repairs.

(7) Funding ends in FY19 (CFFC). SRF-JRMC Capital Investment Program transitioned from Commander Pacific Fleet to Naval Sea Systems Command PPBE oversight beginning with the FY 2020 President's Budget request. Zero-sum tech adjust to change BSO from 70 to 24. Consolidates OPN LI 1445 under BSO 24 for increased management efficiencies in programming and execution for shipyard equipment infrastructure across all government shipyards. The Fleet and NAVSEA will prioritize equipment investments across the enterprise using a standardized process administered by NAVSEA.

(8) Funding starts in FY20 (NAVSEA). SRF-JRMC Capital Investment Program transitioned from Commander Pacific Fleet to Naval Sea Systems Command PPBE oversight beginning with the FY 2020 President's Budget request. Zero-sum tech adjust to change BSO from 70 to 24. Consolidates OPN LI 1445 under BSO 24 for increased management efficiencies in programming and execution for shipyard equipment infrastructure across all government shipyards. The Fleet and NAVSEA will prioritize equipment investments across the enterprise using a standardized process administered by NAVSEA.

(9) FY20 to FY21 increase is to due the ramp up of installation of the new shipboard Enterprise Remote Monitoring application to the fleet. The installs start in FY-20, increasing in FY21 to support large uptick in installations as well as LLTM for FY-22. The additional funds are to support the installation schedule we have for our roll out both installation services and material.

Exhibit P-5a, Procurement History and Planning: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 14	P-1 Line Item Number / Title: 1445 / Operating Forces IPE	Aggregated Items: Operating Forces IPE

Item Number / Title [DODIC]	OCO	FY	Contractor and Location	Method/Type or Funding Vehicle	Location of PCO	Award Date	Date of First Delivery	Qty (Each)	Unit Cost ($)	Specs Avail Now?	Date Revision Available	RFP Issue Date
3) KN300: SHIPYARD CAPITAL INVESTMENT PROGRAM (CIP)												
3.2) 25 Ton Portal Crane (3)(†)		2018	Konecranes / New Berlin, WI	C / IDIQ	NCC / NAVFAC FE	Nov 2017	Nov 2019	1	17,116K	Y		
3.2) 25 Ton Portal Crane (3)(†)		2019	Konecranes / New Berlin, WI	C / TBD	NCC / NAVFAC FE	Nov 2018	Nov 2020	1	15,924K	Y		
3.3) CNC Shaft Lathe(†)		2019	TBD / tbd	C / FFP	DLA	Aug 2019	Aug 2020	1	15,000K	Y		
3.3) CNC Shaft Lathe(†)		2020	TBD / tbd	C / FFP	DLA	Nov 2019	Nov 2020	1	15,250K	Y		
3.3) CNC Shaft Lathe(†)		2021	TBD / tbd	C / FFP	DLA	Nov 2020	Nov 2021	1	15,555K	Y		
3.4) 145 TON REFUELING HEAVY LIFT PORTAL CRANE		2019	Konecranes / New Berlin, WI	C / FFP	NCC / NAVFAC FE	Jan 2019	Jan 2021	1	57,929K	Y		
3.5) 175 TON HEAVY LIFT PORTAL CRANE		2020	Konecranes / New Berlin, WI	C / TBD	** NO PCO **	Nov 2019	Nov 2021	1	46,500K	Y		
3.5) 175 TON HEAVY LIFT PORTAL CRANE		2021	Konecranes / New Berlin, WI	C / TBD	** NO PCO **	Oct 2020	Oct 2022	1	47,000K	Y		
3.6) REFUELING STORAGE ENCLOSURE(†)		2019	TBD / TBD	C / TBD	NAVFAC	Mar 2019	Mar 2020	1	7,000K	N	Jul 2018	
3.7) NFPC SU-12 Propeller Profiler Replacement(†)		2019	TBD / TBD	C / FFP	DLA	Apr 2019	Apr 2020	1	16,500K	Y		
3.8) VIRGINIA Class Propulsor Handling System (4)(†)		2020	TBD / TBD	C / TBD	DLA	Feb 2020	Feb 2021	1	13,500K	Y		
3.9) FORGE PRESS AND MANIPULATOR (5)(†)		2021	TBD / TBD	C / FFP	** NO PCO **	Apr 2021	Apr 2022	1	10,100K	Y		
3.10) NFPC SU-9 MILLING MACHINE REPLACEMENT (6)(†)		2021	TBD / TBD	C / FFP	** NO PCO **	Apr 2021	Apr 2022	1	16,320K	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 / 01 / 14 | **P-1 Line Item Number / Title:** 1445 / Operating Forces IPE | **Aggregated Items:** Operating Forces IPE

Items (Units in Each)							Fiscal Year 2018												Fiscal Year 2019												BALANCE
							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) KN300: SHIPYARD CAPITAL INVESTMENT PROGRAM (CIP)																															
3.2) 25 Ton Portal Crane (3)																															
	8	2018	NAVY	1	0	1		A -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
	8	2019	NAVY	1	0	1														A -	-	-	-	-	-	-	-	-	-	-	1
3.3) CNC Shaft Lathe																															
	9	2019	NAVY	1	0	1																							A -	-	1
	9	2020	NAVY	1	0	1																									1
	9	2021	NAVY	1	0	1																									1
3.6) REFUELING STORAGE ENCLOSURE																															
	10	2019	NAVY	1	0	1																		A -	-	-	-	-	-	-	1
3.7) NFPC SU-12 Propeller Profiler Replacement																															
	11	2019	NAVY	1	0	1																			A -	-	-	-	-	-	1
3.8) VIRGINIA Class Propulsor Handling System (4)																															
	12	2020	NAVY	1	0	1																									1
3.9) FORGE PRESS AND MANIPULATOR (5)																															
	13	2021	NAVY	1	0	1																									1
3.10) NFPC SU-9 MILLING MACHINE REPLACEMENT (6)																															
	14	2021	NAVY	1	0	1																									1
							OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	

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

Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 14 | **P-1 Line Item Number / Title:** 1445 / Operating Forces IPE | **Aggregated Items:** Operating Forces IPE

Items (Units in Each)							Fiscal Year 2020												Fiscal Year 2021												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	
3) KN300: SHIPYARD CAPITAL INVESTMENT PROGRAM (CIP)																															
3.2) 25 Ton Portal Crane (3)																															
	8	2018	NAVY	1	0	1	-	1																							0
	8	2019	NAVY	1	0	1	-	-	-	-	-	-	-	-	-	-	-	-	-	1											0
3.3) CNC Shaft Lathe																															
	9	2019	NAVY	1	0	1	-	-	-	-	-	-	-	-	-	-	1														0
	9	2020	NAVY	1	0	1		A -	-	-	-	-	-	-	-	-	-	-	-	1											0
	9	2021	NAVY	1	0	1														A -	-	-	-	-	-	-	-	-	-	-	1
3.6) REFUELING STORAGE ENCLOSURE																															
	10	2019	NAVY	1	0	1	-	-	-	-	-	1																			0
3.7) NFPC SU-12 Propeller Profiler Replacement																															
	11	2019	NAVY	1	0	1	-	-	-	-	-	-	1																		0
3.8) VIRGINIA Class Propulsor Handling System (4)																															
	12	2020	NAVY	1	0	1					A -	-	-	-	-	-	-	-	-	-	-	-	1								0
3.9) FORGE PRESS AND MANIPULATOR (5)																															
	13	2021	NAVY	1	0	1																			A -	-	-	-	-	-	1
3.10) NFPC SU-9 MILLING MACHINE REPLACEMENT (6)																															
	14	2021	NAVY	1	0	1																			A -	-	-	-	-	-	1
							OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	

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

Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 14 | **P-1 Line Item Number / Title:** 1445 / Operating Forces IPE | **Aggregated Items:** Operating Forces IPE

Items (Units in Each)							Fiscal Year 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) KN300: SHIPYARD CAPITAL INVESTMENT PROGRAM (CIP)																															
3.2) 25 Ton Portal Crane (3)																															
	8	2018	NAVY	1	1	0																									0
	8	2019	NAVY	1	1	0																									0
3.3) CNC Shaft Lathe																															
	9	2019	NAVY	1	1	0																									0
	9	2020	NAVY	1	1	0																									0
	9	2021	NAVY	1	0	1	-	1																							0
3.6) REFUELING STORAGE ENCLOSURE																															
	10	2019	NAVY	1	1	0																									0
3.7) NFPC SU-12 Propeller Profiler Replacement																															
	11	2019	NAVY	1	1	0																									0
3.8) VIRGINIA Class Propulsor Handling System (4)																															
	12	2020	NAVY	1	1	0																									0
3.9) FORGE PRESS AND MANIPULATOR (5)																															
	13	2021	NAVY	1	0	1	-	-	-	-	-	-	1																		0
3.10) NFPC SU-9 MILLING MACHINE REPLACEMENT (6)																															
	14	2021	NAVY	1	0	1	-	-	-	-	-	-	1																		0
							OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	

Exhibit P-21, Production Schedule: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 14	**P-1 Line Item Number / Title:** 1445 / Operating Forces IPE	**Aggregated Items:** Operating Forces IPE

MFR Ref #	Manufacturer Name - Location	Production Rates (Each / Year)			Procurement Leadtime (Months)							
					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	Konecranes - New Berlin, WI			TBD	0	1	24	25	0	1	24	25
2	TBD - tbd			TBD	0	10	12	22	0	1	12	13
3	TBD - TBD			TBD	3	5	12	17	0	0	0	0
4	TBD - TBD			TBD	2	6	12	18	0	0	0	0
5	TBD - TBD			TBD	2	4	12	16	0	0	0	0
6	TBD - TBD			TBD	2	6	12	18	0	0	0	0
7	TBD - TBD			TBD	2	6	12	18	0	0	0	0

"A" in the Delivery Schedule indicates the Contract Award Date.
Note: Due to space limitations, quantities in the Exhibit P-21 delivery calendar are truncated and rounded based on the maximum quantity in the calendar as follows. If the maximum quantity is less than or equal to than 9,999, all quantities are shown as each. If the maximum quantity is between 10,000 and 999,999 all quantities are shown in thousands. If the maximum quantity is between 1,000,000 and 999,999,999 all quantities are shown in millions (rounded to the nearest thousand).If the maximum quantity is equal or greater than 1,000,000,000 all quantities are shown in billions (rounded to the nearest million).

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Exhibit P-40, Budget Line Item Justification: PB 2021 Navy	Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 01: Ships Support Equipment / BSA 15: Other Ship Support	**P-1 Line Item Number / Title:** 1600 / LCS Common Mission Modules Equipment

ID Code (A=Service Ready, B=Not Service Ready): A	**Program Elements for Code B Items:** N/A	**Other Related Program Elements:** N/A
Line Item MDAP/MAIS Code: 443		

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)*	459.825	33.237	38.730	39.714	0.000	39.714	72.210	29.929	30.330	30.921	724.161	1,459.057
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	459.825	33.237	38.730	39.714	0.000	39.714	72.210	29.929	30.330	30.921	724.161	1,459.057
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**459.825**	**33.237**	**38.730**	**39.714**	**0.000**	**39.714**	**72.210**	**29.929**	**30.330**	**30.921**	**724.161**	**1,459.057**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)												
Initial Spares *($ in Millions)*	-	0.068	1.035	0.443	-	0.443	0.195	0.243	0.204	0.209	Continuing	Continuing
Flyaway Unit Cost *($ in Dollars)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Dollars)*	-	-	-	-	-	-	-	-	-	-	-	-

Description:

Littoral Combat Ship (LCS) focused mission packages provide the operational commander with capabilities to perform Mine Countermeasures (MCM) operations, a Surface Warfare (SUW) detect-to-engage capability to counter small boat threats, and a Anti-Submarine Warfare (ASW) detect-to-engage capability to counter enemy submarines. A Mission Package (MP) is a combination of warfare Mission Modules (MM) with specialized crew, support equipment, and vehicles, including embarked manned helicopters and unmanned aircraft and maritime systems. MM are packaged in a modular fashion so that they can be quickly swapped in and out pier side on any LCS platform.

The Common Mission Modules Equipment line funds the procurement of MCM and SUW MP support containers and equipment that is common across the mission packages (Mission Package Computing Environment (MPCE), Technology Refresh of the Multi-Vehicle Communications System (MVCS), and Training Equipment).

This line (OPN 1600) by itself or support containers by themselves do not comprise a MP and are deployable only as part of a Mission Module (MM). A MM is deployable and capable of meeting its focused mission requirements on an LCS only when it includes the full complement of Common Mission Modules Equipment combined with all the required mission systems.

Other Related Budgets: BLIs: OPN 1601, OPN 1602, OPN 1603, OPN 4248, OPN 2622, OPN 2624, WPN 4221, WPN 4225, RDT&E 0603596N, SCN 2127

[P40A / LM008 - MPCE]: Commercial Off The Shelf (COTS)- Based Common Computing environment will support legacy Mission Package (MP) Command & Control (C2) applications and transition to Modular Open Systems Approach (MOSA) & Navy Open Architecture Computing Environment (OACE). It also provides a common computing environment to support the execution of Mission Package Application Software (MPAS), the shipboard tactical software associated with each mission package that enables execution of its focused mission. Includes installation and checkout on-board the seaframe. In order to support the MPCE Sonar Signal Processing of the Escort Mission Module (EMM), the MPCE needs to be augmented to provide additional processing capabilities. This includes procurement of MPCE Sonar Signal Process equipment racks. These equipment racks will be co-located with the MPCE processing racks. In addition, Mission Package Portable Control Stations (MPPCS) are required to support pre-deployment checkouts, to support shore-based and vessels of opportunity operations of mission packages and off-board vehicles.

[P40A / LM012 - TRAINING EQUIPMENT]: Procurement of LCS Mission Module training systems to train LCS crews in the safe and effective use of assigned equipment at LCS Training Facilities (LTF) located in San Diego and Mayport.

Exhibit P-40, Budget Line Item Justification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 01: Ships Support Equipment / BSA 15: Other Ship Support	**P-1 Line Item Number / Title:** 1600 / LCS Common Mission Modules Equipment	
ID Code (A=Service Ready, B=Not Service Ready): A	**Program Elements for Code B Items:** N/A	**Other Related Program Elements:** N/A
Line Item MDAP/MAIS Code: 443		

LTF includes tactical watch team training using Common Mission Package Trainer (CMPT) integrated with seaframe Combat Management System (CMS) trainers, a replication of LCS mission bays where LCS MM training systems are moved in and out of the Launch and Recovery (L&R) footprint to train all crews in the safe movement of systems, and revalidate key maintenance skills in the confined mission bay environment.

Integrated Tactical Training (ITT) uses the CMPT trainer, with two CMPTs delivered to LCS-1 ITT trainer and LCS-2 ITT trainer in San Diego. CMPT#3 for LCS-1 ITT trainer in Mayport installed in FY2018 and commenced operations in FY 2018. CMPT#4 procured in FY 2018 to support second San Diego LCS-2 trainer for installation in FY 2019. CMPT#5 procurement is in FY 2019 to support third San Diego LCS-2 trainer for installation in FY 2020. CMPT#6 procurement is in FY 2020 to support third Mayport LCS-1 trainer for installation in FY 2021. MCM and SUW integrated team training commenced at San Diego in FY 2012 and commenced for SUW only in Mayport in FY 2018. MCM ITT functions with USV and UUV capability is procured in FY 2019 for planned delivery in Mayport by FY 2021. ASW ITT capability procurement is planned for FY 2021 for delivery into the ITTs in FY 2023. CMPTs qualify individuals in a team environment (Train to Qualify) and are also used to certify watch teams (Train to Certify) during off hull periods at LTF.

Each mission area will be delivering training systems as follows:

MCM: All unmanned vehicles, sensors, and systems in support containers to demonstrate Launch & Recovery (L&R) and maintenance tasks. An Immersive Virtual Shipboard Environment (IVSE) (virtual reality) allow sailors to learn and demonstrate crane operator and system remote operations L&R team coordination. Procurements are aligned to with fleet system deliveries and support formal training that has commenced in San Diego and Mayport.

SUW: A MK-46 gun in barbette on a multi-function adapter demonstrates GMM critical maintenance and ammunition loading tasks. MSM AEL equipment is used to support Visit Board Search and Seizure (VBSS) certification and exercise related shipboard evolutions such as "detainee handling." Surface-to-Surface Missile Module (SSMM) module components are used to demonstrate onload tasks. Mission Package Training System (MPTS) is a NAWC TSD PORTS Architecture based training system used in training SUW operators and maintaining gun and missile operator proficiency. Procurements are for incremental system delivery and support formal training that will commence in San Diego and Mayport in FY 2022.

ASW: IVSE demonstrates ASW system L&R tasks. Procurements support formal training that will commence in San Diego and Mayport in FY 2022.

The LCS MM program is also procuring training systems for installation at other shore locations as follows:

Fleet ASW Training Center San Diego, CA: Sonar Technician (STG) pipeline training at Pt Loma, CA. Operator training system for AN/SQS-62 operator training using CMPT- like environment. Course will include an AN/SQS-62 maintenance trainer for maintenance and deploy/retrieve tasks. Procurements in FY 2021 support formal training that will commence in FY2023.

[P40A / COMMON MISSION PACKAGE TRAINER (CMPT)]: CMPT is procured from AAC under SBIR Phase III contract, and when delivered is integrated with ship combat management system (CMS) trainers capable of being connected to the Navy Cooperative Training Environment (NCTE) for participation in Navy and Joint synthetic training events at the LCS Training Facilities in each home port. A total of 6 are required: 3 in San Diego and 3 in Mayport. The first CMPT was procured using RDT&E. A CMPT consists of a production Mission Package Computing Environment (MPCE) using one of three mission area Mission Package Application Software (MPAS) and integrated with visualization software (common with ship CMS trainer), models and simulations to stimulate tactical MPAS, scenario generator, and instructor control software. Mission area additions (SUW: GUID, and ASW: Escort Mission Module (EMM) processing), and IP communications capability for watchstanders are included.

[P40A / LM015 - CONTAINERS (SHIPPING & SUPPORT)]: Each MP variant uses a base Support Container (SC) which is an International Organization for Standardization (ISO) compliant shipping container, and comes in two variants: Type I and Type II. The Type I container is a 20-foot ISO container with nominal dimensions of 20' x 8' x 8'. The Type II container is a 10-foot ISO container with nominal dimensions of 10' x 8' x 8'. In both cases the base SC is constructed of high strength steel or aluminum to reduce the overall weight and features a number of standard configuration items. Mission systems fit inside standard ten- or twenty-foot ISO SCs, or on ISO compliant flat racks and vehicle cradles. The LCS MP zones inside each seaframe mission bay are configured to accommodate the SCs.

Exhibit P-40, Budget Line Item Justification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 01: Ships Support Equipment / BSA 15: Other Ship Support	**P-1 Line Item Number / Title:** 1600 / LCS Common Mission Modules Equipment	
ID Code (A=Service Ready, B=Not Service Ready): A	**Program Elements for Code B Items:** N/A	**Other Related Program Elements:** N/A
Line Item MDAP/MAIS Code: 443		

[P40A / MCM SUPPORT CONTAINER]: Unit price for the MCM Support Containers is an average cost that does not reflect the actual cost of each container. Individual containers for each of the different MCM mission systems have unique requirements and vary in cost.

[P40A / LM016 - MVCS]: The Multiple Vehicle Communications System (MVCS) provides the Littoral Combat Ship (LCS) Mission Modules with the capability to simultaneously communicate with multiple Unmanned Surface Vehicles (USVs) and surfaced Unmanned Underwater Vehicles (UUVs) by providing a common data link and network communication services. These services include link establishment, link management, communications fail-safes, Emissions Control (EMCON) handling, data routing and protection, packet shaping, Priority of Service (PoS), and automated communications system configuration. MVCS establishes a common interface for these services in the form of hardware and message definitions to maximize the usefulness of limited radio equipment onboard the LCS seaframe.

[P40A / Offboard OTH Communications]: The Multi-Vehicle Communications System (MVCS) is a communications management system that provides common Line of Sight (LOS), Over the Horizon (OTH), and satellite communications capabilities for simultaneous sensor data transfer and vehicle control of multiple Littoral Combat Ships (LCS) Mission Module Unmanned Surface Vehicles (USV) and Unmanned Underwater Vehicles (UUVs). MVCS is an open architected communications system that can be adapted to support any radio system. This funds procurement and delivery of shipboard and small craft radios and to provide OTH capabilities needed by the Mine Countermeasures (MCM) Mission Package.

[P40A / LM900 - CONSULTING SERVICES]: Provides program management support, engineering and technical support, studies, analysis and evaluation on mission package 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 01: Ships Support Equipment / BSA 15: Other Ship Support	**P-1 Line Item Number / Title:** 1600 / LCS Common Mission Modules Equipment

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

Line Item MDAP/MAIS Code: 443

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	LCS MISSION MODULES	P-5a, P-21			- / 459.825	- / 33.237	- / 38.730	- / 39.714	- / -	- / 39.714
P-40	**Total Gross/Weapon System Cost**				**- / 459.825**	**- / 33.237**	**- / 38.730**	**- / 39.714**	**- / 0.000**	**- / 39.714**

*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 in LM008 (MPCE) is to support the continued technology refresh of the MPCE (AN/SYK-31) and MPCE Sonar Signal Processing racks. LM012 funds the technology refresh of CMPTs and ASW training equipment to support the outfitting of the LCS Training Facility (LTF) in San Diego, CA/Mayport, FL to support training of Independence/Freedom variant crews. LM015 support procurement of MCM Support Containers required to outfit LCS MCM Divisional Ships. LM016 (MVCS) supports procurement of Offboard Communication equipment required for Over the Horizon communication capabilities. OTH being incorporated and fielded as part of MVCS Technology Refresh.

Exhibit P-40a, Budget Item Justification For Aggregated Items: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 15	P-1 Line Item Number / Title: 1600 / LCS Common Mission Modules Equipment	Aggregated Items Title: LCS MISSION MODULES

Item Number / Title [DODIC]	ID CD	MDAP/ MAIS Code	Prior Years			FY 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) LM001 - MCM Mission Package																				
1.1) USV	A		-	-	1.725	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.2) USV - SWEEP	A		-	-	2.410	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.3) RMMV	A		-	-	17.008	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.4) RMMV CRADLE	A		7,604K	2	15.208	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.5) AMNS	A		4,272K	4	17.090	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.6) ALMDS	A		6,622K	3	19.867	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.7) AN/AQS-20A	A		8,769K	3	26.307	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.8) COBRA	A		7,792K	1	7.792	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.9) MCM SUPPORT CONTAINERS	A		1,547K	15	23.203	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.10) SUPPORT EQUIPMENT	A		-	-	9.804	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.11) PRODUCTION ENGINEERING SUPPORT	A		-	-	10.153	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.12) MCM INCREMENTAL WHOLENESS - AQS-20A	A		5,773K	1	5.773	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: 1) LM001 - MCM Mission Package			**-**	**-**	***156.340***	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
2) LM002 - ASW MISSION PACKAGE																				
2.1) ASW MISSION PACKAGE	A		-	-	17.008	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: 2) LM002 - ASW MISSION PACKAGE			**-**	**-**	***17.008***	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
3) LM003 - SUW MISSION PACKAGE																				
3.1) GUN MODULE	A		4,206K	6	25.237	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3.2) SUW SHIPPING CONTAINER	A		144,833.33	6	0.869	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3.3) SUW SUPPORT CONTAINER	A		980,250.00	4	3.921	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3.4) SURFACE-TO-SURFACE MISSILE MODULE	A		-	-	2.400	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3.5) PRODUCTION ENGINEERING	A		-	-	2.013	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: 3) LM003 - SUW MISSION PACKAGE			**-**	**-**	***34.440***	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
4) LM005 - OBSOLESENCE MISSION MODULE ECPs																				

Exhibit P-40a, Budget Item Justification For Aggregated Items: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 15	P-1 Line Item Number / Title: 1600 / LCS Common Mission Modules Equipment	Aggregated Items Title: LCS MISSION MODULES

Item Number / Title [DODIC]	ID CD	MDAP/ MAIS Code	Prior Years			FY 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)
4.1) ENGINEERING CHANGE PROPOSALS	A		-	-	22.558	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4.2) LCS MISSION MODULES RADIO	A		1,540K	8	12.316	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4.3) PRODUCTION ENGINEERING	A		-	-	1.436	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: 4) LM005 - OBSOLESENCE MISSION MODULE ECPs			**-**	**-**	***36.310***	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
5) LM007 - C-HAWKLINK SUPPORT EQUIPMENT																				
5.1) C-HAWKLINK SUPPORT EQUIPMENT	A		-	-	5.885	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: 5) LM007 - C-HAWKLINK SUPPORT EQUIPMENT			**-**	**-**	***5.885***	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
6) LM008 - MPCE																				
6.1) Mission Package Portable Control Station(†)	A		-	-	-	1,600K	1	1.600	1,637K	1	1.637	-	-	-	-	-	-	-	-	-
6.2) MPCE Hardware(†)	A		691,769.23	26	17.986	832,000.00	2	1.664	849,000.00	3	2.547	865,980.00	4	3.464	-	-	-	865,980.00	4	3.464
6.3) MPCE Tech Refresh(†)	A		481,181.82	11	5.293	798,500.00	4	3.194	813,000.00	4	3.252	829,500.00	4	3.318	-	-	-	829,500.00	4	3.318
6.4) MPCE Sonar Signal Processing (1)(†)	A		-	-	-	-	-	-	2,292K	2	4.583	2,230K	4	8.920	-	-	-	2,230K	4	8.920
6.5) PRODUCTION ENGINEERING	A		-	-	1.634	-	-	0.335	-	-	0.714	-	-	1.271	-	-	-	-	-	1.271
Subtotal: 6) LM008 - MPCE			**-**	**-**	***24.913***	**-**	**-**	***6.793***	**-**	**-**	***12.733***	**-**	**-**	***16.973***	**-**	**-**	**-**	**-**	**-**	***16.973***
7) LM009 - DATA MISSION PAYLOAD																				
7.1) DATA MISSION PAYLOAD	A		5,391K	2	10.782	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7.2) PRODUCTION ENGINEERING	A		-	-	1.638	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: 7) LM009 - DATA MISSION PAYLOAD			**-**	**-**	***12.420***	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
8) LM010 - MISSION PACKAGE INTEGRATION																				
8.1) MISSION PACKAGE PRODUCTION ENGINEERING & ASSEMBLY	A		-	-	16.422	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: 8) LM010 - MISSION PACKAGE INTEGRATION			**-**	**-**	***16.422***	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**

Exhibit P-40a, Budget Item Justification For Aggregated Items: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 15	**P-1 Line Item Number / Title:** 1600 / LCS Common Mission Modules Equipment	**Aggregated Items Title:** LCS MISSION MODULES

Item Number / Title [DODIC]	ID CD	MDAP/ MAIS Code	Prior Years			FY 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)
9) LM012 - TRAINING EQUIPMENT																				
9.1) COMMON MISSION PACKAGE TRAINER (CMPT) (2)(†)	A		3,571K	3	10.714	3,280K	1	3.280	3,346K	1	3.346	-	-	-	-	-	-	-	-	-
9.2) CMPT MPTS Tech Refresh/ Modernization (3)	A		-	-	5.037	-	-	1.857	-	-	1.894	-	-	1.519	-	-	-	-	-	1.519
9.3) MISSION PACKAGE TRAINING SYSTEM (MPTS)	A		-	-	0.993	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
9.4) MK-50 GUN WEAPON SYSTEM TTE	A		3,890K	1	3.890	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
9.6) MISSION BAY TRAINING DEVICES - MCM (4)	A		-	-	24.641	-	-	11.804	-	-	2.797	-	-	-	-	-	-	-	-	-
9.8) MISSION BAY TRAINING DEVICES - SUW	A		-	-	0.912	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: 9) LM012 - TRAINING EQUIPMENT			**-**	**-**	***46.187***	**-**	**-**	***16.941***	**-**	**-**	***8.037***	**-**	**-**	***1.519***	**-**	**-**	**-**	**-**	**-**	***1.519***
10) LM013 - MARITIME SECURITY MODULE																				
10.1) MARITIME SECURITY MODULE	A		7,701K	2	15.402	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10.2) PRODUCTION ENGINEERING	A		-	-	1.279	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: 10) LM013 - MARITIME SECURITY MODULE			**-**	**-**	***16.681***	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
11) LM015 - CONTAINERS (SHIPPING & SUPPORT)																				
11.1) MCM SUPPORT CONTAINER(†)	A		1,339K	26	34.821	1,590K	1	1.590	1,686K	5	8.433	1,682K	8	13.452	-	-	-	1,682K	8	13.452
11.2) SUW SUPPORT CONTAINER	A		474,434.78	46	21.824	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11.3) SUW SHIPPING CONTAINER	A		178,875.00	24	4.293	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11.4) PRODUCTION ENGINEERING	A		-	-	16.724	-	-	1.031	-	-	2.615	-	-	2.225	-	-	-	-	-	2.225
Subtotal: 11) LM015 - CONTAINERS (SHIPPING & SUPPORT)			**-**	**-**	***77.662***	**-**	**-**	***2.621***	**-**	**-**	***11.048***	**-**	**-**	***15.677***	**-**	**-**	**-**	**-**	**-**	***15.677***
12) LM016 - MVCS																				
12.1) Cyber Security / Anti-Jam	A		-	-	-	-	-	2.818	-	-	-	-	-	-	-	-	-	-	-	-

Exhibit P-40a, Budget Item Justification For Aggregated Items: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 15	**P-1 Line Item Number / Title:** 1600 / LCS Common Mission Modules Equipment	**Aggregated Items Title:** LCS MISSION MODULES

Item Number / Title [DODIC]	ID CD	MDAP/ MAIS Code	Prior Years			FY 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)
12.2) Offboard OTH Communications(†)	A		-	-	-	450,000.00	2	0.900	279,600.00	4	1.118	284,580.00	2	0.569	-	-	-	284,580.00	2	0.569
12.3) MVCS Tech Refresh(†)	A		281,800.00	10	2.818	750,000.00	3	2.250	758,000.00	6	4.548	800,000.00	5	4.000	-	-	-	800,000.00	5	4.000
12.4) Production Engineering	A		-	-	0.153	-	-	0.634	-	-	0.784	-	-	0.699	-	-	-	-	-	0.699
Subtotal: 12) LM016 - MVCS			**-**	**-**	***2.971***	**-**	**-**	***6.602***	**-**	**-**	***6.450***	**-**	**-**	***5.268***	**-**	**-**	**-**	**-**	**-**	***5.268***
13) LM900 - CONSULTING SERVICES																				
13.1) CONSULTING SERVICES	A		-	-	12.586	-	-	0.280	-	-	0.462	-	-	0.277	-	-	-	-	-	0.277
Subtotal: 13) LM900 - CONSULTING SERVICES			**-**	**-**	***12.586***	**-**	**-**	***0.280***	**-**	**-**	***0.462***	**-**	**-**	***0.277***	**-**	**-**	**-**	**-**	**-**	***0.277***
Total			**-**	**-**	**459.825**	**-**	**-**	**33.237**	**-**	**-**	**38.730**	**-**	**-**	**39.714**	**-**	**-**	**-**	**-**	**-**	**39.714**

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

(†) indicates the presence of a P-5a

Footnotes:

(1) The MPCE Sonar Signal Processing hardware is provided as adjunct hardware to the Mission Package Computing Environment (MPCE) and will be fielded to meet in yard need dates for LCS 21 - LCS 28. It requires periodic upgrades to remain effective and to pace threats. To achieve this, will insert maturing ASW technologies and addressing hardware obsolescence in incremental upgrades every four years to the production program via the AxB development process.

(2) Technical Training Equipment that is integrated with Ship Combat Management System to conduct stand-alone MP team training and integrated LCS Team training.

(3) Procurement of ECP's, Tech Refresh, and Modernization to keep CMPT and MPTS current with delivered baseline.

(4) Procurement of MCM components located in an LCS mission bay to replicate the afloat environment as required to support individual qualification and team certification associated with routine and corrective system maintenance in a constrained environment, transportation in the mission bay, pre- / post- operation system maintenance; system launch and recovery. MCM Mission Bay Training includes the following hardware components: AQS-20 Part Task Trainer (PTT), MHU-191 Adapter, AQS-20 Deploy and Retrieve PTT, Knifefish UUV Launch and Recovery Virtual Trainer, Knifefish PTT, USV LHR Virtual Trainer, Minesweeping PDS PTT, USV PTT, and MCM Training Support Containers.

Exhibit P-5a, Procurement History and Planning: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 15	P-1 Line Item Number / Title: 1600 / LCS Common Mission Modules Equipment	Aggregated Items: LCS MISSION MODULES

Item Number / Title [DODIC]	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
6) LM008 - MPCE												
6.1) Mission Package Portable Control Station		2019	Advanced Acoustic Concept / Columbia, MD	SS / FFP	NAVSEA	Sep 2019	Mar 2021	1	1,600K	Y		Jul 2018
6.1) Mission Package Portable Control Station		2020	Advanced Acoustic Concept / Columbia, MD	SS / FFP	NAVSEA	Feb 2020	Aug 2021	1	1,637K	Y		
6.2) MPCE Hardware		2019	Advanced Acoustic Concept / Columbia, MD	SS / FFP	NAVSEA	Sep 2019	Sep 2020	2	832,000.00	Y		Jul 2018
6.2) MPCE Hardware		2020	Advanced Acoustic Concept / Columbia, MD	SS / FFP	NAVSEA	Mar 2020	Mar 2021	3	849,000.00	Y		
6.2) MPCE Hardware		2021	Advanced Acoustic Concept / Columbia, MD	SS / FFP	NAVSEA	Dec 2020	Dec 2021	4	865,980.00	Y		
6.3) MPCE Tech Refresh		2019	Advanced Acoustic Concept / Columbia, MD	SS / FFP	NAVSEA	Sep 2019	Sep 2020	4	798,500.00	Y		Jul 2018
6.3) MPCE Tech Refresh		2020	Advanced Acoustic Concept / Columbia, MD	SS / FFP	NAVSEA	Mar 2020	Mar 2021	4	813,000.00	Y		
6.3) MPCE Tech Refresh		2021	Advanced Acoustic Concept / Columbia, MD	SS / FFP	NAVSEA	Dec 2020	Dec 2021	4	829,500.00	Y		
6.4) MPCE Sonar Signal Processing (1)(†)		2020	Lockheed Martin / Manassas, VA	C / FFP	NAVSEA	Dec 2019	Jun 2021	2	2,292K	Y		
6.4) MPCE Sonar Signal Processing (1)(†)		2021	Lockheed Martin / Manassas, VA	C / FFP	** NO PCO **	Mar 2021	Sep 2022	4	2,230K	Y		
9) LM012 - TRAINING EQUIPMENT												
9.1) COMMON MISSION PACKAGE TRAINER (CMPT) (2)		2019	Advanced Acoustic Concept / Columbia, MD	SS / FFP	NAVSEA	Mar 2019	Mar 2020	1	3,280K	Y		Jul 2018
9.1) COMMON MISSION PACKAGE TRAINER (CMPT) (2)		2020	Advanced Acoustic Concept / Columbia, MD	SS / FFP	NAVSEA	Mar 2020	Mar 2021	1	3,346K	Y		
11) LM015 - CONTAINERS (SHIPPING & SUPPORT)												
11.1) MCM SUPPORT CONTAINER(†)		2019	NORTHROP GRUMMAN / BETHPAGE, NEW YORK	C / FFP	NAVSEA	Mar 2019	Sep 2020	1	1,590K	Y		
11.1) MCM SUPPORT CONTAINER(†)		2020	NORTHROP GRUMMAN / BETHPAGE, NEW YORK	C / FFP	NAVSEA	Mar 2020	Sep 2021	5	1,686K	Y		
11.1) MCM SUPPORT CONTAINER(†)		2021	NORTHROP GRUMMAN / BETHPAGE, NEW YORK	C / FFP	NAVSEA	Mar 2021	Sep 2022	8	1,682K	Y		
12) LM016 - MVCS												
12.2) Offboard OTH Communications		2019	VARIOUS / VARIOUS	Various	NSWC PC	Jan 2019	Jul 2020	2	450,000.00	N	Aug 2018	

Exhibit P-5a, Procurement History and Planning: PB 2021 Navy		**Date:** February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 15	**P-1 Line Item Number / Title:** 1600 / LCS Common Mission Modules Equipment	**Aggregated Items:** LCS MISSION MODULES

Item Number / Title [DODIC]	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
12.2) Offboard OTH Communications		2020	VARIOUS / VARIOUS	Various	NSWC PC	Jan 2020	Jul 2021	4	279,600.00	N	Aug 2018	
12.2) Offboard OTH Communications		2021	VARIOUS / VARIOUS	Various	NSWC PC	Jan 2021	Jul 2022	2	284,580.00	Y		
12.3) MVCS Tech Refresh		2019	VARIOUS / VARIOUS	Various	NSWC PC	Feb 2019	Feb 2020	3	750,000.00	Y		
12.3) MVCS Tech Refresh		2020	VARIOUS / VARIOUS	Various	NSWC PC	Feb 2020	Feb 2021	6	758,000.00	Y		
12.3) MVCS Tech Refresh		2021	VARIOUS / VARIOUS	Various	NSWC, PC	Mar 2021	Mar 2022	5	800,000.00	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 / 01 / 15 | **P-1 Line Item Number / Title:** 1600 / LCS Common Mission Modules Equipment | **Aggregated Items:** LCS MISSION MODULES

Items (Units in Each)							Fiscal Year 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	
6) LM008 - MPCE																															
6.4) MPCE Sonar Signal Processing [1]																															
	15	2020	NAVY	2	0	2															A -	-	-	-	-	-	-	-	-	-	2
	15	2021	NAVY	4	0	4																									4
11) LM015 - CONTAINERS (SHIPPING & SUPPORT)																															
11.1) MCM SUPPORT CONTAINER																															
Prior Years Deliveries: 26																															
	16	2019	NAVY	1	0	1						A -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	0
	16	2020	NAVY	5	0	5																		A -	-	-	-	-	-	-	5
	16	2021	NAVY	8	0	8																									8
							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 / 01 / 15	**P-1 Line Item Number / Title:** 1600 / LCS Common Mission Modules Equipment	**Aggregated Items:** LCS MISSION MODULES

Items (Units in Each)							Fiscal Year 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	
6) LM008 - MPCE																															
6.4) MPCE Sonar Signal Processing [1]																															
	15	2020	NAVY	2	0	2	-	-	-	-	-	-	-	-	1	1															0
	15	2021	NAVY	4	0	4						A -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2
11) LM015 - CONTAINERS (SHIPPING & SUPPORT)																															
11.1) MCM SUPPORT CONTAINER																															
Prior Years Deliveries: 26																															
	16	2019	NAVY	1	1	0																									0
	16	2020	NAVY	5	0	5	-	-	-	-	-	-	-	-	-	-	-	5													0
	16	2021	NAVY	8	0	8						A -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5	3
							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 / 01 / 15

P-1 Line Item Number / Title: 1600 / LCS Common Mission Modules Equipment

Aggregated Items: LCS MISSION MODULES

Items (Units in Each)							Fiscal Year 2023												Fiscal Year 2024												BALANCE
										Calendar Year 2023												Calendar Year 2024									
OCO	MFR #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2022	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	
6) LM008 - MPCE																															
6.4) MPCE Sonar Signal Processing [1]																															
	15	2020	NAVY	2	2	0																									0
	15	2021	NAVY	4	2	2	-	2																							0
11) LM015 - CONTAINERS (SHIPPING & SUPPORT)																															
11.1) MCM SUPPORT CONTAINER																															
Prior Years Deliveries: 26																															
	16	2019	NAVY	1	1	0																									0
	16	2020	NAVY	5	5	0																									0
	16	2021	NAVY	8	5	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 / 01 / 15	**P-1 Line Item Number / Title:** 1600 / LCS Common Mission Modules Equipment	**Aggregated Items:** LCS MISSION MODULES

MFR Ref #	Manufacturer Name - Location	Production Rates (Each / Year)			Procurement Leadtime (Months)							
					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	Lockheed Martin - Manassas, VA	1	2	6	0	0	18	18	0	0	18	18
2	NORTHROP GRUMMAN - BETHPAGE, NEW YORK	1	7	20	3	3	18	21	3	3	18	21

"A" in the Delivery Schedule indicates the Contract Award Date.
Note: Due to space limitations, quantities in the Exhibit P-21 delivery calendar are truncated and rounded based on the maximum quantity in the calendar as follows. If the maximum quantity is less than or equal to than 9,999, all quantities are shown as each. If the maximum quantity is between 10,000 and 999,999 all quantities are shown in thousands. If the maximum quantity is between 1,000,000 and 999,999,999 all quantities are shown in millions (rounded to the nearest thousand).If the maximum quantity is equal or greater than 1,000,000,000 all quantities are shown in billions (rounded to the nearest million).

Exhibit P-40, Budget Line Item Justification: PB 2021 Navy	Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 01: Ships Support Equipment / BSA 15: Other Ship Support	**P-1 Line Item Number / Title:** 1601 / LCS MCM Mission Modules

ID Code (A=Service Ready, B=Not Service Ready): A	**Program Elements for Code B Items:** N/A	**Other Related Program Elements:** 0603596N
Line Item MDAP/MAIS Code: 000		

Resource Summary	Prior Years	FY 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)*	224.251	98.901	64.789	218.822	0.000	218.822	222.754	234.330	243.187	247.949	1,111.812	2,666.795
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	224.251	98.901	64.789	218.822	0.000	218.822	222.754	234.330	243.187	247.949	1,111.812	2,666.795
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**224.251**	**98.901**	**64.789**	**218.822**	**0.000**	**218.822**	**222.754**	**234.330**	**243.187**	**247.949**	**1,111.812**	**2,666.795**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)												
Initial Spares *($ in Millions)*	-	0.971	6.000	12.306	-	12.306	2.719	6.552	7.605	7.515	Continuing	Continuing
Flyaway Unit Cost *($ in Dollars)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Dollars)*	-	-	-	-	-	-	-	-	-	-	-	-

Description:

The LCS Mine Countermeasures (MCM) Mission Package (MP) counters bottom, tethered, near surface, and surface mines in the littorals without putting Sailors in the minefield. When the MCM MP is embarked, LCS is capable of conducting detect-to-engage operations (hunting, sweeping, and neutralization) against shallow and deep-water sea mine threats. The MCM MP provides these capabilities through the use of sensors and weapons deployed from an embarked MH-60S multi-mission helicopter and unmanned offboard vehicles. The embarked MH-60S employs the Organic Airborne Mine Countermeasures systems to provide rapid detection and neutralization.

Organic Airborne Mine Countermeasures (OAMCM) systems provide the long-range, airborne capability to conduct detection and neutralization and clearing operations in littoral zones, confined straits, choke points, and the Amphibious Operations Area (AOA) quickly.

The Coastal Mine Reconnaissance Module (VTUAV + Coastal Battlefield Reconnaissance and Analysis system) has achieved IOC in FY2018 and provides the capability to detect mines in the surface zone and beach zone areas, providing the Joint Force Commander with the information needed to clear mines with non-LCS assets and allow military forces to safely and effectively storm the beaches. This procurement line supports the LCS mine countermeasures mission package, providing deployable combat capability to the LCS MCM squadron.

The Airborne Mine Neutralization Module (MH-60S Helo + Airborne Mine Neutralization System) and Near Surface Detection (NSD) Module (MH-60S Helo + Airborne Laser Mine Detection System) achieved Initial Operational Capability (IOC) in FY 2017.

The program will add future capabilities to provide a surface influence sweep capability via the Unmanned Minesweeping (UMS) Module: Unmanned Surface Vehicle and Minesweeping Payload Delivery System (previously known as Unmanned Influence Sweeping System (UISS)) for high-speed influence minesweeping, Remote Minehunting Module (Unmanned Surface Vehicle, Minehunting Payload Delivery System and AN/AQS-20C) to detect bottom and tethered mines and the Buried Minehunting Module (Knifefish Unmanned undersea Vehicle) to detect buried mines and mines in a high clutter environment. When complete, the MCM MP will provide capability against floating, tethered, bottom, and buried mines.

The MCM MP is deployable and capable of meeting its focused mission requirements on an LCS only when it includes the full complement of Common Mission Modules Equipment (Line Item Number 1600) and the full complement of mission systems that comprise each MCM Module (Line Item Number 1601).

Other Related Budgets: BLIs: OPN 1600, OPN 1602, OPN 1603, OPN 1611,OPN 4248, OPN 2622, OPN 2624, WPN 4221, WPN 4225, RDT&E 0603596N

Exhibit P-40, Budget Line Item Justification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 01: Ships Support Equipment / BSA 15: Other Ship Support	**P-1 Line Item Number / Title:** 1601 / LCS MCM Mission Modules	
ID Code (A=Service Ready, B=Not Service Ready): A	**Program Elements for Code B Items:** N/A	**Other Related Program Elements:** 0603596N
Line Item MDAP/MAIS Code: 000		

Exhibits Schedule					Prior Years	FY 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 / LCS MCM Mission Packages	P-5a, P-21			- / 224.251	- / 98.901	- / 64.789	- / 218.822	- / 0.000	- / 218.822
P-40	**Total Gross/Weapon System Cost**				**- / 224.251**	**- / 98.901**	**- / 64.789**	**- / 218.822**	**- / 0.000**	**- / 218.822**

*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 includes the following mission systems and associated MP support equipment: two Unmanned Surface Vehicles (USVs) with associated Minesweeping Payload Delivery Systems (PDS) for use in the Unmanned Minesweeping Modules; four Airborne Mine Neutralization Systems (AMNS); two Airborne Laser Mine Detection Systems (ALMDS); one Coastal Battlefield Reconnaissance and Analysis (COBRA) system; three USVs with associated Minehunting PDSs and four AN-AQS20 sonars for use in the Remote Minehunting Modules, as well as two Minehunting PDSs to enable the USVs procured as part of the Unmanned Minesweeping Modules with minehunting capability; and two Knifefish Unmanned Undersea Vehicles. All MCM assets procured in FY 2021 support MCM Division Ship deployments starting in FY 2023.

Exhibit P-5, Cost Analysis: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 15	P-1 Line Item Number / Title: 1601 / LCS MCM Mission Modules	Item Number / Title [DODIC]: 1 / LCS MCM Mission Packages
ID Code (A=Service Ready, B=Not Service Ready) :	MDAP/MAIS Code:	

Resource Summary	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
Procurement Quantity *(Units in Each)*	-	-	-	-	-	-
Gross/Weapon System Cost *($ in Millions)*	224.251	98.901	64.789	218.822	0.000	218.822
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	224.251	98.901	64.789	218.822	0.000	218.822
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**224.251**	**98.901**	**64.789**	**218.822**	**0.000**	**218.822**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)						
Initial Spares *($ in Millions)*	-	0.971	6.000	12.306	-	12.306
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 - MC001 - UNMANNED MINESWEEPING (UMS) MODULE Cost																		
Recurring Cost																		
1.1.1) Unmanned Influenced Sweep System (UISS)(†)	11,800K	1	11.800	12,100K	1	12.100	-	-	-	-	-	-	-	-	-	-	-	-
1.1.2) Unmanned Surface Vehicle for UMS Module(†) (1)	-	-	-	-	-	-	-	-	-	10,246K	2	20.492	-	-	-	10,246K	2	20.492
1.1.3) Minesweeping Payload Delivery System(†) (2)	-	-	-	-	-	-	-	-	-	2,343K	2	4.686	-	-	-	2,343K	2	4.686
Subtotal: Recurring Cost	-	-	*11.800*	-	-	*12.100*	-	-	-	-	-	*25.178*	-	-	-	-	-	*25.178*
Subtotal: Hardware - MC001 - UNMANNED MINESWEEPING (UMS) MODULE Cost	**-**	**-**	***11.800***	**-**	**-**	***12.100***	**-**	**-**	**-**	**-**	**-**	***25.178***	**-**	**-**	**-**	**-**	**-**	***25.178***
Hardware - MC003 - ORGANIC AIRBORNE MINE COUNTERMEASURES (OAMCM) SYSTEMS Cost																		
Recurring Cost																		
2.1.1) Airborne Mine Neutralization System (AMNS)(†) (3)	3,840K	6	23.037	3,582K	2	7.164	3,653K	4	14.612	3,672K	4	14.688	-	-	-	3,672K	4	14.688
2.1.2) Airborne Laser Mine Detection System(†) (4)	10,806K	6	64.833	-	-	-	-	-	-	15,567K	2	31.134	-	-	-	15,567K	2	31.134
2.1.3) AMNS Technology Refresh	-	-	2.651	-	-	1.308	-	-	1.730	-	-	1.765	-	-	-	-	-	1.765

Exhibit P-5, Cost Analysis: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 15	P-1 Line Item Number / Title: 1601 / LCS MCM Mission Modules	Item Number / Title [DODIC]: 1 / LCS MCM Mission Packages
ID Code (A=Service Ready, B=Not Service Ready) :	MDAP/MAIS Code:	

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

Cost Elements	Prior Years			FY 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 Obsolescence Upgrades (5)																		
2.1.4) ALMDS Technology Refresh and obsolescence Upgrades	-	-	3.900	-	-	-	-	-	0.981	-	-	3.105	-	-	-	-	-	3.105
Subtotal: Recurring Cost	-	-	*94.421*	-	-	*8.472*	-	-	*17.323*	-	-	*50.692*	-	-	-	-	-	*50.692*
Subtotal: Hardware - MC003 - ORGANIC AIRBORNE MINE COUNTERMEASURES (OAMCM) SYSTEMS Cost	**-**	**-**	***94.421***	**-**	**-**	***8.472***	**-**	**-**	***17.323***	**-**	**-**	***50.692***	**-**	**-**	**-**	**-**	**-**	***50.692***
Hardware - MC004 - COASTAL MINE RECONNAISANCE MODULE Cost																		
Recurring Cost																		
3.1.1) COBRA(†) (6)	8,064K	2	16.128	8,550K	1	8.550	8,550K	1	8.550	9,300K	1	9.300	-	-	-	9,300K	1	9.300
Subtotal: Recurring Cost	-	-	*16.128*	-	-	*8.550*	-	-	*8.550*	-	-	*9.300*	-	-	-	-	-	*9.300*
Subtotal: Hardware - MC004 - COASTAL MINE RECONNAISANCE MODULE Cost	**-**	**-**	***16.128***	**-**	**-**	***8.550***	**-**	**-**	***8.550***	**-**	**-**	***9.300***	**-**	**-**	**-**	**-**	**-**	***9.300***
Hardware - MC005 - BURIED MINEHUNTING MODULE Cost																		
Recurring Cost																		
4.1.1) KNIFEFISH(†) (7)	-	-	-	10,652K	2	21.304	-	-	-	11,977K	2	23.954	-	-	-	11,977K	2	23.954
4.1.2) Ancillary Equipment and Container Outfitting(†) (8)	-	-	-	4,198K	2	8.396	-	-	-	2,300K	2	4.600	-	-	-	2,300K	2	4.600
Subtotal: Recurring Cost	-	-	-	-	-	*29.700*	-	-	-	-	-	*28.554*	-	-	-	-	-	*28.554*
Subtotal: Hardware - MC005 - BURIED MINEHUNTING MODULE Cost	**-**	**-**	**-**	**-**	**-**	***29.700***	**-**	**-**	**-**	**-**	**-**	***28.554***	**-**	**-**	**-**	**-**	**-**	***28.554***
Hardware - MC006 - MCM SUPPORT EQUIPMENT Cost																		
Recurring Cost																		
5.1.1) SUPPORT EQUIPMENT	-	-	10.638	-	-	3.242	-	-	4.610	-	-	4.439	-	-	-	-	-	4.439
Subtotal: Recurring Cost	-	-	*10.638*	-	-	*3.242*	-	-	*4.610*	-	-	*4.439*	-	-	-	-	-	*4.439*
Subtotal: Hardware - MC006 - MCM SUPPORT EQUIPMENT Cost	**-**	**-**	***10.638***	**-**	**-**	***3.242***	**-**	**-**	***4.610***	**-**	**-**	***4.439***	**-**	**-**	**-**	**-**	**-**	***4.439***

Exhibit P-5, Cost Analysis: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 15	P-1 Line Item Number / Title: 1601 / LCS MCM Mission Modules	Item Number / Title [DODIC]: 1 / LCS MCM Mission Packages
ID Code (A=Service Ready, B=Not Service Ready) :	MDAP/MAIS Code:	

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

Cost Elements	Prior Years			FY 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 - MC008 - REMOTE MINEHUNTING MODULE Cost																		
Recurring Cost																		
6.1.1) USV(†) (9)	-	-	-	17,480K	1	17.480	-	-	-	-	-	-	-	-	-	-	-	-
6.1.2) Unmanned Surface Vehicle(†) (10)	-	-	-	-	-	-	-	-	-	10,246K	3	30.738	-	-	-	10,246K	3	30.738
6.1.3) Minehunting Payload Delivery System(†)	-	-	-	-	-	-	-	-	-	3,775K	3	11.325	-	-	-	3,775K	3	11.325
6.1.4) Minehunting Payload Delivery System (to backfit UMS Module USV)(†) (11)	-	-	-	6,100K	2	12.200	-	-	-	3,775K	2	7.550	-	-	-	3,775K	2	7.550
6.1.5) AN/AQS-20C(†) (12)	6,660K	10	66.600	-	-	-	14,180K	2	28.360	10,718K	4	42.874	-	-	-	10,718K	4	42.874
Subtotal: Recurring Cost	-	-	*66.600*	-	-	*29.680*	-	-	*28.360*	-	-	*92.487*	-	-	-	-	-	*92.487*
Subtotal: Hardware - MC008 - REMOTE MINEHUNTING MODULE Cost	**-**	**-**	***66.600***	**-**	**-**	***29.680***	**-**	**-**	***28.360***	**-**	**-**	***92.487***	**-**	**-**	**-**	**-**	**-**	***92.487***
Support - MC900 - CONSULTING SERVICES Cost																		
7.1) CONSULTING SERVICES	-	-	5.524	-	-	1.948	-	-	2.077	-	-	1.905	-	-	-	-	-	1.905
Subtotal: Support - MC900 - CONSULTING SERVICES Cost	**-**	**-**	***5.524***	**-**	**-**	***1.948***	**-**	**-**	***2.077***	**-**	**-**	***1.905***	**-**	**-**	**-**	**-**	**-**	***1.905***
Support - PRODUCTION ENGINEERING Cost																		
8.1) MC001 - UNMANNED INFLUENCE MINE SWEEP	-	-	0.532	-	-	0.625	-	-	-	-	-	0.650	-	-	-	-	-	0.650
8.2) MC003 - ORGANIC AIRBORNE MINE COUNTERMEASURES (OAMCM)	-	-	14.462	-	-	1.250	-	-	1.279	-	-	1.790	-	-	-	-	-	1.790
8.3) MC004 - COASTAL MINE RECONNAISANCE MODULE	-	-	0.679	-	-	0.448	-	-	0.560	-	-	0.578	-	-	-	-	-	0.578
8.4) MC005 - BURIED MINEHUNTING MODULE	-	-	-	-	-	0.625	-	-	-	-	-	1.175	-	-	-	-	-	1.175

Exhibit P-5, Cost Analysis: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 15	P-1 Line Item Number / Title: 1601 / LCS MCM Mission Modules	Item Number / Title [DODIC]: 1 / LCS MCM Mission Packages
ID Code (A=Service Ready, B=Not Service Ready) :	MDAP/MAIS Code:	

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

Cost Elements	Prior Years			FY 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)
8.5) MC006 - MCM SUPPORT EQUIPMENT	-	-	3.467	-	-	0.640	-	-	0.755	-	-	0.769	-	-	-	-	-	0.769
8.6) MC008 REMOTE MINEHUNTING MODULE	-	-	-	-	-	1.621	-	-	1.275	-	-	1.305	-	-	-	-	-	1.305
Subtotal: Support - PRODUCTION ENGINEERING Cost	**-**	**-**	***19.140***	**-**	**-**	***5.209***	**-**	**-**	***3.869***	**-**	**-**	***6.267***	**-**	**-**	**-**	**-**	**-**	***6.267***
Gross/Weapon System Cost	**-**	**-**	**224.251**	**-**	**-**	**98.901**	**-**	**-**	**64.789**	**-**	**-**	**218.822**	**-**	**-**	**0.000**	**-**	**-**	**218.822**

Remarks:

[Hardware] MC001- The Unmanned Minesweeping Module provides an unmanned surface, long endurance bottom sweep capability to clear large areas of mines that may remain after mine-hunting operations are complete.

[Hardware] The Buried Minehunting Module provides capability to detect and identify buried mines and mines in a cluttered ocean bottom environment. This procurement line supports the LCS mine countermeasures mission package, providing deployable combat capability to the LCS MCM squadron.

[Hardware] MC006 - MCM SUPPORT EQUIPMENT]: Support equipment related to the individual modules.

[Hardware] The Remote Minehunting Module consists of an Unmanned Surface Vehicle and a Minehunting Payload Delivery System for deploying and retrieving the AN/AQS-20 minehunting sonar. Beginning in FY 2020, the USV is common between the Unmanned Minesweeping Module and the Remote Minehunting Module. The USV is capable of supporting both minehunting and minesweeping missions. FY 2021 procurements will be competitively sought.

[Support Cost] MC900 - Provides program management support, engineering and technical support, studies, analysis and evaluation on mission module systems.

(†) indicates the presence of a P-5a

Footnotes:

(1) The Unmanned Minesweeping Module consists of an Unmanned Surface Vehicle (USV) and a Minesweeping Payload Delivery System (PDS). Prior to FY 2020, this system was known as the 1.1.1) Unmanned Influenced Sweep System (UISS). The LCS MM Program requires a total of 24 Unmanned Minesweeping Modules.

(2) The Minesweeping Payload Delivery System (PDS) plus the Unmanned Surface Vehicle (USV) form the Unmanned Minesweeping Module which was formerly identified as the Unmanned Influence Sweep System (UISS) in FY19 and prior. The Minesweeping PDS includes the MK-104 payload.

(3) AMNS unit pricing reflects contract actuals.

(4) ALMDS unit prices are based on economic order quantity / step-ladder pricing in existing contract.

(5) 2.1.4) AMNS Tech Refreshes improve reliability and maintainability to previously procured AMNS units and correct deficiencies that allow the equipment to perform in accordance with current deployment configuration / operational requirements.

Exhibit P-5, Cost Analysis: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 15	**P-1 Line Item Number / Title:** 1601 / LCS MCM Mission Modules	**Item Number / Title [DODIC]:** 1 / LCS MCM Mission Packages
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

(6) FY 2019 - FY 2020 reflects Economic Order Quantity (EOQ) when taking into consideration the COBRA training assets procured through OPN Line Item 2624 where COBRA systems are procured to provide initial and proficiency training to Navy aircrews. FY21 COBRA unit price reflects unit cost when the Navy procures one COBRA system in a Fiscal Year, per contract N61331-18-D-0012.

(7) FY 2021 through FY 2025 pricing is based on a planned competitive contract and is based on the Program Lifecycle Cost Estimate (PLCCE). The LCS MM Program requires a total of 24 Knifefish systems.

(8) The unit cost includes all necessary equipment to outfit the Buried Minehunting (BMH) Module to include the base pallet, launch and recovery device, shipping containers, support equipment (deck tie down case, ballast transport case, grapple assembly, winch case, and other tools), and the BMH Specialized Container.

(9) Beginning in FY 2020, the program is aligning the budget to reflect the planned procurement strategy for the Unmanned Surface Vehicle (USV) that is part of both the Unmanned Minesweeping Module and the Remote Minehunting Module. Prior to FY 2020, this Cost Element (6.1.1 - MCM USV) reflects the procurement of one vehicle and one Minehunting Payload Delivery System (PDS). Beginning in FY 2020, the budget breaks out the USV and the Minehunting PDS into seperate Cost Elements, 6.1.2 and 6.1.3 respectively.

(10) The Unmanned Surface Vehicle (USV), Minehunting Payload Delivery System (PDS), and the AN/AQS-20 minehunting sonar form the Remote Minehunting (RMH) Module. The LCS MM Program requires a total of 24 RMH Modules.

(11) The LCS MM Program requires a total of 48 Minehunting Payload Delivery Systems (PDS) to enable the 48 USVs procured for both the Unmanned Mine Sweeping (UMS) and the Remote Minehunting (RMH) Modules to perform minehunting missions. Cost Element 6.1.4 procures the 24 Minehunting PDS required to backfit the 24 USVs in the UMS Modules (procured in cost element 1.1.2 - Unmanned Surface Vehicle) allowing those assets to support both mine sweeping and minehunting missions.

(12) The AQS-20C is a towed variable depth minehunting sonar.

Exhibit P-5a, Procurement History and Planning: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 15	P-1 Line Item Number / Title: 1601 / LCS MCM Mission Modules	Item Number / Title [DODIC]: 1 / LCS MCM Mission Packages

Cost Elements	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) Unmanned Influenced Sweep System (UISS)(†)		2018	Textron / Hunt Valley, MD	C / FPIF	NAVSEA	Jan 2020	Jul 2021	1	11,800K	Y		
1.1.1) Unmanned Influenced Sweep System (UISS)(†)		2019	Textron / Hunt Valley, MD	C / FPIF	NAVSEA	Jan 2020	Jul 2021	1	12,100K	Y		
1.1.2) Unmanned Surface Vehicle for UMS Module(†)		2021	TBD / TBD	C / TBD	NAVSEA	Mar 2021	Mar 2023	2	10,246K	Y		
1.1.3) Minesweeping Payload Delivery System		2021	New Contractor following FFP decision / TBD	C / TBD	NAVSEA	Oct 2020	Jan 2022	2	2,343K	Y		
2.1.1) Airborne Mine Neutralization System (AMNS)(†)		2018	Raytheon / Portsmouth, RI	C / FFP	NAVSEA	Feb 2018	Aug 2019	2	3,010K	Y		
2.1.1) Airborne Mine Neutralization System (AMNS)(†)		2019	Raytheon / Portsmouth, RI	C / FFP	NAVSEA	Feb 2019	Aug 2020	2	3,582K	Y		
2.1.1) Airborne Mine Neutralization System (AMNS)(†)		2020	Raytheon / Portsmouth, RI	C / FFP	NAVSEA	Jun 2020	Dec 2021	4	3,653K	Y		
2.1.1) Airborne Mine Neutralization System (AMNS)(†)		2021	Raytheon / Portsmouth, RI	C / FFP	NAVSEA	Feb 2021	Aug 2022	4	3,672K	Y		
2.1.2) Airborne Laser Mine Detection System(†)		2018	Northrop Grumman / Melbourne, Fl	C / FFP	NAVSEA	Mar 2018	Sep 2019	1	14,669K	Y		
2.1.2) Airborne Laser Mine Detection System(†)		2021	New Contractor following FFP decision / TBD	TBD	NAVSEA	Jan 2021	Jul 2022	2	15,567K	Y		
3.1.1) COBRA(†)		2018	ARETE / TUCSON, AZ	C / FFP	NSWC PC	Sep 2018	Sep 2020	1	7,628K	Y		
3.1.1) COBRA(†)		2019	ARETE / TUCSON, AZ	C / FFP	NSWC PC	Dec 2018	Dec 2020	1	8,550K	Y		
3.1.1) COBRA(†)		2020	ARETE / TUCSON, AZ	C / FFP	NSWC PC	Dec 2019	Dec 2021	1	8,550K	Y		
3.1.1) COBRA(†)		2021	ARETE / TUCSON, AZ	C / FFP	NSWC PC	Dec 2020	Dec 2022	1	9,300K	Y		
4.1.1) KNIFEFISH(†)		2019	General Dynamics MS / Mcleansville, NC	C / CPIF	NAVSEA	Aug 2019	Feb 2021	2	10,652K	Y		
4.1.1) KNIFEFISH(†)		2021	New Contractor following FRP decision / TBD	TBD	NAVSEA	Dec 2020	Jun 2022	2	11,977K	Y		
4.1.2) Ancillary Equipment and Container Outfitting		2019	NORTHROP GRUMMAN / BETHPAGE, NEW YORK	C / FPIF	NAVSEA	Apr 2020	Apr 2021	2	4,198K	Y		
4.1.2) Ancillary Equipment and Container Outfitting		2021	NORTHROP GRUMMAN / BETHPAGE, NEW YORK	C / CPIF	NAVSEA	Feb 2021	Feb 2022	2	2,300K	Y		
6.1.1) USV(†)		2019	Textron / Hunt Valley, MD	C / TBD	NAVSEA	Jan 2020	Jan 2022	1	17,480K	Y		
6.1.2) Unmanned Surface Vehicle(†)		2021	New Contractor following FFP decision / TBD	C / TBD	NAVSEA	Oct 2020	Oct 2022	3	10,246K	Y		

Exhibit P-5a, Procurement History and Planning: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 15	P-1 Line Item Number / Title: 1601 / LCS MCM Mission Modules	Item Number / Title [DODIC]: 1 / LCS MCM Mission Packages

Cost Elements	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
6.1.3) Minehunting Payload Delivery System(†)		2021	New Contractor following FFP decision / TBD	C / TBD	NAVSEA	Oct 2020	Jan 2022	3	3,775K	Y		
6.1.4) Minehunting Payload Delivery System (to backfit UMS Module USV)(†)		2019	Raytheon / Portsmouth, RI	SS / FFP	NAVSEA	Aug 2019	Oct 2020	2	6,100K	Y		
6.1.4) Minehunting Payload Delivery System (to backfit UMS Module USV)(†)		2021	New Contractor following FFP decision / TBD	C / TBD	NAVSEA	Mar 2021	May 2022	2	3,775K	Y		
6.1.5) AN/AQS-20C(†)		2020	TBD / TBD	TBD	NAVSEA	Jul 2020	Jul 2022	2	14,180K	Y		Jan 2019
6.1.5) AN/AQS-20C(†)		2021	TBD / TBD	C / TBD	NAVSEA	Mar 2021	Mar 2023	4	10,718K	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 / 01 / 15 | **P-1 Line Item Number / Title:** 1601 / LCS MCM Mission Modules | **Item Number / Title [DODIC]:** 1 / LCS MCM Mission Packages

Cost Elements (Units in Each)							Fiscal Year 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	
1.1.1) Unmanned Influenced Sweep System (UISS)																															
	1	2018	NAVY	1	0	1																									1
	1	2019	NAVY	1	0	1																									1
1.1.2) Unmanned Surface Vehicle for UMS Module (1)																															
	2	2021	NAVY	2	0	2																									2
2.1.1) Airborne Mine Neutralization System (AMNS) (3)																															
Prior Years Deliveries: 4																															
	3	2018	NAVY	2	0	2					A -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	0
	3	2019	NAVY	2	0	2																	A -	-	-	-	-	-	-	-	2
	3	2020	NAVY	4	0	4																									4
	3	2021	NAVY	4	0	4																									4
2.1.2) Airborne Laser Mine Detection System (4)																															
Prior Years Deliveries: 5																															
	4	2018	NAVY	1	0	1						A -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	0
	5	2021	NAVY	2	0	2																									2
3.1.1) COBRA (6)																															
Prior Years Deliveries: 1																															
	6	2018	NAVY	1	0	1												A -	-	-	-	-	-	-	-	-	-	-	-	-	1
	6	2019	NAVY	1	0	1															A -	-	-	-	-	-	-	-	-	-	1
	6	2020	NAVY	1	0	1																									1
	6	2021	NAVY	1	0	1																									1
4.1.1) KNIFEFISH (7)																															
	7	2019	NAVY	2	0	2																							A -	-	2
	8	2021	NAVY	2	0	2																									2
6.1.1) USV (9)																															
	9	2019	NAVY	1	0	1																									1
6.1.2) Unmanned Surface Vehicle (10)																															
	10	2021	NAVY	3	0	3																									3
6.1.3) Minehunting Payload Delivery System																															
	11	2021	NAVY	3	0	3																									3
6.1.4) Minehunting Payload Delivery System (to backfit UMS Module USV) (11)																															
							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 / 01 / 15	**P-1 Line Item Number / Title:** 1601 / LCS MCM Mission Modules	**Item Number / Title [DODIC]:** 1 / LCS MCM Mission Packages

Cost Elements (Units in Each)							Fiscal Year 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	
	13	2019	NAVY	2	0	2																							A -	-	2
	12	2021	NAVY	2	0	2																									2
6.1.5) AN/AQS-20C (12)																															
Prior Years Deliveries: 10																															
	14	2020	NAVY	2	0	2																									2
	14	2021	NAVY	4	0	4																									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 / 01 / 15 | **P-1 Line Item Number / Title:** 1601 / LCS MCM Mission Modules | **Item Number / Title [DODIC]:** 1 / LCS MCM Mission Packages

Cost Elements (Units in Each)							Fiscal Year 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	
1.1.1) Unmanned Influenced Sweep System (UISS)																															
	1	2018	NAVY	1	0	1				A -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1			0
	1	2019	NAVY	1	0	1				A -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1			0
1.1.2) Unmanned Surface Vehicle for UMS Module (1)																															
	2	2021	NAVY	2	0	2																		A -	-	-	-	-	-	-	2
2.1.1) Airborne Mine Neutralization System (AMNS) (3)																															
Prior Years Deliveries: 4																															
	3	2018	NAVY	2	2	0																									0
	3	2019	NAVY	2	0	2	-	-	-	-	-	-	-	-	-	-	1	-	1												0
	3	2020	NAVY	4	0	4									A -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4
	3	2021	NAVY	4	0	4																	A -	-	-	-	-	-	-	-	4
2.1.2) Airborne Laser Mine Detection System (4)																															
Prior Years Deliveries: 5																															
	4	2018	NAVY	1	1	0																									0
	5	2021	NAVY	2	0	2																A -	-	-	-	-	-	-	-	-	2
3.1.1) COBRA (6)																															
Prior Years Deliveries: 1																															
	6	2018	NAVY	1	0	1	-	-	-	-	-	-	-	-	-	-	-	1													0
	6	2019	NAVY	1	0	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1										0
	6	2020	NAVY	1	0	1			A -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
	6	2021	NAVY	1	0	1															A -	-	-	-	-	-	-	-	-	-	1
4.1.1) KNIFEFISH (7)																															
	7	2019	NAVY	2	0	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2								0
	8	2021	NAVY	2	0	2															A -	-	-	-	-	-	-	-	-	-	2
6.1.1) USV (9)																															
	9	2019	NAVY	1	0	1				A -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
6.1.2) Unmanned Surface Vehicle (10)																															
	10	2021	NAVY	3	0	3													A -	-	-	-	-	-	-	-	-	-	-	-	3
6.1.3) Minehunting Payload Delivery System																															
	11	2021	NAVY	3	0	3													A -	-	-	-	-	-	-	-	-	-	-	-	3
6.1.4) Minehunting Payload Delivery System (to backfit UMS Module USV) (11)																															
							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 / 01 / 15	**P-1 Line Item Number / Title:** 1601 / LCS MCM Mission Modules	**Item Number / Title [DODIC]:** 1 / LCS MCM Mission Packages

Cost Elements (Units in Each)							Fiscal Year 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	
	13	2019	NAVY	2	0	2	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	1									0
	12	2021	NAVY	2	0	2																		A -	-	-	-	-	-	-	2
6.1.5) AN/AQS-20C (12)																															
Prior Years Deliveries: 10																															
	14	2020	NAVY	2	0	2										A -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2
	14	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 / 01 / 15 | **P-1 Line Item Number / Title:** 1601 / LCS MCM Mission Modules | **Item Number / Title [DODIC]:** 1 / LCS MCM Mission Packages

Cost Elements (Units in Each)							Fiscal Year 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	
1.1.1) Unmanned Influenced Sweep System (UISS)																															
	1	2018	NAVY	1	1	0																									0
	1	2019	NAVY	1	1	0																									0
1.1.2) Unmanned Surface Vehicle for UMS Module (1)																															
	2	2021	NAVY	2	0	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	1					0
2.1.1) Airborne Mine Neutralization System (AMNS) (3)																															
Prior Years Deliveries: 4																															
	3	2018	NAVY	2	2	0																									0
	3	2019	NAVY	2	2	0																									0
	3	2020	NAVY	4	0	4	-	-	1	1	1	1																			0
	3	2021	NAVY	4	0	4	-	-	-	-	-	-	-	-	-	-	1	1	1	1											0
2.1.2) Airborne Laser Mine Detection System (4)																															
Prior Years Deliveries: 5																															
	4	2018	NAVY	1	1	0																									0
	5	2021	NAVY	2	0	2	-	-	-	-	-	-	-	-	-	1	-	1													0
3.1.1) COBRA (6)																															
Prior Years Deliveries: 1																															
	6	2018	NAVY	1	1	0																									0
	6	2019	NAVY	1	1	0																									0
	6	2020	NAVY	1	0	1	-	-	1																						0
	6	2021	NAVY	1	0	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1										0
4.1.1) KNIFEFISH (7)																															
	7	2019	NAVY	2	2	0																									0
	8	2021	NAVY	2	0	2	-	-	-	-	-	-	-	-	2																0
6.1.1) USV (9)																															
	9	2019	NAVY	1	0	1	-	-	-	1																					0
6.1.2) Unmanned Surface Vehicle (10)																															
	10	2021	NAVY	3	0	3	-	-	-	-	-	-	-	-	-	-	-	-	1	-	1	-	1								0
6.1.3) Minehunting Payload Delivery System																															
	11	2021	NAVY	3	0	3	-	-	-	1	-	1	-	1																	0
6.1.4) Minehunting Payload Delivery System (to backfit UMS Module USV) (11)																															
							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 / 01 / 15	**P-1 Line Item Number / Title:** 1601 / LCS MCM Mission Modules	**Item Number / Title [DODIC]:** 1 / LCS MCM Mission Packages

Cost Elements (Units in Each)							Fiscal Year 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	
	13	2019	NAVY	2	2	0																									0
	12	2021	NAVY	2	0	2	-	-	-	-	-	-	-	1	-	1															0
6.1.5) AN/AQS-20C (12)																															
Prior Years Deliveries: 10																															
	14	2020	NAVY	2	0	2	-	-	-	-	-	-	-	-	-	1	-	-	-	1											0
	14	2021	NAVY	4	0	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-	2			0
							OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	

Exhibit P-21, Production Schedule: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 15	**P-1 Line Item Number / Title:** 1601 / LCS MCM Mission Modules	**Item Number / Title [DODIC]:** 1 / LCS MCM Mission Packages

MFR Ref #	Manufacturer Name - Location	Production Rates (Each / Year)			Procurement Leadtime (Months)							
					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	Textron - Hunt Valley, MD	1	6	12	3	3	18	21	3	3	18	21
2	TBD - TBD	1	6	10	3	0	24	24	0	0	24	24
3	Raytheon - Portsmouth, RI	2	3	8	3	0	18	18	3	3	18	21
4	Northrop Grumman - Melbourne, Fl	1	4	8	3	0	18	18	3	3	18	21
5	New Contractor following FFP decision - TBD	1	4	8	3	0	18	18	3	3	18	21
6	ARETE - TUCSON, AZ	2	6	12	0	0	24	24	0	0	24	24
7	General Dynamics MS - Mcleansville, NC	1	6	10	3	6	18	24	0	3	18	21
8	New Contractor following FRP decision - TBD	1	6	10	3	6	18	24	0	3	18	21
9	Textron - Hunt Valley, MD	1	6	12	3	0	24	24	0	0	24	24
10	New Contractor following FFP decision - TBD	1	6	10	3	0	24	24	0	0	24	24
11	New Contractor following FFP decision - TBD	1	6	10	3	0	15	15	0	0	12	12
12	New Contractor following FFP decision - TBD	1	6	10	0	0	14	14	0	0	12	12
13	Raytheon - Portsmouth, RI	1	6	10	0	0	14	14	0	0	12	12
14	TBD - TBD	2	3	8	3	0	24	24	3	0	24	24

"A" in the Delivery Schedule indicates the Contract Award Date.

Note: Due to space limitations, quantities in the Exhibit P-21 delivery calendar are truncated and rounded based on the maximum quantity in the calendar as follows. If the maximum quantity is less than or equal to than 9,999, all quantities are shown as each. If the maximum quantity is between 10,000 and 999,999 all quantities are shown in thousands. If the maximum quantity is between 1,000,000 and 999,999,999 all quantities are shown in millions (rounded to the nearest thousand).If the maximum quantity is equal or greater than 1,000,000,000 all quantities are shown in billions (rounded to the nearest million).

Exhibit P-40, Budget Line Item Justification: PB 2021 Navy	Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 01: Ships Support Equipment / BSA 15: Other Ship Support	**P-1 Line Item Number / Title:** 1602 / LCS ASW Mission Modules

ID Code (A=Service Ready, B=Not Service Ready): A	**Program Elements for Code B Items:** N/A	**Other Related Program Elements:** 0603596N
Line Item MDAP/MAIS Code: 000		

Resource Summary	Prior Years	FY 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	24.617	61.759	0.000	61.759	78.112	83.024	10.096	1.799	39.424	298.831
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	0.000	0.000	24.617	61.759	0.000	61.759	78.112	83.024	10.096	1.799	39.424	298.831
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**0.000**	**0.000**	**24.617**	**61.759**	**0.000**	**61.759**	**78.112**	**83.024**	**10.096**	**1.799**	**39.424**	**298.831**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)												
Initial Spares *($ in Millions)*	-	0.578	0.300	0.347	-	0.347	0.175	0.211	0.233	0.237	Continuing	Continuing
Flyaway Unit Cost *($ in Dollars)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Dollars)*	-	-	-	-	-	-	-	-	-	-	-	-

Description:

The Anti-Submarine Warfare (ASW) Mission Package (MP) enables the Littoral Combat Ship (LCS) to conduct detect-to-engage operations against modern submarines that pose a threat. Specific ASW capabilities include protecting forces in transit, protecting joint operating areas, and establishing ASW barriers. The ASW MP provides the warfighter capabilities that can be employed for ASW area search as well as high value unit escort missions and composed of an Escort Mission Module (EMM), and an Aviation Module.

The EMM components procured through this Line Item Number 1602 include a Variable Depth Sonar (VDS), a Multi-Function Towed Array (MFTA), associated support equipment and Support Containers. When coupled with a Mission Package Computing Environment (MPCE) Sonar Signal Processing System (SSPS), procured through Line Item Number 1600, the VDS, MFTA, and associated support equipment/ containers provide the full LCS ASW Escort capabilities. The VDS is an acoustic source that can be towed at the speeds required to perform effective ASW search from LCS. The VDS is a Dual Mode Array Transmitter (DART), and together with the MFTA and Sonar Signal Processing System, provides an in-stride and rapid ASW escort and large area search capability for the Escort Mission Module.

The Aviation Module provides airborne threat localization and engagement capability through an MH-60R helicopter with MK54 torpedoes and sonobuoys, as well as associated storing and handling gear.

The Navy's inventory objective for deployable ASW Mission Packages as certified by OSD is 10. This includes 8 MPs to outfit the ships in the ASW Division, 1 spare MP to ensure high operational availability, and 1 MP to outfit the test ships.

Other Related Budgets: BLIs: OPN 1600, RDT&E 0603596N

[P5 / (AS001) - ASW Escort Module]: The ASW Escort Mission Module (EMM) contains the sensors and signal processing required to detect, classify and localize submarine threats. The EMM consists of two towed sensors; a Variable Depth Sonar (VDS) active source and a Multi Function Towed Array (MFTA) passive/bi-static active receiver; launch, handling and recovery equipment for the towed sensors, and AN/ SQQ-89 V(15) active and passive signal processing applications.

The FY20 VDS unit cost reflects the actual contract (N6660415C086) price to buy one VDS in the first option year (ie. first production article). In the 2019 President's Budget request, the unit costs for FY20 were based on a quantity of two in the second option year (ie. second year of production). Based on the revised VDS profile (0 in FY19, 1 in FY20), the contract was restructured. The FY20 unit cost has been updated in the 2021 President's Budget request to the restructured contract price.

Exhibit P-40, Budget Line Item Justification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 01: Ships Support Equipment / BSA 15: Other Ship Support	**P-1 Line Item Number / Title:** 1602 / LCS ASW Mission Modules	
ID Code (A=Service Ready, B=Not Service Ready): A	**Program Elements for Code B Items:** N/A	**Other Related Program Elements:** 0603596N
Line Item MDAP/MAIS Code: 000		

[P5 / ASW Support Containers]: The foundation of each ASW Support Container (SC) is an International Organization for Standardization (ISO) compliant shipping container. The ISO shipping containers are outfitted with Unistrut rails (for shelving and drawer attachments), lighting (standard/emergency), fire/smoke alarms, service panels for power, and a circuit breaker box. From this base container configuration, a variety of racks, cradles, and handling gear can be installed as needed to form a SC. To provide interim capability, the LCS MM Program will utilize the Support Containers from the Pre-Production Test Article (PPTA) for the FY20 production asset.

[P5 / (AS900) - Consulting Services]: Provides program management support, engineering and technical support, studies, analysis and evaluation on mission module 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 01: Ships Support Equipment / BSA 15: Other Ship Support	**P-1 Line Item Number / Title:** 1602 / LCS ASW Mission Modules

ID Code (A=Service Ready, B=Not Service Ready): A	Program Elements for Code B Items: N/A	Other Related Program Elements: 0603596N

Line Item MDAP/MAIS Code: 000

Exhibits Schedule					Prior Years	FY 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 / LCS ASW Mission Modules	P-5a, P-21			- / 0.000	- / 0.000	- / 24.617	- / 57.758	- / 0.000	- / 57.758
P-3a	1 / ASW MP Modifications (Permanent Installation)				- / 0.000	- / 0.000	- / 0.000	- / 4.001	- / 0.000	- / 4.001
P-40	**Total Gross/Weapon System Cost**				**- / 0.000**	**- / 0.000**	**- / 24.617**	**- / 61.759**	**- / 0.000**	**- / 61.759**

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 / LCS ASW Mission Modules	P-5a, P-21			- / -	- / -	- / -	- / -	- / -	- / -
P-3a	1 / ASW MP Modifications (Permanent Installation)				- / 8.150	- / 11.856	- / 9.575	- / 1.124	- / 0.000	- / 34.706
P-40	**Total Gross/Weapon System Cost**				**- / 78.112**	**- / 83.024**	**- / 10.096**	**- / 1.799**	**- / 39.424**	**- / 298.831**

*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 funds the procurement of two ASW MPs (including the VDS, VDS ECPs, MFTAs, Support Equipment, and Support Containers) FY 2021 ASW MP procurement will support deployments beginning in FY 2023. The FY 2020 ASW MP funding supports procurement of the first VDS and associated ECPs. To provide interim capability, the LCS MM Program will utilize the Support Equipment from the Pre-Production Test Article (PPTA) for the FY 2020 production asset.

The program will complete all developmental efforts associated with the ASW Mission Package and establish IOC on Freedom Variant in FY 2020 based on Freedom variant testing. In addition, the program will complete shipboard integration and embark the ASW MP on Independence variant in FY 2021 in preparation for testing.

Exhibit P-5, Cost Analysis: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 15	P-1 Line Item Number / Title: 1602 / LCS ASW Mission Modules	Item Number / Title [DODIC]: 1 / LCS ASW Mission Modules
ID Code (A=Service Ready, B=Not Service Ready) :	MDAP/MAIS Code:	

Resource Summary	Prior Years	FY 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	24.617	57.758	0.000	57.758
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	0.000	0.000	24.617	57.758	0.000	57.758
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**0.000**	**0.000**	**24.617**	**57.758**	**0.000**	**57.758**
(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 - (AS001) - ASW Escort Module Cost																		
Recurring Cost																		
1.1.1) Variable Depth Sonar(†) (1)	-	-	0.000	-	-	0.000	19,241K	1	19.241	14,802K	2	29.604	-	-	0.000	14,802K	2	29.604
1.1.2) Variable Depth Sonar Engineering Change Proposals(†) (2)	-	-	0.000	-	-	0.000	2,948K	1	2.948	3,007K	2	6.014	-	-	0.000	3,007K	2	6.014
1.1.3) Multi Function Towed Array(†) (3)	-	-	0.000	-	-	0.000	-	-	0.000	4,217K	2	8.434	-	-	0.000	4,217K	2	8.434
1.1.4) Production Engineering	-	-	0.000	-	-	0.000	-	-	2.078	-	-	1.739	-	-	0.000	-	-	1.739
Subtotal: Recurring Cost	-	-	*0.000*	-	-	*0.000*	-	-	*24.267*	-	-	*45.791*	-	-	*0.000*	-	-	*45.791*
Subtotal: Hardware - (AS001) - ASW Escort Module Cost	**-**	**-**	***0.000***	**-**	**-**	***0.000***	**-**	**-**	***24.267***	**-**	**-**	***45.791***	**-**	**-**	***0.000***	**-**	**-**	***45.791***
Hardware - (AS005) - ASW Mission Package Support Equipment and Containers Cost																		
Recurring Cost																		
2.1.1) ASW Support Containers (4)	-	-	0.000	-	-	0.000	-	-	0.000	687,500.00	8	5.500	-	-	0.000	687,500.00	8	5.500
2.1.2) ASW Support Equipment (5)	-	-	0.000	-	-	0.000	-	-	0.000	-	-	6.056	-	-	0.000	-	-	6.056
Subtotal: Recurring Cost	-	-	*0.000*	-	-	*0.000*	-	-	*0.000*	-	-	*11.556*	-	-	*0.000*	-	-	*11.556*

Exhibit P-5, Cost Analysis: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 15	P-1 Line Item Number / Title: 1602 / LCS ASW Mission Modules	Item Number / Title [DODIC]: 1 / LCS ASW Mission Modules
ID Code (A=Service Ready, B=Not Service Ready) :	MDAP/MAIS Code:	

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

Cost Elements	Prior Years			FY 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: Hardware - (AS005) - ASW Mission Package Support Equipment and Containers Cost	-	-	0.000	-	-	0.000	-	-	0.000	-	-	11.556	-	-	0.000	-	-	11.556
Support - (AS900) - Consulting Services Cost																		
3.1) Consulting Services	-	-	0.000	-	-	0.000	-	-	0.350	-	-	0.411	-	-	0.000	-	-	0.411
Subtotal: Support - (AS900) - Consulting Services Cost	-	-	0.000	-	-	0.000	-	-	0.350	-	-	0.411	-	-	0.000	-	-	0.411
Gross/Weapon System Cost	-	-	0.000	-	-	0.000	-	-	24.617	-	-	57.758	-	-	0.000	-	-	57.758

(†) indicates the presence of a P-5a

Footnotes:

(1) The FY20 VDS unit cost reflects the actual contract (N6660415C086) price to buy one VDS in the first option year (ie. first production article). In the 2019 President's Budget request, the unit costs for FY20 were based on a quantity of two in the second option year (ie. second year of production). Based on the revised VDS profile (0 in FY19, 1 in FY20), the contract was restructured. The FY20 unit cost has been updated in the 2021 President's Budget request to the restructured contract price.

(2) This cost element funds Engineering Change Proposals (ECPs) required for the production of the Escort Mission Module's Varible Depth Sonar (VDS). These ECPs include upgrades to support the additional snag load requirement, cyber security enhancements, and other ECPs discovered during testing.

(3) The Multi-Function Towed Array (MFTA) is a Program of Record (PoR) system currently in production. The MFTA is integrated into the AS/SQQ-89A(V)15 and installed aboard Arleigh Burke Class guided missile destroyers and Ticonderoga Class cruisers. Once procured the MFTA is integrated into the ASW Mission Package as part of the Escort Mission Module. The MFTA, paired with the VDS, will provide both a transit speed ASW Escort and Barrier/Area search capability as well as a torpedo alert capability. To provide interim capability, the LCS MM Program will utilize the MFTA from the Pre-Production Test Article (PPTA) for the FY20 production asset.

(4) There are four support containers per ASW MP.

(5) ASW MP Support Equipment funds procure the following items: Variable Depth Sonar (VDS) Crate, VDS tow cable, VDS reel pallet, Multi-Function Towed Array (MFTA) reel pallet, MFTA tow cable reel pallet, Ramp Spanning Structure, Cabinets for Sonobuoys, Expendable Bathythermograph (XBT) probes, spreader bars, and power distribution unit. To provide interim capability, the LCS MM Program will utilize the Support Equipment from the Pre-Production Test Article (PPTA) for the FY20 production asset.

Exhibit P-5a, Procurement History and Planning: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 15	P-1 Line Item Number / Title: 1602 / LCS ASW Mission Modules	Item Number / Title [DODIC]: 1 / LCS ASW Mission Modules

Cost Elements	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) Variable Depth Sonar(†)		2020	Raytheon / Portsmouth, RI	C / FFP	NUWC Newport	Jun 2020	Feb 2022	1	19,241K	Y		
1.1.1) Variable Depth Sonar(†)		2021	Raytheon / Portsmouth, RI	C / FFP	NUWC Newport	Mar 2021	Nov 2022	2	14,802K	Y		
1.1.2) Variable Depth Sonar Engineering Change Proposals		2020	Raytheon / Portsmouth, RI	C / TBD	** NO PCO **	Jun 2020	Jun 2020	1	2,948K	Y		
1.1.2) Variable Depth Sonar Engineering Change Proposals(†)		2021	Raytheon / Portsmouth, RI	C / FFP	NAVSEA	Mar 2021	Mar 2021	2	3,007K	Y		
1.1.3) Multi Function Towed Array(†)		2021	Lockheed Martin / Syracuse, NY	C / FFP	NAVSEA	Jan 2021	Jan 2023	2	4,217K	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 / 01 / 15	**P-1 Line Item Number / Title:** 1602 / LCS ASW Mission Modules	**Item Number / Title [DODIC]:** 1 / LCS ASW Mission Modules

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	
1.1.1) Variable Depth Sonar (1)																															
	1	2020	NAVY	1	0	1									A -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
	1	2021	NAVY	2	0	2																		A -	-	-	-	-	-	-	2
1.1.2) Variable Depth Sonar Engineering Change Proposals (2)																															
	2	2021	NAVY	2	0	2																		A2							0
1.1.3) Multi Function Towed Array (3)																															
	3	2021	NAVY	2	0	2																A -	-	-	-	-	-	-	-	-	2
							OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	

Exhibit P-21, Production Schedule: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 15	**P-1 Line Item Number / Title:** 1602 / LCS ASW Mission Modules	**Item Number / Title [DODIC]:** 1 / LCS ASW Mission Modules

Cost Elements (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	
1.1.1) Variable Depth Sonar (1)																															
	1	2020	NAVY	1	0	1	-	-	-	-	1																				0
	1	2021	NAVY	2	0	2	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	1									0
1.1.2) Variable Depth Sonar Engineering Change Proposals (2)																															
	2	2021	NAVY	2	2	0																									0
1.1.3) Multi Function Towed Array (3)																															
	3	2021	NAVY	2	0	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2									0
							OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	

Exhibit P-21, Production Schedule: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 15	**P-1 Line Item Number / Title:** 1602 / LCS ASW Mission Modules	**Item Number / Title [DODIC]:** 1 / LCS ASW Mission Modules

MFR Ref #	Manufacturer Name - Location	Production Rates (Each / Year)			Procurement Leadtime (Months)							
					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	Raytheon - Portsmouth, RI	1	4	8	3	0	20	20	0	0	20	20
2	Raytheon - Portsmouth, RI	1	4	8	3	0	20	20	0	0	0	0
3	Lockheed Martin - Syracuse, NY	1	4	8	0	0	24	24	0	0	24	24

"A" in the Delivery Schedule indicates the Contract Award Date.
Note: Due to space limitations, quantities in the Exhibit P-21 delivery calendar are truncated and rounded based on the maximum quantity in the calendar as follows. If the maximum quantity is less than or equal to than 9,999, all quantities are shown as each. If the maximum quantity is between 10,000 and 999,999 all quantities are shown in thousands. If the maximum quantity is between 1,000,000 and 999,999,999 all quantities are shown in millions (rounded to the nearest thousand).If the maximum quantity is equal or greater than 1,000,000,000 all quantities are shown in billions (rounded to the nearest million).

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 15	**P-1 Line Item Number / Title:** 1602 / LCS ASW Mission Modules	**Modification Number / Title:** 1 / ASW MP Modifications
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

Resource Summary	Prior Years	FY 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	0.000	4.001	0.000	4.001	8.150	11.856	9.575	1.124	0.000	34.706
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	0.000	0.000	0.000	4.001	0.000	4.001	8.150	11.856	9.575	1.124	0.000	34.706
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**0.000**	**0.000**	**0.000**	**4.001**	**0.000**	**4.001**	**8.150**	**11.856**	**9.575**	**1.124**	**0.000**	**34.706**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)												
Initial Spares *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Dollars)*	-	-	-	-	-	-	-	-	-	-	-	-

Description:

For LCS Freedom variant, seaframe changes include installation of a fairlead and bellmouth thru the starboard transom, and a winch foundation. For LCS Independence variant, seaframe changes include installation of a fairlead and bellmouth through the starboard amah, a winch foundation, and a sheave.

[ASW MP Kits] Funds the modifications to the current LCS designs to accommodate the ASW mission package configuration. The eight (8) LCS ships assigned to the ASW Division will require the installation of the ASW ship Alterations.

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 15	**P-1 Line Item Number / Title:** 1602 / LCS ASW Mission Modules	**Modification Number / Title:** 1 / ASW MP Modifications
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	
Models of Systems Affected: ASW Mission Package	**Modification Type:** Permanent Installation	**Related RDT&E PEs:** 0603596N

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: ASW MP Modifications												
A Kits												
Recurring												
1.1.1) ASW MP Kits - NonOrganic	- / -	- / -	- / -	1 / 1.218	- / -	1 / 1.218	2 / 2.484	3 / 3.800	2 / 2.584	- / -	- / -	8 / 10.086
Subtotal: Recurring	*- / 0.000*	*- / -*	*- / -*	*- / 1.218*	*- / -*	*- / 1.218*	*- / 2.484*	*- / 3.800*	*- / 2.584*	*- / -*	*- / 0.000*	*- / 10.086*
Subtotal: ASW MP Modifications	*- / -*	*- / -*	*- / -*	*1 / 1.218*	*- / -*	*1 / 1.218*	*2 / 2.484*	*3 / 3.800*	*2 / 2.584*	*- / -*	*- / -*	*8 / 10.086*
Subtotal: Procurement, All Modification Items	*- / 0.000*	*- / -*	*- / -*	*- / 1.218*	*- / -*	*- / 1.218*	*- / 2.484*	*- / 3.800*	*- / 2.584*	*- / -*	*- / 0.000*	*- / 10.086*
Support *(All Modification Items)*												
2.1) Engineering Services	- / 0.000	- / 0.000	- / 0.000	1 / 1.238	- / 0.000	1 / 1.238	2 / 2.318	3 / 3.840	1 / 1.102	1 / 1.124	- / -	8 / 9.622
Subtotal: Support	*- / 0.000*	*- / -*	*- / -*	*- / 1.238*	*- / -*	*- / 1.238*	*- / 2.318*	*- / 3.840*	*- / 1.102*	*- / 1.124*	*- / 0.000*	*- / 9.622*
Installation												
Modification Item 1 of 1: ASW MP Modifications	- / 0.000	- / 0.000	- / 0.000	- / 1.545	- / 0.000	- / 1.545	- / 3.348	- / 4.216	- / 5.889	- / 0.000	- / 0.000	- / 14.998
Subtotal: Installation	*- / 0.000*	*- / -*	*- / -*	*- / 1.545*	*- / -*	*- / 1.545*	*- / 3.348*	*- / 4.216*	*- / 5.889*	*- / -*	*- / 0.000*	*- / 14.998*
Total												
Total Cost (Procurement + Support + Installation)	**0.000**	**0.000**	**0.000**	**4.001**	**0.000**	**4.001**	**8.150**	**11.856**	**9.575**	**1.124**	**0.000**	**34.706**

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 15	**P-1 Line Item Number / Title:** 1602 / LCS ASW Mission Modules	**Modification Number / Title:** 1 / ASW MP Modifications
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

Modification Item 1 of 1: ASW MP Modifications

Manufacturer Information

Manufacturer Name: Planning Yard Services	Manufacturer Location: Var
Administrative Leadtime *(in Months)*: 1	Production Leadtime *(in Months)*: 3

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

Installation Information

Method of Implementation: [none specified]:: Installation Name: ASW MP Kits

Installation Cost	Prior Years	FY 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	- / -	- / -	- / -	1 / 1.545	0 / 0.000	1 / 1.545	- / -	- / -	- / -	- / -	0 / 0.000	1 / 1.545
FY 2022	- / -	- / -	- / -	- / -	- / -	- / -	2 / 3.348	- / -	- / -	- / -	0 / 0.000	2 / 3.348
FY 2023	- / -	- / -	- / -	- / -	- / -	- / -	- / -	3 / 4.216	- / -	- / -	0 / 0.000	3 / 4.216
FY 2024	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	2 / 5.889	- / -	0 / 0.000	2 / 5.889
FY 2025	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
To Complete	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
Total	- / -	- / -	- / -	1 / 1.545	0 / 0.000	1 / 1.545	2 / 3.348	3 / 4.216	2 / 5.889	- / -	0 / 0.000	8 / 14.998

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	-	-	-	2	-	-	2	1	-	-	1	1	-	-	-	-	-	-	8
Out	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	2	-	-	2	1	-	-	1	1	-	-	-	-	-	8

Exhibit P-40, Budget Line Item Justification: PB 2021 Navy	Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 01: Ships Support Equipment / BSA 15: Other Ship Support	**P-1 Line Item Number / Title:** 1603 / LCS SUW Mission Modules

ID Code (A=Service Ready, B=Not Service Ready): A	**Program Elements for Code B Items:** N/A	**Other Related Program Elements:** N/A
Line Item MDAP/MAIS Code: 000		

Resource Summary	Prior Years	FY 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)*	141.749	13.025	14.598	24.412	0.000	24.412	25.240	28.858	0.924	0.920	22.070	271.796
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	141.749	13.025	14.598	24.412	0.000	24.412	25.240	28.858	0.924	0.920	22.070	271.796
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**141.749**	**13.025**	**14.598**	**24.412**	**0.000**	**24.412**	**25.240**	**28.858**	**0.924**	**0.920**	**22.070**	**271.796**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)												
Initial Spares *($ in Millions)*	-	1.559	1.419	0.133	-	0.133	0.134	0.810	0.926	0.944	Continuing	Continuing
Flyaway Unit Cost *($ in Dollars)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Dollars)*	-	-	-	-	-	-	-	-	-	-	-	-

Description:

The Surface Warfare (SUW) MP increases firepower and offensive/defensive capabilities against large numbers of highly maneuverable, fast, small craft threats, giving LCS the ability to protect the sea lanes and move a force quickly through a choke point or another strategic waterway. With the SUW MP embarked, LCS has enhanced detection and engagement capability against enemy small craft and similar littoral surface threats.

The SUW MP is composed of the Gun Mission Module (GMM), Maritime Security Module (MSM), Surface-to-Surface Missile Module (SSMM), and an Aviation Module. The SUW MP with the GMM, MSM, and Aviation Module (with the MH-60R) achieved Initial Operational Capability in FY 2014. The GMM comprises two high velocity 30mm cannons to augment the ship's 57mm gun and the MSM supports the embarkation of visit, board, search, and seizure (VBSS) teams.

Eight deployable SUW MPs with GMM & MSM have been delivered to the Fleet and the final two deployable MPs are in productions. An SUW MP is deployable and capable of meeting its focused mission requirements on an LCS only when it includes the full complement of Common Mission Modules Equipment (Line Item Number 1600) and the full complement of mission systems that composed the LCS SUW Mission Module (Line Item Number 1603).

The program has increased the capability of the SUW MP with the addition of the MQ-8 Fire Scout Vertical Take-off Unmanned Aerial Vehicle (VTUAV) for the detection, identification, and classification of surface contacts, and a Surface-to-Surface Missile Module (SSMM) to meet the in-close engagement capability against surface threats. The SSMM achieved IOC in FY 2019 and the first production asset is in production. Each SSMM is comprised of one MK 61 MOD 0 SSMM Enclosure and one MK 210 Launcher Set.

Other Related Budgets: BLIs: OPN 1600, WPN 4221, RDT&E 0603596N

[P40A / SU001 - GUN MODULE]: The Gun Mission Module (GMM) comprises two high velocity 30mm cannons to augment the ship's 57mm gun, and embarked support aircraft (MH-60R helicopter with Hellfire missile and the MQ-8B Fire Scout Vertical Take-off and Landing Tactical Unmanned Aerial Vehicle (VTUAV)) for the detection, identification, and classification of surface contacts.

[P40A / SU002 - SURFACE-TO-SURFACE MISSILE MODULE (SSMM)]: The SSMM provides the LCS ship, the ability to prosecute sea-based and shore-based threats in the littorals using surface-to-surface missiles. The SSMM uses the Army's Longbow Hellfire missile, which is currently in DoD inventory. The SSMM consists MK 61 MOD 0 SSMM Enclosure and MK 210 Launchers. When combined, the SSMM

Exhibit P-40, Budget Line Item Justification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 01: Ships Support Equipment / BSA 15: Other Ship Support	**P-1 Line Item Number / Title:** 1603 / LCS SUW Mission Modules	
ID Code (A=Service Ready, B=Not Service Ready): A	**Program Elements for Code B Items:** N/A	**Other Related Program Elements:** N/A
Line Item MDAP/MAIS Code: 000		

is a launcher system with self-contained technical fire control, electronics, and software for remote operations. The missile design is capable of engaging Fast Attack Craft/Fast In-shore Attack Craft (FAC/FIAC) threats, thereby, providing the LCS a standoff engagement capability.

[P40A / SU003 - MARITIME SECURITY MODULE]: The Maritime Security Module (MSM) provides LCS with the capability to conduct Level II Visit, Board, Search and Seizure (VBSS) operations and the ability to conduct anti-piracy and maritime interdiction missions. This budget line procures hardware for a full MSM that includes two 11 meter Rigid Hull Inflatable Boats (RHIB), two boat cradles, a VBSS Allowance Equipment List (AEL) for communications and tactical equipment, and habitability and support containers. Funding also includes production, assembly, installation and checkout of all mission system components.

[P40A / SU900 - CONSULTING SERVICES]: Provides program management support, engineering and technical support, studies, analysis and evaluation on mission module systems.

Exhibit P-40, Budget Line Item Justification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 01: Ships Support Equipment / BSA 15: Other Ship Support	**P-1 Line Item Number / Title:** 1603 / LCS SUW Mission Modules	
ID Code (A=Service Ready, B=Not Service Ready): A	**Program Elements for Code B Items:** N/A	**Other Related Program Elements:** N/A
Line Item MDAP/MAIS Code: 000		

Exhibits Schedule					Prior Years	FY 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	LCS SUW Mission Packages	P-5a, P-21			- / 141.749	- / 13.025	- / 14.598	- / 24.412	- / -	- / 24.412
P-40	**Total Gross/Weapon System Cost**				**- / 141.749**	**- / 13.025**	**- / 14.598**	**- / 24.412**	**- / 0.000**	**- / 24.412**

*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 supports the procurement of two Surface to Surface Missile Modules (SSMM) which includes: two MK 61 MOD 0 SSMM Enclosures, two SSMM Launcher sets, and the associated production engineering and consulting services.

In the 2020 President's Budget request, funding for the MK 210 Missile Launchers was included within the unit cost of the Surface-to-Surface Missile Module cost element (2.1). In the 2021 President's Budget request, the MK 210 Missile Launchers
were broken out separately from the SSMM Enclosures to provide greater granularity and to differentiate the MK210 procurement efforts on the P5A exhibit from those of the SSMM enclosures.

Exhibit P-40a, Budget Item Justification For Aggregated Items: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 15	P-1 Line Item Number / Title: 1603 / LCS SUW Mission Modules	Aggregated Items Title: LCS SUW Mission Packages

Item Number / Title [DODIC]	ID CD	MDAP/ MAIS Code	Prior Years			FY 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) SU001 - GUN MODULE																				
1.1) MK-50 Gun Module(†)	A		3,735K	18	67.224	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.2) MK-46 Gun Weapon System(†)	A		2,936K	16	46.975	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.3) PRODUCTION ENGINEERING SUPPORT	A		-	-	10.715	-	-	1.039	-	-	1.500	-	-	-	-	-	-	-	-	-
Subtotal: 1) SU001 - GUN MODULE			**-**	**-**	***124.914***	**-**	**-**	***1.039***	**-**	**-**	***1.500***	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
2) SU002 - SURFACE-TO-SURFACE MISSILE MODULE (SSMM)																				
2.1) SURFACE-TO-SURFACE MISSILE MODULE (1)(†)	A		-	-	-	9,479K	1	9.479	9,851K	1	9.851	10,048K	2	20.096	-	-	-	10,048K	2	20.096
2.2) SSMM Launcher Sets (2)(†)	A		-	-	-	1,598K	1	1.598	1,630K	1	1.631	1,663K	2	3.326	-	-	-	1,663K	2	3.326
2.3) PRODUCTION ENGINEERING SUPPORT (3)	A		-	-	-	-	-	0.432	-	-	0.485	-	-	0.775	-	-	-	-	-	0.775
Subtotal: 2) SU002 - SURFACE-TO-SURFACE MISSILE MODULE (SSMM)			**-**	**-**	***0.000***	**-**	**-**	***11.509***	**-**	**-**	***11.967***	**-**	**-**	***24.197***	**-**	**-**	**-**	**-**	**-**	***24.197***
3) SU003 - MARITIME SECURITY MODULE																				
3.1) MARITIME SECURITY MODULE	A		1,125K	10	11.250	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3.2) PRODUCTION ENGINEERING	A		-	-	2.002	-	-	-	-	-	0.490	-	-	-	-	-	-	-	-	-
Subtotal: 3) SU003 - MARITIME SECURITY MODULE			**-**	**-**	***13.252***	**-**	**-**	**-**	**-**	**-**	***0.490***	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
4) SU900 - CONSULTING SERVICES																				
4.1) CONSULTING SERVICES	A		-	-	3.583	-	-	0.477	-	-	0.641	-	-	0.215	-	-	-	-	-	0.215
Subtotal: 4) SU900 - CONSULTING SERVICES			**-**	**-**	***3.583***	**-**	**-**	***0.477***	**-**	**-**	***0.641***	**-**	**-**	***0.215***	**-**	**-**	**-**	**-**	**-**	***0.215***
Total			**-**	**-**	**141.749**	**-**	**-**	**13.025**	**-**	**-**	**14.598**	**-**	**-**	**24.412**	**-**	**-**	**-**	**-**	**-**	**24.412**

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

(†) indicates the presence of a P-5a

Footnotes:

(1) The Surface-to-Surface Missile Module cost element includes the MK 61 MOD 0 SSMM Enclosure.

(2) One SSMM Launcher Set comprises 12 MK 210 Missile Launchers. In the 2020 President's Budget request, funding for the MK 210 Missile Launchers was included within the unit cost of the Surface-to-Surface Missile Module cost element (2.1). In the 2021 President's Budget request, the MK 210 Missile Launchers were broken out separately from the SSMM Enclosures to provide greater granularity and to differentiate the MK210 procurement efforts on the P5A exhibit from those of the SSMM enclosures.

Exhibit P-40a, Budget Item Justification For Aggregated Items: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 15	**P-1 Line Item Number / Title:** 1603 / LCS SUW Mission Modules	**Aggregated Items Title:** LCS SUW Mission Packages

(3) Production Engineering is required in all years of SSMM procurement as well as 24 months after procurement to fund factory acceptance testing in year of delivery.

Exhibit P-5a, Procurement History and Planning: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 15	P-1 Line Item Number / Title: 1603 / LCS SUW Mission Modules	Aggregated Items: LCS SUW Mission Packages

Item Number / Title [DODIC]	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) SU001 - GUN MODULE												
1.1) MK-50 Gun Module(†)		2018	NORTHROP GRUMMAN / BETHPAGE, NEW YORK	C / FFP	NAVSEA	Mar 2018	Nov 2019	2	3,579K	Y		
1.2) MK-46 Gun Weapon System(†)		2018	General Dynamics Land Systems / Sterling Heights, MI	C / FFP	NAVSEA	May 2019	Mar 2021	2	4,657K	Y		
2) SU002 - SURFACE-TO-SURFACE MISSILE MODULE (SSMM)												
2.1) SURFACE-TO-SURFACE MISSILE MODULE (1)(†)		2019	NORTHROP GRUMMAN / BETHPAGE, NEW YORK	C / FFP	NAVSEA	Aug 2019	Feb 2021	1	9,479K	Y		
2.1) SURFACE-TO-SURFACE MISSILE MODULE (1)(†)		2020	NORTHROP GRUMMAN / BETHPAGE, NEW YORK	C / FFP	NAVSEA	Jun 2020	Dec 2021	1	9,851K	Y		
2.1) SURFACE-TO-SURFACE MISSILE MODULE (1)(†)		2021	NORTHROP GRUMMAN / BETHPAGE, NEW YORK	C / FFP	NAVSEA	Mar 2021	Sep 2022	2	10,048K	Y		
2.2) SSMM Launcher Sets (2)		2019	US Army / Huntsville, AL	MIPR	JAMS PO	Aug 2019	Jul 2020	1	1,598K	Y		
2.2) SSMM Launcher Sets (2)		2020	US Army / Huntsville, AL	MIPR	JAMS PO	Feb 2020	Jan 2021	1	1,630K	Y		
2.2) SSMM Launcher Sets (2)		2021	US Army / Huntsville, AL	MIPR	JAMS PO	Feb 2021	Jan 2022	2	1,663K	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 / 01 / 15	**P-1 Line Item Number / Title:** 1603 / LCS SUW Mission Modules	**Aggregated Items:** LCS SUW Mission Packages

Items (Units in Each)							Fiscal Year 2018												Fiscal Year 2019												BALANCE
										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) SU001 - GUN MODULE																															
1.1) MK-50 Gun Module																															
Prior Years Deliveries: 16																															
	17	2018	NAVY	2	0	2						A -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2
1.2) MK-46 Gun Weapon System																															
Prior Years Deliveries: 14																															
	18	2018	NAVY	2	0	2																			A -	-	-	-	-	-	2
2) SU002 - SURFACE-TO-SURFACE MISSILE MODULE (SSMM)																															
2.1) SURFACE-TO-SURFACE MISSILE MODULE (1)																															
	19	2019	NAVY	1	0	1																							A -	-	1
	19	2020	NAVY	1	0	1																									1
	19	2021	NAVY	2	0	2																									2
							OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	

Exhibit P-21, Production Schedule: PB 2021 Navy		**Date:** February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 15	**P-1 Line Item Number / Title:** 1603 / LCS SUW Mission Modules	**Aggregated Items:** LCS SUW Mission Packages

Items (Units in Each)							Fiscal Year 2020												Fiscal Year 2021												BALANCE
										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	
1) SU001 - GUN MODULE																															
1.1) MK-50 Gun Module																															
Prior Years Deliveries: 16																															
	17	2018	NAVY	2	0	2	-	2																							0
1.2) MK-46 Gun Weapon System																															
Prior Years Deliveries: 14																															
	18	2018	NAVY	2	0	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2							0
2) SU002 - SURFACE-TO-SURFACE MISSILE MODULE (SSMM)																															
2.1) SURFACE-TO-SURFACE MISSILE MODULE (1)																															
	19	2019	NAVY	1	0	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1								0
	19	2020	NAVY	1	0	1									A -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
	19	2021	NAVY	2	0	2																		A -	-	-	-	-	-	-	2
							OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	

Exhibit P-21, Production Schedule: PB 2021 Navy		**Date:** February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 15	**P-1 Line Item Number / Title:** 1603 / LCS SUW Mission Modules	**Aggregated Items:** LCS SUW Mission Packages

Items (Units in Each)							Fiscal Year 2022												Fiscal Year 2023												BALANCE
										Calendar Year 2022												Calendar Year 2023									
COO	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) SU001 - GUN MODULE																															
1.1) MK-50 Gun Module																															
Prior Years Deliveries: 16																															
	17	2018	NAVY	2	2	0																									0
1.2) MK-46 Gun Weapon System																															
Prior Years Deliveries: 14																															
	18	2018	NAVY	2	2	0																									0
2) SU002 - SURFACE-TO-SURFACE MISSILE MODULE (SSMM)																															
2.1) SURFACE-TO-SURFACE MISSILE MODULE (1)																															
	19	2019	NAVY	1	1	0																									0
	19	2020	NAVY	1	0	1	-	-	1																						0
	19	2021	NAVY	2	0	2	-	-	-	-	-	-	-	-	-	-	-	2													0
							OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	

Exhibit P-21, Production Schedule: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 15	**P-1 Line Item Number / Title:** 1603 / LCS SUW Mission Modules	**Aggregated Items:** LCS SUW Mission Packages

MFR Ref #	Manufacturer Name - Location	Production Rates (Each / Year)			Procurement Leadtime (Months)							
					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 - BETHPAGE, NEW YORK	1	2	8	0	3	20	23	3	3	18	21
2	General Dynamics Land Systems - Sterling Heights, MI	2	6	18	3	0	22	22	3	0	18	18
3	NORTHROP GRUMMAN - BETHPAGE, NEW YORK	1	2	8	3	3	18	21	3	3	18	21

"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-40, Budget Line Item Justification: PB 2021 Navy	Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 01: Ships Support Equipment / BSA 15: Other Ship Support	**P-1 Line Item Number / Title:** 1604 / LCS In-Service Modernization

ID Code (A=Service Ready, B=Not Service Ready): A	**Program Elements for Code B Items:** N/A	**Other Related Program Elements:** 0603581N
Line Item MDAP/MAIS Code: N/A		

Resource Summary	Prior Years	FY 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)*	133.855	62.526	85.714	121.848	0.000	121.848	190.725	226.976	267.858	295.820	Continuing	Continuing
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	133.855	62.526	85.714	121.848	0.000	121.848	190.725	226.976	267.858	295.820	Continuing	Continuing
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**133.855**	**62.526**	**85.714**	**121.848**	**0.000**	**121.848**	**190.725**	**226.976**	**267.858**	**295.820**	**Continuing**	**Continuing**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)												
Initial Spares *($ in Millions)*	-	-	2.380	2.113	-	2.113	2.134	1.694	-	-	-	8.321
Flyaway Unit Cost *($ in Dollars)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Dollars)*	-	-	-	-	-	-	-	-	-	-	-	-

Description:

Modernization/maintenance efforts support LCS requirements to remain operational and meet mission needs. This line provides funding for mandatory safety design changes, cyber security remediation actions, habitability modifications, and obsolescence and reliability resolution to maintain Littoral Combat Ships (LCS) operational availability and achieve the full expected service life. Funding covers planned CNO availabilities and includes two years of planning costs and long lead time materials (LLTM).

MT001 - Habitability Modification
Habitability Modifications: Modifications to increase the permanent berths to 98 on the FREEDOM and INDEPENDENCE variants for LCS 11, 13-20 during Post Shakedown Availability. The FREEDOM variant change also includes increased refrigeration (chill and freeze), increased dry provision stores, increased potable water capability, increased solid waste storage, and laundry capability, to support the increase in core crew size from 40 to 50 personnel. As a result of Congressional reductions, the modification on INDEPENDENCE variant ships will include only berthing spaces to 98 and dry provision storage capacity.
Non-Rack Hab Modifications: Funding for LCS 5-8 Habitability Mod efforts not completed during the Post Shakedown Availabilities (PSA). These efforts include increased solid waste storage, refrigeration and freezer capacity, reverse osmosis plant capacity and dry provision storage capacity and will be accomplished during the first Selected Restricted Availability (SRA) for each ship.

MT002 - LCS Ships Class Safety Design Changes
Safety modifications fund the redesigned stern ramp back-fit on five FREEDOM variant ships (LCS 11/13/15/17/19) to support 11M Rigid Hull Inflatable Boats (RHIB) operations and the installation of bridge wings for safe and effective operation of four INDEPENDENCE variant ships (LCS 14/16/18/20).

MT003 - LCS Maintenance Modernization
Modernization funds back-fit and fact-of-life obsolescence changes on the Littoral Combat Ships (LCS) to include:
- Mandatory Safety changes eliminate or reduce hazards to ship personnel or components. Safety considerations include human (includes human/system interfaces), toxic/hazardous materials and substances, testing, logistical support, weapons, and munitions/explosives.
- Cyber Security changes protect data and information processed by installed networks and information systems. This includes hardware, software, and firmware that provide integrity, confidentiality, non-repudiation, identification and authentication, and availability of shipboard systems.
- Obsolescence changes are required to prevent systems from becoming incompatible with newer technologies, or to update systems.
- Reliability changes are key to the LCS reaching its full operational capabilities for the entire service life. System and structural reliability modifications will increase the LCS Operational Availability Ao and performance, while decreasing life-cycle maintenance costs.

Exhibit P-40, Budget Line Item Justification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 01: Ships Support Equipment / BSA 15: Other Ship Support	**P-1 Line Item Number / Title:** 1604 / LCS In-Service Modernization	
ID Code (A=Service Ready, B=Not Service Ready): A	**Program Elements for Code B Items:** N/A	**Other Related Program Elements:** 0603581N
Line Item MDAP/MAIS Code: N/A		

- Maintainability changes improve ease of system maintenance by increasing the average time between required maintenance activities and reduce the Mean Time To Repair (MTTR).

The funding for Design Services Allocation begins two years prior to the start of an Availability. The official schedule for CNO Availabilities is maintained in the Navy Data Environment (NDE) and updated by Commander Naval Surface Force Atlantic and Pacific schedulers. The CNO approved schedule for LCS Availabilities included in the requirements is as follows (as of 09 January 2020):

FY20: LCS 6, LCS 8
FY21: LCS 5, LCS 7, LCS 10, LCS 12, LCS 14
FY22: LCS 9, LCS 13, LCS 16
FY23: LCS 5, LCS 6, LCS 8, LCS 11, LCS 15, LCS 17, LCS 18, LCS 20, LCS 22
FY24: LCS 7, LCS 9, LCS 10, LCS 12, LCS 14, LCS 19, LCS 24
FY25: LCS 6, LCS 11, LCS 13, LCS 16, LCS 21, LCS 23, LCS 26, LCS 28

MT004 - LCS Maintenance and Modernization - Lethality and Survivability (L&S)
Provides for hardware procurement and installation of a common Combat Management System (CMS), government furnished equipment and associated technical/logistic support data to upgrade the existing contractor furnished equipment, with associated cybersecurity modifications, that will be back-fit onboard in-service LCS platforms. Funding will also provide for the non-recurring engineering to develop Ship Change Documents (SCDs) necessary to integrate and test the common software baseline for two different LCS Class variants - FREEDOM and INDEPENDENCE. Production support services for these upgrades are phased over a three (3) year span starting two (2) years prior to installation on a per hull basis, with installation to be accomplished during planned CNO Availabilities.

[P40A / FY20 Congressional Add Combat and Comms System Acceleration]: In FY20, Congressional increase of $7M for Combat and Comm Systems Acceleration for initial development of a common combat management system for the LCS Lethality and Survivability (L&S) upgrade efforts. The new combat system baseline - that will be utilized on both LCS variants - is required to integrate program of record weapon systems that are replacing existing contractor furnished equipment. Delivery is predicated on meeting the first ship's installation schedule in 3rd quarter FY23.

Exhibit P-40, Budget Line Item Justification: PB 2021 Navy	Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 01: Ships Support Equipment / BSA 15: Other Ship Support	**P-1 Line Item Number / Title:** 1604 / LCS In-Service Modernization

ID Code (A=Service Ready, B=Not Service Ready): A | **Program Elements for Code B Items:** N/A | **Other Related Program Elements:** 0603581N

Line Item MDAP/MAIS Code: N/A

Exhibits Schedule					Prior Years	FY 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	LCS In-Service Modernization	P-5a			- / 96.604	- / 26.694	- / 14.936	- / -	- / -	- / -
P-3a	1 / LCS Maintenance Modernization (TBD)				- / 37.251	- / 35.832	- / 70.778	- / 78.880	- / 0.000	- / 78.880
P-3a	2 / Combat System Lethality & Survivability Upgrades (TBD)				- / 0.000	- / 0.000	- / 0.000	- / 42.968	- / 0.000	- / 42.968
P-40	**Total Gross/Weapon System Cost**				**- / 133.855**	**- / 62.526**	**- / 85.714**	**- / 121.848**	**- / 0.000**	**- / 121.848**

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-40a	LCS In-Service Modernization	P-5a			- / -	- / -	- / -	- / -	- / -	- / -
P-3a	1 / LCS Maintenance Modernization (TBD)				- / 97.640	- / 71.621	- / 62.863	- / 90.687	- / 0.000	- / 545.552
P-3a	2 / Combat System Lethality & Survivability Upgrades (TBD)				- / 93.085	- / 155.355	- / 204.995	- / 205.133	Continuing	Continuing
P-40	**Total Gross/Weapon System Cost**				**- / 190.725**	**- / 226.976**	**- / 267.858**	**- / 295.820**	**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:
FY 2021 funding for LCS In-Service Modernization continues to support the following efforts:

MT003 - LCS Maintenance Modernization
Littoral Combat Ships (LCS) Maintenance Modernization funding includes Ship Change Documents (SCD) for cyber, reliability, obsolescence, maintainability, and safety efforts/alterations required by the Navy for the LCS Class to maintain Authority to Operate (ATO). The scope/requirements for maintenance modernization include 112 SCD/alterations and 1,051 planned installations (across the FYDP) during LCS CNO availabilities driven/maintained by the NDE, the Navy's centralized database and web-based application used to manage Navy Modernization, Maintenance, Logistics, and Workload/Performance.

NDE monitors/maintains the LCS Class availabilities for their scheduled modification by Hull, by year to include the advanced planning, procurement and installation of all modernization/SCD's to the LCS class. Modernization SCDs include: Total Ship Computing Environment (TSCE) Hardware/Software Upgrade, NAVLAN Server Tech Refresh, SPS-77 Tech Refresh, ES 3601 ESM Tech Refresh, ICMS Software Upgrade, ICMS Upgrade Cyber Fixes, MK-27 Gun Fire Control, TCSE Cyber Security Layer Defense Enhancements, Galley Habitability, USV Integration, Fire Pump Modifications, Isolation Valves in Oil Cooling System, Water mist Firefighting System Mod. Long lead material procurement, advance planning and design services allocation (DSA) need to be funded up to two years in advance of installations in accordance with planning milestones.

MT004 LCS Lethality and Survivability
L&S funding will provide for hardware procurement and installation of a common Combat Management System (CMS) comprised of government furnished equipment, associated technical/logistic support data to upgrade the existing contractor furnished equipment, and associated cybersecurity modifications that will be back-fit onboard in-service LCS platforms. Funding will also provide for the non-recurring engineering to develop Ship Change Documents (SCDs) necessary to integrate and test the common software baseline for two different LCS Class variants - Freedom and Independence. Production support services for these upgrades are phased over a three (3) year span starting two (2) years prior to installation on a per hull basis, with installation to be accomplished during planned CNO Availabilities.

L&S plan upgrades the following systems to Government Furnished Equipment (GFE) resulting one combat system baseline with a common Combat Management System:

Exhibit P-40, Budget Line Item Justification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 01: Ships Support Equipment / BSA 15: Other Ship Support	**P-1 Line Item Number / Title:** 1604 / LCS In-Service Modernization	
ID Code (A=Service Ready, B=Not Service Ready): A	**Program Elements for Code B Items:** N/A	**Other Related Program Elements:** 0603581N
Line Item MDAP/MAIS Code: N/A		

Total Ship Computing Environment, MK20 Electro-Optical Surveillance System, Surface Electronic Warfare Improvement Program, Nulka, MK160 Gun Computer System, Data Links (INDY only), Mode 5 IFF (INDY only) and Navigation systems.

LCS Combat System L&S phasing begins with procurement in FY21 and the first installs will be complete in FY23.
FY21: Procure QTY 2(1 INDY/1 FRE); Install QTY 0(0 INDY/0 FRE)
FY22: Procure QTY 4(2 INDY/2 FRE); Install QTY 0(0 INDY/0 FRE)
FY23: Procure QTY 4(2 INDY/2 FRE); Install QTY 2(1 INDY/1 FRE)
FY24: Procure QTY 4(2 INDY/2 FRE); Install QTY 4(2 INDY/2 FRE)
FY25: Procure QTY 4(2 INDY/2 FRE); Install QTY 4(2 INDY/2 FRE)
Note:
Increased funding from FY22 to FY23 is attributed to Advance Procurement (AP) and Design Service Allocation (DSA) for 10 hulls (FY21-FY23 ships) and installation costs of the first 2 hulls (procured in FY21). Also, in FY23, Navy begins procurement of L&S radar upgrades (AN/SPS-75 (V)3 and AN/SPS-77(V)4).
FY24 is the first year where Navy is both procuring and installing L&S, with radar upgrades, on 4 hulls (AP/DSA for 12 hulls) resulting in increased costs.

In FY21, funding for Over the Horizon (OTH) launcher procurement and installation moved from OPN LI 1604 into OPN LI 5231.
FY21: -$1.4M (Procure QTY 2; Install QTY 0)
FY22: -$2.0M (Procure QTY 3; Install QTY 0)
FY23: -$7.2M (Procure QTY 5; Install QTY 2)
FY24: -$9.1M (Procure QTY 5; Install QTY 3)
FY25: -$13.2M (Procure QTY 5; Install QTY 5)

In FY20, Congressional increase of $7M for Combat and Comm Systems Acceleration for initial development of a common combat management system for the LCS Lethality and Survivability (L&S) upgrade efforts. The new combat system baseline - that will be utilized on both LCS variants - is required to integrate program of record weapon systems that are replacing existing contractor furnished equipment. Delivery is predicated on meeting the first ship's installation schedule in 3rd quarter FY23.

Exhibit P-40a, Budget Item Justification For Aggregated Items: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 15	**P-1 Line Item Number / Title:** 1604 / LCS In-Service Modernization	**Aggregated Items Title:** LCS In-Service Modernization

Item Number / Title [DODIC]	ID CD	MDAP/ MAIS Code	Prior Years			FY 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) MT001 Habitability Modifications																				
1.1) Habitability Mod (FRE Variant)(†)	A		4,916K	1	4.916	3,302K	2	6.605	3,368K	2	6.736	-	-	-	-	-	-	-	-	-
1.2) Habitability Mod, Non-Rack (FRE Variant)(†)	A		-	-	-	2,275K	2	4.550	-	-	-	-	-	-	-	-	-	-	-	-
1.3) Habitability Mod (IND Variant) - Racks Only(†)	A		2,294K	2	4.588	2,394K	2	4.789	-	-	-	-	-	-	-	-	-	-	-	-
1.4) Habitability Mod, Non-Rack (IND Variant)(†)	A		-	-	-	2,275K	2	4.550	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: 1) MT001 Habitability Modifications			**-**	**-**	***9.504***	**-**	**-**	***20.494***	**-**	**-**	***6.736***	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
2) MT002 LCS Ship Class Safety Design Changes																				
2.1) Stern Ramp (FRE Variant)(†)	A		600,000.00	1	0.600	600,000.00	2	1.200	600,000.00	2	1.200	-	-	-	-	-	-	-	-	-
2.2) Bridge Wings (IND Variant) (1)(†)	A		2,500K	1	2.500	2,500K	2	5.000	-	-	-	-	-	-	-	-	-	-	-	-
2.3) FY18 Congressional Add - OTH, IFF Mode 5, BLOS, LWEC	A		-	-	84.000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2.4) FY20 Congressional Add Combat and Comms System Acceleration	A		-	-	-	-	-	-	-	-	7.000	-	-	-	-	-	-	-	-	-
Subtotal: 2) MT002 LCS Ship Class Safety Design Changes			**-**	**-**	***87.100***	**-**	**-**	***6.200***	**-**	**-**	***8.200***	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Total			**-**	**-**	**96.604**	**-**	**-**	**26.694**	**-**	**-**	**14.936**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**

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) MT002 Bridge Wings - Bridge Wing installations, initially planned for PSA, are to be installed during the Industrial Post Delivery Availability (IPDA) period. This safety modification change was requested by the Fleet to be installed prior to ship sailaway.

Exhibit P-5a, Procurement History and Planning: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 15	P-1 Line Item Number / Title: 1604 / LCS In-Service Modernization	Aggregated Items: LCS In-Service Modernization

Item Number / Title [DODIC]	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) MT001 Habitability Modifications												
1.1) Habitability Mod (FRE Variant)		2019	FRE Variant (LM) / Marinette, WI	C / CPAF	NAVSEA	Dec 2018	Sep 2019	2	3,302K	Y		Sep 2018
1.1) Habitability Mod (FRE Variant)		2020	FRE Variant (LM) / Marinette, WI	C / CPAF	NAVSEA	Nov 2019	Aug 2020	2	3,368K	Y		Jul 2019
1.2) Habitability Mod, Non-Rack (FRE Variant)		2019	FRE Variant (LM) / Marinette, WI	C / CPAF	NAVSEA	Apr 2019	Jan 2020	2	2,275K	Y		Dec 2018
1.3) Habitability Mod (IND Variant) - Racks Only		2019	IND Variant (Austal) / Mobile, AL	C / CPAF	NAVSEA	Feb 2019	Oct 2019	2	2,394K	Y		Sep 2018
1.4) Habitability Mod, Non-Rack (IND Variant)		2019	IND Variant (Austal) / Mobile, AL	C / CPAF	NAVSEA	Jun 2019	Feb 2020	2	2,275K	Y		Mar 2019
2) MT002 LCS Ship Class Safety Design Changes												
2.1) Stern Ramp (FRE Variant)		2019	FRE Variant (LM) / Marinette, WI	C / CPAF	NAVSEA	Dec 2018	Sep 2019	2	600,000.00	Y		Oct 2018
2.1) Stern Ramp (FRE Variant)		2020	FRE Variant (LM) / Marinette, WI	C / CPAF	NAVSEA	Nov 2019	Aug 2020	2	600,000.00	Y		Oct 2019
2.2) Bridge Wings (IND Variant) (1)		2019	IND Variant (Austal) / Mobile, AL	C / CPAF	NAVSEA	May 2019	Oct 2019	2	2,500K	Y		Nov 2018

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 15	**P-1 Line Item Number / Title:** 1604 / LCS In-Service Modernization	**Modification Number / Title:** 1 / LCS Maintenance Modernization
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

Resource Summary	Prior Years	FY 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)*	37.251	35.832	70.778	78.880	0.000	78.880	97.640	71.621	62.863	90.687	0.000	545.552
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	37.251	35.832	70.778	78.880	0.000	78.880	97.640	71.621	62.863	90.687	0.000	545.552
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**37.251**	**35.832**	**70.778**	**78.880**	**0.000**	**78.880**	**97.640**	**71.621**	**62.863**	**90.687**	**0.000**	**545.552**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)												
Initial Spares *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Dollars)*	-	-	-	-	-	-	-	-	-	-	-	-

Description:

LCS Maintenance Modernization
Modernization funds back-fit and fact-of-life obsolescence changes on the Littoral Combat Ships (LCS) to include:
- Mandatory Safety changes eliminate or reduce hazards to ship personnel or components. Safety considerations include human (includes human/system interfaces), toxic/hazardous materials and substances, testing, logistical support, weapons, and munitions/explosives.
- Cyber Security changes protect data and information processed by installed networks and information systems. This includes hardware, software, and firmware that provide integrity, confidentiality, non-repudiation, identification and authentication, and availability of shipboard systems.
- Obsolescence changes are required to prevent systems from becoming incompatible with newer technologies, or to update systems.
- Reliability changes are key to the LCS reaching its full operational capabilities for the 35 year service life. System and structural reliability modifications will increase the LCS Operational Availability Ao and performance, while decreasing life-cycle maintenance costs.
- Maintainability changes improve ease of system maintenance by increasing the average time between required maintenance activities and reduce the Mean Time To Repair (MTTR).

The funding for Design Services Allocation begins two years prior to the start of an Availability. The official schedule for CNO Availabilities is maintained in the Navy Data Environment (NDE) and updated by Commander Naval Surface Force Atlantic and Pacific schedulers. The CNO approved schedule for LCS Availabilities included in the requirements is as follows (as of 09 January 2020):

FY20: LCS 6, LCS 8
FY21: LCS 5, LCS 7, LCS 10, LCS 12, LCS 14
FY22: LCS 9, LCS 13, LCS 16
FY23: LCS 5, LCS 6, LCS 8, LCS 11, LCS 15, LCS 17, LCS 18, LCS 20, LCS 22
FY24: LCS 7, LCS 9, LCS 10, LCS 12, LCS 14, LCS 19, LCS 24
FY25: LCS 6, LCS 11, LCS 13, LCS 16, LCS 21, LCS 23, LCS 26, LCS 28

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 15	**P-1 Line Item Number / Title:** 1604 / LCS In-Service Modernization	**Modification Number / Title:** 1 / LCS Maintenance Modernization
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	
Models of Systems Affected: [No Model Specified]	**Modification Type:** TBD	**Related RDT&E PEs:**

Financial Plan	Prior Years	FY 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) LCS Maintenance Modernization - Freedom Variant (Safety) - NonOrganic *Installation 1 of 2*	- / 2.099	- / 2.804	- / 2.049	- / 1.254	- / -	- / 1.254	- / 1.623	- / 0.421	- / 1.345	- / 0.560	- / -	- / 12.155
2.1.1) LCS Maintenance Modernization - Freedom Variant (Obsolescence) - NonOrganic *Installation 1 of 2*	- / 3.775	- / 1.066	- / 1.861	- / 1.387	- / -	- / 1.387	- / 2.583	- / 2.344	- / 2.514	- / 1.361	- / -	- / 16.891
3.1.1) LCS Maintenance Modernization - Freedom Variant (Cyber) - NonOrganic *Installation 1 of 2*	- / 5.526	- / 1.125	- / 1.543	- / 1.124	- / -	- / 1.124	- / 2.617	- / 2.392	- / 2.478	- / 1.341	- / -	- / 18.146
4.1.1) LCS Maintenance Modernization - Freedom Variant (Reliability) - NonOrganic *Installation 1 of 2*	- / 3.731	- / 1.115	- / 1.788	- / 1.381	- / -	- / 1.381	- / 2.838	- / 1.966	- / 1.538	- / 1.621	- / -	- / 15.978
5.1.1) LCS Maintenance Modernization - Freedom Variant (Maintainability) - NonOrganic *Installation 1 of 2*	- / -	- / 1.787	- / 2.183	- / 1.776	- / -	- / 1.776	- / 1.533	- / 1.800	- / 1.743	- / 1.737	- / -	- / 12.559
6.1) LCS Freedom Maintenance Modernization - NonOrganic *Installation 1 of 2*	- / -	- / -	1 / 0.765	2 / 0.890	- / -	2 / 0.890	3 / 1.329	4 / 1.789	4 / 1.801	6 / 2.711	- / -	20 / 9.285
1.1.2) LCS Maintenance Modernization - Independence Variant (Safety) - NonOrganic *Installation 2 of 2*	- / 3.553	- / 2.884	- / 1.543	- / 1.563	- / -	- / 1.563	- / 1.705	- / 0.413	- / 1.393	- / 0.570	- / -	- / 13.624
2.1.2) LCS Maintenance Modernization - Independence Variant (Obsolescence) - NonOrganic *Installation 2 of 2*	- / 6.131	- / 1.026	- / 1.807	- / 1.195	- / -	- / 1.195	- / 2.763	- / 1.917	- / 1.431	- / 1.338	- / -	- / 17.608
3.1.2) LCS Maintenance Modernization - Independence Variant (Cyber) - NonOrganic *Installation 2 of 2*	- / 6.024	- / 1.027	- / 1.545	- / 1.156	- / -	- / 1.156	- / 2.767	- / 1.228	- / 1.575	- / 1.418	- / -	- / 16.740
4.1.2) LCS Maintenance Modernization - Independence Variant (Reliability) - NonOrganic *Installation 2 of 2*	- / 6.412	- / 1.127	- / 1.595	- / 1.169	- / -	- / 1.169	- / 2.948	- / 1.597	- / 1.800	- / 1.612	- / -	- / 18.260
5.1.2) LCS Maintenance Modernization - Independence Variant (Maintainability) - NonOrganic *Installation 2 of 2*	- / -	- / 1.174	- / 1.210	- / 1.210	- / -	- / 1.210	- / 1.765	- / 1.985	- / 1.890	- / 1.756	- / -	- / 10.990
6.2) LCS Independence Maintenance Modernization - NonOrganic *Installation 2 of 2*	- / -	1 / 0.755	3 / 1.429	3 / 1.489	- / -	3 / 1.489	2 / 0.901	4 / 1.850	4 / 1.915	4 / 1.933	- / -	21 / 10.272
Subtotal: Procurement	*- / 37.251*	*- / 15.890*	*- / 19.318*	*- / 15.594*	*- / -*	*- / 15.594*	*- / 25.372*	*- / 19.702*	*- / 21.423*	*- / 17.958*	*- / 0.000*	*- / 172.508*
Installation												
Installation 1 of 2: GRP: Freedom Variant	- / -	- / -	- / 10.265	- / 21.021	- / 0.000	- / 21.021	- / 31.274	- / 31.659	- / 20.640	- / 35.843	- / 0.000	- / 150.702
Installation 2 of 2: GRP: Independence Variant	- / -	- / 19.942	- / 41.195	- / 42.265	- / 0.000	- / 42.265	- / 40.994	- / 20.260	- / 20.800	- / 36.886	- / 0.000	- / 222.342
Subtotal: Installation	*- / 0.000*	*- / 19.942*	*- / 51.460*	*- / 63.286*	*- / -*	*- / 63.286*	*- / 72.268*	*- / 51.919*	*- / 41.440*	*- / 72.729*	*- / 0.000*	*- / 373.044*

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 15	**P-1 Line Item Number / Title:** 1604 / LCS In-Service Modernization	**Modification Number / Title:** 1 / LCS Maintenance Modernization
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	
Models of Systems Affected: [No Model Specified]	**Modification Type:** TBD	**Related RDT&E PEs:**

Financial Plan	Prior Years	FY 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												
Total Cost (Procurement + Support + Installation)	**37.251**	**35.832**	**70.778**	**78.880**	**0.000**	**78.880**	**97.640**	**71.621**	**62.863**	**90.687**	**0.000**	**545.552**

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 15	**P-1 Line Item Number / Title:** 1604 / LCS In-Service Modernization	**Modification Number / Title:** 1 / LCS Maintenance Modernization

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

Installation 1 of 2: GRP: Freedom Variant

Manufacturer Information

Manufacturer Name: VARIOUS | Manufacturer Location: Various

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

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

Installation Information

Method of Implementation: LCS Modernization Freedom Variant:: Installation Name: Freedom Variant

Installation Cost	Prior Years	FY 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 / 10.265	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	1 / 10.265
FY 2021	- / -	- / -	- / -	2 / 21.021	0 / 0.000	2 / 21.021	- / -	- / -	- / -	- / -	0 / 0.000	2 / 21.021
FY 2022	- / -	- / -	- / -	- / -	- / -	- / -	3 / 31.274	- / -	- / -	- / -	0 / 0.000	3 / 31.274
FY 2023	- / -	- / -	- / -	- / -	- / -	- / -	- / -	4 / 31.659	- / -	- / -	0 / 0.000	4 / 31.659
FY 2024	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	4 / 20.640	- / -	0 / 0.000	4 / 20.640
FY 2025	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	6 / 35.843	0 / 0.000	6 / 35.843
To Complete	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
Total	- / -	- / -	1 / 10.265	2 / 21.021	0 / 0.000	2 / 21.021	3 / 31.274	4 / 31.659	4 / 20.640	6 / 35.843	0 / 0.000	20 / 150.702

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	-	-	-	2	-	-	-	3	-	-	-	4	-	-	-	4	-	-	-	6	-	-	-	20
Out	-	-	-	-	-	-	-	1	-	-	-	2	-	-	-	3	-	-	-	4	-	-	-	4	-	-	-	6	-	-	20

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 15	**P-1 Line Item Number / Title:** 1604 / LCS In-Service Modernization	**Modification Number / Title:** 1 / LCS Maintenance Modernization

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

Installation 2 of 2: GRP: Independence Variant

Manufacturer Information

Manufacturer Name: VARIOUS | Manufacturer Location: VARIOUS

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

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

Installation Information

Method of Implementation: LCS Modernization Independence Variant:: Installation Name: Independence Variant

Installation Cost	Prior Years	FY 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 / 19.942	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	1 / 19.942
FY 2020	- / -	- / -	3 / 41.195	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	3 / 41.195
FY 2021	- / -	- / -	- / -	3 / 42.265	0 / 0.000	3 / 42.265	- / -	- / -	- / -	- / -	0 / 0.000	3 / 42.265
FY 2022	- / -	- / -	- / -	- / -	- / -	- / -	2 / 40.994	- / -	- / -	- / -	0 / 0.000	2 / 40.994
FY 2023	- / -	- / -	- / -	- / -	- / -	- / -	- / -	4 / 20.260	- / -	- / -	0 / 0.000	4 / 20.260
FY 2024	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	4 / 20.800	- / -	0 / 0.000	4 / 20.800
FY 2025	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	4 / 36.886	0 / 0.000	4 / 36.886
To Complete	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
Total	- / -	1 / 19.942	3 / 41.195	3 / 42.265	0 / 0.000	3 / 42.265	2 / 40.994	4 / 20.260	4 / 20.800	4 / 36.886	0 / 0.000	21 / 222.342

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	-	-	-	3	-	-	-	3	-	-	-	2	-	-	-	4	-	-	-	4	-	-	-	4	-	-	-	21
Out	-	-	-	1	-	-	-	3	-	-	-	3	-	-	-	2	-	-	-	4	-	-	-	4	-	-	-	4	-	-	21

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 15	**P-1 Line Item Number / Title:** 1604 / LCS In-Service Modernization	**Modification Number / Title:** 2 / Combat System Lethality & Survivability Upgrades
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

Resource Summary	Prior Years	FY 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	0.000	42.968	0.000	42.968	93.085	155.355	204.995	205.133	Continuing	Continuing
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	0.000	0.000	0.000	42.968	0.000	42.968	93.085	155.355	204.995	205.133	Continuing	Continuing
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**0.000**	**0.000**	**0.000**	**42.968**	**0.000**	**42.968**	**93.085**	**155.355**	**204.995**	**205.133**	**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:

Lethality and Survivability funding will provide for hardware procurement and installation of a common Combat Management System (CMS), government furnished equipment and associated technical/logistic support data to upgrade the existing contractor furnished equipment, with associated cybersecurity modifications, that will be back-fit onboard in-service LCS platforms. Funding will also provide for the non-recurring engineering to develop Ship Change Documents (SCDs) necessary to integrate and test the common software baseline for two different LCS Class variants - Freedom and Independence. Production support services for these upgrades are phased over a three (3) year span starting two years prior to installation on a per hull basis, with installation to be accomplished during planned CNO Availabilities. The official schedule and durations for CNO Availabilities is maintained by Commander Naval Surface Force Atlantic and Pacific in the Navy Data Environment (NDE) and is subject to change to accommodate port loading and dry dock availability.

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 15	**P-1 Line Item Number / Title:** 1604 / LCS In-Service Modernization	**Modification Number / Title:** 2 / Combat System Lethality & Survivability Upgrades
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	
Models of Systems Affected: [No Model Specified]	**Modification Type:** TBD	**Related RDT&E PEs:** 0603581N

Financial Plan	Prior Years	FY 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: Combat System Lethality & Survivability - Freedom Variant												
B Kits												
Recurring												
1.1.1) TSCE - Freedom Variant - NonOrganic [2]	- / -	- / -	- / -	1 / 1.344	- / -	1 / 1.344	2 / 2.647	2 / 1.803	2 / 2.378	2 / 2.321	Continuing	Continuing
1.1.2) MK 20 EOSS - NonOrganic	- / -	- / -	- / -	1 / 2.015	- / -	1 / 2.015	2 / 3.970	2 / 2.705	2 / 3.567	2 / 3.481	Continuing	Continuing
1.1.3) SEWIP Blk II Lite - NonOrganic	- / -	- / -	- / -	1 / 5.158	- / -	1 / 5.158	2 / 10.836	2 / 7.518	2 / 9.660	2 / 9.405	Continuing	Continuing
1.1.4) MK 53 NULKA - NonOrganic	- / -	- / -	- / -	1 / 1.469	- / -	1 / 1.469	2 / 2.894	2 / 1.971	2 / 2.600	2 / 2.537	Continuing	Continuing
1.1.5) MK 160 GFCS - NonOrganic	- / -	- / -	- / -	1 / 2.225	- / -	1 / 2.225	2 / 4.383	2 / 2.986	2 / 3.938	2 / 3.843	Continuing	Continuing
1.1.6) SPS-77(V)4 - NonOrganic	- / -	- / -	- / -	- / -	- / -	- / -	- / -	1 / 6.745	2 / 8.895	2 / 8.681	Continuing	Continuing
1.1.7) GFE Navigation Eqiupment - NonOrganic	- / -	- / -	- / -	- / -	- / -	- / -	- / -	2 / 5.049	2 / 6.659	2 / 6.498	Continuing	Continuing
Subtotal: Recurring	*- / 0.000*	*- / -*	*- / -*	*- / 12.211*	*- / -*	*- / 12.211*	*- / 24.730*	*- / 28.777*	*- / 37.697*	*- / 36.766*	*Continuing*	*Continuing*
Subtotal: Combat System Lethality & Survivability - Freedom Variant	*- / -*	*- / -*	*- / -*	*5 / 12.211*	*- / -*	*5 / 12.211*	*10 / 24.730*	*13 / 28.777*	*14 / 37.697*	*14 / 36.766*	*Continuing*	*Continuing*
Modification Item 2 of 2: Combat System Lethality & Survivability Upgrades - Independence Variant												
A Kits												
Recurring												
2.1.1) TSCE - Independence Variant - NonOrganic	- / -	- / -	- / -	1 / 1.733	- / -	1 / 1.733	2 / 3.413	2 / 2.326	2 / 3.067	2 / 2.993	Continuing	Continuing
2.1.2) MK 20 EOSS - NonOrganic	- / -	- / -	- / -	1 / 2.245	- / -	1 / 2.245	2 / 4.423	2 / 3.012	2 / 3.974	2 / 3.878	Continuing	Continuing
2.1.3) SEWIP Blk II Lite - NonOrganic	- / -	- / -	- / -	1 / 5.785	- / -	1 / 5.785	2 / 12.074	2 / 8.361	2 / 10.771	2 / 10.489	Continuing	Continuing
2.1.4) MK 53 NULKA - NonOrganic	- / -	- / -	- / -	1 / 1.637	- / -	1 / 1.637	2 / 3.224	2 / 2.197	2 / 2.897	2 / 2.827	Continuing	Continuing
2.1.5) CDLMS - NonOrganic	- / -	- / -	- / -	1 / 3.614	- / -	1 / 3.614	2 / 7.120	2 / 4.852	2 / 6.399	2 / 6.244	Continuing	Continuing
2.1.6) MK 160 GFCS - NonOrganic	- / -	- / -	- / -	1 / 2.225	- / -	1 / 2.225	2 / 4.383	2 / 2.986	2 / 3.938	2 / 3.843	Continuing	Continuing
2.1.7) UPX 29A - NonOrganic	- / -	- / -	- / -	1 / 1.938	- / -	1 / 1.938	2 / 3.818	2 / 2.602	2 / 3.431	2 / 3.348	Continuing	Continuing
2.1.8) SPS-77(V)4 - NonOrganic	- / -	- / -	- / -	- / -	- / -	- / -	- / -	1 / 6.745	2 / 8.896	2 / 8.681	Continuing	Continuing
2.1.9) GFE Navigation Equipment - NonOrganic	- / -	- / -	- / -	- / -	- / -	- / -	- / -	1 / 5.049	2 / 6.659	2 / 6.498	Continuing	Continuing
Subtotal: Recurring	*- / 0.000*	*- / -*	*- / -*	*- / 19.177*	*- / -*	*- / 19.177*	*- / 38.455*	*- / 38.130*	*- / 50.032*	*- / 48.801*	*Continuing*	*Continuing*
Subtotal: Combat System Lethality & Survivability Upgrades - Independence Variant	*- / -*	*- / -*	*- / -*	*7 / 19.177*	*- / -*	*7 / 19.177*	*14 / 38.455*	*16 / 38.130*	*18 / 50.032*	*18 / 48.801*	*Continuing*	*Continuing*
Subtotal: Procurement, All Modification Items	*- / 0.000*	*- / -*	*- / -*	*- / 31.388*	*- / -*	*- / 31.388*	*- / 63.185*	*- / 66.907*	*- / 87.729*	*- / 85.567*	*Continuing*	*Continuing*

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 15	**P-1 Line Item Number / Title:** 1604 / LCS In-Service Modernization	**Modification Number / Title:** 2 / Combat System Lethality & Survivability Upgrades
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	
Models of Systems Affected: [No Model Specified]	**Modification Type:** TBD	**Related RDT&E PEs:** 0603581N

Financial Plan	Prior Years	FY 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: Combat System Lethality & Survivability - Freedom Variant	- / 0.000	- / 0.000	- / 0.000	- / 5.650	- / 0.000	- / 5.650	- / 14.189	- / 41.724	- / 55.060	- / 56.863	- / 81.235	- / 254.721
Modification Item 2 of 2: Combat System Lethality & Survivability Upgrades - Independence Variant	- / 0.000	- / 0.000	- / 0.000	- / 5.930	- / 0.000	- / 5.930	- / 15.711	- / 46.724	- / 62.206	- / 62.703	- / 92.407	- / 285.681
Subtotal: Installation	*- / 0.000*	*- / -*	*- / -*	*- / 11.580*	*- / -*	*- / 11.580*	*- / 29.900*	*- / 88.448*	*- / 117.266*	*- / 119.566*	*- / 173.642*	*- / 540.402*
Total												
Total Cost (Procurement + Support + Installation)	**0.000**	**0.000**	**0.000**	**42.968**	**0.000**	**42.968**	**93.085**	**155.355**	**204.995**	**205.133**	**Continuing**	**Continuing**

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 15	**P-1 Line Item Number / Title:** 1604 / LCS In-Service Modernization	**Modification Number / Title:** 2 / Combat System Lethality & Survivability Upgrades

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

Modification Item 1 of 2: Combat System Lethality & Survivability - Freedom Variant

Manufacturer Information

Manufacturer Name: VARIOUS | Manufacturer Location: VARIOUS

Administrative Leadtime *(in Months)*: 6 | Production Leadtime *(in Months)*: 18

Dates	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025
Contract Dates			Mar 2021	May 2022	Jun 2023	Jun 2024	Jun 2025
Delivery Dates			Sep 2022	Nov 2023	Dec 2024	Dec 2025	Dec 2026

Installation Information

Method of Implementation: CS L&S Upgrades:: Installation Name: Combat System Lethality & Survivability Upgrades

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	- / -	- / -	- / -	0 / 5.650	0 / 0.000	0 / 5.650	0 / 8.942	1 / 21.302	- / -	- / -	0 / 0.000	1 / 35.894
FY 2022	- / -	- / -	- / -	- / -	- / -	- / -	0 / 5.247	0 / 15.383	2 / 35.820	- / -	0 / 0.000	2 / 56.450
FY 2023	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 5.039	0 / 14.522	2 / 37.415	0 / 0.000	2 / 56.976
FY 2024	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 4.718	0 / 15.088	2 / 34.550	2 / 54.356
FY 2025	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 4.360	2 / 46.685	2 / 51.045
To Complete	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	- / -
Total	- / -	- / -	- / -	0 / 5.650	0 / 0.000	0 / 5.650	0 / 14.189	1 / 41.724	2 / 55.060	2 / 56.863	4 / 81.235	9 / 254.721

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	-	1	1	-	-	4	9
Out	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	2	-	-	2	4	9

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 15	**P-1 Line Item Number / Title:** 1604 / LCS In-Service Modernization	**Modification Number / Title:** 2 / Combat System Lethality & Survivability Upgrades

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

Modification Item 2 of 2: Combat System Lethality & Survivability Upgrades - Independence Variant

Manufacturer Information

Manufacturer Name: VARIOUS | Manufacturer Location: VARIOUS

Administrative Leadtime *(in Months)*: 6 | Production Leadtime *(in Months)*: 18

Dates	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025
Contract Dates			Mar 2021	May 2022	Jun 2023	Jun 2024	Jun 2025
Delivery Dates			Sep 2022	Nov 2023	Dec 2024	Dec 2025	Dec 2026

Installation Information

Method of Implementation: CS L&S Upgrades:: Installation Name: Combat System Lethality & Survivability Upgrades

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	- / -	- / -	- / -	0 / 5.930	0 / 0.000	0 / 5.930	0 / 9.913	1 / 24.019	- / -	- / -	0 / 0.000	1 / 39.862
FY 2022	- / -	- / -	- / -	- / -	- / -	- / -	0 / 5.798	0 / 17.290	2 / 41.171	- / -	0 / 0.000	2 / 64.259
FY 2023	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 5.415	0 / 15.821	2 / 41.061	0 / 0.000	2 / 62.297
FY 2024	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 5.214	0 / 16.800	2 / 39.359	2 / 61.373
FY 2025	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 4.842	2 / 53.048	2 / 57.890
To Complete	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	- / -
Total	- / -	- / -	- / -	0 / 5.930	0 / 0.000	0 / 5.930	0 / 15.711	1 / 46.724	2 / 62.206	2 / 62.703	4 / 92.407	9 / 285.681

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	-	1	-	1	-	4	9
Out	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	1	1	-	-	1	-	5	9

Footnotes:

(2) Installation costs vary between Freedom and Independence LCS Variant ships. Installation costs for both variants span a 3 year period to account for design service allocation, advance procurement, and physical 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 01: Ships Support Equipment / BSA 15: Other Ship Support	**P-1 Line Item Number / Title:** 1611 / Small & Medium UUV

ID Code (A=Service Ready, B=Not Service Ready): B	**Program Elements for Code B Items:** 0604218N, 0604028N	**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	25.601	67.709	2.946	70.655	45.036	30.081	61.422	64.963	Continuing	Continuing
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	0.000	0.000	25.601	67.709	2.946	70.655	45.036	30.081	61.422	64.963	Continuing	Continuing
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**0.000**	**0.000**	**25.601**	**67.709**	**2.946**	**70.655**	**45.036**	**30.081**	**61.422**	**64.963**	**Continuing**	**Continuing**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)												
Initial Spares *($ in Millions)*	-	-	-	2.780	-	2.780	0.805	0.440	3.005	2.876	Continuing	Continuing
Flyaway Unit Cost *($ in Dollars)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Dollars)*	-	-	-	-	-	-	-	-	-	-	-	-

Description:

Small and Medium Unmanned Undersea Vehicles (UUVs) are a segment of the Navy's Family of UUVs defined as having a diameter between 3 inches and 10 inches for small UUVs and a diameter of 10 inches to 21 inches for medium UUVs. The UUVs can be launched from small boats, surface ships, submarines, or larger UUVs and recovered by surface ships and some submarines. Small and Medium UUVs currently provide the warfighter battlespace awareness, Intelligence Preparation of the Operational Environment (IPOE), and Mine Warfare (MIW) capability including buried and volume mine hunting.

Beginning in FY21 and continuing across the FYDP, funding previously included in OPN LI 0977 for procurement of Expeditionary MCM Unmanned Undersea Vehicles (UUVs) is now included in the Small And Medium Class UUV OPN LI 1611.

[P40A / Littoral Battlespace Sensors-Autonomous Unmanned Vehicle (Submarine variant) (LBS-AUV(S)/Razorback)]: LBS-AUV(S)/Razorback provides Intelligence Preparation of the Operational Environment (IPOE) payload capabilities for submarine launched missions. Razorback will be deployed from host submarines via the dry deck shelter (DDS) or from the Torpedo Tube.

In FY21 the LBS-AUV(S)/Razorback program will continue production support and fielding of LBS-AUV(S)/Razorback DDS systems. Funding provides for LBS-AUV(S)/Razorback DDS upgrades/backfits, for implementing Engineering Change Proposals (ECPs) to correct design issues identified during system testing and to incorporate Fleet feedback. Funding provides production oversight and quality assurance support of systems procured in FY18 and FY19, enabling delivery in a service ready condition. Funding also provides for Design Services Allocation (DSA) for the development of alteration installation drawings and documentation, and for the conduct of alteration installation in support of FY21 DDS-equipped submarine missions.

[P5 / MU001 KNIFEFISH (SMCM UUV w/LFBB)]: The Knifefish Surface Mine Countermeasure Unmanned Undersea Vehicle (SMCM UUV) program procures Unmanned Undersea Vehicles to support clandestine mine detection capability against volume and bottom mines including buried mine detection. The Knifefish system is composed of two UUVs, batteries, launch and handling system, and other support equipment.

Beginning in Fiscal Year (FY) 2020, Knifefish (SMCM UUV) was moved from OPN Line Item (LI) 2622 into OPN LI 1611.

Exhibit P-40, Budget Line Item Justification: PB 2021 Navy	Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 01: Ships Support Equipment / BSA 15: Other Ship Support	**P-1 Line Item Number / Title:** 1611 / Small & Medium UUV

ID Code (A=Service Ready, B=Not Service Ready): B	Program Elements for Code B Items: 0604218N, 0604028N	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	Small & Medium UUV				- / 0.000	- / -	- / 10.601	- / 7.981	- / -	- / 7.981
P-5	1 / Small & Medium UUV	P-5a, P-21			- / 0.000	- / 0.000	- / 15.000	- / 59.728	- / 2.946	- / 62.674
P-40	**Total Gross/Weapon System Cost**				**- / 0.000**	**- / 0.000**	**- / 25.601**	**- / 67.709**	**- / 2.946**	**- / 70.655**

*Title represents 1) the Number / Title for Items; 2) the Number / Title [DODIC] for Ammunition; and/or 3) the Number / Title (Modification Type) for Modifications. Title represents the P-40a Title when only the P-40a Summary/Total is shown.

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

Justification:
The Small and Medium UUVs line item was new in FY 2020, combining systems from OPN LI 2622 Minesweeping Replacement (Knifefish) and OPN LI 4226 Meteorological Equipment (LBS-AUV(S)/Razorback).

The FY21 budget procures LBS-AUV(s)/Razorback Upgrades/Backfits and TEMPALT installation support. Additionally, the FY21 budget procures two (2) Knifefish Systems, ancillary equipment, and associated support engineering.

OCO:
ExMCM Unmanned Undersea Vehicle (UUV) Systems - FY2021 Overseas Contingency Operations (OCO) funding for Operation Freedom Sentinel - In Theater (OFS-T) to procure additional MK18 UUV Family of Systems (FoS) to reset from operational losses in theater in support of COMFIFTHFLT Global Force Management (GFM) and Operational Plan (OPLAN) requirements.

Exhibit P-40a, Budget Item Justification For Aggregated Items: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 15	**P-1 Line Item Number / Title:** 1611 / Small & Medium UUV	**Aggregated Items Title:** Small & Medium UUV

Item Number / Title [DODIC]	ID CD	MDAP/ MAIS Code	Prior Years			FY 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) Littoral Battlespace Sensors-Autonomous Unmanned Vehicle (Submarine variant) (LBS-AUV(S)/R [1]																				
1.3) LBS-AUV(S)/ Razorback Upgrades/ Backfits	A		-	-	-	-	-	-	-	-	0.898	-	-	0.925	-	-	-	-	-	0.925
Subtotal: 1) Littoral Battlespace Sensors-Autonomous Unmanned Vehicle (Submarine variant) (LBS-AUV(S)/R			**-**	**-**	***0.000***	**-**	**-**	**-**	**-**	**-**	***0.898***	**-**	**-**	***0.925***	**-**	**-**	**-**	**-**	**-**	***0.925***
2) LBS-AUV(S)/Razorback Production Support																				
2.1) LBS-AUV(S)/ Razorback	A		-	-	-	-	-	-	-	-	1.082	-	-	1.114	-	-	-	-	-	1.114
Subtotal: 2) LBS-AUV(S)/Razorback Production Support			**-**	**-**	***0.000***	**-**	**-**	**-**	**-**	**-**	***1.082***	**-**	**-**	***1.114***	**-**	**-**	**-**	**-**	**-**	***1.114***
3) FMP																				
3.1) LBS-AUV(S)/ Razorback DDS DSA	A		-	-	-	-	-	-	-	-	3.689	-	-	1.506	-	-	-	-	-	1.506
3.2) LBS-AUV(S)/ Razorback Install [2]	A		-	-	-	-	-	-	-	-	4.932	-	-	4.436	-	-	-	-	-	4.436
Subtotal: 3) FMP			**-**	**-**	***0.000***	**-**	**-**	**-**	**-**	**-**	***8.621***	**-**	**-**	***5.942***	**-**	**-**	**-**	**-**	**-**	***5.942***
Total			**-**	**-**	**0.000**	**-**	**-**	**-**	**-**	**-**	**10.601**	**-**	**-**	**7.981**	**-**	**-**	**-**	**-**	**-**	**7.981**

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

Footnotes:

[1] Littoral Battlespace Sensors-Autonomous Undersea Vehicles (Submarine variant) (LBS-AUV(S)/Razorback) are broken out between LBS-AUV(S)/Razorback units and LBS-AUV(S)/Razorback Shipsets. Shipsets consist of the operation van, maintenance van, and launch & recovery system. LBS-AUV(S)/Razorback includes LBS-AUV(S)/Razorback vehicles, LBS-AUV(S)/Razorback Dry-Deck Shelter (DDS) Submarine Support Systems, Torpedo-tube Launch and Recover (TTL&R) Submarine Support Systems and TTL&R SAFECAPs. LBS-AUV(S)/Razorback DDS Submarine Support Systems consist of operational and maintenance equipment including launch, mooring and submarine modification kits for DDS operations. LBS-AUV(S)/Razorback TTL&R Submarine Support Systems consist of operational and maintenance equipment including launch, mooring and submarine modification kits for TTL&R operations. The LBS-AUV(S)/Razorback TTL&R SAFECAP consists of operational and maintenance equipment required to safely ship, stow, and deploy an AUV with lithium batteries from a submarine torpedo tube. FY21 provides funding for technology upgrades and back-fits (additional sensor integration, new battery technology insertion, etc.) Beginning in Fiscal Year (FY) 2020 LBS-AUV(S)/Razorback was moved from OPN Line Item (LI) 4226 into OPN LI 1611.

[2] LBS-AUV(S)/Razorback units installing in FY20 were procured under BLI 4226 (funding in FY20 and out transferred from BLI 4226 to BLI 1611). A single Dry Deck Shelter (DDS), LBS-AUV(S) Razorback install consists of two LBS-AUV(S) vehicles and a DDS submarine support system. A single Torpedo Tube Launch & Recovery (TTL&R) install consists of a TTL&R submarine support system and an equal amount of TTL&R SAFECAPs and LBS-AUV(S) vehicles. The submarine support system and LBS-AUV(S) Razorback installs are based on mission requirements.

Exhibit P-5, Cost Analysis: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 15	P-1 Line Item Number / Title: 1611 / Small & Medium UUV	Item Number / Title [DODIC]: 1 / Small & Medium UUV
ID Code (A=Service Ready, B=Not Service Ready) :	MDAP/MAIS Code:	

Resource Summary	Prior Years	FY 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	15.000	59.728	2.946	62.674
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	0.000	0.000	15.000	59.728	2.946	62.674
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**0.000**	**0.000**	**15.000**	**59.728**	**2.946**	**62.674**
(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 - MU001 KNIFEFISH (SMCM UUV w/LFBB) Cost																		
Recurring Cost																		
1.1.1) KNIFEFISH (SMCM UUV)(†) (3)	-	-	0.000	-	-	0.000	-	-	0.000	11,977K	2	23.954	-	-	0.000	11,977K	2	23.954
1.1.2) Ancillary Equipment	-	-	0.000	-	-	0.000	-	-	0.000	-	-	5.620	-	-	0.000	-	-	5.620
1.1.3) Knifefish Retrofit Kits	-	-	0.000	-	-	0.000	-	-	13.250	-	-	0.000	-	-	0.000	-	-	0.000
Subtotal: Recurring Cost	-	-	*0.000*	-	-	*0.000*	-	-	*13.250*	-	-	*29.574*	-	-	*0.000*	-	-	*29.574*
Non Recurring Cost																		
1.2.1) Production Engineering	-	-	0.000	-	-	0.000	-	-	1.750	-	-	0.550	-	-	0.000	-	-	0.550
Subtotal: Non Recurring Cost	-	-	*0.000*	-	-	*0.000*	-	-	*1.750*	-	-	*0.550*	-	-	*0.000*	-	-	*0.550*
Subtotal: Hardware - MU001 KNIFEFISH (SMCM UUV w/ LFBB) Cost	**-**	**-**	***0.000***	**-**	**-**	***0.000***	**-**	**-**	***15.000***	**-**	**-**	***30.124***	**-**	**-**	***0.000***	**-**	**-**	***30.124***
Hardware - MU002 MK 18 UUV FAMILY OF SYSTEMS Cost																		
Recurring Cost																		
2.1.1) MK 18 MOD 2 UUV(†) (4)	-	-	0.000	-	-	0.000	-	-	0.000	1,105K	15	16.578	-	-	0.000	1,105K	15	16.578
2.1.2) MK 18 MOD 1 UUV(†) (5)	-	-	0.000	-	-	0.000	-	-	0.000	453,000.00	12	5.436	-	-	0.000	453,000.00	12	5.436

Exhibit P-5, Cost Analysis: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 15	P-1 Line Item Number / Title: 1611 / Small & Medium UUV	Item Number / Title [DODIC]: 1 / Small & Medium UUV
ID Code (A=Service Ready, B=Not Service Ready) :	MDAP/MAIS Code:	

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)
2.1.3) MK 18 Auxiliary & Mission Support Equipment(†) (6)	-	-	0.000	-	-	0.000	-	-	0.000	381,500.00	2	0.763	-	-	0.000	381,500.00	2	0.763
2.1.4) MK 18 MOD 2 Advanced Sensor Kits (SSAM)(†) (7)	-	-	0.000	-	-	0.000	-	-	0.000	615,000.00	3	1.845	-	-	0.000	615,000.00	3	1.845
2.1.5) MK 18 MOD 2 Advanced Sensor Kits (ATLAS)(†) (8)	-	-	0.000	-	-	0.000	-	-	0.000	425,000.00	2	0.850	-	-	0.000	425,000.00	2	0.850
2.1.6) MK 18 MOD 2 Retrofit Kits (Inc II)(†) (9)	-	-	0.000	-	-	0.000	-	-	0.000	1,033K	4	4.132	-	-	0.000	1,033K	4	4.132
2.1.7) MK 18 MOD FoS OCO Reset (10)	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000	-	-	2.946	-	-	2.946
Subtotal: Recurring Cost	-	-	*0.000*	-	-	*0.000*	-	-	*0.000*	-	-	*29.604*	-	-	*2.946*	-	-	*32.550*
Subtotal: Hardware - MU002 MK 18 UUV FAMILY OF SYSTEMS Cost	**-**	**-**	***0.000***	**-**	**-**	***0.000***	**-**	**-**	***0.000***	**-**	**-**	***29.604***	**-**	**-**	***2.946***	**-**	**-**	***32.550***
Gross/Weapon System Cost	**-**	**-**	**0.000**	**-**	**-**	**0.000**	**-**	**-**	**15.000**	**-**	**-**	**59.728**	**-**	**-**	**2.946**	**-**	**-**	**62.674**

(†) indicates the presence of a P-5a

Footnotes:

(3) The Small and Medium UUVs line item (LI) is new in FY 2020, realigning systems from OPN LI 2622 Minesweeping Replacement (Knifefish). The Knifefish Surface Mine Countermeasure Unmanned Undersea Vehicle (SMCM UUV) program procures Unmanned Undersea Vehicles to support clandestine mine detection capability against volume and bottom mines, including buried mine detection. The Knifefish system is composed of two UUVs, batteries, launch and handling system, and other support equipment.

(4) CE 2.1.1 MK 18 MOD 2 UUV: Provides for procurement of MK 18 Mod 2 UUVs which will be employed in operational missions in Shallow Water (SW) and Very Shallow Water (VSW) environments including GFM deployments of Expeditionary MCM (ExMCM) Companies ISO C5F and C7F. These UUVs are a critical component of the ExMCM detect to engage sequence for undersea mines. This procurement supports the capacity growth of the Navy's Expeditionary MCM force to 16 companies over the FYDP. These MK 18 Mod 2 UUVs will outfit companies 9-12.

(5) CE 2.1.2 MK 18 MOD 1 UUV: Provides for procurement of MK 18 Mod 1 UUVs which will be employed in operational missions in Shallow Water (SW) and Very Shallow Water (VSW) environments including GFM deployments of Expeditionary MCM (ExMCM) Companies ISO C5F and C7F. These UUVs are a critical component of the ExMCM detect to engage sequence for undersea mines. This procurement supports the capacity growth of the Navy's Expeditionary MCM force to 16 companies over the FYDP. These MK 18 Mod 2 UUVs will outfit companies 9-12.

(6) CE 2.1.3 ExMCM AUXILIARY, SUPPORT, MAINTENANCE, and MISSION SUPPORT EQUIPMENT KITS: The ExMCM Aux Kits includes equipment required for ExMCM deployment, pre-mission planning and post mission analysis. In addition, new auxiliary kits will be procured to support enhancements to legacy fleet systems through engineering changes, system upgrades and obsolescence of legacy auxiliary kits. Items include equipment required to deploy the ExMCM equipment such as transport carts, transport cases, test equipment, pre-mission planning equipment not covered in the support or maintenance kits

Exhibit P-5, Cost Analysis: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 15	P-1 Line Item Number / Title: 1611 / Small & Medium UUV	Item Number / Title [DODIC]: 1 / Small & Medium UUV
ID Code (A=Service Ready, B=Not Service Ready) :	MDAP/MAIS Code:	

The ExMCM Support Kit comprises GETACs, Post-Mission Analysis (PMA) stations, cross-domain modules, and other support items that comprise a portion of the ExMCM system outfitting. The Maintenance Kit comprises special tool kits, calibration equipment, fly away maintenance modules, and other maintenance items. Unit cost of

(7) CE 2.1.4 MK18 MOD 2 ADVANCED SENSOR KITS SMALL SYNTHETIC APERTURE MINEHUNTER (SSAM) SONAR): Provides for procurement of MK 18 Mod 2 UUV Advanced sensor retrofit kits, which will be employed in operational missions in Shallow Water (SW) and Very Shallow Water (VSW) environments including GFM deployments of Expeditionary MCM Companies ISO C5F and C7F. These SSAM retrofit kits add advanced sensor capability to the MK18 Mod 2 which increases area coverage rate and resolution of side scan sonar images of the sea floor which decreases the detect to engage timeline for Expeditionary MCM companies to enable rapid Fleet Maneuver against near peer adversaries.

(8) CE 2.1.5 MK18 MOD 2 ADVANCED SENSOR KITS (ATLAS FORWARD LOOK SONAR): Provides for procurement of UUV MK 18 Mod 2 retrofit kits, which will be employed in operational missions in Shallow Water (SW) and Very Shallow Water (VSW) environments including GFM deployments of Expeditionary MCM Companies ISO C5F and C7F. These ATLAS retrofit kits add advanced sensor capability to the MK 18 Mod 2 system, specifically the ability to detect sea mines and other hazards in the volume of water (vice the sea floor) to enable rapid Fleet Maneuver against near peer adversaries.

(9) CE 2.1.6 MK 18 MOD 2 RETROFIT KITS (INCREMENT II): Provides for procurement of UUV MK 18 Mod 2 retrofit kits, which will be employed in operational missions in Shallow Water (SW) and Very Shallow Water (VSW) environments including GFM deployments of Expeditionary MCM Companies ISO C5F and C7F. These retrofit kits add capability that improves reliability, autonomous features, and automated target recognition capabilities. This upgrade kit reduces the detect to engage timeline for Expeditionary MCM Companies to enable Fleet Maneuver against near peer adversaries.

(10) CE 2.1.7 MK18 FAMILY OF SYSTEMS (FoS) RESET: Reset funding for replacement of UUV losses that occurred during fleet operations in support of COMNAVCENT missions. OCO resources will restore forces to full operational readiness to meet C5F mission needs.

Exhibit P-5a, Procurement History and Planning: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 15	P-1 Line Item Number / Title: 1611 / Small & Medium UUV	Item Number / Title [DODIC]: 1 / Small & Medium UUV

Cost Elements	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) KNIFEFISH (SMCM UUV)(†)		2021	TBD / TBD	C / FPIF	NAVSEA	Jun 2021	Oct 2022	2	11,977K	Y		Sep 2020
2.1.1) MK 18 MOD 2 UUV(†)		2021	VARIOUS / VARIOUS	C / FFP	NSWCIH, MD	Nov 2020	Nov 2021	15	1,105K	Y		
2.1.2) MK 18 MOD 1 UUV(†)		2021	HYDROID / POCASSET, MA	C / FFP	NSWCIH, MD	Nov 2020	Nov 2021	12	453,000.00	Y		
2.1.3) MK 18 Auxiliary & Mission Support Equipment		2021	VARIOUS / VARIOUS	C / FFP	NSWCIH, MD	Mar 2021	Mar 2022	2	381,500.00	Y		
2.1.4) MK 18 MOD 2 Advanced Sensor Kits (SSAM)		2021	VARIOUS / VARIOUS	C / FFP	NIWC PAC	Jan 2021	Jan 2022	3	615,000.00	Y		
2.1.5) MK 18 MOD 2 Advanced Sensor Kits (ATLAS)		2021	VARIOUS / VARIOUS	C / FFP	NIWC PAC	Apr 2021	Apr 2022	2	425,000.00	Y		
2.1.6) MK 18 MOD 2 Retrofit Kits (Inc II)		2021	HYDROID / POCASSET, MA	C / FFP	NUWC NPT	Mar 2021	Mar 2022	4	1,033K	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 / 01 / 15 | **P-1 Line Item Number / Title:** 1611 / Small & Medium UUV | **Item Number / Title [DODIC]:** 1 / Small & Medium UUV

Cost Elements (Units in Each)							Fiscal Year 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) KNIFEFISH (SMCM UUV) (3)																															
	1	2021	NAVY	2	0	2									A -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2
2.1.1) MK 18 MOD 2 UUV (4)																															
	2	2021	NAVY	15	0	15		A -	-	-	-	-	-	-	-	-	-	-	-	6	-	-	-	6	-	3					0
2.1.2) MK 18 MOD 1 UUV (5)																															
	3	2021	NAVY	12	0	12		A -	-	-	-	-	-	-	-	-	-	-	-	6	-	6									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 / 01 / 15	**P-1 Line Item Number / Title:** 1611 / Small & Medium UUV	**Item Number / Title [DODIC]:** 1 / Small & Medium UUV

Cost Elements (Units in Each)							Fiscal Year 2023												Fiscal Year 2024												BALANCE
							Calendar Year 2023												Calendar Year 2024												
OCO	MFR #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2022	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) KNIFEFISH (SMCM UUV) (3)																															
	1	2021	NAVY	2	0	2	1	1																							0
2.1.1) MK 18 MOD 2 UUV (4)																															
	2	2021	NAVY	15	15	0																									0
2.1.2) MK 18 MOD 1 UUV (5)																															
	3	2021	NAVY	12	12	0																									0
							OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	

Exhibit P-21, Production Schedule: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 15	**P-1 Line Item Number / Title:** 1611 / Small & Medium UUV	**Item Number / Title [DODIC]:** 1 / Small & Medium UUV

MFR Ref #	Manufacturer Name - Location	Production Rates (Each / Year)			Procurement Leadtime (Months)							
					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	TBD - TBD	1	6	10	3	8	16	24	1	2	18	20
2	VARIOUS - VARIOUS			TBD	0	0	0	0	0	0	0	0
3	HYDROID - POCASSET, MA			TBD	0	0	0	0	0	0	0	0

"A" in the Delivery Schedule indicates the Contract Award Date.
Note: Due to space limitations, quantities in the Exhibit P-21 delivery calendar are truncated and rounded based on the maximum quantity in the calendar as follows. If the maximum quantity is less than or equal to than 9,999, all quantities are shown as each. If the maximum quantity is between 10,000 and 999,999 all quantities are shown in thousands. If the maximum quantity is between 1,000,000 and 999,999,999 all quantities are shown in millions (rounded to the nearest thousand).If the maximum quantity is equal or greater than 1,000,000,000 all quantities are shown in billions (rounded to the nearest million).

Exhibit P-40, Budget Line Item Justification: PB 2021 Navy	Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 01: Ships Support Equipment / BSA 16: Logistic Support	**P-1 Line Item Number / Title:** 1610 / LSD Midlife & Modernization

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

Line Item MDAP/MAIS Code: N/A

Resource Summary	Prior Years	FY 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)*	723.334	4.784	40.269	0.000	0.000	0.000	0.000	0.000	0.000	0.000	-	768.387
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	723.334	4.784	40.269	0.000	0.000	0.000	0.000	0.000	0.000	0.000	-	768.387
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**723.334**	**4.784**	**40.269**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**-**	**768.387**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)												
Initial Spares *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Flyaway Unit Cost *($ in Dollars)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Dollars)*	-	-	-	-	-	-	-	-	-	-	-	-

Description:

Modernized LSD 41/49 Class ships transport and launch amphibious craft and vehicles with their crews and embarked personnel in amphibious assault operations. Supporting amphibious operations include landings via Landing Craft, Air Cushion (LCAC), conventional landing craft, and helicopters, onto hostile shores.

[P40A / ST003 LSD Hull, Mechanical and Electrical Condition System]: The LSD Hull, Mechanical and Electrical (HM&E) Condition System implements HM&E principles and would implement a Defense-in-Depth Functional Implementation Architecture (DFIA) and meet the requirements of the standards released by the Information Assurance Technical Authority Board (IA TAB) across all the HM&E systems deploying the ability to protect, detect, react, and restore in a contested environment. The HM&E Condition System will monitor the signals on the HM&E network, both between HM&E systems and also those coming from other functional domains.

[P40A / ST002 - Propeller Blades & PLMU]: This SHIPALT replaces the existing Propeller Blades with higher efficiency blades and installs Propulsion Load Management Units (PLMU) that result in fuel savings and engine maintenance reduction as well as operational
benefits. Only 9 LSDs will require this SHIPALT as part of the Midlife Program.

[P40A / ST002 - Generators & Elect Distribution]: This SHIPALT replaces the generator on the Ship Service Diesel Generators (SSDG) with a higher wattage version and increased electric distribution capability for shore power, switchboard and load centers. This SHIPALT provides significant Return on Investment (ROI) through improved reliability and maintainability of electrical ship systems/equipment versus the obsolete and maintenance intensive equipment. Also, additional electrical plant loads will improve efficient operation of the currently under-loaded SSDGs and contribute to the ROI through reduced maintenance costs for the SSDGs.

[P40A / ST002 - Low Pressure Air Compressor]: This Ship Change replaces the Low-Pressure Air Compressors (LPAC) with modern, oil-free compressors. Parts obsolescence is a rapidly growing and more costly problem on these maintenance intensive compressors. This Ship Change provides Return On Investment (ROI) through improved reliability and maintainability of LPACs and reduced maintenance by elimination of oil contamination of pneumatic controls components (new compressors are oil free). In addition, the new compressors will provide significant readiness improvement through increased reliability of Vital, low-pressure air supply to Vital combat systems and the main propulsion controls.

[P40A / ST002 - Steering Control System]: This SHIPALT replaces the analog Helm and Lee Helm Steering Consoles and equipment with an electronic, computerized Steering Control System (SCS) that integrates various navigation parameters, such as location (latitude, longitude) from GPS as well as pitch, roll, speed, heading, and wind. SCS will be designed to integrate with Electronic Chart Display and

Exhibit P-40, Budget Line Item Justification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 01: Ships Support Equipment / BSA 16: Logistic Support	**P-1 Line Item Number / Title:** 1610 / LSD Midlife & Modernization	
ID Code (A=Service Ready, B=Not Service Ready): A	**Program Elements for Code B Items:** N/A	**Other Related Program Elements:** N/A
Line Item MDAP/MAIS Code: N/A		

Information Systems-Navy (ECDIS-N) digital nautical charts. The existing Bridge control system was designed in the late 1970s and is near the end of its useful service life. Parts obsolescence is a rapidly growing and costlier problem on this maintenance intensive control system. The IBS also provides significantly enhanced operational and monitoring capabilities as well as real-time Navigation data. This system will reduce workload, provide significant readiness improvement, improve safety and provide cost avoidance.

[P3A - 2 / ST002 - LSD Flight Deck Thermal Management System]: Provides Flight Deck Thermal Management System (FDTMS) on the flight deck to mitigate damage resulting from MV-22 vertical take off/ landing (VTOL) flight operations.

[P3A - 3 / ST002 - LSD Ballast Control Console]: Provides upgrades to the existing Ballast Control Consoles (BCS) and replace legacy BCS with a Programmable Logic Controller (PLC) based digital, networked system.

Exhibit P-40, Budget Line Item Justification: PB 2021 Navy	**Date:** February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 01: Ships Support Equipment / BSA 16: Logistic Support	**P-1 Line Item Number / Title:** 1610 / LSD Midlife & Modernization

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

Line Item MDAP/MAIS Code: N/A

Exhibits Schedule					Prior Years	FY 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	LSD Midlife				- / 720.408	- / 1.419	- / 36.313	- / -	- / -	- / -
P-3a	2 / ST002 - LSD Flight Deck Thermal Management System (TBD)				- / 1.498	- / 1.311	- / 0.000	- / 0.000	- / 0.000	- / 0.000
P-3a	3 / ST002 - LSD Ballast Control Console (TBD)				- / 1.428	- / 2.054	- / 3.956	- / 0.000	- / 0.000	- / 0.000
P-40	**Total Gross/Weapon System Cost**				**- / 723.334**	**- / 4.784**	**- / 40.269**	**- / 0.000**	**- / 0.000**	**- / 0.000**

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	LSD Midlife				- / -	- / -	- / -	- / -	- / -	- / -
P-3a	2 / ST002 - LSD Flight Deck Thermal Management System (TBD)				- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 2.809
P-3a	3 / ST002 - LSD Ballast Control Console (TBD)				- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 7.438
P-40	**Total Gross/Weapon System Cost**				**- / 0.000**	**- / 0.000**	**- / 0.000**	**- / 0.000**	**- / -**	**- / 768.387**

*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 decrease is associated with LSD 42, LSD 50, LSD 52 Modernization no longer occurring and LSD 41 no longer being inducted into Phase Modernization as all associated modernization within this budget line item will no longer occur.

Exhibit P-40a, Budget Item Justification For Aggregated Items: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 16	P-1 Line Item Number / Title: 1610 / LSD Midlife & Modernization	Aggregated Items Title: LSD Midlife

Item Number / Title [DODIC]	ID CD	MDAP/ MAIS Code	Prior Years			FY 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) ST001 LSD MOD C4I System																				
1.1) Automated Digital Network System (ADNS)	A		-	-	0.497	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.2) Battle Force Tactical Network (BFTN)	A		-	-	0.220	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.3) Digital Modular Radio (DMR)	A		-	-	1.151	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.4) Global Broadcast System (GBS)	A		-	-	0.383	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.5) Information Systems Security Program (KMI and KW46)	A		-	-	0.110	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.6) Naval Modular Automated Communications System (NAVMACS)	A		-	-	0.301	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.7) Advanced Digital Antenna Production (ADAP)	A		-	-	0.425	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.8) Navy Multiband Terminal (NMT)	A		-	-	7.635	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.9) CRYPTO	A		-	-	0.082	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.10) CANES	A		-	-	5.000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.11) VINSON/ ANDVT Cryptographic Modernization (VACM)	A		-	-	0.325	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.12) LSD MOD Interior Communications (IC) System	A		-	-	3.300	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: 1) ST001 LSD MOD C4I System			**-**	**-**	***19.429***	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
2) ST5IN LSD Installation / DSA / AIT																				
2.1) LSD 46 FY18 EDSRA Installation / AIT	A		-	-	56.834	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2.2) LSD 46 C4I Systems AIT	A		-	-	10.000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2.3) LSD 46 Special Selected Restricted Availability (SSRA)	A		-	-	9.400	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Exhibit P-40a, Budget Item Justification For Aggregated Items: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 16	P-1 Line Item Number / Title: 1610 / LSD Midlife & Modernization	Aggregated Items Title: LSD Midlife

Item Number / Title [DODIC]	ID CD	MDAP/ MAIS Code	Prior Years Unit Cost ($)	Prior Years Qty (Each)	Prior Years Total Cost ($ M)	FY 2019 Unit Cost ($)	FY 2019 Qty (Each)	FY 2019 Total Cost ($ M)	FY 2020 Unit Cost ($)	FY 2020 Qty (Each)	FY 2020 Total Cost ($ M)	FY 2021 Base Unit Cost ($)	FY 2021 Base Qty (Each)	FY 2021 Base Total Cost ($ M)	FY 2021 OCO Unit Cost ($)	FY 2021 OCO Qty (Each)	FY 2021 OCO Total Cost ($ M)	FY 2021 Total Unit Cost ($)	FY 2021 Total Qty (Each)	FY 2021 Total Total Cost ($ M)
2.4) LSD 46 Design Services Allocation (DSA)	A		-	-	8.728	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: 2) ST5IN LSD Installation / DSA / AIT			**-**	**-**	***84.962***	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
3) ST001 - LSD MOD Combat System																				
3.1) LSD MOD CS Conjunctive Alterations	A		-	-	7.456	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: 3) ST001 - LSD MOD Combat System			**-**	**-**	***7.456***	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
4) ST001 - LSD Mod HM&E Modernization																				
4.1) Canned Lube Oil Pump	A		-	-	16.543	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4.2) LSD MOD HM&E Conjunctive Alterations	A		-	-	15.023	-	-	-	-	-	34.554	-	-	-	-	-	-	-	-	-
Subtotal: 4) ST001 - LSD Mod HM&E Modernization			**-**	**-**	***31.566***	**-**	**-**	**-**	**-**	**-**	***34.554***	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
5) ST003 LSD Hull, Mechanical and Electrical Condition System																				
5.1) LSD HM&E Condition System	A		-	-	-	-	-	-	-	-	1.759	-	-	-	-	-	-	-	-	-
Subtotal: 5) ST003 LSD Hull, Mechanical and Electrical Condition System			**-**	**-**	***0.000***	**-**	**-**	**-**	**-**	**-**	***1.759***	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
6) Other Prior Year Costs (1)																				
6.1) All Other Prior Year Costs	A		-	-	459.382	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6.2) ST002 - Propeller Blades & PLMU	A		-	-	20.990	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6.3) ST002 - Generators & Elect Distribution	A		-	-	21.770	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6.4) ST002 - Low Pressure Air Compressor	A		-	-	18.809	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6.5) ST002 - Steering Control System	A		-	-	54.308	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6.6) ST002 - LSD Deck Crane	A		-	-	1.736	-	-	0.925	-	-	-	-	-	-	-	-	-	-	-	-
6.7) ST002 - Ballast Control Console	A		-	-	-	-	-	0.494	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: 6) Other Prior Year Costs			**-**	**-**	***576.995***	**-**	**-**	***1.419***	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Total			**-**	**-**	**720.408**	**-**	**-**	**1.419**	**-**	**-**	**36.313**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**

Exhibit P-40a, Budget Item Justification For Aggregated Items: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 16	**P-1 Line Item Number / Title:** 1610 / LSD Midlife & Modernization	**Aggregated Items Title:** LSD Midlife

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

Footnotes:

(1) Accounting entry for prior year funds of all other cost elements no longer funded.

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 16	**P-1 Line Item Number / Title:** 1610 / LSD Midlife & Modernization	**Modification Number / Title:** 2 / ST002 - LSD Flight Deck Thermal Management System
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)*	1.498	1.311	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	2.809
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	1.498	1.311	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	2.809
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**1.498**	**1.311**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**2.809**
(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 Flight Deck Thermal Management System (FDTMS) (SCD 16657) Procures and installs heat mitigating, two layer, composite panels that provides heat protection to the helicopter deck to mitigate damage resulting from MV-22 vertical take off/landing (VTOL) flight operations.

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 16	**P-1 Line Item Number / Title:** 1610 / LSD Midlife & Modernization	**Modification Number / Title:** 2 / ST002 - LSD Flight Deck Thermal Management System
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	
Models of Systems Affected: [No Model Specified]	**Modification Type:** TBD	**Related RDT&E PEs:**

Financial Plan	Prior Years	FY 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: ST002 - LSD Flight Deck Thermal Management System												
B Kits												
Recurring												
1.1.1) LSD Flight Deck Thermal Management System* - NonOrganic	1 / 1.078	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	1 / 1.078
Subtotal: Recurring	*- / 1.078*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / 0.000*	*- / 1.078*
Subtotal: ST002 - LSD Flight Deck Thermal Management System	*1 / 1.078*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*1 / 1.078*
Subtotal: Procurement, All Modification Items	*- / 1.078*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / 0.000*	*- / 1.078*
Support *(All Modification Items)*												
2.1) Non-recurring Engineering	- / 0.256	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / 0.256
Subtotal: Support	*- / 0.256*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / 0.000*	*- / 0.256*
Installation												
Modification Item 1 of 1: ST002 - LSD Flight Deck Thermal Management System	- / 0.164	- / 1.311	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 1.475
Subtotal: Installation	*- / 0.164*	*- / 1.311*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / 0.000*	*- / 1.475*
Total												
Total Cost (Procurement + Support + Installation)	**1.498**	**1.311**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**2.809**

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 16	**P-1 Line Item Number / Title:** 1610 / LSD Midlife & Modernization	**Modification Number / Title:** 2 / ST002 - LSD Flight Deck Thermal Management System

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

Modification Item 1 of 1: ST002 - LSD Flight Deck Thermal Management System

Manufacturer Information

Manufacturer Name: Cellular Materials International (CMI) | Manufacturer Location: Virginia

Administrative Leadtime *(in Months)*: 3 | Production Leadtime *(in Months)*: 12

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

Installation Information

Method of Implementation: [none specified]:: Installation Name: LSD Flight Deck Thermal Management System*

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	0 / 0.164	1 / 1.311	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	1 / 1.475
FY 2019	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2020	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2021	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2022	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2023	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2024	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2025	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
To Complete	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
Total	0 / 0.164	1 / 1.311	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	1 / 1.475

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
Out	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 16	**P-1 Line Item Number / Title:** 1610 / LSD Midlife & Modernization	**Modification Number / Title:** 3 / ST002 - LSD Ballast Control Console
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)*	1.428	2.054	3.956	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	7.438
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	1.428	2.054	3.956	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	7.438
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**1.428**	**2.054**	**3.956**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**7.438**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)												
Initial Spares *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Dollars)*	-	-	-	-	-	-	-	-	-	-	-	-

Description:

SCD 10828 - Ballast Control Console (BCS) - Provides upgrades to the existing Ballast Control Consoles (BCS) and replaces legacy BCS with a Programmable Logic Controller (PLC) based digital, networked system. This mission and safety critical SCD addresses system degradation due to obsolescence issues, extensive downtime and reduced system capability/reliability. The system is currently operating in a degraded capacity and requires immediate replacement.

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 16	**P-1 Line Item Number / Title:** 1610 / LSD Midlife & Modernization	**Modification Number / Title:** 3 / ST002 - LSD Ballast Control Console
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	
Models of Systems Affected: [No Model Specified]	**Modification Type:** TBD	**Related RDT&E PEs:**

Financial Plan	Prior Years	FY 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: ST002 - LSD Ballast Control Console												
B Kits												
Recurring												
1.1.1) BALLAST CONTROL CONSOLE UPGRADE* - NonOrganic	- / -	1 / 1.455	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	1 / 1.455
Subtotal: Recurring	*- / 0.000*	*- / 1.455*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / 0.000*	*- / 1.455*
Subtotal: ST002 - LSD Ballast Control Console	*- / -*	*1 / 1.455*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*1 / 1.455*
Subtotal: Procurement, All Modification Items	*- / 0.000*	*- / 1.455*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / 0.000*	*- / 1.455*
Support *(All Modification Items)*												
2.1) System Engineering/NonRecurring Engineering	- / 1.180	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / 1.180
Subtotal: Support	*- / 1.180*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / 0.000*	*- / 1.180*
Installation												
Modification Item 1 of 1: ST002 - LSD Ballast Control Console	- / 0.248	- / 0.599	- / 3.956	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 4.803
Subtotal: Installation	*- / 0.248*	*- / 0.599*	*- / 3.956*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / 0.000*	*- / 4.803*
Total												
Total Cost (Procurement + Support + Installation)	**1.428**	**2.054**	**3.956**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**7.438**

Exhibit P-3a, Individual Modification: PB 2021 Navy		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 01 / 16	**P-1 Line Item Number / Title:** 1610 / LSD Midlife & Modernization	**Modification Number / Title:** 3 / ST002 - LSD Ballast Control Console
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

Modification Item 1 of 1: ST002 - LSD Ballast Control Console

Manufacturer Information

Manufacturer Name: Hexagon	Manufacturer Location: Huntsville, AL
Administrative Leadtime *(in Months)*: 3	Production Leadtime *(in Months)*: 12

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

Installation Information

Method of Implementation: [none specified]:: Installation Name: BALLAST CONTROL CONSOLE 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	0 / 0.248	0 / 0.599	1 / 3.956	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	1 / 4.803
FY 2020	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2021	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2022	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2023	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2024	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2025	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
To Complete	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
Total	0 / 0.248	0 / 0.599	1 / 3.956	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	1 / 4.803

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
Out	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1